Fall 11-2-2016

From Recovery to Discovery: Ethnic American Science Fiction and (Re)Creating the Future

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ETHNIC AMERICAN SCIENCE FICTION AND (RE)CREATING THE FUTURE

by

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DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY
ENGLISH

The University of New Mexico
Albuquerque, New Mexico

DECEMBER 2016

ACKNOWLEDGEMENTS

Part of Chapter 3 was originally published as "From Code to Codex: Tricksterizing the Digital Divide in Earnest Hogan's *Smoking Mirror Blues*" in Volume 42 Issue 2 of *Aztlán: A Journal of Chicano Studies* special dossier on Latina/o speculative fiction, film and popular culture.

A revised version of Chapter 2 is forthcoming as "Beyond Critical Mass: Atomic Fission and Native Science Fiction" in Grace Dillon and Brian K. Hudson's edited collection *Imagining the Future Together: Critical Essays on Indigenous Science Fiction*.

I want to thank my family for their decade of patience while I did this whole graduate school thing.

Thank you Dr. Jesse Alemán for your unerring direction, mentoring, and faith. Your guidance has made this project what it is.

Thanks to the UNM Mellon Foundation for providing funding and mentoring for the last year and a half of the project, especially to Dr. Adriana Ramírez de Arellano for your advocacy.

Thanks to my dissertation committee, past and present, for providing assistance: Dr. Catherine Ramírez for your work with the project and my professionalization, Dr. Kadeshia Matthews for (so many) years of support, Dr. Bernadine Hernández for coming in at the 11th hour and providing helpful feedback, and Professor Gerald Vizenor for pointing the way and staying far longer into your retirement than you probably should have.

I'd also like to thank my fellow students, especially Annie, Natalie, Stephanie, and Jen for being there over and over (and over).

And a final thanks to my partner for helping me through the home stretch.

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ABSTRACT

My project assesses how science fiction by writers of color challenges the scientific racism embedded in genetics, nuclear development, digital technology, and molecular biology, demonstrating how these fields are deployed disproportionately against people of color. By contextualizing current scientific development with its often overlooked history and exposing the full life cycle of scientific practices and technological changes, ethnic science fiction authors challenge science's purported objectivity and make room for alternative scientific methods steeped in Indigenous epistemologies. The first chapter argues that genetics is deployed disproportionally against black Americans, from the pseudo-scientific racial classifications of the nineteenth century and earlier through the current obsession with racially-tailored medicine and the human genome. I argue that the fiction of Octavia Butler, Tananarive Due, and Andrea Hairston reveals the continuing scientific racialization of black Americans and complicates questions of humanity that still rise from genetic typing and medical testing. Chapter 2 interrogates the nuclear cycle, revealing what has been erased—the mining of uranium on the Navajo Nation, nuclear testing on Paiute and Shoshone land in the United States, similar tests on

Indigenous soil in Kazakhstan, and nuclear waste buried in the New Mexico and Texas deserts. I contend Leslie Marmon Silko, William Saunders, and Stephen Graham Jones reveal the destructive influence of the buried nuclear cycle on Indigenous people globally, as they posit an Indigenous scientific method with which to fight through their novels. The third chapter exposes how the Latina/o digital divide in the United States elides a more disturbing multinational divide between those who mine for, assemble, and recycle the products that create the digital era and those with access to those products. From mining for rare earth elements in the Congo to assembling electronics in Mexico's maquiladoras and "recycling" used electronics across the developing world, the novels of Alejandro Morales, Rosaura Sánchez and Beatrice Pita, and Ernest Hogan reveal the hidden price of the digital world and demand representation—digital, scientific, and historical. Chapter 4 builds on current discussions of Alex Rivera's film *Sleep Dealer* to argue that Chicana/o and Indigenous authored science fiction films reveal how the global harvesting of natural resources has expanded to include life itself and organisms' interiors. Films and other visual productions by Robert Rodriguez, Reagan Gomez, Federico Heller, Jose Nestor Marquez, Rodrigo Hernández Cruz, and Nanobah Becker predict biocolonialism's expansion as they create worlds reflecting current practices where life forms become no more than patented, mechanized resources for neocolonial capitalist production and consumption.

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Our image of evil space aliens surely derives from a fear that they will treat us just as we treat one another.

-Neil deGrasse Tyson, *Twitter.*

It's hard to be an artist and not be an activist. Not if you are going to tell any kind of truth about what you see in the world. Whether it's art that I'm making or whether it's political activism, fighting for voting rights, it's all essentially the same thing. It's about fighting for that space, expanding outward, fighting against this extremely limited space that we are confined to.

I think the power of specifically science fiction/horror, and why that is a genre that we continue to break new ground in, is because it is essentially about the present. Horror and science fiction are all about examining the present and then questioning it, and pushing beyond that. So much of limiting the space we have access to is about getting us to stop thinking beyond that current moment.

-Bree Newsome, from *Octavia E. Butler Celebration of Arts and Activism*

Introduction: Science, Fiction, and Race

Historically, race and science in the Americas have an undeniably problematic relationship—from eugenic biology "proving" black people are less intelligent and more animalistic than whites to the technological revolution exploiting people of color's bodies and environments to create "advancements" that remain inaccessible to those who bear the brunt of their development. Science fiction, perhaps science's literary avatar, often replicates this abusive relationship. In her introduction to *So Long Been Dreaming*, Nalo Hopkinson relates an anecdote about meeting a black critic who asked her *the* question she was unprepared to face: is writing in science fiction, for a black person, trying to dismantle the "massa's house" with the "massa's tools?" (7). Hopkinson freezes, not ready to defend herself from within "the unholy marriage of race consciousness and

science fiction sensibility" (7). Finally, the critic answers himself, replying that he believes the history of literary colonization gave people of color the tools of reading, writing, and analyzing, and "now, they're our tools too," a proclamation that allowed Hopkinson "to breathe again" (8). Yet, what lies unspoken in this conversation, wedged between Hopkinson's hard, contemplative silence and the return of her breath, is the relationship between science fiction and ethnic subjects and, by extension, the relationship between science and race.

Science fiction traditionally exists as both a marginalizing literature and a literature of the marginalized, a duality that reflects a larger set of contradictions that permeate the genre. Erika Hoagland and Reema Sarwal note that "science fiction is a genre that feeds off conflicting impulses—of exploration and xenophobia, conquest and exchange, and technophilia and technophobia, to name a few" (9). Even as science fiction offers a genre that is "inherently moralistic and ethics-driven" (6), which "has always had sympathies with the marginal and different" (Roberts 29), white authored science fiction erases ethnic subjects and creates color-blind futures where authors try to make problems of race, Robert Scholes argues, "wither away" because the "presence of unhuman races" might reveal racism as trivial (qtd. in Bould, "The Ships" 179).To the contrary, Daniel Bernardi argues that people of color often show up in science fiction *as* alien objects/subjects, or token multicultural red shirts ready for the slaughter. As Hopkinson considers during her silence, "Arguably, one of the most familiar memes of science fiction is that of going to foreign countries and colonizing the natives, and [. . .] that's not a thrilling adventure story; it's non-fiction, and we are on the wrong side of the strange-looking ship that appears out of nowhere" (7). To answer Hopkinson's pause, my

dissertation examines how and why ethnic subjects find voice and (re)create reality in science fiction, a genre of contradictions that has traditionally dehumanized ethnic bodies and voices.

Science fiction challenges the present through images of the future, rebuilds history, and revives memory to accommodate new ways of perceiving the present. Writers of the future do not imagine something new, but as Fredric Jameson contends, "defamiliarize and restructure our experience of our own present," collapsing the future into the immediate ("Progress" 151). White authors of fantasy often create nostalgia for a past that never happened. Likewise, many white authors of science fiction create utopic and dystopic longing for an insubstantial future populated with aliens and automatons—objects in both cases that screen or reproduce in a trite manner the present-day presence of ethnic people and their relationship to industrial, scientific, or digital technologies.[1] This is significant, as Walter Mosley asserts, because science fiction gives us the "power to imagine the first step in changing the world" and is the "main artery for recasting our imagination" (406, 405). What we cannot imagine, we cannot create.

My dissertation assesses how science fiction written by ethnic authors reinscribes

[1] Although there are any number of technologies and technological changes in the world, from prehistory to now, because of its focus on science fiction, the dissertation will use the term *technology* to refer to industrial and post-industrial mechanical, scientific, robotic, electronic, cybernetic, and digital products and processes of western culture. The dissertation will also discuss non-western technological and methodological practices, but these will be defined and discussed as they are presented to help avoid redundancy and confusion. For discussions of how non-western science appears in postcolonial science fiction, see Dillon's introduction to *Walking the Clouds*, Uppinder Mehan's essay "The Domestication of Technology in Indian Science Fiction Short Stories," and Jessica Langer's chapter "Indigenous Knowledge and Western Science" in *Postcolonialism and Science Fiction*. Also see Gerald Vizenor's comparison of scientific/western epistemologies and "natural reason" in *Manifest Manners* and *Native Liberty*.

presence in the future and resists racism in science by providing alternative paradigms for knowing the world. It examines how ethnic science fiction reframes four specific sites of scientific inquiry through the fields' engagement with and erasure of people of color: genetics spanning from nineteenth-century eugenics to the current fields of epigenetics and racially-tailored medicine; nuclear development from weapons to power plants; computer digitization from video games to archival systems; and biocolonial resource theft within and without the United States. I argue that science fiction by Native American, Chicana/o, and black authors re-imagines scientific paradigms for understanding history, the present, and future possibility. By recreating past relationships to industrialization, recasting present depictions of nuclear proliferation, and inventing future interactions with digital technologies, writers of color simultaneously reclaim technology as a tool and reveal how dominant culture(s) have used technology against them. Bringing together an eclectic (and heretofore unconnected) array of texts, my dissertation builds off the work of Afrofuturism, the emerging field of Native (or Indigenous) futurism, and Catherine Ramírez's theorization of Chicanafuturism to illustrate and illuminate a broader field of ethnic science fiction that challenges white depictions of ethnic subjects, refuses scientific racism, and (re)writes the past, present, and future as a practice of resistance.

What constitutes science fiction for my discussion is specific and limited. Isolating what science fiction is for people of color, much as all categorization, is a political act. Works such as Uppinder Mehan and Hopkinson's *So Long Been Dreaming*, Sheree R. Thomas' *Dark Matter*, and Grace Dillon's *Walking in the Clouds* use the umbrella term "speculative fiction" or "postcolonial science fiction" to encompass

different genres—magical realism, fantasy, horror, written versions of oral traditions, and science fiction. Mehan, Hopkinson, and Dillon's reliance on speculative and postcolonial categories allows them to avoid separation, defining edges on the imaginative nature of the writing: the improbability (or impossibility) of narratives taking place in the mundane world. However, some writing is clearly connected more strongly to science and technology in a way speculative fiction is often not. My project examines science fiction that self-consciously separates itself from magical realism, focusing instead on works that strain the boundaries of their contemporary mundane world through three main categories: they are set in the future; critique western notions of science and technology; and/or rewrite the "white" or "canonical" science fiction tradition. By imagining alternative futures, challenging the technologies undergirding western notions of progress and momentum, and remolding their own literary foundation, ethnic science fiction authors do more than recover from the conditions of oppression—they discover new ways to survive and thrive. Refusing to vanish from a technologically "advanced" future, these writers imagine stories steeped in their respective traditions (oral tradition, ethnic literary history, science fiction, Indigenous science) and reinvent an array of future possibilities, crafting narratives of liberation and survivance to counter narratives in science that erase and exploit.[2]

Ethnic science fiction's vastly expanding production at the beginning of the twenty-first century and deeper history, reaching back at least another hundred years, predicts the contemporary growth of critical science theory and the medical humanities,

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[2] As theorized by Gerald Vizenor in *Manifest Manners*, survivance deconstructs the dominant culture's simulations of reality, creating an active presence for Native people in place of a structured absence.

disciplines that address scientific methodologies in concert with race, gender, and other paradigms about which science claims to be objective. Williams remarks that "although social science researchers are recognizing increasingly that scientific activity is interwoven with meanings, beliefs, and power," we are only starting to partake in "critical inquiry into the implicit expectations, assumptions, and values informing science" (551). This specifically includes how racialized thinking by individuals and cultures shapes ongoing scientific research—criticism that ethnic science fiction has been performing *since its beginning*. Critical science theories fracture the myth of scientific objectivity and the contention that racialized science is "bad" science instead of being a core part of science's methodology. The fields reveal how scientific costs and successes are unequally dispersed among people and uncover how scientific development and design rests on the very cultural assumptions that justify unequal treatment for people of color, as well as other marginalized groups such as women, queer people, and people with disabilities. My dissertation makes explicit how people of color's science fiction has always been performing "critical science theory" and has much to offer the growing field populated by excellent scholars such as Rebecca Skloot, Harriett Washington, Duana Fullwiley, and Catherine Bliss.

A growing body of scholarship also delineates how authors deploy race and represent ethnic subjects in science fiction. Much of this writing focuses on white writers' and filmmakers' presentation of marginalized subjects.[3] Although authors such as

[3] See Adare's "*Indian" Stereotypes in TV Science Fiction*, Berg's chapter "Immigrants, Aliens, and Extraterrestrials" in *Latino Images in Film*, Bernardi's *Star Trek and History*, LaPensée's "The Good, the Bad, the Sultry" in *Unpacking the Indigenous Female Body*, Ed Guerrero's *Framing Blackness*, Hoagland and Sarwal's *Science*

Octavia Butler, Samuel R. Delaney, and Reyes Cárdenas have been producing in the genre since the 1970s (science fiction theorists have adopted work as early as W.E.B. Du Bois' 1920 "The Comet" and George Schuyler's 1931 *Black No More*), and filmmakers have been working in the genre since the mid-nineties (such as the 1994 film *Cosmic Slop*), it has only been since the turn of the twenty-first century that collections of science fiction *by* people of color appear. Beginning with *Dark Matter* in 2000, these collections proliferated with works such as Andrea Bell and Yolanda Molina-Gavilán's 2003 *Cosmos Latinos*, *So Long Been Dreaming* in 2004, a sequel to *Dark Matter* that same year, and *Walking the Clouds* in 2012. More recently, crowd funding has provided ethnic science fiction another means to publication, including the collection *Latino/a Rising*, alongside a larger assemblage of Afrofuture anthologies such as *Visions of the Third Millennium* and *Afrofuturism: The World of Black Sci-Fi and Fantasy Culture*.

The criticism on these pieces began with Afrofuturism, a term coined by Mark Dery in 1994, even though the year before, as Bould notes, Mark Singer began discussing black science fiction. Recently, critics such as Mehan, Hopkinson, Dillon, Langer, Hoagland, and Sarwal adopted postcolonial and Indigenous critical lenses to situate ethnic and white authored science fiction within larger critical traditions, starting to push the genre from the margins of literary studies towards the center. However, criticism on ethnic science fiction is still a few years behind the literature's publication. Analysis of Native and Indigenous science fiction is limited to several essays and the problematic

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Fiction, Imperialism and the Third World, Langer's *Postcolonialism and Science Fiction*, Nama's *Black Space: Imagining Race in Science Fiction Film*, Rieder's *Colonialism and the Emergence of Science Fiction*, Sardar's *Aliens R Us: The Other in Science Fiction Cinema*, and Sharpe's *Savage Perils*.

collection *The Intersection of Fantasy and Native America*, which presents J.R.R. Tolkien's definitions of fantasy combined with (an unfortunately simplified) postcolonial definition of magical realism to argue that all speculative writing is fantasy. The broad characterization of fantasy coupled with a focus away from historical context makes the book inattentive to the larger arguments inherent in ethnic science fiction and fantasy, and using a white, pre-civil rights methodology replicates how academia has coopted literature by people of color for its own ends. Chicano/a science fiction sat largely uncollected and under-theorized until 2015, but for a few articles like Ramírez's "Deus ex Machina" and "Afrofuturism/ Chicanafuturism." *Aztlán*'s 2015/2016 special dossiers on Latina/o Speculative Fiction, Film, and Popular Culture further develop the field, expanding Ramírez's methodology and placing the science fiction firmly in the canon of Latina/o studies. My project adds to the mounting collection of work on ethnic science fiction, using the genre study of science fiction based in ethnic futurisms, postcolonial theory, media studies, and critical science theory. I map a trajectory in which ethnic science fiction empowers people of color to recast and reclaim both the present and the science that shapes the future.

My dissertation is broken down by authors' ethnic identities, even as this organization quickly shows itself as problematic. The most recent anthologies avoid race and ethnicity specifically—as mentioned previously, classifications of Indigenous, postcolonial, and Latina/o are the new norm—because using ethnicity and race as a marker for categorization gives rise to hard questions. Some of this difficulty lies in the essentialism that often follows racial categorization, a pitfall that alternative terms avoid. Another issue lies in the mestizo, cross blood, mixed-race reality of North America.

Author Zainab Amadahy, for example, has black and Cherokee ancestry, was born in the United States, and now lives and writes science fiction in Canada. Where does her work fit? How does one order Nalo Hopkinson and Andrea Hairston, both First Nation Canadian and Afro-Caribbean writers? By choosing the rubric "Indigenous" or "postcolonial," authors avoid the entanglement that ethnic categories necessitate.

However, there is value in being able to speak to specific groups' response to a genre, cultural practice, or scientific invention, a value side-stepped in Hopkinson's silence and realized in comparative ethnic studies. Charles Ramírez Berg remarks that science fiction repeatedly represents Mexicans via dangerous aliens in California, and it's not hard to notice that the Star Trek universe paints Native Americans, as Edward Buscombe points out about film generally, as stuck in the past and bounded by the framework of noble savagery. Because science fiction imagines racial groups differently, when authors pick up a pen to "strike back" against the empire, it is these specific images to which they respond. Additionally, as the terms "Indigenous" and "postcolonial" smooth over some differences to find commonalities and create solidarity across marginalized people, they exclude as well. Chicanas/os, for example, are Indigenous *and* foreign, colonized *and* colonizer (twice colonized in fact). "Post"coloniality ignores the continuing colonization of North America, as it implies a level of British involvement that marginalizes the United States' southwest and elides differences in theme and structure rooted in ethnic difference. For example, the "one drop rule" for black people, when compared to government mandated Native blood quantum levels, demonstrates the United States' use of separate and specialized constructions of racial blood to legislate away land. The political conversations science fiction writers of color produce emerge

from both the *shared* exploitation and genocidal practices rooted in being an ethnic subject in the Americas and the *distinct* interactions with the United States and its legacy of slavery, race science, manifest destiny, land theft, war, and genocide (cultural and bodily).

The dissertation's first three chapters delve into how particular groups of science fiction authors respond to an individual scientific field, providing culturally specific histories, or as Lysa Rivera calls them, "future histories" that engage science's treatment of people of color (415). The first chapter explores Afrofuturism's response to genetic science, the second recalls Indigenous Futurism's relationship to nuclear development, and the third uses Chicanafuturism to chronicle the effects of digital development on Mexicans and Chicana/os. The fourth chapter expands the first three chapters' engagement with scientific racism's transnational effects to understand how film productions in the U.S. and Latin America refuse biocolonialism.

The first chapter, "Xenogenesis, Symbiogenesis, and Autopoiesis: Genes and Genre in Afrofuture Fiction," argues that genetics is deployed disproportionally against black Americans, from the pseudo-scientific racial classifications of the nineteenth century and earlier through the current obsession with racially-tailored medicine and the human genome. Afrofuturism holds issues of categorization at its very core, as biological race science supported slavery, Jim Crow, eugenic sterilization, and a host of violent practices against those it created as black. Afrofuturism tackles these issues, as well as chronicling how genetic science, even as it proves race does not exist biologically, is deployed against black people to reinscribe race, complicating questions of humanity that rise from genetic typing and medical testing.

To trace this genetic legacy, I begin by arguing that Octavia Butler's *Xenogenesis* trilogy demonstrates how genetic research in the 1960s and 1970s deliberately constructed black people, particularly men, as biologically deviant, which justified their rising incarceration rates. As prisons were the primary sites for experiments through the mid-1970s, this provided more bodies for medical testing, creating a genetically-tailored loop. Tananarive Due's short story, "Like Daughter," uses cloning to question whether behavior and circumstance is constructed biologically, socially, or culturally, hinting at the current field of epigenetics that has discovered that while race may not be inheritable genetically, the effects of racism impact DNA in ways that are. The story's replication of trauma from grandmother to mother to self-cloned daughter manifests how racism's adverse affects are, indeed, inheritable. Finally, Andrea Hairston's *Mindscape* undermines the concept of race entirely to show that contemporary government-sponsored biotech industries create race as a means to capitalize on people of color with racially-tailored medicine. These companies market medications to treat the effects of racism while generating the conditions for racism by creating race in the human genome. The three texts display how genetics capitalizes on black bodies' cellular labor, as biotech companies ensure the issues that create disparities in black health continue, securing a population to purchase their products.

The second chapter, "Beyond Critical Mass: Atomic Fission and Native Science Fiction," interrogates the nuclear cycle, revealing what has been erased—the mining of uranium on the Navajo Nation, nuclear testing on Paiute and Shoshone land in the United States, similar tests on Indigenous soil in Kazakhstan, and nuclear waste buried in the New Mexico and Texas deserts. From Los Alamos' location on sacred Pueblo land, to

Sequoyah Fuels Corporations' nuclear accidents on Cherokee-stewarded land, to testing the first nuclear bomb upwind of the Mescalero Apache Reservation, Indigenous land and people have been at the heart of nuclear development and disaster in the United States. Native Futurism reveals the destructive influence of the buried nuclear cycle on Indigenous people globally, as it posits an Indigenous scientific method with which to fight.

Leslie Marmon Silko's *Ceremony* critiques the opening of the nuclear age, pointing to the atomic bomb's legacy on Laguna, Navajo, and Pueblo land, and juxtaposes Native people's responsibility for the Earth's health through ceremony with their complicity in nuclear development and whites' exploitation of Native people and land. William Saunders' *The Ballad of Billy Badass and the Rose of Turkestan* takes up the Cold War's nuclear fallout on Indigenous people globally as it chases the effects of nuclear testing across the United States' West and recreates nuclear history within Cherokee oral tradition, therein positing a method of resistance against nuclear science's destruction. Steven Graham Jones' *It Came from Del Rio* moves the nuclear threat to the U.S.-Mexico border to illustrate how the post-9/11 fear of nuclear terrorism becomes conflated with Mexican immigration and elides the real dangers in the U.S.' southwest: nuclear storage facilities. These novels follow the nuclear cycle from beginning to end—mining to storage—to illustrate nuclear technology's effects on Native bodies and land and to reclaim the nuclear past within the context of oral tradition, providing clear ways to fight monsters that are unavailable in western science.

The third chapter, "From Code to Codex: Tricksterizing the Digital Divide," exposes how the Latina/o digital divide in the United States screens a more disturbing

multinational divide between those who excavate, assemble, and recycle the products that create the digital era and those with access to those products. It reveals the hidden price of the digital world and demands representation—digital, scientific, historical—as a cure. The novels I examine move from addressing the material ramifications of computers' creation and destruction on Mexicans and Chicana/os to considering the implications of being left on the wrong side of the digital divide for cultural history and memory, to enacting a digital *Reconquista* of Aztlán to answer the United States' capitalist and digital control of what was once, and what remains Mexico.

Alejandro Morales' *The Rag Doll Plagues* predicts how the United States' digitization creates Mexico as a hidden repository for U.S. electronic waste and enacts Chicana/o digital erasure with its advancing technology. Morales promotes science fiction as a way to infect this erasure with presence. Rosaura Sánchez and Beatrice Pita's *Lunar Braceros: 2025-2148* refigures the empty space between the moon and Earth as the borders between western science and Indigenous knowledge, labor and consumption, developed and developing nations, capitalist propaganda and history, and most clearly, the U.S. and Mexico. The novel inserts digital stories between the cracks of linear history, filling the seemingly empty space between astral bodies with the lived experience borders erase. Finally, Earnest Hogan's *Smoking Mirror Blues* invades the world of electronics with a neo-Mexica trickster god, (re)claiming the digital realm as always already Aztec. Hogan refuses Chicana/o erasure with a rewritten digitized nationalism, enacting the revolution that simmers outside Morales' and Sánchez and Pita's novels.

Chapter four, "(Un)Natural Resources: Biocolonialism, Hollywood, and Science Fiction Film" builds on current discussions of Alex Rivera's film *Sleep Dealer* to argue

that ethnic science fiction films visualize how biocolonial science impacts people on both a cellular and transnational level. The films untangle how biotechnology's control over life's interior spaces is predicated on the industry's collaborative nature between governments and multinational corporations, supported by a military increasingly armed with biotechnology. The chapter brings Latin American films into conversation with those produced in the United States to unravel how scientific racism facing people of color in the United States intertwines with transnational biocolonial resource theft. The films create futures that reveal multinational capitalism's support of scientific research as inherently violent, refusing the entire biotech industry in favor of Indigenous science steeped in rationality.

Robert Rodriguez's *Planet Terror* and Reagan Gomez's *Surviving* zombify the world to illustrate how whiteness is cannibalistic, especially in science, and to make visible how control and ownership of people of color's cellular labor replicates colonization in the information age. Federico Heller's *Uncanny Valley* and Jose Nestor Marquez's *ISA* predict that technology's move towards cellular, neurological labor will accelerate the dehumanization of people outside the United States. The films imagine how technology interfacing with people's nervous systems could impact how users see other beings, allowing governments to further militarize developing nations in support of resource extraction. Rodrigo Hernández Cruz's *Protocolo* and Nanobah Becker's *The Sixth World* shift from controlling humans' cellular and neurological labor to new forms of resource colonization that focus on genomic reproduction, genetic engineering, and patenting life itself. The films demonstrate how removing organisms from their natural state and mechanizing their biological processes is devastating for all life, starkly

contrasting western with Indigenous science and (re)visioning natural resources as living beings.

These four chapters provide a foundation for understanding how ethnic science fiction resists racism in science and refuses erasure from the technologically advanced present. While each chapter focuses on a specific field of science, taken together, they build a future history that extends past and current scientific practices and philosophies—sponsored by corporations and the United States government and rooted in science's long history of racist taxonomies—to dystopic futures. Parallel to Nalo Hopkinson's relief in the notion that reading, writing, and analyzing, "now, they're our tools too," ethnic science fiction reclaims and reframes science, recovering and discovering how traditional ways of knowing and relating to the world, what Dillon calls "Indigenous scientific literacies," are a foundation that can restructure western science (7). Ethnic science fiction provides the imaginative space where this merging can happen—more than Hopkinson's "unholy marriage of race consciousness and science fiction sensibility," but what Andrea Hairston calls for in her novel *Mindscape*: a merging of science and art.

> *[M]any chemists, professional and amateur, have been seeking the means of making the downtrodden Aframerican resemble as closely as possible his white fellow citizen. The temporarily effective preparations on the market have so far proved exceedingly profitable to manufacturers, advertising agencies, Negro newspapers and beauty culturists, while millions of users have registered great satisfaction at the opportunity to rid themselves of kinky hair and grow several shades lighter in color, if only for a brief time. With America's constant reiteration of the superiority of whiteness, the avid search on the part of the black masses for some key to chromatic perfection is easily understood.*
>
> **-George Schuyler, from *Black No More*, vii**

Xenogenesis, Symbiogenesis, and Autopoesis:

Genes and Genre in Afrofuture Fiction

In June of 2000, President Bill Clinton announced the success of the Human Genome Project (HGP), an endeavor launched in 1986 to map the human genome with new sequencing technology. Clinton remarked,

> I believe one of the great truths to emerge from this triumphant expedition inside the human genome is that in genetic terms, all human beings, regardless of race, are more than 99.9 percent the same. What that means is that modern science has confirmed what we first learned from ancient faiths: The most important fact of life on this Earth is our common humanity. (qtd. in Happe 104)

This discovery upset centuries of racialized thinking and anatomical theory that insisted race resided in humans' biological structure, discovering instead that there is more genetic variation within so-called racial groups than between them. Rather than bringing a timely end to projects such as the Human Genome Diversity Project, which banked genetic material based on race, two years later the largest collaboration focused on genetic diversity arose, intent on mapping the genes humans do not share and correlating them with both race and genetic disease. The Haplotype Mapping Project (HapMap) "in

part relies on the not uncontroversial idea that meaningful genetic variability exists among large-scale populations—broadly defined as African, European, and Asian—and that this variability is linked to human health and disease in significant ways" (Hamilton 13). What is more remarkable than the project's insistence on finding race genetically is its contention that locating race is as simple as finding out if a person is African, Asian, European, or an "admixture" of the three sole possibilities.[1]

Western science continues to circle back to racialized, biological taxonomies as sources of scientific meaning, and this fixation betrays not only its investment in race, but also corporations' stake in our genetic code. From pharmaceutical companies investing heavily in racially-tailored medicine to capitalize on health differentials between ethnic groups in the United States to flourishing ancestry companies like 23andMe and Ancestry.com that market personal genome sequencing to the public at large, the continuing codification of race makes money. Genetics' "unsettled past," to borrow the title of Keith Wailoo, Alondra Nelson, and Catherine Lee's collection on race and genetics, assures a continuance of genomic racialization and promises to replicate the field's traditional deployment against people of color.

To understand how black authors contend with genetic science's legacies, this chapter formulates a theory of genomic Afrofuturism. It demonstrates how Octavia Butler's genetic engineering novels, the *Xenogenesis* trilogy, provide the genre a solid framework, as it was written contemporarily to genetic engineering's development. The chapter then examines two twenty-first century pieces, Tananarive Due's "Like

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[1] Currently, many projects focused on genetic ancestry recognize and sequence DNA for "American Indian" as a category as well.

Daughter" and Andrea Hairston's *Mindscape* to identify how genomic Afrofuturism answers genetic science's newer technological and political developments, including the growing field of epigenetics and the global commodification of people of color's genomes.

Science fiction, as scholars such as Everett Hamner, Mark Bould and Sherryl Vint note, allows society to process the ethical and social anxieties surrounding new technologies and scientific discoveries. Not surprisingly, fears surrounding genetics and its biological predecessors are canonically tied to race. Genomic science fiction's literary ancestors include what Bould and Vint delineate as prehistoric and evolutionary fictions and fantasies, genres starting with the popular rise of Darwin's ideas and the publication of *On the Origin of Species* in 1859. The genres focus on social change and "progress" through technological innovation, most often revolving around encounters with either alien others or under-evolved, non-human primates. These creatures often stand in for people of color, as Fredric Jameson's *Archaeologies of the Future* notes many aliens do in science fiction. The genre screens fear that humanity will be displaced by a "successor species" or by humans "who have mutated beyond current species norms" (Bould and Vint 32), also reflecting white anxiety regarding racial miscegenation in the United States. David Kirby emphasizes that these fears continued through the turn of the twentieth century to 1929, during eugenics' zenith in the United States, while, Harriet Washington adds, scientists tried to direct humans' evolution through forced sterilizations of black and other "undesirable" women.

Running parallel to the racialized and gendered conflicts arising in evolutionary and prehistoric fictions, the more generalized nature vs. nurture debate prompted by

Darwin's *Origin of the Species* sharpened into a conflict over genetic programming, as geneticists' ability to link traits to specific genes expanded. Hamner identifies the conflict as occurring between genetic determinism, the certainty that humans are entirely programmed by their biological makeup, and genetic dismissivism, the complete rejection of biological influences in favor of social constructivist views of identity formation. Evolutionary science fiction began to focus on the gene as a site of all forms of identity—from reductionist psychology seeking a "happy gene" to fanatical denials that genetic testing is more than divination.

As genetics began to have practical applications in the medical field in the 1970s, Kirby explains that the invention of human gene therapy (genetic engineering) invited science fiction to grapple with eugenics with renewed vigor. The growing possibility of "designer babies" engaged bioethical conflicts between healthier children and the fear that "desirable qualities" and "undesirable qualities" would be code for race, gender, dis/ability and class. As financial access would limit these technologies' availability, genetic engineering could biologically codify what are essentially social manifestations of difference—differences that may already be epigenetic, as this chapter later reveals. At the same time, science fiction explored utopic possibilities that Eric White characterizes as "the post-human body becoming" (394), or the opportunity to free people's multiple identities from their birthed corporeal forms.

Reflecting how genomic science fiction exposes ethical and social anxieties surrounding race and technology, scholars who write about genomic science fiction *and* genetic history display their own anxieties surrounding genetics' reputation. In particular, the field's hotly contested link to eugenics, which Hamner damns as popular culture and

Americans' "attract[ion] to visions of neo-Nazi scientists whipping up doom in a tube" (419), is an association that many science historians and science fiction critics resist. This repressed connection is bridged easily through a brief look at the field of genetic counseling, or with the Human Genome Project directors' (and co-discoverers of DNA's double-helix) racial politics.[2] In 2007 James Watson made a string of comments that clearly indicated he believed "that there are inherent, unalterable biological differences in intelligence between black people and everyone else," as summarized by Henry Louis Gates Jr. Add in that Watson's partner in both endeavors, Francis Crick, supported research in the 1970s into why particular ethnic groups had lower IQs, as well as writing a letter to a Harvard sociologist stating, "I think it likely that more than half the difference between the average IQ of American whites and Negroes is due to genetic reasons" (qtd. in Hanson 114), and it becomes clear that, at a minimum, the racialized thinking behind eugenic science found its way into the HGP. Many scientists' denial of or indifference to contemporary genetics' history mirrors the United States' post-Civil Rights discourse of color blindness, and it is unsurprising that the current field of genomic science replicates racialized thinking in its deployment of genetics, such as the continuing use of archaic race categories to sort humans. It is also unsurprising that genomic fiction continues to focus on anxieties surrounding race.

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[2] Genetic counseling was one of the first easily accessible forms of genetic science in which potential parents would have their genomes sequenced, and the counselor would make reproductive suggestions based on children's potential genomes. Practically, counselors' advice followed suit with other birth control and family planning suggestions, pushing people of color to avoid having children. This was especially prevalent during the 1970s and 1980s when misunderstandings about sickle-cell anemia and sickle-cell test results unfairly stigmatized and disadvantaged black people in the United States. See *Genetics and the Unsettled Past* for more on genetic counseling.

Genomic Afrofuturism uses, resists, and otherwise adapts the tropes of genomic fiction to speak to what genetic science will not: its own history. More specifically, I argue that genomic Afrofuturism reframes popular understandings of genetics' past with alternative histories that make transparent medical and genetic science's abusive treatment of black Americans specifically, and other people of color generally. In particular, the genre links the history and philosophy of what is commonly known as Southern medicine or race science—what Karen Fields and Barbara Fields term bio-racism, or more simply, antebellum medicine—eugenics, and genetics to unmask the racialized and classed logics inherent in discussions of contemporary genetic science. The recovered connections to genetics' history allows the genre to refute individualistic, neo-Darwinian discourses of social evolution and a selfish "survival of the fittest" approach to genetics by exploring communal evolutionary ideas such as Gaia theory, which provide alternatives to eugenic discourses of purity and primacy designed to dominate black people in the United States. Finally, genomic Afrofuturism engages contemporary advances in the field by collapsing the hard lines between genetic determinism and dismissivism and nature verses nurture by addressing the *(epi)genetic* effects of *social* racism on people of color.

It is no fluke that Octavia Butler, credited as Afrofuturism's premier author aside Samuel R. Delany, focused her work on social and genetic inheritance. Much as George Schuyler's *Black No More*, often credited as the first Afrofuture novel, concerns itself primarily with how the social construction of blackness becomes biological, Butler's novels demonstrate how Afrofuturism tends to black Americans' scientific histories: histories steeped in constructing blackness through physiology. From her first novel, the

1976 *Patternmaster*, to her genetic coup, the *Xenogenesis* trilogy (later collected as *Lilith's Brood*), Butler's science fiction performs a distinctly Afrofuture genetic explication of the past. Criticism to date on *Xenogenesis* thoroughly untangles how the alien Oankali's "gene trade" mimetically represents the slave trade, and the aliens' colonization of earth reproduces the United States' history of slavery and settler colonialism. Cathy Peppers illustrates how the spaceships reflect white slavers traversing the Middle Passage and, alongside Thomas Foster, Amanda Boulter, and Frances Bonner, that the novel's focus on breeding reproduces whites' domination of black women's bodies and reproduction during slavery. Rachel Stein and Peppers discern that the Oankali's breeding programs reflect eugenic medical practices running from Jim Crow through the end of the twentieth-century, such as sterilization of women of color without consent. *Xenogenesis* prominently projects slavery and eugenics' enforced sexuality on black people into the future, and in so doing, reveals how antebellum physicians "practicing" on slaves provided *the* corpus of knowledge about black people's physiology and psychology for the broader scientific community, thus institutionalizing scientific racism created during slavery. With extended explorations of how Butler employs African American history to rewrite genetics' scientific history, to conflicting arguments on whether Butler's novels deploy biological essentialism or postmodern identity creation, critics report how the *Xenogenesis* trilogy engages all the questions with which genomic fiction grapples.

However, more than reworking the past, *Xenogenesis* speaks to how the pseudoscience of racialized biology continues to underwrite genetic science at the end of the twentieth century. In particular, the trilogy decrypts how contemporary genomics

constitutes itself on earlier constructions of black people as intrinsically deviant and demonstrates how scientific methodologies continue to produce research that supports racist taxonomies in the United States. *Xenogenesis* unravels how genomics blames violence and poverty affecting black communities on black Americans' DNA and deliberately constructs experiments to naturalize men of color's disproportionate imprisonment. Incarcerated and otherwise constrained people then become the targets of continued medical testing, often without their informed consent. In short, Butler's genomic Afrofuturism adds another layer of signification to the evolutionary science fiction genre. While the antebellum United States is the deep allegorical past from our present perspective, Butler's future presents the end of the twentieth century as its progenitor, drawing a historical line from antebellum medicine through contemporary research practices of genetic science to a speculative future where aliens, standing in for medical scientists, use the human genome to justify their consumption of humanity.

The three novels that form *Xenogenesis* (*Dawn*, *Adulthood Rites*, and *Imago*) chronicle the Oankali's colonization of Earth after humanity is nearly destroyed by nuclear war. The aliens have decided to mate with humans, reconstruct Earth's biosphere, and re/introduce mixed Oankali/human families to the newly "terra"-formed planet. Proclaiming that humans have an immutable genetic contradiction—a predilection to hierarchy served by great intelligence—the Oankali defend their intervention by insisting that humans will again destroy themselves without it. *Dawn* (1987) follows how Lilith Iyapo, a human awakened on an Oankali ship 250 years after the war, adapts to the Oankali with other "rescued" humans. She transforms from the aliens' prisoner to their witting (but not always willing) tool, finally becoming a member of an Oankali/human

family. Lilith's half-alien son, Akin, is the protagonist of *Adulthood Rites* (1988). Kidnapped by human resisters who refuse Oankali families, Akin gains a unique insight into why humans forgo mating with the aliens. In response, he devises a fertile human settlement on Mars for the resisters so they may continue the human race. Finally, *Imago* (1989) recounts the maturation of two of Lilith's other children into ooloi, the Oankali's third gender who facilitate reproduction for the species. Jodahs and Aaor find the last humans on Earth untouched by the Oankali, securing most of them as mates for the aliens and letting the rest immigrate to Mars.

The relationship between Butler's humans and the Oankali reflects the United States' practice of blaming black Americans' economic and social state on their supposed biologically coded deviance and their alleged genetically-ingrained tendency for violence. The Oankali promote their colonization and aggressive breeding program as a solution for humans' deadly contradiction between intelligence and hierarchy. The Oankali recognize it as "a mismatched pair of genetic characteristics. Either alone would have been useful, would have aided the survival of your species. But the two together are lethal" (38). Critics such as Hoda Zaki understand the Oankali's verdict against humans as Butler's biological essentialism, whereas Donna Haraway and Jessie Stickgold-Sarah develop a reading of Butler's genetics as much less rigid, predicting that alien genetic recombinations will provide humans the freedom to escape repressive social structures. The strongest critical discord over the texts surrounds the Oankali's proclamation that the "human contradiction" dooms humans, period. Scholars read Butler's genetic determinism as gendered, raced, not necessarily true, or as a construct that can push us into a postmodern, posthuman state. What is important, however, is not *what* the genetic

determinism means, or whether or not it is true, but *the Oankali's proclamation itself.* Their knowledge of the humans' contradiction "was an Oankali certainty. A certainty of the flesh. They had read Human genes and reviewed Human behavior. They knew what they knew" (476). Oankali insistence on placing what they perceive to be negative human behavior staunchly in the human genome demonstrates the practice of locating disparities in class and violence in black people's genomes. Peppers notes the Oankali are "the ultimate sociobiologists" (51-52), and I would add that their insistence on the human's contradiction justifies their continuing colonization of and medical experimentation on humans. What Peppers calls "cavemen logic," and other critics point to as Butler's gender essentialism—men are innately more violent—instead clearly points to the history of white medical science constructing black men as violent to justify the subjugation of all black people. Butler couples genetic engineering to this colonial violence to demonstrate how the practice of locating resistance to colonization in black people's biology continues in the genomic era.

This, of course, did not start at the end of the century. Historians have recounted the glut of pseudo-scientific theories that conflated resistance to oppressive and racist structures and myths of black behavior with black people's biological inheritance. Carolus Linnaeus' 1735 *Systema Naturae* classified blacks either as *Homo sapiens* who were "crafty, indolent, negligent," and "governed by caprice" or as *Homo monstrous* Hottentots, an entirely different species (qtd. in Maybury-Lewis 19); Samuel A. Cartwright's articles attest to different physiological features for blacks, as well as different illnesses, including malingering "whose principal symptoms seemed to be a lack of enthusiasm for slavery" (Washington 36). Antebellum medicine mastered the practice

of conflating black biology with violence to justify slavery and to orchestrate the social control of blacks. The process continued after slavery. Stephen Marshall remarks that at the turn of the twentieth century in the South, white intellectuals "propagat[ed] selective census data which reflected repressive criminalization of southern black life" and "helped to give birth to modern crime statistics as well as make the case that northern blacks were also unfit for citizenship" (par. 7). The census data birthed a "statistical rhetoric of black criminality" in Khalil Gibran Muhammad's words, which functioned as "a proxy for a national discourse on black inferiority" (qtd. in Marshall par. 7). In addition to the more obvious use of eugenics to support "the scientific use of biological discourse to construct 'race,'" as Peppers articulates (54), combining invented biological differences between blacks and whites with doctored statistics documenting innate social and psychological criminality in black people provided an evolutionary justification for continuing oppressive practices against black communities while coding these practices as having black communities' needs at their center.

Coupling social analytics to biological science continued in the latter half of the century. Ellen Feder links the infamous 1967 *Moynihan Report*'s demonization of black women as the cause of "a disastrous delinquency and crime rate" to the Violence Initiative, a proposed government program designed to combat "inner-city" violence through science (71, 64).[3] Frederick Godwin, who directed the U.S.'s Alcohol, Drug Abuse, and Mental Health Administration, presented the program in 1992 by connecting research linking deviant behaviors "purportedly caused by such 'natural' factors as

[3] See Hortense Spillers' "Mama's Baby, Papa's Maybe" for a more complete analysis of *The Moynihan Report.*

deficient levels of serotonin, genetic flaws, bad mothering, and other possible matters of 'heritability'" (72) *in monkeys* to black Americans and inner-city crime. Similar "research," Marshall argues, fueled the hugely prescient 1980s stereotypes of the "welfare queen," "drug warlord," and "crack babies," which recapitulate constructions of black people as deviant, and during the Reagan Era, constructed ghettos as irredeemable spaces. As Butler was writing the *Xenogenesis* trilogy, scientific experiments continued to locate disparities in black health, economics, and violence in black Americans' bodies and behavior, and mainstream U.S. rhetoric medicalized social issues, ignoring the systemic racism and capitalist exploitation that underscore racial inequity.

Xenogenesis reveals how popular understandings of evolution co-determinant with genetic engineering's development, as Washington succinctly puts it, "confound the relationship between violence and race" (282) and naturalize the cycle of violence against black people. Added to Peppers' contention that *Xenogenesis* refutes Darwinism's naturalization of aggression, violence, racism, and sexism as inevitable "human" (read white, male) traits that justify violence against women as inevitable and ingrained (56), Butler's challenge to Darwinism reveals that contemporary genetic constructs of black violence are predicated on and supported by popular science's turn towards social Darwinism. Roger Lancaster bluntly asserts that the return of social Darwinism in the 1960s and 1970s was a reactionary response to the civil rights as well as women's rights movements. Social Darwinism asserts that culture is a phenotypic expression of individuals' clearly successful genotypes, and "that is why there can be no more social progress—no racial equality, no liberation of women and gays, no end to warfare, no eventual state of equilibrium, no happy ending to all this suffering and travail" (Lancaster

95). Social Darwinism reached a climax with Richard Dawkins' hugely popular 1976 book, *The Selfish Gene*, foreshadowing the search for a "criminal gene" that ties real and imagined violence in black neighborhoods to black people's genome (Bollinger 34, Washington 282).

Butler's "resisters," humans who refuse to breed with the aliens, are similarly pathologized by the Oankali as falling prey to their genetic contradiction of hierarchy-inspired violence. The resisters are ejected from Oankali villages and forced to make their own towns in a species-level apartheid, denied the technologies of Lo (the living Oankali village that provides laborless food and shelter to the Oankali families), and sterilized so they cannot create any more humans. The Oankali claim that clinging to being pure humans directly creates the harsh life resisters live, refusing to acknowledge their own responsibility for human violence found outside Oankali families. The narrative of humans' self-destructive nature absolves the Oankali of any liability for the structural system they created on Earth. The Oankali ensure the narrative of human's genetic flaws remains unchallenged by absenting the challengers. Resisters who refuse to mate with the Oankali are removed: from their villages, from the planet, and from most of the trilogy's plot (although the second book focuses *on* them, but from the perspective of an Oankali construct). Not only does the Oankali's rhetoric of genetic deviance mirror how white scientists in the United States construct(ed) black biology, but also the Oankali have perfected removing alternative narratives. The sterilization of humans "breeds out" biologically-coded *and* socially-inclined resistance to the Oankali's colonization. As Sáez de Adana wonders, what if the Oankali are just getting rid of our hierarchical tendencies to establish their own hierarchy?

While the resisters are controlled through sterilization, Butler uses the humans most absent from the trilogy's narration—those deemed unfit to inhabit the new Earth—to screen how genetically inscribing black "deviance" rationalizes the United States' use of black people as objects for medical experimentation. If any human tries to kill an Oankali, or a human from an Oankali family, they will be removed from Earth (and the novels' plot). Humans that don't react "well" when awakened are also rendered permanently unconscious on the ship. The possibility of armed resistance to Oankali colonization is swiftly managed, burying social resistance to colonization under biologically ingrained hierarchy. When a human (Curt) kills a member of Lilith's Oankali family in *Dawn*, he is put in suspended animation where "the ooloi will use him to study and explore" his genetic disposition to cancer (236). Lilith does not fear resisters in the later novels, because any resister fighting the Oankali "would be found and exiled to the ship," to "be kept either unconscious or drugged to pleasure and contentment. [. . .] They would be used as teaching aides, subjects for biological experiments, or reservoirs of Human genetic material" (569). Those transgressing Oankali law are locked away without trial. The "human contradiction" allows the Oankali to justify the incarceration of and use of punitive measures against humans as necessary when social conditioning fails.

Hiding "deviant" resisters on the ship, performing unknown experiments on them, and harvesting their genome for future use (such as reifying the fact that humans have an immutable genetic contradiction that demands alien intervention), resonates with the U.S.' medical practice of experimenting on black people to support the contention that they are biologically violent, using these medical results to justify "abandon[ing] social therapeutic approaches" to actual violence (Washington 283), and rationalizing the

disproportionate incarceration of black (and increasingly Latino) men, providing further bodies for medical testing. In short, Butler's Oankali reflect actual practices of using black people in medical experiments to justify their unequal social conditions, and using black people's unequal social conditions as a way of providing bodies for further medical experiments through the mid 1970s.

Genetic experiments in particular continued science's tradition of creating methodologies designed to reinforce depictions of black people (men particularly) as genetically violent. For example, Washington reports that in 1961 scientists discovered that some men have an extra Y chromosome (an XYY trilogy instead of the expected XY pair). Quickly, they (erroneously) postulated that the extra Y chromosome would create "supermales" who are more violent, hyper-masculine, and have "powerful aggressive tendencies" (280). To prove this theory, Digamber Borgaonkar from John Hopkins University ran a study between 1969 and 1972 focusing on predominantly black male children.[4] Washington chronicles that the children "were subjected to stigmatizing testing, psychological assessments" during the research "that could brand them as latent criminals for life," and parents were lied to about the experiment's nature (280). If the study had not been suspended for violations of informed consent, Washington concludes, the study's design ensured any connection "between XYY males and violence [. . .] would have emerged from the data as an association between *black boys* with XYY and violence" (281, emphasis added). Even after the theory of supermales became medically discredited, the idea of XYY-determined violence remained hugely popular in media,

[4] The control group came from a housing project that was 95% black, and the first variable group of 6000 was about 85% black. 80% of the second group of 500 richer children were white.

especially as a way to present incarcerated men as biologically destined to end up in jail. The theory refused to die, and the press never reported the findings that there is no correlation between violence and the XYY karyotype. Butler's writing coincides with the rise of genetic experiments designed to naturalize violence in black communities, and the Oankali's insistence on humans' genetic propensity to violence reflects the U.S.' obsession with coding black violence as predetermined.

The series' focused engagement with genetic and evolutionary science's history even allows Butler's work to presage later genetic experiments. From 1992 to 1997, the New York State Psychiatric Institute and Colombia University's Lowenstein Center for the Study and Prevention of Childhood Disruptive Behavior Disorders wanted to "establish a link between genetics and violence" by dosing children with the amphetamine FenFen and measuring their serotonin levels (Washington 272). Researchers presumed low serotonin levels caused violence. The study selected thirty-four black children to participate, all of whom had older brothers with "contact with the probation system" (279).[5] Psychiatrists conducting the study diagnosed the older brothers "with such psychiatric ailments as conduct disorder, oppositional defiant disorder, and attention-deficit hyperactivity disorder, diagnoses that describe children's disagreeable behaviors and that are often assigned to children who break the law" (274), and like the XYY study, diagnoses that could possibly mark participants as mentally ill for life. When the study's results were the opposite of the researchers' expectations, they *changed the scientific guidelines* to support their initial hypothesis that the black children had violent propensities instead of reporting the experiment's failure (276). Similar to the Oankali's

[5] 44% of whom were black and 56% black Dominican, labeled "Hispanic."

predetermination of resisters' violence and slave physicians' diagnosis of malingering as a calculated way to explain resistance to slavery, the FenFen trials' predetermined results sought to biologically tie ethnicity to violence, selected participants towards this aim, diagnosed young black men as psychologically damaged because they may have been criminals, and rewrote scientific guidelines to make their tests' negative results positive.[6]

The Oankali's justification for imprisoning humans—that they are unable to overcome their genetic violence and thus threaten society—offers another easy comparison to the steeply increasing rates of black men's incarceration in the United States since the 1930s, and the exponential rise in prison populations from the 1970s to the present. Studies like the XYY and FenFen trials coupled with a growing belief in social Darwinism demonstrate how genetic and evolutionary science make black imprisonment appear biologically predetermined. Scholars have intensively interrogated how the United States uses black (and increasingly Latino) incarceration as social control comparable to Jim Crow and slavery, much as the Oankali use their ships as repositories for humans who violently resist colonization.[7] Parallel with the Oankali's experimentation on their captive humans, pharmaceutical and cosmetic companies used U.S. prisons as the primary source for trial participants from the 1940s to 1976 (about 90% of participants in pharmaceutical trials were prisoners through the mid-1970s according to both Timothy Wiegand and Becky Pettit). The Oankali add more humans to their stock of "teaching aides, subjects for biological experiments, or reservoirs of

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[6] See Chapter 11 of Washington's *Medical Apartheid* for a more full rendition of the experiments.

[7] See Loïc Wacquant's "From Slavery to Mass Incarceration" and Michelle Alexander's *The New Jim Crow*.

Human genetic material" (569) unconscious on the ship as the trilogy progresses, easily likened to how the U.S.' stock of prisoners for experiments increased, and became increasingly black, through the mid-1970s. In fact, it was the revelation of the infamous Tuskegee experiment coupled with exposures of prison abuse, such as the trials at Holmesburg (where at least thirty-four cosmetic and drug companies ran thousands of tests on at least 75% of the prison's inmates, most of them black men) that shifted the laws governing prison testing between 1974 and 1978, effectively safeguarding prisoners from Machiavellian medical testing.[8]

The Oankali perform continuous experiments on the surviving humans—asleep or awake, resisters or mated family members—alluding to the tenuous relationship between black American communities and the medical field. Black Americans, to paraphrase Washington, were used as unwilling test subjects during slavery (such as James Marion Sims' scores of vaginal surgeries on eleven, unanesthetized slave women); black corpses were stolen for medical schools from the eighteenth-century to the mid-1960s (through grave robbery, refusing to release dead patients without payment, and post-execution dissection sentences); black men were subjected to unneeded testing without informed consent post-slavery (such as the infamous Tuskegee experiments, paralleled with the recently discovered Colombia experiments); and black bodies have been harvested piecemeal for further medical research, much as Henrietta Lacks' cancer cells were. Washington continues to remark that currently, the U.S. Department of Health and Human Services is investigating sixty-six research institutions for "using only black and

[8] See Allen Hornblum's 1998 *Acres of Skin* for a full rendition of Dr. Albert M. Klingman's abusive testing.

Hispanic research subjects," often without subjects' knowledge or informed consent, as well as using abusive testing practices from "being given experimental vaccines known to have unacceptably high lethality" to being "subjected to surreptitious surgical and medical procedures while unconscious" and "secretly farmed for sera or tissues that were used to perfect technologies such as infectious-disease tests" (6). In addition to these abuses, black test subjects rarely have access to the benefits created by their participation, in clear violation of the 2008 World Medical Association's *Declaration of Helsinki* (originally created in 1964), which mandates that the foreseeable benefits to those involved in research must outweigh the potential risks, and that medical research should not be carried out on vulnerable populations except as "there is a reasonable likelihood that this population or community stands to benefit from the results of the research" (3).

The Oankali's experiments on humans similarly do not provide proportional risks and benefits for the humans under experimentation and are performed only on vulnerable populations, invoking the repressed history of black experimentation and the use of black people as test subjects. The Oankali maintain their manipulations are beneficial, saving the human race from its otherwise inevitable extinction by genetically inspired violence. However, the humans left incarcerated on the ship, whether "drugged to contentment" or rendered permanently unconscious, provide much of the material for the Oankali's experiments. Their permanent position as human "stock" makes unavailable any real benefits from the testing. Oankali also insist the children from their human/alien families are a continuation of the human genome, even as *Adulthood Rites* reveals the secret that contrary to the Oankali's assurances, the children born of Oankali-human partnerships are fully Oankali, not human. They may contain human DNA, "But we will be Oankali. They

will only be…something we consumed" (443, ellipsis in original). The Oankali's genetic engineering on humans provides the aliens their next evolution, and the genetic material they harvest from their captors allows the aliens to engineer their children with regenerative and shape-shifting abilities. Those receiving the largest benefits from the genetic manipulations are the Oankali's children, and the human race will be extinct on Earth as a result of the alien intervention.

The Oankali's medical machinations on humans have allowed them to provide humans comprehensive medical care. However, like blacks historically and like those too poor to afford or access medication globally, it comes at a price. For example, Tate, one of the original human settlers, has Huntington's disease, which is caused by a single-gene mutation. She is incompletely treated by her ooloi before she moves into a resister village. Her ooloi would fix the gene permanently, but only "if we stayed with it. It said it would have to watch me for a while if it did any real tampering. I… couldn't stay with it" (363, ellipsis in original). The gifts the Oankali give are not without cost—permanent genetic changes for at least some are only provided if people join in permanent unions with the Oankali. Even though the Oankali had 250 years to cure Tate on the ship, where she was under constant supervision, they chose to let her genetic disease continue to threaten her health so they could have leverage against her should she not choose to be part of an Oankali family. Tate's predicament parallels how pharmaceutical companies acquire test subjects in developing nations. Mabunda contends that because developing nations often have less stringent ethical standards in testing, it is common for pharmaceutical companies to test their products outside industrialized nations. These vulnerable populations, most often people of color, often have no other treatment

alternatives but those provided in clinical trials, even if the course of treatment is withdrawn once the trial is over or they are as likely to get a placebo than actual medication. Pharmaceutical companies can impose greater risks, provide fewer rewards, and make other ethically suspicious moves. To access any treatment, potential test subjects must agree. The Oankali control humans' access to not just medical treatment, but shelter, food, and reproduction, and thus may leverage care to support their reproductive goals.

In addition to manipulating humans through selective application of medicine, the Oankali use genetics to devour humans and build their own bodies, both metaphorically and literally. They eat humans, "pruning" their family members to provide biological upkeep. After Lilith tells her ooloi family members she is relieved the Oankali are vegetarians, or they might ingest humans, *Imago* reveals that her partner "might have been feeding on her even then" from "bits of her most recent meal" to "dead or malformed cells from her flesh" (680). Humans are daily food for their Oankali family, and Nikanj claims "in the process, we keep them in good health and mix children for them. But they don't always need to know what we're doing" (680). The trilogy rationalizes the consumption of humans—through literal eating and the use of human bodies as incubators and genetic reservoirs for the next Oankali generation—because "Oankali crave difference," and are biologically programmed to "seek difference and collect it" (327). The literal devouring of humans by the Oankali, excused through their craving for difference, recalls bell hooks' theory of mass culture's mastication of black (and other "racially different") cultures and bodies in "Eating the Other." hooks contends whites' cannibalistic sexualization of people of color allows them to play out a nostalgia

for the past and engage in a search for "the primitive" within. The Oankali's genetic lust for human difference indelibly connects their relationship with humans to people of color's relationship to "the white West" (hooks 409), as it clearly points to the position of genetics in the novel as a vehicle for Oankali (white) self-definition built on humans' (blacks') medicalized and sexualized bodies. The Oankali's genetic engineering creates their progeny and justifies their consumption of a human race they code as otherwise destined for self-destruction. Butler's trilogy thus reflects how the emerging field of genetic engineering allowed the United States to continue constructing racial inequality and resistance to oppression as biological to justify consuming black bodies to facilitate medical science and to create a narrative of genetic deviance that exculpates the U.S. from responsibility for and ensures the continuance of social inequality predicated on race.

As the *Xenogenesis* trilogy chronicles how genetics has been used to conflate inequities caused by systemic racism with black biology by constructing black Americans as innately violent, Tananarive Due's 2000 short story, "Like Daughter," demonstrates that the effects of systemic racism and sexism may also inscribe themselves on black Americans' DNA. The story explores how trauma may impact biological inheritance, articulating that even if race is not genetic it certainly may be epigenetic. Due interrogates a network of complex factors that effect human development, from the social to the biological, and juxtaposes them with immeasurable conditions like luck, chance and fate to complicate the definition of inheritance. "Like Daughter" signifies on genomic fiction by fracturing the dichotomy between genetic dismissivism and determinism to reveal that for black Americans, nature is nurture. The physiological as

well as psychological impacts of social inequity are (epi)genetically inheritable, making the distinction between what is biological and what is environmental obsolete.

"Like Daughter" tells the story of two childhood best friends, Paige and Denise. In an otherwise familiar fictional future, science has mastered cloning, and for a short time women were able to implant themselves with fetuses cloned from any living individual in a "copycat babies program" (96). Short months after the scientific breakthrough was made publicly available, the Supreme Court outlawed the procedure, but not before Denise was impregnated with her own clone. After giving birth to baby Denise, nicknamed Neecy after Denise's own childhood moniker, Denise strove to provide the perfect home for her daughter in stark contrast to the sexually and physically abusive household in which she was raised.[9] Their lives fall apart when Denise's husband leaves and Denise calls Paige, now Neecy's godmother, to come and take Neecy away.

To explore the inheritance of trauma in the United States, Due's story deploys doppelgängers to illustrate how different developmental influences affect black people generally and black women specifically. In contrast with Denise, Paige demonstrates how genes and home life impact the chance of trauma in life. The two girls grow up in houses across the street from each other, Denise is referred to by Paige as "my twin" of "identical ages" (92), and the two share similar racial, class, gender, and regional backgrounds. Sisters in all but blood, Paige and Denise delineate the effects of biology and rearing practices from external social pressures. Paige is successful in school as a child, and later in life as a documentary film producer, whereas Denise's life is rife with abuse: she comes to school with "bruises on her forearms and calves" from her father and

[9] I will refer to the adult, mother as Denise and her child as Neecy in the text for clarity.

survives an entire summer being raped by her Uncle (92). Paige reads the differences in circumstance between the two women as luck or fate, wondering if it was "only an accident" (94) that her childhood lacked abuse, and "as Neecy dragged a parade of crises to my doorstep, [. . .] I often asked myself what forces had separated us so young, dictating that I had grown up in my house and Neecy had grown up in the other" (94). The gendered violence that plagues Denise and the self-destructive behavior that follows, utterly absent in her "twin," act as the variables separating the childhood friends' opportunities.

However, Due constructs Paige's life as a distorted reflection of Denise's trauma, revealing how Denise's abuse impacts her supposedly "well adjusted" friend. As a child, Denise spends more time at Paige's house than her own, and Paige's mother makes her daughter promise to look out for Denise. Paige "couldn't have known then what a burden that would be, having to watch over someone. But I took my role seriously Mama said Neecy needed me, so I was going to be her guardian. Just a tiny little bit, I couldn't completely be a kid after that" (92). By the time the girls are nine, they "already had secrets that made us feel much older; and not in the way that most kids want to feel older, but in the uninvited way that only made us want to sit by ourselves in the playground watching the other children play" (93). While the confines of the families' houses separate the abuse Denise suffers from Paige, that trauma crosses the street to Paige's home, shaping Paige's childhood as well. Paige claims that, "our lives may as well have been separated by the Red Sea" (94), however, Denise has no problem parting the waters to walk to Paige's house, dragging her trauma behind her. Paige is forced to be a mother without having her own children, as she must raise Denise and eventually Neecy. Paige's

family may spare her body from physical blows, but it does not spare her body and mind from the stresses both Denises' experiences leave on her doorstep. Paige's childhood included watching "reruns of *The Brady Bunch*" (92), reminding the reader of the broader context in which the girls' story takes place. The show acts as a model for "proper American" families, providing a clear contrast between what an idealized, white family looks like and how Paige and Denise live. Even as Paige's mother invites the Bradys to represent family in her household, the model doesn't fit. Paige perceives that Mrs. Brady's smile "wasn't a real smile; it was a smile to hide behind" similar to Denise's mother's (93). While the falsely-projected happiness connects the two women, hinting at a shared suffering in motherhood, the Brady's lives as white emblems delineate how the intersection of gender and race compound how hardship impacts women of color. Mrs. Brady's body and family remain safe and healthy unlike Page and Denise.

Denise's mother's suffering, recounted in the story's margins, insinuates how Denise's trauma did not begin with her. Paige remembers that she "recognized the sweet, sharp smell on Neecy's mother's breath when I walked to Neecy's house after school" (92), implying Denise's mother was an alcoholic, and while Denise's bruised body was regularly visible to Paige, she saw a similar bruise "on Neecy's mother's neck once, which was the real shocker" (92). Denise's abuse is a replication of her mother's experiences with alcohol, violence, and men. When Paige comforts Neecy with the empty promise, "I'm not sure where your daddy is, sweetie. He'll come back," she echoes her childhood platitudes to Denise: "*Hey, Neecy, don't cry. He'll come back*" (100, emphasis in original). The absence of spousal support in Denise's mother's life foreshadows Denise's own future, and by extension, Neecy's. The most frightening repetition of

experience between Denise and her mother is implied when nine-year-old Neecy gets an STI from her rapist Uncle, and "Even though the doctor asked Neecy all sorts of questions about how she could have such a condition, which had a name Neecy never uttered out loud, Neecy's mother never asked at all" (93). The mother's silence showcases the habitual nature of the family's lived trauma, tracing a linage of abuse from parent to child and alluding to the recurrent sexual abuse faced by black women since slavery. It is easy to attribute problems in Denise's own life to parental neglect fostered by her mother's alcoholism and her father's abuse; however the replication of trauma in the "perfectly" raised baby Neecy implies an additional mechanism reproducing trauma: epigenetics.

Denise's eponymous daughter and unnamed mother manifest the epigenetic transference of trauma that renders parenting and genetics only marginally important when contrasted with environmentally-created, biological impacts. Traditional genetics focuses on DNA, and in the case of genetic inheritance, specifically examines how individual genes are transferred to offspring and function, discrete from environmental factors. Lucia Daxinger and Emma Whitelaw summarize that epigenetics differs as it examines how different organic molecules attaching to or detaching from genes impacts the genes' expression, or whether the genes are turned "down," "up," "on," or "off." In effect, epigenetics looks at how environmental factors outside DNA's code change how genes work. The most common form of epigenetic change in mammals' genomes is methylation, or the attaching of methyl groups to specific nucleotides along DNA strands,

inhibiting affected genes' expression.[10] While scientists have not completely discovered what causes methylation, known factors include diet, chemical load (or how many toxic chemicals and pollutants are in an organism), emotional stress, and trauma. Until recently, geneticists believed that as the body creates gametes (sex cells such as sperm and eggs), methyl markers are stripped from the DNA. However, more recent studies have found that not all methyl groups are detached, and thus environmental factors that impact physical and mental health are sometimes epigenetically transferred to offspring. In Dias and Ressler's words, the field of epigenetic inheritance explores the "transgenerational inheritance of environmental information" (89). Shannon Sullivan's "Inheriting Racist Disparities in Health" outlines how medical conditions with high incidence levels in the United States' black population, such as low birth weight and high blood pressure, are likely epigenetic responses to racism in the United States, overturning more frequent arguments tying these conditions to poverty or essentialist concepts of race.[11] Briefly, Sullivan postulates that white racism causes hypermethylation in people of color, which leads to generationally repeating medical problems in the United States' black communities. Recent studies explore the inheritance of mental and emotional states caused by trauma, suggesting that emotion responses to *specific* traumas can be inherited

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[10] Other methods of epigenetic change include histone modifications and RNA transcription changes. See Daxinger and Whitelaw for the specific methods of epigenetic change and see Sullivan 199-203 for a more thorough explanation of epigenetics.

[11] This study looks specifically at low birth weight in black women in Africa and the United States, finding that upon moving to the U.S., African women develop the same problems with low birth weight that plagues black American women across all classes. Sullivan then generalizes her specific study to a larger argument that many, if not most diseases seen as effecting the black population disproportionately are likely the epigenetic effects of white racism.

through epigenetic pathways as well, including phobias. Dias and Ressler exposed male mice to a smell then "stressed" them. The mice fathered children, to the third generation, that exhibit a fear response to the same smell even when raised away from the father under normal conditions. Researchers hypothesize the same intergenerational transference may take place in humans. Not only are the biological effects of racism inheritable, the fear or trauma caused by specific events may be able to pass from parent to child.

Due constructs Denise's life and genome as neither the origin of nor the end of her traumatic inheritance and collapses the construction of race, gender, social construction, genetic inheritance, and emotion as discrete factors affecting black Americans' lives. Denise's body not only bears the brunt of her physical trauma as a child, but as an adult it acts as a canvas for her emotional trauma. When Paige comes to pick up Neecy and sees Denise, "the skin beneath her eyes looked so discolored that I had to wonder, for a moment, if Sean might have been hitting her" (97). However on examining Denise more closely, Paige decides that "No, she wasn't being beaten; she wouldn't have tolerated that with Neecy in the house. Instead, my friend was probably having a nervous breakdown" (97). The decades of abuse suffered by Denise, compounded by the fracturing of her perfect home, and the repetition of her father's absence become indistinguishable from physical trauma, demonstrated by Paige's inability to visually tell the difference between her physically-hurt childhood friend and her mentally-unstable adult friend. While evidence that stress effects the body is not new (voluminous research connects the body's allostatic load, or chronic stress level, to wearing down a body's general health), the story's incubation of Denise's genetically

twinned child offers an alternative explanation to a stressed anatomy for Denise's health and her body's inability to shed the physical signs of trauma.

Denise's clone daughter, baby Neecy, offers a window into epigenetic circumstance as the driving force behind racially and gendered health differentials. Denise provides Neecy with the family she didn't have growing up—parents that are consistent, kind, and nurturing. Denise's husband shared a similar desire for a marriage "based more on practical considerations than commitment. They both wanted a family. They both had pieces missing and were tired of failing" (98). Denise creates "elaborate charts" to plan this new life for Neecy, one "marked HOME, one FATHER [and] one SCHOOL" (97). In Denise's attempt to give Neecy, and by extension herself, a perfect life and thus an escape from the trauma that structured her childhood and bled into her adulthood, "Like Daughter" tries to separate the impact of biology from family nurturing on human development. If Neecy's childhood is perfect, then she should grow up without the trauma that shaped Denise. Paige acknowledges that the program allowing Denise to birth Neecy was "a glistening opportunity" to "take an inventory of everything that had gone wrong, systematically fix it all, and see what would blossom this time. See what might have been" (101). However, as Neecy's progenitor cell was extracted from Denise directly, *all* of her epigenetic changes, inheritable or not, transferred to baby Neecy. Far from fate or chance, Neecy's "destiny" is implanted in her epigenome, and like many black Americans, her epigenetic inheritance puts the weight of her ancestors' trauma in her body.

Neecy's shared (epi)genome collapses her body with her mother's social trauma, demonstrating how changing one generation's circumstances does not negate the impact

of previous generations' experiences, thus both reinforcing the importance of history to the present and delineating how culturally-created biological changes create transgenerational medical problems. The two characters become one, and when Paige agrees to take Neecy, she heads to the back room and notes, "The closet. I heard a sound from the closet, a child's wet sniffle" immediately thinking, "*Neecy, why are you in the closet? Did your daddy beat you again?*" (100), combining the mother and daughter, as "Denise was in the closet. She was six years old again, reborn" (100). Denise's interventions as a parent were predestined to fail, and little Neecy was bound to suffer the physical effects of trauma experienced by her mother, much as Denise's response to trauma may have been biologically predetermined by her mother's epigenome. Denise's upward class mobility did not impact this inheritance, nor did her methods of nurturing her daughter.[12] As most studies report epigenetic changes lasting for up two three generations, the cyclical repetition of trauma in Denise's family, and by extension for black Americans, seems unstoppable. Denise's mother is unsurprised by her daughter being sexually abused, likely experiencing similar abuse herself. Neecy is detested and abandoned by her mother, and her response to that trauma shows on her body exactly as it did on her mother's as a child. Denise's rise to middle class and "perfect" parenting could not shield Neecy.

"Like Daughter" complicates Butler's contention that problems in black communities are unfairly tied to black people's genes, echoing centuries of racist science

[12] Admittedly, while Denise's mother's parenting is one of absence, Denise's parenting is "over-nurturing" or strangling for baby Neecy. From the piles of taffeta dresses Neecy is forced to wear to the wall of toys and books, Denise's parenting style is an overcorrection from her mother's.

and placing contemporary experiments in their historical context. While indelibly true, "Like Daughter" alludes to a more complicated understanding of black people's DNA. Instead of centering a critique on historical and cultural practices influencing science, the impact of epigenetic changes on black people, inheriting trauma in the body, must be traced back bodily for generations to when the trauma first started and to the first ancestor whose allostatic load, diet, and environmental circumstances methylated their genes. A lineage, for black Americans, that spans back from police violence, back from Jim Crow, back from slavery, and back across the Middle Passage. If trauma sits on human genes for three generations, and the trauma of white racism continues to raise the allostatic load of people of color (as well as abuse the bodies of non-whites) without respite in the United States, racial disparities in health are bound to continue until the medical field and geneticists stop trying to solve (and capitalize on) race in health instead of eradicating racism in health.

While the *Xenogenesis* trilogy reveals the United States' genetic construction of black behavior by pitting alien sociobiologists against humans in a postapocalyptic future and "Like Daughter" uses cloning to demonstrate that race may not be part of the human genome, but the biological effects of racism are most certainly epigenetically inheritable, Andrea Hairston's 2006 *Mindscape* merges alien and human DNA in her hybrid *Vermittler* to exhibit how the future's oscillation between desire for *Vermittler* genetic code and disgust for *Vermittler* bodies reproduces people of color's relationship with U.S. government and (genom)pharmaceutical companies in the twenty-first century. Hairston amplifies Butler's and Due's critiques of genomic science by revealing how race is constructed, not cataloged, by genetics to generate and reinforce a market for racially-

tailored medicine in the United States. Her dystopia predicts a future where the biotech industry's current use of developing, or "treatment naïve" nations for experimentation and its growing investment in racially-tailored medicine will collide, creating a system in which the DNA of people from developing nations is harvested to perfect racially-tailored medicine for the developed world. In short, *Mindscape* demonstrates how the categorization, informationalization, commodification, and globalization of genetic science provide new ways of ab/using people of color's bodies and genomes to further medical science and pharmaceutical profits through racially tailored medicine and globalized pharmaceutical trials.

Mindscape opens at the beginning of the twenty-first century, after an alien barrier has invaded Earth, leaving destruction in its wake. The giant fog bank engulfs most of the planet, leaving isolated habitable zones for humans and wildlife. Killing anyone who touches it, the Barrier limits travel between the zones to seasonal corridors. Humans survive in three areas. Los Santos is the remnants of the United States' southwest and houses the film industry where filmmakers "become gangsters to control the production process" (78). Paradigma is the science zone, where bureaucracy, corporations, and capitalist development run free. New Ouagadougou is the healer zone, a place where "ethnic" traditions exist as spectacle, and hidden from view, inhabitants merge art and science into new technologies. *Vermittler*, people engineered by merging human and Barrier DNA, sculpt corridors between the zones and act as Barrier griots, communing with the alien fog that segments the planet.

Hairston uses the *Vermittler*'s bodies and genomes to reflect genetic science's parallel rise with the information age and transnational capitalism, demonstrating how the

biotech industry patents and deploys people of color's DNA. The *Vermittler* embody how the human genome's discovery is concomitant to its commodification and informationalization—transcribing DNA as strings of letters that are translatable, transformable, and transferrable. Vera Xa Lalafia engineers the half alien, half human *Vermittler* into existence in a New Ouagadougou laboratory. She publishes her methods and findings in the "*Final Lessons*," a text that the zones' healers use as part of their final training. Robin Wolf, a scientist spy from Paradigma, steals the *Final Lessons* and locks them in a hidden file called the "  Promised Land  ."[13] The New Ouagadougou healers kill Robin to keep secret the *Vermittler*'s code and Vera's genetic discoveries. Finally, Mahalia Selasie, a "renegade scientist" (9) from Paradigma, steals and decrypts Robin's file, using the information contained within to perfect her "gene art," or the future's genetic engineering. Once the *Vermittler*'s DNA is transcribed it becomes property, accessible to science even—or especially—absent *Vermittler* bodies. Similar to how the early Human Genome Project and its corporate competitor, the Institute for Genomic Research, rushed to patent genes, Vera, Robin, and Mahalia's appropriation and suppression of *Vermittler* DNA replays what Eugene Thacker describes as genetics' vacillation between government and corporate interests from the outset, a competition that eventually collapsed rendering the distinctions between government and private sector science fuzzy at best.[14]

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[13] For simplicity, the  Promised Land  will be referred to simply as the Promised Land. The symbols are present throughout the novel when the *Vermittler*'s compiled DNA is referenced.

[14] The first entity to invest in mapping was the Department of Energy, seeing work with genes as complimentary to the human radiation experiments they performed. The DOE undertook nuclear tests on humans from 1944-94, funding over 2000 projects,

Throughout the novel, it is the *Vermittler*'s material and informationalized bodies, their compiled and stolen genetic code that performs labor, a process that replicates biotech's use of Indigenous and black Americans' genomes. Elleni, a *Vermittler* healer, synthesizes the cure for the pandemic fire virus that devastates humans after the Barrier's arrival within her own body, infecting herself with the virus and creating a cure out of her own DNA (311). Sidi, a leader of New Ouagadougou's healer council, uses the *Final Lessons* to create corridors in the Barrier and to help engineer a deadly strain of the fire virus. Mahalia, "the best gene artist around" (25), uses the Promised Land's transcription of the griots' genome to perfect her work. It is *Vermittler* genetics, embodied or encoded, that creates large-scale changes in Hairston's future, genes that have been recorded, stolen, and used to both hurt and help the world's human population. Much as Stein argues that *Xenogenesis* reveals how Lilith replicates a particular sort of environmental rhetoric that demands the sacrifice of black women's bodies for the "greater good," *Mindscape* creates a future in which *Vermittler* genomes are sacrificed for each of the Zones' political and corporate aspirations. Kim TallBear argues that genetics is a tool for colonization, and it is Indigenous genomes and Indigenous bodies that are commodified in genetic research. Vandana Shiva and Laurelyn Whitt both relate how multinational capitalism profits off the DNA of Indigenous people and Indigenous plant knowledge, and it does so absent the people whose genes are performing the labor.

Hairston's future acutely desires the science produced from the *Vermittler*'s DNA but is repelled by the *Vermittler* themselves. It is their genetic code, not visceral bodies,

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many of which (if not most) did not involve consent, let alone informed consent. In these tests "many of the subjects, perhaps most, were African American" (Kean 295, Washington 218). See Chapter 9 "Nuclear Winter" in Washington for more.

that hold the keys to advancing gene art, a relationship that reflects how corporations capitalize on Indigenous and black American's DNA while the United States has historically rejected people of color within its borders. Even as the *Vermittler*'s DNA is the foundation for the novel's genetics, the mixed-species *Vermittler* are victims of a nearly complete genocide before the novel's opening. Orchestrated by Femi Xa Olunde, the genocide is justified through an essentialist view of bodily purity similar to genetic scientists' search for race and racial admixture. Femi "thought the forming of a new species by genetic recombination and co-evolution was an abomination" (149). TallBear reminds us that the entire basis for race in genetics is "predicated on the notion of purity" (5), as scientists try to link contemporary genomes to the genes of "ancient peoples whom they perceive as original continental populations" (3), despite the fact that "faith in originality would seems to be at odds with the doctrine of evolution, change over time, becoming" (6). Even examining race as an "admixture" of ancestry reaffirms this notion of genetic purity, Fields and Fields contend, as mixture requires original "pure" populations for comparison. Genetic theory has frozen time in an imagined past where migration out of Africa has ceased, people have evolved into different races based on their climates, and each race is localized in a specific geography. This invented moment is where companies claim our original ancestry lies, and it is this spatial and temporal point they mark as the seat of our current races. Femi's insistence on "pure" humanity replicates notions of race that are invented genetically.

However, even as he orchestrates the genocide of the *Vermittler* for their invented impurity, Femi, "a master of artificial bio-intelligence, inventing several organic machines" (287), successfully capitalizes on the *Vermittler*'s DNA through his use of the

Final Lessons, as do other New Ouagadougou healers. Femi's relationship to the *Vermittler* recapitulates how science based in the United States uses the genomes of black Americans while discarding their bodies. Scaffolding on earlier practices of removing black men from society through incarceration to provide labor for medical testing, genetics has literally divorced black people from their bodies and kept their genes alive for experimentation. For example, Rebecca Skloot relates how George Gey harvested Henrietta Lacks' cells from a cancerous tumor in 1951 without her permission when she went for treatment at Johns Hopkins Hospital. Her tumor cells became the key component for biomedical advancement as the first "immortal" cells that could survive outside a body. Lacks' cells, the HeLa line, garnered Universities and corporations millions (if not billions) of dollars after the cancer killed her, while her descendants continue to live in abject poverty. The process of "advancing" science with people of color in the genetic age flourishes on the ability to own pieces of people's bodies or to transcribe the essence of their lives without having to house their bodies. The *Vermittler*'s genocide, a dystopic creation on Hairston's part, projects the "utopic" longing the United States has for, what Alex Rivera explains as, "all of the work without the workers."

In addition to using (half) alien bodies for genetic labor, Hairston's future projects forwards the pharmaceutical industry's growing investment in racially tailored medicine. As Due's "Like Daughter" implies, medical problems that affect black people at higher rates than whites in the United States are not due to genetics that create race, but racist conditions that create epigenetic problems. Nonetheless, the differing health outcomes create a perfect opportunity to promote specific medicine to people of color in the U.S. and capitalize on the effects of racism without addressing any systemic problems.

Saluting Schuyler's Dr. Crookman and his Black No More treatment, Hairston brings transrace medical procedures into the genomic era. The ability to sell whiteness as product, as does Crookman's procedure, is predicated on white supremacy and its social, economic, and physical impacts. In Los Santos, "the default settin' for humanity [. . .] is white. The resta us be aliens, freaks of nature, or invisible, like who we are don't count" (153). Speaking of transrace gene art, Aaron Dunkelbrot, a documentary director, remarks, "Everyone wants white. Not many transracials go black. A lot of the Death Percent was on the Dark side" during the wars that followed the alien fog's invasion (122). Gene art allows "the Dark side" to survive. Aaron is himself transrace (and transsexual, originally a black Seminole woman), allowing him the cultural capital to run a studio in the "gangster" politics of Los Santos entertainment. He remarks, "Dark-skinned pop's down by sixty percent in Los Santos. People are literally dying to be white" as people of color go to gene artists of whom "ninety nine percent are hustlers and head jobs" that may or may not kill their patients during an operation (122). The future's culture creates the need for transrace gene artistry to avoid death as it capitalizes on people of color who undergo the surgery. The transrace procedures are the perfect example of racially-tailored medicine in a genomic era: racism creates the conditions that place people of color at a disadvantage, and gene art, produced from the *Vermittler*'s marginalized bodes, allows people of color to become white without changing the systemic problems that create violence against people of color. Race/ism creates the necessity, and people of color pay for the cure, putting money in the pockets of the very scientists that create race to begin with.

Mindscape's transrace gene art reflects how racially-tailored medicine is a fast-

growing field in the United States, as geneticists hope to unlock racial differences in the human genome that create unequal health outcomes. The discovery at the completion of the Human Genome Project that humans, in President Clinton's words, "regardless of race, are more than 99.9 percent the same" did not, as previously mentioned, close the search for racialized genes, but a decade and a half later, continues to fuel it. Projects jointly sponsored by the government and corporations, such as the HapMap project, the Genographic Project, and the Sorensen Molecular Genealogy Foundation build their genetic catalogs with a self-identified race category as foundational. They then sell this information to the public in the form of ancestry reports and to corporate interests as databases that link genes to medical conditions and race, in effect creating the groundwork for race-based medicine and providing the data needed to market products to particular ethnic groups. Fullwiley remarks that geneticists scour current humans' genome to find racialized, "genetic variance as the primary source of health disparities for common disease," overlooking social and environmental contributions to health problems (695).

Racism creates a self-sustaining market for medications that can treat its effects. For example, BilDil is a drug marketed to black people by Nitromed specifically to treat coronary heart disease and hypertension by combining two medications that are commonly available in generic forms. Both of these conditions are associated with high allostatic loads or environmental stressors, such as those caused by racism. Washington chronicles that the drug was first targeted to the general population and rejected for a patent in 1988, as there was no indication that the drug worked better than its components did separately. Nitromed later re-applied for a patent, supported with data two decades

old and arguing that chronic heart failure was a disease that caused mortality in black people twice as often as in whites. The statistics they used were inaccurate for the 2003 application, as the rate between blacks and whites was nearly equal at that point. Nevertheless, new trials were approved and Nitromed's 2004 study garnered them a patent although it only enrolled people who identified as black and found, unsurprisingly, that the treatment helped more than a placebo. Even though there was no proof that the medication worked differently on black people than whites, the FDA approved BilDil, and doctors are strongly encouraged to prescribe the medication to black patients, despite the fact it costs three to five times more than generic doses of the two separate medications of which it is comprised.

The field of racially-tailored medicine, encouraged by government spending and legislation such as Surgeon General David Satcher's 1997 resolution that marked racialized disparities in health as a priority (Washington 20), continues to grow, and continues to be questionable science. Fields and Fields, for example, note that a 2007 study sponsored by the Veteran's Affairs Department in New Mexico "involved testing to identify genetic tendencies in illnesses and disorders among *Hispanics*" (48, emphasis added). The study was suspended, but its focus on linguistic commonalities to define and understand what the researchers categorize as racial biology is demonstrative of how the field is steeped in science's racist history. So, like the loop that uses prisons to house black bodies for testing in order to create research that "proves" black people are supposedly genetically predisposed towards crime, contemporary pharmaceutical

companies create race genetically in order to sell medicine to people of color.[15] The FDA requires that all studies be categorized by race because, among other reasons, a few studies show that "*on average* members of certain OMB [Office of Management and Budget] racial groups *may* respond differently to a certain drug than members of other OMB racial groups" (Kahn 48, emphasis in original). Kahn suggests that FDA rewards companies for highlighting race in testing, and Washington remarks that the U.S. government is pushing to address racism in health.

However, finding willing test subjects in the United States became increasingly difficult after prison testing was regulated. The need for diverse test subjects, coupled with looser testing restrictions, has prompted companies to "span the globe on behalf of western pharmaceutical corporations looking to outsource clinical trials to more economical venues, often in developing nations" (Kahn 43). *Mindscape*'s zones outsource their testing as well, using Los Santos for experimental procedures. Los Santos is full of people who "want to go back to when the whole world wasn't like the Third World" (123) and boasts the largest transrace population trying to escape the effects of living in the postapocalypse. People of color in Los Santos have few options for escaping the race/ism-fueled inequity except to participate in experimental gene art, not unlike the "treatment naïve" people in India and South America, who make up the largest

[15] One of the most damaging parts of global genomics is how multinational corporations based in the United States define the parameters of genetic research and sequencing in what Bliss calls "U.S. biomedical imperialism" (12). As research is globalized, it extends U.S. politics far beyond its borders. For example, U.S. standards in genomic sorting requires countries to bank DNA samples by racial category, segmenting their sequences by ethnicity or admixture and reaffirming U.S. notions of race as global (Bliss 9), in effect, possibly expanding the racial disparities in health by exporting genetically-created race.

populations in outsourced trials. People in Los Santos are superfluous products, from being victims of organ trafficking before the novel's opening to being killed during filming as "expendable" Extras; with the rise of *Vermittler*-powered gene art, Los Santos is a space where scientists can escape regulation. Mahalia Selasie, after unlocking the Promised Land, proclaims "I'm taking my underground choir [of scientists] to Los Santos. They'll let me do what I want," because she can't "wait[. . .] around for dimwit politicians to see the light" (375, 368). Although Mahalia eventually practices science in support of the marginalized and against repressive power structures, her move to take her "renegade scientists" to the least developed part of the segmented planet is fueled entirely on being able to practice bio-science unfettered by law. It is Los Santos that gives her the unregulated space that makes her "the best gene artist around" (25), providing transrace (as well as other cosmetic) gene art for the zones' rich and avoiding regulation that might limit her experiments, a move that echoes contemporary pharmaceutical companies' search for genetic test subjects outside the U.S.

Critics remark that outsourcing clinical trials to developing nations is hugely prevalent but hard to quantify. Bopanna and Gupta report that the first decade in the twenty-first century evidenced a boom in clinical research as a business. It is cheaper by fifty to sixty percent according Arun Bhatt, and has "a lack of regulation of private trials and uneven application of requirements for informed consent and proper ethics review" as Chatterjee acknowledges (581), and provides "treatment naïve" subjects who are not on other medications concludes Ernie and Weisung (4). However, understanding the extent of testing in developing nations is difficult as the move from government-sponsored research to corporate backed experiments allows researchers more secrecy.

Fisher and Kalbaugh remark that physicians in the field see their position as "trial practitioners and as business people rather than scientists or researchers" (1), a designation that fuels a decrease in reporting on trials from what Hoekman et.al. report as 90% for government or not-for-profit research to a paltry 37.8% for corporate trials. Because trials in developing nations have a history of abuse similar to that of medical testing on black people in the United States, the lack of oversight is particularly problematic, as the genetic abuses in *Mindscape* predict.[16] It is after all Paradigma and New Ouagadougou's actions, from their renegade scientists to their deployment of a new gene art variation of the fire virus, that reinforces the "third world" conditions of Los Santos.

Mindscape provides an ominous prediction for the world's future, one that understands multinational corporations' use of genetics globally and reflects on genomic Afrofuturism's work dismantling notions of science as objective. *Mindscape* builds on the genre's chronicle of genetics' exploitative history from the field's infancy and predicts its expansion. Afrofuturism ties genetic testing to the (re)creation of race/ism in the information age, and (re)affirms that the racist treatment of people of color globally is a scientific extension of black Americans' unique(ly invented) physiology. At the same time, it reveals that race/ism is the cause of black Americans' health disparities, not biology. As race/ism is the cornerstone for understanding black inequity in the United States, Afrofuturism—from Schuyler's predictions at the beginning of the twentieth century in *Black No More* to Hairston's inventions at the beginning of the twenty-first in

[16] See Hans-Jörn Ernie and, Urban Weisung's "Testing Drugs Together with Those Who Need Them" for a list of abuses, such as giving women AIDS in Bolivia.

Mindscape—unmasks how science is *designed* to fuel white supremacy, and Afrofuturism's seemingly extreme futures are a dark reflection of biology's actual, sanctioned practices. While the practice of defining race and racialized disease has been a cornerstone of science from Linnaeus' taxonomy through "malingering" as a uniquely black disease, the global nature of genetics has ominous implications for U.S. race/ism as contagious.

Martinez
from over by Bluewater was the one who discovered uranium
west of Grants.
That's what they said.
He brought that green stone
into town one afternoon in 1953,
said he found it by the railroad tracks
over by Haystack Butte.

"It Was that Indian"
-Simon Ortiz

The land. The people.
They are in relation to each other.
We are in a family with each other.
The land has worked with us.
[. . .]
The land has worked for us
to give us life—
breathe and drink and eat from it
gratefully—
and we must work for it
to give it life.

"We Have Been Told Many Things but We Know This to Be True"
-Simon Ortiz

Beyond Critical Mass: Atomic Fission and Native Science Fiction

Simon Ortiz's 1980 collection *Fight Back for the Sake for the People for the Sake of the Land* chronicles the problems surrounding uranium mining for Navajo, Laguna, and Acoma people from the early 1950s. It frames the centrality of Native America to the atomic era and engages questions of Native injuries by and responsibility for the nuclear Southwest. The story of Natives' significance to the creation of the atomic bomb is not well known in the broader United States and has only recently been publicized, in many ways with Ortiz's book. Referring to the uranium mining in New Mexico, Ortiz, a former miner himself, contends that in the U.S.:

> knowledge has been kept in some hidden place and has been used as controlling power. Although the people had felt the tremor of light, and knew that it was strange, they did not know what it meant. The great majority of U.S. society did not know what it meant because knowledge was kept away from them just as effectively, and in many ways more so. The meaning was known only by a few people in the U.S. government, and to those who were in control of this knowledge, it meant power. They not only had power by controlling knowledge, but they had it by having the power to destroy. (63–64)

The silence surrounding the atomic era continues in the United States with a deliberate amnesia surrounding how Native people have participated in, and been effected by, nuclear production. For example, the National Museum of Nuclear Science and History (located in Albuquerque, NM) chronicles the history of the atomic era, including details about the locations of labs and test sites. It makes mention of Native people once. Two plaques adorn an old uranium mining cart. The first details the history of mining equipment and mentions the medical and environmental effects of mining on the Navajo people. The seconds lists "a few major obstacles" to continuing nuclear production for energy, including the Navajo Nation's moratorium on nuclear mining. The museum's exhibit clearly represents the atomic era in the United States' consciousness: Native people are absent, except as objects to be pitied for their plight and then blamed when they fight back against that which has harmed them.

Ortiz's writing focuses on environmental, social, economic, and decolonial activism, things that cannot be separated within a Native world view. Ortiz contends that Native people "have to be responsible to their source, it's an advocacy position in a way, to be able to continue as who we are, to sustain ourselves and to be nourished by our cultural source, then you have to be an advocate, but an advocate who is responsible" (qtd. in Adamson 58). In writing *Fight Back*, Ortiz elaborates the complexities of such a

position—as it was "Martinez / from over by Bluewater" who found the first uranium in the area (2), and Acoma and Laguna people who mined the ore from their own lands (5). At the same time, this participation is used to justify the tailings, or toxic legacy, of nuclear mining on Native people:

> Well, later on,
> when some folks began to complain
> about chemical poisons flowing into the streams
> from the processing mills, carwrecks on highway 53,
> lack of housing in Grants,
> cave-ins in Section 33,
> non-union support,
> high cost of living,
> and uranium radiation causing cancer,
> they - the Chamber of Commerce - pointed out
> that it was Martinez
> that Navajo Indian from over by Bluewater
> who discovered uranium,
> it says so in this here brochure,
> he found that green stone over by Haystack
> out behind his hogan;
> it was that Indian who started that boom. (2)

The participation of Native people in the mining process leads to "blaming the victim," much as signed treaties are used to justify colonization of Native lands. Ortiz mentions that the story of Paddy Martinez finding uranium is

> not quite true. Grants and the U.S. system could have us believe it was as simple as that: it would reiterate the idea of the Indian bringing his own fate upon his head—just like the 19th century Manifest Destiny which saved [. . .] the poor Indian from extinction. [. . .] There was knowledge that there were substantial uranium ore bodies in the Southwest, and all they needed was time to make a "discovery" and a place where there would be no problem in exploiting. (64)

Here Ortiz illustrates the insidious nature of choosing Native America as the site for uranium mining by the government and corporations and, by extension, other toxic environmental processes. He links the deliberate environmental racism inherent in the

actions of the United States' government to the country's legacy of genocide, land theft, and cultural destruction, justified through the rhetoric of civilization.

Simultaneously, Native people's relation to the world around them demands their participation in balancing, or being responsible for, the land and people, both human and non-human. As "The land. The people. / They are in relation to each other. / We are in a family with each other" it is the People[1] who must "must work for it [the land] / to give it life" (Ortiz 35). Ortiz's poems "It Was that Indian" and "We Have Been Told Many Things but We Know This to Be True" collaborate to illustrate the particular ethical problems surrounding nuclear production in Native America. As Cheyfitz remarks, the conflict centers on "a community relationship to land as kin in contradistinction to its conceptualization as *property*" (157, emphasis in original). Even as Native communities are taken advantage of, not knowing the possible ramifications of uranium mining because of deliberate silence on the part of scientists and governments, they are also responsible for their "kin," human and nonhuman, and the destruction unleashed on the land by the nuclear cycle.

The atomic age is the perfect point to interrogate this conflict in conversation with western ways of seeing atomic production, for as Masco reminds us, "as physicists worked to unlock the power of the atom in laboratories and test sites, Pueblo leaders sought to manage the ecological balance in their universe through the ritual maintenance of a complex system of shrines and sacred sites" (102). It is also the most notable crisis of

[1] To avoid confusion, I will use capitalization (*People*) to indicate Indigenous people or groups as a whole, in accordance with capitalizing tribal or ethnic identities—e.g. Diné translated into English literally means "the People." Other uses of *people* will be lower-case.

ethics for contemporary western science, where the scientific community, as well as the public, first challenged the freedom of the scientist. Schweber marks it as an era characterized by volumes of papers, conferences, and discussions surrounding, first, the moral obligations of scientists as individuals, and second, the ethical obligations of communities and governments toward what scientists produce. The creation and use of the atomic bomb shattered the idealized state of free intellectuals researching without regard for what might happen with their creations. From Einstein to Oppenheimer and across the scientific community, questions of social responsibility proliferated. The discussion was, in many ways, a global crisis that ushered in new ideas concerning the relationship between science and war, technology and capitalism, and governments and research in western science. The killing of more than 180,000 people instantly during the bombing of Hiroshima and Nagasaki precipitated a global crisis of conscious. The immediate crisis blossomed during the Cold War into the nuclear arms race, and after the fall of the USSR, the atomic dilemma continued to expand to include the spread of former Soviet weapons globally and the use of nuclear energy and its waste products. Post 9/11, the nuclear confrontations continued with fear of atomic terrorism and continuing environmental concerns marking the twenty-first century's relationship to fission technology.

Unfortunately, this crisis of conscience didn't include attention to the people in the United States that are most affected by the production of the bomb. Brugge, deLemos, and Bui contend that the only nuclear disasters that receive media attention are the most visible stages of the nuclear cycle—the power plant meltdowns at Three Mile Island and Chernobyl (and now the Fukushima-Daiichi plant in Japan) and the visible detonation of

bombs, either in war or during above ground testing. Mass media overlooks similar disasters, such as the 1979 spill at the Church Rock uranium mill outside of Gallup, NM, and the 1986 cylinder rupture at the Sequoyah Fuels Corporation's uranium conversion plant near Gore, OK. Early stages of the nuclear cycle, such as mining and refining, often have more severe medical and environmental consequence and, as Caputi asserts, are most often on Native land in the United States. Karlsson notes, for instance, that most of the uranium in the world sits in Indigenous soil (44). But it's not just production, as Hanson asserts; the government has been pushing to locate the end of the nuclear cycle—spent fuel rods, contaminated materials, and other radioactive waste—on reservations as well.

Native people in the United States have an intimate connection to the atomic era. Caputi reminds us that the "atom bomb was developed on the lands of Pueblo Indians in New Mexico (ironically, people with a tradition of considering violent war to be unnatural). Uranium mining and milling on Laguna and Navajo lands has led to dire health consequences for these peoples," and similarly the Shoshone and Paiutes in Nevada "have become prime targets for test sites and waste dumps" (2). Not only were the mines located on Navajo and Pueblo land, the miners themselves were Native people, and the worst spill of radioactive materials ever in the United States occurred in 1979 on the Navajo Reservation when a dam mismanaged by the United Nuclear Corporation spilled 100 million gallons of radioactive water and 1.100 tons of mill tailings into the Rio Puerco (Caputi 2). Los Alamos, the city where the bomb was developed, was founded on the Pajarito Plateau—settled first by Keresan-speaking Pueblo and still sacred ground. The first bomb was detonated on the Trinity test site (White Sands), land upwind

from the Mescalero Apache Reservation in New Mexico. In fact, the prevalence of nuclear mining and testing was so expansive that the federal government sought to define the Four Corners and the Dakotas as National Sacrifice Areas to allow for unchecked nuclear contamination and development (Zamir 399). From the uranium enrichment and plutonium manufacturing plant on Yakima land in Washington, to uranium mining in the Black Hills of South Dakota, sacred land held in stewardship by the Lakota, Nakota, and Dakota Nations, nuclear land is Native land.

Masco argues that for the United States' dominant culture, the nuclear world is "unthinkable" and "to make something 'unthinkable' is to place it outside of language, to deny its comprehensibility, and to elevate it into the realm of the sublime" (2). What is too terrible to be understood is both repressed (much as Native history, culture and Native bodies have been) and made sacred.[2] This amnesia is not just related to forcing and, alternatively, coaxing Native people to take responsibility for the nuclear cycle. Masco continues to argue that the existence of nuclear material itself causes a crisis of national identity as the dangers from radioactive materials

> long exceed any reasonable assumption about the lifetime of the nation-state. Nuclear materials not only disrupt the experience of nation-time (confounding notions of both the present and the future), they also upset the concept of nation-space, in that they demonstrate the permeability, even irrelevance, of national borders to nuclear technologies (to intercontinental missiles or radioactive fallout, for example). (12)

To avoid this psychological trauma, the United States choses "to forget the past to enable the future" creating a "nuclear uncanny" (Masco 101) that haunts the United States. It is precisely this repression that Native science fiction resists and remembers.

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[2] See Caputi and Masco for discussions of the language of the atomic bomb and divinity.

In the context of the dilemma that Ortiz's poetry sets, this chapter demonstrates how Native authors situate science fiction at the intersection of western science and Indigenous epistemologies. Native science fiction provides a clear example of how, to borrow Dillon's terms, Indigenous scientific literacies and western scientific "progress" converse and clash, focusing on the atomic-era of the southwestern United States as a site for agency and enacting new ways to survive the (second) postapocalypse.[3] Native science fiction reveals the lacunae in western science's self-image and creates new ways of managing science's destructive legacy. To engage the monsters of colonialism, Native people must take responsibility for their part in the nuclear cycle and rebalance the world set askew. By extension, global problems, like the atomic bomb, need global Indigeneity as a solution—balancing western science with Indigenous scientific literacies, integrating and interrogating western and traditional ways of understanding the cosmos.

The atomic era, both globally and in Native America, provides a backdrop that Ortiz's activist poetry reveals and that Leslie Marmon Silko's 1977 novel *Ceremony* fractures, atomizing western repression and discussions of accountability to find another way of seeing the question of atomic ethics: one based in older, Indigenous systems of knowledge that make the western argument of accountability suspect. The novel exposes the buried moments in the nuclear cycle and suppressed history of Native people and the atomic era, shifting the absence and awe characterizing the west's interaction with nuclear uncertainty into a framework where atomic histories, legacies, and fallout are understood and reintegrated into a broader worldview. Silko exploits the fissure created

[3] Referred to as "the Southwest" from this point forward in favor of simplicity in language. Other uses of southwest will be noted as they occur.

by the atomic bomb's detonation to both present problems with western modes of thought and to advocate for new *and* traditional ways of interacting with the world based in Indigenous science. Jane Caputi argues that *Ceremony* recontextualizes the existence of white Europeans as a trick of Indigenous witchery and reveals Laguna and Navajo participation in the nuclear Southwest to establish Native people's presence in atomic history. I contend that Silko's novel also, and perhaps more importantly, implicates Native people in the unbalanced world created by whites, witchery, and the discovery and of the atomic bomb.

The chapter considers *Ceremony* as a reclaimed example of Native science fiction, central to the canon of Native literature. Silko's work reveals Native presence in atomic history and exposes the beginnings of the nuclear cycle—centering on how Pueblo (most specifically Laguna) and Navajo people and land took part in the creation of the atomic bomb and the destruction of WWII, creating a fission between the land and the People and thus between Native responsibility and Native culpability. My argument then moves from nuclear mining and the first atomic bombs to a discussion of the nuclear era's fallout in William Sanders' 1999 *The Ballad of Billy Badass and the Rose of Turkestan*. Sanders follows the fallout caused by these explosions on Indigenous people globally. The novel expands the conversations surrounding the nuclear Southwest to Kazakhstan and testing at the Semipalatinsk Test Site as it engages contemporary government attempts to store nuclear waste on reservations. Finally, I close the chapter following Stephen Graham Jones' 2010 *It Came from del Rio* as the novel chases nuclear waste and terror across the Americas' borders, revealing the effects of nuclear transportation and disposal on Native people. Jones' postmodern, post-9/11, monster

narrative embodies the effects of the United States' fear of nuclear terrorism and transportation as it follows radioactive waste across the U.S.-Mexico border.

Together, these three works provide a complete picture of the nuclear cycle, one which doesn't repress the histories of Native and Indigenous subjects' participation, but instead complicates the master narrative of nuclear discovery and challenges the scientific racism imbedded in atomic history, discovering new ways of navigating a (twice) postapocalyptic world fractured by fission, fallout, and waste. By revealing the long-term and less-known effects of atomic fission, Native science fiction catalogues science's failure. All three texts then provide a Native scientific method to prevent future damage and redress the core philosophical issues that allowed the problems to proliferate in the first place. These authors leverage science fiction, a genre known for presenting scientific dreams and nightmares, to discover new paradigms for managing and preventing nuclear disasters. Discoveries based in traditional, tribal ways of understanding humans and their relationship to the world. Discoveries based in forging alliances with other, similarly effected Indigenous populations. Discoveries based on recognizing how scientific practice is not unbiased, but a philosophical system that, in practice, uses Indigenous bodies and land to "advance" technological "progress," much as Ortiz contends the deliberate environmental racism of the United States' government policy does. The United States' rhetoric of civilization and legacy of abuse against Native people creates a critical mass from which scientific theory and practice is not exempt. The nuclear cycle's effects on Native people is just another link in colonization's chain reaction, a reaction that can be broken by replacing the atomizing philosophy of western science with a more accountable and integrative philosophy that sees all life as

indispensable parts of a whole: kin working for kin.

Ceremony relates a single year in the life of Tayo, a mixed-blood white and Laguna WWII veteran just back from the Pacific front. Shell shocked, Tayo and the narrative reel between the past, the present, mythic time, and mundane-made-mythic moments. A ceremony itself, what N. Scott Momaday called "a telling" instead of a novel (qtd. in McMurtry xxii), the text navigates between the traditions of the Laguna and Navajo and a postwar, globalized United States to find a way to re-center a decentered planet and people. The novel focuses on trying to cure Tayo—and by extension all of the returning veterans and the land—of their war-induced sickness. It is only through Betonie, a mixed-blood Navajo and Mexican medicine man, that healing is possible. A believer that as the world changes, ceremonies must adapt, Betonie creates a ceremony that "lay to rest the Japanese souls in the green humid jungles, and it satisfied the female giant who fed on the dreams of warriors. But there was something else now, as Betonie said: it was everything they had seen—the cities, the tall buildings, the noise and the lights, the power of their weapons and machines" (156). The novel then explores how a return to story and tradition can provide the global healing an atomized world requires.

The mundane plot related in prose and mythic time in poetry, the novel uses ceremony and story to connect Tayo's mental and physical health to the health of the land and Native stewardship of the world. The novel begins with a poem framing the text as a thought-story become real:

Ts'its'tsni'nako, Thought Woman,
is sitting in her room
and whatever she thinks about
appears.

She thought of her sisters,

Nau'ts'ity'i and I'tcts'ity'i,
and together they created the Universe
this world
and the four worlds below.

Thought-Woman, the spider,
named things and
as she named them
they appeared.

She is sitting in her room
thinking of a story now

I'm telling you the story
she is thinking. (1)

A story of stories, a ceremony of ceremonies, the book is "a hybrid literary form, a novel in which the Pueblo oral traditions and western literary forms and narratives are juxtaposed and intercut as part of a complex process of mutual transformation" (Zamir 397). The narrative form—containing stories ranging the Laguna cycle of losing and regaining the rain from Ck'o'yo medicine to Navajo tales of bear and coyote and the humans who become them—presents a way of understanding and influencing the world through oral tradition and ceremony. The novel's integration of traditional stories provides a natural foundation to counter the destruction caused by nuclear fission. *Ceremony* lays bare the process of separation and segregation inherent in western society and science—a disintegration that reaches its apex with the destruction caused by nuclear fission, a process not content to split the visible world, but one that shatters the very atoms that construct it.

Atomic fission is at its core antithetical to a Native worldview. It is the process of splitting an atom's nucleus into its smaller, constituent parts. Bombarding a fissionable atom with other atomic particles (most frequently neurons) eventually splits the nucleus

into pieces, themselves often still fissionable, releasing a large amount of energy and neutrons escaping at a great velocity. If there is more than one atom of fissionable material, the released neutrons can split further nuclei. When there is enough material available, and the fissionable material reaches a critical mass, this causes a sustained nuclear reaction in which each fission event produces one or more subsequent events, causing a continuing chain reaction of nuclear fission. Nuclear reactions are endlessly fracturing material that should remain whole and in relation.

Tayo's time on the Pacific Front forces him to see past the fission World War II causes. Silko frames the war as unnaturally splitting humans that share more in common than they have differences. When captured, Tayo remembers that one of the Japanese soldiers "looked like a Navajo guy from Fort Defiance [. . .] he even shook his head like Willie Begay did" (40). The episode, which ends in the soldier killing Tayo's brother Rocky, runs parallel with an earlier moment where his unit kills a group of soldiers:

> in that instant he saw Josiah standing there; the face was dark from the sun, and the eyes were squinting as though he were about to smile at Tayo. So Tayo stood there, stiff with nausea, while they fired at the soldiers, and he watched his uncle fall, and he *knew* it was Josiah; and even after Rocky started shaking him by the shoulders and telling him to stop crying, it was *still* Josiah lying there. (7, emphasis in original)

The Japanese soldiers are tied to the Native people back home, both through their appearance and through Tayo's twisted memory. His sickness isn't just shell shock—it is a response to colonization that causes Indigenous subjects to enact violence on each other. It is recognizing home in others and then watching the destruction of that newly-found home. Nelson figures the global connection as creating a "pan-Indian identity" alongside the mixing of Navajo and Laguna ceremonies (124). However, the physical and empathetic links Tayo has with the soldiers leans more towards global Indigeneity—not

connecting all Indians as one people, but recognizing the similar circumstances that befall distinct Indigenous populations. Nelson reads the recognition as championing the biological link between Native people and Asians. However, locating Tayo's moment of recognition in Japan during WWII clearly alludes to the bombing of Hiroshima and Nagasaki with bombs made from Laguna and Navajo uranium—refined rocks, literally land—and thus demonstrates that the global malaise reflected by Tayo is the fission of Indigenous subjects enacted with Native land.[4] Or as Ortiz frames it: kin killing kin.

The relationship between the Laguna, Navajo, and their land acts as an anti-colonial force in the narrative, but the sickness befalling Tayo is refigured as more than a response to white people's actions. The novel implicates Native people in the sickness and the global imbalance plaguing Tayo. *Ceremony* relates the heart of Native responsibility in a "doubly embedded" (Nelson 123) poem in the center of the novel told by Betonie to Tayo. The poem has been framed as an extension of Navajo and Laguna oral tradition by previous poems "styled to read like old-time, traditional oral narrative—what at Laguna Pueblo they often call 'hama-ha[h]' stories, long-ago far-away stories" (Nelson 13). Betonie relates the creation of white people by Native witchery, a story from when "there were no white people in this world / there was nothing European" (122), and

[4] The nuclear material used to develop the first atomic bombs contained, Chenoweth estimates, about 44,000 pounds of uranium oxide mined from the northern New Mexico (2). Because of the secrecy surrounding the earliest stages of mining on the Colorado Plateau, most scholars, Like Bothwell, forward that the uranium for the bombs came solely from Port Radium, a site in northern Canada on Dene and Cree land, and Union Minière in the Congo. Though there is not doubt that Canada and Africa supplied the Manhattan Project with a substantial amount of uranium, Chenoweth's estimate indicates it is likely early uranium sources are just as occluded as the rest of the atomic bomb's history. The second bomb used plutonium, refined and enriched uranium from the same sources.

a group of witches got together to have a contest on whose witchery was the worst. The last one to show off:

This one just told them to listen:
"What I have is a story."

At first they all laughed
but this witch said
Okay
go ahead
laugh if you want to
but as I tell the story
it will begin to happen.

Set in motion now
set in motion by our witchery
to work for us.

Caves across the ocean
in caves of dark hills
white skin people
like the belly of a fish
covered with hair.

Then they grow away from the earth
then they grow away from the sun
then they grow away from the plants and animals.
They see no life
When they look
they see only objects.
The world is a dead thing for them
the trees and rivers are not alive
the mountains and stones are not alive.
The deer and bear are objects
They see no life.

They fear
They fear the world
They destroy what they fear.
They fear themselves.
The wind will blow them across the ocean
thousands of them in giant boats
swarming like larva
out of a crushed ant hill.

They will carry objects
which can shoot death
faster than the eye can see.
They will kill the things they fear
all the animals
the people will starve.

They will poison the water
they will spin the water away
and there will be drought
the people will starve.

They will fear what they find
They will fear the people
They kill what they fear.

Entire villages will be wiped out
They will slaughter whole tribes.

Corpses for us
Blood for us
Killing killing killing killing.

And those they do not kill
will die anyway
at the destruction they see
at the loss
at the loss of the children
the loss will destroy the rest.

Stolen rivers and mountains
the stolen land will eat their hearts
and jerk their mouths from the Mother.
The people will starve.
They will bring terrible diseases
the people have never known.
Entire tribes will die out
covered with festered sores
shitting blood
vomiting blood.
Corpses for our work
Set in motion now
set in motion by our witchery
set in motion
to work for us.

They will take this world from ocean to ocean
they will turn on each other
they will destroy each other
Up here
in these hills
they will find the rocks,
rocks with veins of green and yellow and black.
They will lay the final pattern with these rocks
they will lay it across the world
and explode everything.

Set in motion now
set in motion
To destroy
To kill
Objects to work for us
objects to act for us
Performing the witchery
for suffering
for torment
for the still-born
for the deformed
the sterile
the dead
Whirling
whirling
whirling
whirling
set into motion now
set into motion. (124-28, emphasis in original)

The witch wins the contest, and the others beg it to take the story back, but "*It's already turned loose.* / *It's already coming.* / *It can't be called back*" (128). In an unstoppable chain reaction, the destruction perpetrated by the witchery-created whites culminates in the discovery of uranium and the creation of the atomic bomb. Focused on how they can't understand anything but themselves as alive, the story creates the only people that could destroy the world. People that use their sciences to create things "*which can shoot death / faster than the eye can see*," things that "*poison the water*" and "*spin the water away*" finally finding "*the rocks, / rocks with veins of green and yellow and black*" that will

"*explode everything.*"

Zamir calls this poem "Silko's diabolic myth for historical disruptions and colonial violence" (400). The text reverses colonization, Nelson argues, by making whites and the atomic bomb *tools* of witchery instead of independent agents. Yet, it does more. The poem shifts responsibility for restoring balance and preventing the explosion caused by the colonizers to the People—not just the United States' bombing of Hiroshima and Nagasaki; or the results of the Uranium mining process on reservations, including cancer, poverty, and environmental destruction; but the process of colonization itself, which the narrative likens to atomic fission. Instead of presenting the abuse of Native land and bodies solely as a crime perpetrated on Native people, *Ceremony* disempowers whites and western science, placing responsibility on the shoulders of witchery in the global Indigenous population: "Some had slanty eyes / others had black skin. / [. . .] witch people from all directions / witches from all the Pueblos / and all the tribes" (123). The novel shifts accountability for whites' behavior to the Indigenous witchery that created whites to begin with. In lieu of the scientific arguments surrounding the destruction of Hiroshima and Nagasaki focused on the morality of creating atomic weapons, *Ceremony* instead demands that Native ceremonies balance the witchery that created the people who created the atomic bomb—and the conditions for the bomb—in the first place. By following the atomic reaction back to the beginning of the chain, Silko reinscribes Native relationships to and responsibilities for the land.

The same sort of reversal happens with the uranium itself. Seen as a toxic element in western science and culture—locked away, hoarded, shielded from the western world—*Ceremony* describes uranium as another piece of the natural world. The "stone

was streaked with powdery yellow uranium, bright and alive as pollen; veins of sooty black formed lines with the yellow, making mountain ranges and rivers across the stone. But they had taken these beautiful rocks from deep within earth and they had laid them in a monstrous design, realizing destruction on a scale only *they* could have dreamed" (228-29, emphasis in original). The novel characterizes uranium by its misuse by scientists, the destroyers, not as innately problematic. Connecting the element with pollen, a sacred substance, and naming it as alive makes it part of the interconnected relationships Indigenous science maintains. Additionally, the uranium becomes a microcosm for the broader world, with "mountain ranges and rivers" all its own. Instead of an "unnatural" evil created by scientists unconcerned with the ethical ramifications of their work, uranium becomes a beautiful rock taken from its home. The sickness here is being out of place, fissured—what should be sheltered within the earth is laid bare upon it. It is precisely western science's lack of an integrative understanding of the world that allows the destruction "*Then they grow away from the earth* / *then they grow away from the sun* / *then they grow away from the plants and animals.* / *They see no life* / *When they look* / *they see only objects.*"

Even as Silko turns the discussion of responsibility for land globally, she does not neglect the specific history of the atomic bomb on a local scale, as maintaining the balance between human and non-human people is grounded in a particular tribe's world or homeland, in this case the Southwest.[5] By centering Tayo's recovery in the atomic

[5] Specifically, Dinétah, the world of the Navajo (Diné), is bounded by Tsisnaasjini' (Blanca Peak) on the East, Tsoodzil (Mount Taylor) on the South, Doko'oosliid (the San Francisco Peaks) to the west and Dibé Nitsaa (Mount Hesperus) on the North. The Laguna recognize six sacred mountains spun into existence by Spiderwoman,

landscape of the Pueblo and Navajo, *Ceremony* proposes that the counter to an atomized planet can be found in regional traditions.[6] To reinforce the solution's regional nature, instead of telling the reader about the "tailings" of the atomic era on the Southwest, they are alluded to with place. Silko's novel presents the "atomic heat-flash outlines" (Silko 34) of local history flash-frozen on the sands of the New Mexico desert: the cumulative effects of a radioactive colonization on Tayo and the surrounding world, but not the specifics of uranium mining in New Mexico and the nuclear blasts in Japan. Jacobs relates how the final showdown between Pinky, Emo, LeRoy and Harley takes place at Jackpile Uranium mine, and the witches meet in the hills North of Cañoncito, the same place Tayo escapes from Emo, Harley, and Leroy before their final confrontation. The ground around which the narrative centers overlooks Jackpile mine and, as Jacobs remarks, allows Silko to describe the reclaimed wasteland where "nothing grows [. . .] except some sagebrush" (46). Tayo sees that "Grayish green salt bushes had taken over the areas between the crisscross of big arroyos. South, in the distance, he could see one big cottonwood tree, the only bright green in that valley. It was growing on the edge of the deepest arroyo, its web of roots exposed, held upright only by a single connecting root" (Silko 224). The place where the witchery begins and the space where Tayo learns to manage himself and his responsibilities are local, even as the effects he offsets are global.

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including Tspina (Mount Taylor) to the West, Tautyuma to the South, K'tchuna to the East, and Kaweshima to the North with Koatuyma above and Ctciaitcana below (Swan 231-34). Nelson remarks that these boundaries to the world are highly metaphorical in nature, and the People traded and traveled beyond their boundaries.

[6] See Nelson's "Place and Vision: The Function of Landscape in *Ceremony*" for more on the non-nuclear landscape Silko uses heavily.

Ceremony refutes the United States' denial of its nuclear legacy by reimagining and remembering Native people's relationships to the world and recognizing the global implications of local decisions concerning people and land. Much as Betonie provides new ceremonies for a new world, Tayo's final cure comes from Ts'eh Montano, a living incarnation of Yellow Woman and the mountain Tspina, who helps Tayo relearn "those structures of attention that place him in a balanced relationship with the land" (Zamir 405): a land that requires new ceremonies to adapt to its new state. As pieces dug from Native land travel across the world in the belly of the United States' warplanes, the responsibility for that land travels as well. Recognizing Native responsibility for a world split by nuclear fission, coupled with a return to traditional stories and adaptation of these stories, creates an Indigenous scientific method and counters the destruction of western science by providing a way to integrate tradition and the new world through revealing the United States' and Native people's atomic legacies.

What is witchery-created evil in *Ceremony* becomes more literal monsters in Sanders' 1999 *The Ballad of Billy Badass and the Rose of Turkestan* and Stephen Graham Jones' 2010 *It Came from Del Rio*. These novels directly engage 1950s science fiction and film, adding a second layer of storytelling and myth to the Native stories with which Silko structures her novel. Sanders and Jones refigure the nuclear monster in such films as *It Came from Outer Space*, *The Night of the Lepus*, *The Thing*, and *The Blob*, conscripting the dominant culture's media representations of its nuclear fear. Hendershot lists these types of films as alternatively "explor[ing] nuclear weaponry and warfare by using alien invasion scenarios," deploying "a reawakened prehistoric monster as a metaphor for atomic power," or demonstrating "the horror of nuclear weaponry and

testing by depicting a non-human force that gains power in the American desert," thus using "familiar mythological forms to represent the new threats present in the Atomic Age" (72-73). Cold War science fiction uses alien others, whether they are alienated by their non-terrestrial origins or by being unnatural permutations of the natural world, to displace and display atomic fears. Native people (and other people of color) are often depicted *as* alien others in science fiction. To resist these representations, Native science fiction repurposes the monsters in the desert to instead reveal hidden atomic histories and legacies. Sanders and Jones retell the fifties' monster stories to present new ways of engaging their atomic eras through integrative Indigenous science and story, using their own "familiar mythological forms" to illuminate alternative ways of integrating Native people's relationships to nuclear technologies.

More than holding a conversation about Native people and the environmental and cultural devastation caused by nuclear proliferation, *The Ballad of Billy Badass and the Rose of Turkestan* engages issues of representation and absence by invoking cold war imagery and reclaims these images by linking them to tribal tradition. Sanders uses Cherokee traditions to enable the destruction of a nuclear monster in the Nevada desert. *Billy Badass* follows Billy Badwater, guided by his dead grandfather Ninekiller (who most often takes the shape of a bird to speak with his grandson), as he chases after Janna Turanova, a Kazakh "medical technologist, a researcher in pediatric cancer and genetic defects" (24) he meets at a powwow in Oklahoma. Billy follows Janna to Nevada where he learns about toxic waste dumping and nuclear testing on Paiute land and then helps orchestrate the defeat of a giant, nuclear waste-fuelled alien. The novel is interwoven with the Cherokee tale of Stone Man "aka Stoneclad" (122) and the tale of uk'tena, a

"kind of flying dragon" (124). Both stories tell of finding and slaying a monster, one by the village women who are menstruating, and the other by a young boy. Through these three narratives, Sanders exposes the environmental and cultural devastation caused by nuclear proliferation for the world's Indigenous populations and engages issues of representation and absence by invoking cold war imagery. The novel reclaims these images by linking them to Cherokee traditions and providing a non-western paradigm for engaging and destroying the nuclear problems in the Southwest.

Billy Badass follows the fallout from the Cold War's nuclear testing programs as it drifts across Indian country and the world. Sanders first bridges the divide between disparate Indigenous groups globally through Janna's character, who Billy meets at a powwow in Oklahoma. Billy mistakes her for another Indian, with her "long thick hair, glossy black like his own, and prominent cheekbones. Her eyes were dark and oblong in shape" (20). He muses on the type of Indian she could and couldn't be before he asks her to which tribe she belongs. She replies that she is Kazakh, and they begin speaking in Russian, which Billy learned from his time in the Army (and speaks better than he speaks Cherokee). English and Russian, the colonizers' languages, serve as lingua francae between the two, as their physical appearance hints at a genetic link that spans the Bering Strait. More importantly, it is Janna's work that demonstrates how the Cold War's aftermath is a global phenomenon that effects Indigenous populations on opposite sides of the conflict and the world. Janna is a member of an exchange program to study the effects of nuclear radiation from weapons testing on the Native people of Utah and Nevada, particularly at the fictional Blacktail Springs Reservation. As a medical researcher, Janna's grant represents a growing recognition of how the wind carries

nuclear materials without regard for borders, much as Indigenous subjects' homelands cross these same artificial divides. Dealing with the consequences of this fallout is a task for which Indigenous populations are uniquely qualified, having dealt with problematic borders since colonization.

Sanders presents the Cherokee's history of destruction, relocation, and survival in tandem with Russia's colonization of Kazakhstan and its nuclear testing program on the area's eastern plains. Through Janna, Sanders links the Trail of Tears to Stalin's treatment of the Kazakhs: "Stalin killed a third of our people in the nineteen-thirties, [. . .] At least a third, maybe more, nobody really knows. Many were deported to Siberia and never heard from again. As many as two million starved" (41). Billy makes a similar link to Kurdish rebels from the first Iraq war in which he served, "I'd see them [Kurdish refugees] struggling through the snow, half of them barefoot, mothers carrying babies and little kids carrying littler kids, and I'd think, this is what the Trail of Tears must have looked like. Another bunch of people, like us, who made the mistake of counting on the honor of the American government" (44). As the United States, Russian, and British-created Iraqi colonized can attest, the false borders have real-world consequences. Even as nuclear fallout drifts past these borders indifferently, moving out of test sites and spreading across Indigenous land, it is (like relocated and slaughtered Indigenous subjects) "out of sight, out of mind" for the colonizing powers that create it.

Sanders uses Billy's movement through the United States to trace the nuclear cycle. After Billy meets with Janna, they ride southwest to a traditional Cherokee dance just outside of Gore, OK. It is the site of the former Sequoyah Fuels Corporation mill, land that is "upstream from the Robert Kerr Reservoir in countryside that is within the

jurisdiction of the Cherokee Nation" (Brugge, deLemos, and Bui 1596). The mill purified uranium yellowcake (excavated at places such as the Navajo Nation) and converted it into uranium hexafluoride. In 1986, a 27,400 pound canister of the gas ruptured, killing one worker, hospitalizing 37 more, and sending a cloud of uranylfluoride and hydrofluoric acid eighteen miles south. Brugge, deLemos, and Bui note the plant was sold to General Atomics shortly thereafter and another spill happened in 1992. The plant closed in 1993 due to an increasing number of safety violations, but the plans to decommission the site weren't proposed until five years later ("Sequoyah"), and the actual cleanup, comprised more of removing radioactive and chemical agents from the plant's daily operations than reclaiming land damaged by the acute incidents, didn't start for eighteen years ("Sequoyah" and Brugge, deLemos, and Bui 1599). At that time, the remaining uranium destined to be transformed into yellowcake was sent to the White Mesa uranium mill in Utah, the only mill running in the country ("Issues"), just three miles North of the Ute's White Mesa reservation (Mimiaga). Billy Badwater's (badly-translated) last name, which "more precisely referred to dangerous waters, as for instance a hazardous rapid or whirlpool" (11), presciently echoes the water contamination that becomes one of the Cherokee's concerns with dismantling the mill ("Sequoyah"), as well as the leeching that occurs in Sanders' fictional (and the actual) Nevada desert.

While the remaining uranium to be milled heads west to Utah and Ute land, Billy hops on his motorcycle and chases the Rose of Turkestan to Nevada and the Blacktail Springs Reservation, a space that serves as a clear corollary for the Western Shoshone

and Southern Paiute tribes who lived downwind from the Nevada test sites.[7] Sanders reveals the effects of fallout, hidden by myths of an empty Nevada desert, by detailing the government's nuclear weapon testing: detonations underground, wind-born toxicity, and generations of genetic damage to nearby Native people, as "[f]rom 1951 to 1992, over 900 nuclear weapons tests were conducted on the Nevada Test Site (NTS) land claimed by the Western Shoshone under the 1863 Treaty of Ruby Valley" (Endres 42). Sanders presents the aftereffects of windborne, invisible radiation, made more imperceptible by the United States' repression of Native people, Native land claims, and its own atomic legacy.

It's not just the fallout that *Billy Badass* remembers. Billy also discovers large stores of nuclear waste in the desert, marking the place where the monster came to the world. In choosing to focus much of the novel on these toxic dumping sites in addition to former testing sites, Sanders enters into the novel's contemporary controversy of nuclear waste disposal. Hanson relates that beginning in the early nineties, the U.S. began an aggressive campaign to locate both permanent and temporary nuclear waste dumps on Native reservations, as all the States had refused, and reservations' status as domestic dependent nations would allow them to take the waste regardless of state decisions.

> In addition to the [well-known] Yucca Mountain site, American Indian nations were also targeted for temporary waste storage through the now-defunct Monitored Retrievable Storage (MRS) program. And recently, a proposal by Private Fuel Storage (PFS) and the Skull Valley Goshutes to temporarily store nuclear waste at Skull Valley Goshute reservation was defeated by Skull Valley activists working with the State of Utah against

[7] For more information about the Western Shoshone and Southern Paiute connection to the nuclear testing in Nevada, see Frohmberg et. al.'s "The Assessment of Radiation Exposures in Native American Communities from Nuclear Weapons Testing in Nevada"

the Skull Valley government and PFS. (Endres 42)

At the time of the novel's publication, several tribes were considering the government's 2.4 million dollar offer to store nuclear waste on their reservations, the Monitored Retrievable Storage program being at its height.[8]

Atomic treatment of Native people and Native land in the United States is reflected globally through the USSR's colonization of Kazakhstan, and its nuclear testing program on Kazakhstan's eastern plains at Semipalatinsk. The USSR tested all of its nuclear weapons at Semipalatinsk from 1949 to 1989, and like the Northern Paiutes and Western Shoshone, fallout from testing affected more than ten-thousand Indigenous residents (Bauer et. al. 409). The Kazakhs form the heart of Janna's previous work. She refers to "a manmade lake" as "a rain-filled crater left by an underground atomic explosion" (49), a clear reference to the Atomic Lake crater and the results of the Chagan test in Semipalatinsk (Aidarkhanov et. al.). The silence surrounding the U.S.' nuclear program is also a global phenomenon, as Janna mentions, "the people were never told. Most of the herders and villagers didn't even know what radiation was. They watered their flocks at the lakes and drank the water and even swam in it. [. . .] After all, the Soviet government—like yours—always denied there could be any harmful effects from underground testing" (49). While the United States government cultivates secrecy about

[8] In addition to the effects of nuclear mining, refining, testing, and energy, more recently rare earth mineral mining created similar problems in the Mojave desert, on traditional homelands and culturally significant sites for the Mojave and Chemehuevi tribes whose reservations are nearby. The Mountain Pass mine, slated to reopen, includes leaking waste ponds, millions of gallons in spills, and "Groundwater that pours from the mine is contaminated with radium, thorium, and strontium, and there have been allegations of illegal nuclear waste dumping" ("What are"). Juetten adds that the leaking "pipe passed through several washes, crossed National Park Service lands, and was adjacent to critical tortoise habitat in BLM-stewarded land" (1, 18).

the effects of radiation, Sanders reminds us that the problem of silence is global. Luong and Weinthal add that "the environmental situation actually became worse after [Kazakhstan's] independence. Not only had earlier environmental problems not yet been effectively addressed, but new threats to the environment emerged as a result of Kazakhstan's government's drive to develop its vast energy reserves in the Caspian Basin" (1269). From 1996-2012, a secret coalition of Russian, Kazakh, and United States scientists worked on making secure hundreds of tunnels and holes with plutonium residue—enough, Harrell and Hoffman note, to make several bombs—but not on decontaminating the site or reclaiming the toxic soil (34-38). The atomic landscape of the novel demonstrates how governments, colonialism, and western science destroy the land and people living on it, while burying their actions and hiding the danger from those exposed to it.

Sanders provides the solution to nuclear contamination through his use of oral tradition, specifically Cherokee monster stories. These stories reframe the nuclear crisis with an Indigenous worldview, folding nuclear atrocities into mythic history and thus providing tools with which to fight. The alien monster, the reincarnation of Stoneclad or uk'tena with a modern twist, occupies two types of stories in the novel. First, it is the Cherokee monster, as Billy says after hearing about the deaths it causes: "Man, [. . .] Sounds like Stone Man's back" (122). He then relates the story of how the village slew Stoneclad and how, with his dying breath, the monster "tells the Cherokee everything that they know" (122): their stories, their ceremonies, their medicine. The monster traditionally holds all the answers, the integrative worldview, that allows the Cherokee people to survive. By defeating Stoneclad's new incarnation, Billy and Janna should be

provided with answers and new stories for the atomic age.

However, the monster is also a nuclear monstrosity from the 50s sci-fi genre, a placeholder for Anglo fear of the atomic age. It is an embodiment of atomic uncertainty, a near-empty signifier of repressed horror "of a shape not to be described, if indeed it had any true shape at all" (71), and its very existence brings about a postmodern crisis of language in the narrator:

> It did not have a name. It did not know where it had come from and it did not know where it was.
>
> None of these statements means anything
>
> It did not "know" anything at all in any humanly recognizable sense of the verb. It possessed an awareness—rough and chaotic, but rapidly developing—of itself and its surroundings, but this awareness had no resemblance whatever to the consciousness of man, beast, plant, or computer. There are no words in any human or electronic language to describe what it used for thought processes.
>
> Where it had come from was an equally meaningless question. It had not "come from" anywhere, since it did not necessarily move through physical space and in any case its previous environment had not been, strictly speaking, a "where," being without spatial locations or co-ordinates.
>
> It was not, for that matter, an "it." It possessed neither form nor mass; its composition included nothing identifiable by the terms of this universe, or subject to any known or unknown laws of physical science.
>
> Even the verb "to be" is inappropriate. By any rational and objective standard, *it did not exist*
>
> Knowing none of these things, (?it?) continued to (?be?) what (?it?) (?was?), and to do what (?it?) did.
>
> This will not work. There is no way to describe the indescribable, and in the attempt lies madness. But let the words stand, without further quibble. If they have little or no real meaning, at least they will serve as the best available analogues.
>
> Which, after all, is about all most words ever do. (115-16, emphasis in original).

The monster's disembodied yet embodied quantum flux is an analogue for the crisis of meaning brought about by the apocalypse of colonization and the post postapocalypse of the nuclear era: horrors so vast as to be inexpressible are instead represented by the

narrator with broken language punctuated with parenthesis and question marks. The monster is a formless void, an absence, which has material implications in the real world.[9] The monster (dis)embodies the chain reaction that starts with colonization and ends with a nuclear world.

Characters with broken relationships to the world around them and worldviews that are not internally consistent feel these material implications most strongly. The monster is first drawn to the energies produced by the motley New Age ceremonies on the ranch (a *yeibichai* chant surrounded by Tibetan mandalas, Egyptian hieroglyphics, crystal energies, convergent harmonic lines, an alien from Atlantis, and karmic references).[10] It feeds on the energies of dissonant cultural appropriation and colonization by "simulating" the humans on the ranch to death. *Billy Badass* presents the new-age colonial fascination and partial conscription of Indigenous practices as food for the monster and likens the appropriation to nuclear testing and dumping; it is another form of colonial fallout, an early link in the chain that leads to environmental destruction. Colonial consumption drains the meaning from language and objects, removes what are powerful practices and medicine from the Indigenous systems of which they are a part. Colonization then integrates these disparate parts of separate worldviews, adding what could best be described as "new age nonsense" to the mix. The monster's refusal to hold meaning and exist in language parallels the New Age Ranch's practitioners' removal of meaning from practices and items lifted from Indigenous people. Without meaning in

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[9] The same sort of monster stars in Gerry Williams' *The Black Ship*—the ship itself is a yawning darkness that refuses to stay fixed visually or spatially, which is coupled with a planet that shares the same qualities. One of the protagonists must travel to the planet to find himself as a tribal member without family.

[10] Part of the Navajo Nightway.

relation, there is no reason to monitor the scientific practices leading to atomic destruction. However, it is not just the whites on the Ranch the monster "eats." It kills a group of Paiutes in the middle of a Peyote ceremony, as well as utterly destroying the inhabitants of the reservation's main town, demonstrating its ability to eat anything once initially fed and reflecting nuclear fallout's imperviousness to test site borders. Ironically, even as the monster is at its core a crisis of language and meaning, it is language that provides protection from it. Several things converge on the moment Billy faces the monster for the first time. First, Grandfather Ninekiller comes to Billy in a dream and teaches him a tobacco ceremony to help protect him from the monster: one spoken in "No language that anybody speaks any more. Very old song, goes back to the time when the people hunted elephants and horses had extra toes" (144). Though not in Cherokee, it is still the People's language, the People's ceremony, and a recovery of tradition. Billy's dream, like language's failure to capture the monster, also shores up a failure in western cultural practices. As Mickey Wolf, a Mohawk ex-priest that provides assistance and guidance to Janna and Billy, remarks: "If your dream told you something that might help solve this riddle [. . .] Science and technology haven't done very well around here lately. Might as well have your dream have its shot" (172). The text clearly sets as opposing science and Native ways of knowing and understanding. Billy completes the ceremony at the wrong time of day (dusk instead of dawn) with the wrong tobacco (Indian tobacco, but not Cherokee), but remarks that the "words are more important than the physicality" in the ceremony (157). The language in the ceremony provides the real power. Language's centrality is reaffirmed in how Billy turns the monster away; he remembers the story of uk'tena being vanquished by seven arrows, which leads him to shoot seven

puffs from his pipe towards the monster, driving it off. The monster is deflected by Billy's connection to Cherokee oral tradition, history given him by his grandfather. Much as Stoneclad taught the Cherokee everything they know, the nuclear monstrosity in the Nevada desert provides a crisis that brings back Billy's link to his heritage: the deceased yet stubbornly talkative Grandfather Ninekiller.

However, the real heroes of the story are not Billy and Janna. The real monster slayer is Sammy, a Paiute child abandoned at the Blacktail Springs medical center and badly deformed by radiation. Sammy's body "was that of a small boy, ten years old at most, but the head was as big as his [Billy's] own. The misshapen features gave no clue: an off-center lump for a nose, a shapeless sagging mouth, and tightly closed eyes beneath startlingly heavy black eyebrows. The arms were those of a child of five or six, ending in stubby-fingered, baby-like hands. At best Billy could see, the boy had no legs or feet at all" (173). When the monster comes through the town and kills everyone, Sammy is left behind, physically unscathed. Without a known origin and with his mutations, Sammy literally lives in another world, much as the monster is a baby alien from another dimension; it's older kin would have already "killed everything on the earth and then begun dismantling the planet, merely as a warming-up exercise before getting down to serious business" (210). Both monster and boy are things of mythic times shaped by radiation in the desert. *Billy Badass* provides new incarnations of old monsters as a way of renewing oral tradition and giving agency to the victims of western science.

Billy and Janna cannot be the heroes of the story because they are the outsiders. They can act as allies in the fight against the monster, but it is the victims of atomic colonization that must defeat the beast. Sanders' novel maintains a distinct separation

between different tribes and Indigenous practices, even as they act as allies. Instead of mixing ceremonies, all take their rightful, but separate places. They support each other without supplanting each other in an anti-colonial stance that fights against the New Age conglomeration of tradition, while avoiding the negativity of pan tribalism; everyone helps each other and recognizes shared circumstances shaped by atomic colonization, but respects and honors differences in rights, responsibilities, and traditions.

Thus, Sammy is not alone in his defeat of the monster. Billy and Janna transport him to the location of the beast (albeit unknowingly), and as they reach the final confrontation with the monster, Sammy waves an eagle feather provided by Billy and the surrounding desert fills up with Indigenous children warped and twisted by radiation:

> All around them, all over the floor of the valley, small shadowy figures were beginning to materialize in the dim light. Children, tens and then hundreds of them, perhaps thousands; they stretched off in all directions, farther than Billy could see. All were facing in the same direction, toward the great black thing at the valley's north wall.
>
> And such children ... Billy saw the flat, high-boned faces of the Asian heartland, and others like those of his own people; there were tiny, birdlike Japanese children and dark, heavy-browed Australian natives and fine-featured, bronze-skinned Pacific islanders, all mixed up together, standing almost shoulder to shoulder across the desert floor.
>
> Not one was whole in body. Some were bent and twisted like very old people; some lacked arms, or like Sammy had deformed limbs, and some stood on bent, too-short legs, while others, lacking feet or legs, sat in the dust and were held up by those beside them. He saw faces that were barely identifiable as human; he saw great twisted masses of scar tissue on faces and bodies—nothing was hidden, the children were all of them naked—and grotesque, unidentifiable growths sprouting from necks and shoulders and torsos. Many of the small heads were hairless, their bald scalps covered with angry patterns of scars. (279-80)

The desert fills with the children of non-western, nuclear families. Children like those from the area of Semipalatinsk, "the Asian heartland"; Native Americans of the United States; "tiny, birdlike Japanese children," remnants of the atomic attacks on Hiroshima

and Nagasaki; "heavy-browed Australian natives" whose land is just as coveted for uranium mines as that of the Navajo and Pueblo; and "bronze-skinned Pacific islanders," easily read as a reference to the native people displaced and affected by the United States' nuclear testing on the Bikini and Eniwetok Atolls in the Marshall Islands of Micronesia.[11]

The close of the novel offers a broader, global perspective on atomic legacies and how to manage the fallout from the Cold War. Billy and Janna might not directly participate in the ceremony that kills the monster, but the rest of the world's Indigenous subjects affected by radiation do. Much as *Ceremony* shifts the responsibility for balancing the negative effects of atomic witchery to the People, *Billy Badass* implies that it is the responsibility—or even the right—of Indigenous subjects to defeat that which oppresses them, and it is with a return to ceremony that the children defeat the monster: with song, with oral tradition. The gathering of nations here is like Silko's gathering of witches, but for good instead of ill—both are indicative of stewardship in balancing the world for global Indigenous populations, the world as understood through integrative Native worldviews instead of science, and the sovereignty of Indigenous subjects.

Jones' post 9/11 novel embodies the difficulties of framing the world as a whole

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[11] See Subhabrata Bobby Banerjee's "Whose Land Is It Anyway?" for information about the uranium stores on Aboriginal (Mirrar) land at Jabiluka, and the colonial controversy surrounding the creation of a mine there. Similarly, the residents of the Atolls were allowed to return in 1968, well before safe radiation levels, and were subsequently removed again, displaced from their now nuclear home until at least the 2030s. For more see Jonathan M. Weisgall's "The Nuclear Nomads of Bikini" and Jeffrey Sasha Davis' "Scales of Eden: Conservation and Pristine Devastation on Bikini Atoll." The Indigenous people who live on the Marshall Islands continue face high levels of cancer and environmental toxicity from the testing. As a (horrific) side note: each of the tests from Operation Redwing was named after a Native tribe or people.

by centralizing the fragmentation that national borders force on the land. As it moves into later iterations of the nuclear cycle, *It Came from Del Rio* converges on nuclear trafficking, both in waste and in terrorism. Following a new type of atomic material back and forth across the U.S.-Mexico border, *It Came from Del Rio* reveals the buried racialization of twenty-first century nuclear anxieties. Unlike the previous novels, *Del Rio* unsettles a specific tribal reading, drawing more from 1950s atomic science fiction. However, even as it is centered on Mexican, Chicana/o, and Anglo bodies, the novel still interrogates the dichotomy between science and Indigenous scientific literacies staged in the nuclear Southwest. Much as the film *It Came from Outer Space* uses the fear of extraterrestrial invaders to discuss human's brutality and ill-preparedness to deal with atomic power, Jones' novel uses nuclear material to present issues surrounding other types of aliens in the United States, parodying the displacement and erasure of monster fiction and recovering that which atomic culture hides, or in this case literally buries, such as nuclear waste. It also reveals the fear of nuclear terrorism on the United States' soil, which in many ways screens continuing anxiety surrounding the country's southern border. The ground surrounding Texas' and Mexico's boundaries in Jones' novel is replete with buried history, bodies, and nuclear matter. From the Waste Isolation Pilot Plant outside Carlsbad, NM, south to the Guatemala-Mexico border and the Piedras Negras Mayan ruins, the novel unearths the history of the border, a history that's nowhere near decaying by a single half-life, let alone dissipating to the point of relative radioactive safety.

The novel is told in two parts. The first half is titled "Dodd" and is the journal of Dodd Raines, a high-dollar smuggler who moves things across the U.S.-Mexico border in

the desert around Ciudad Acuña, Mexico, and Del Rio, Texas. Hired to take "moon rocks" to Uvalde, TX, Dodd is killed by what turns out to be not extraterrestrial rocks, but a unique form of radioactive material unearthed from an ancient Mayan ruin. However, Dodd's addiction to silver nitrate sticks (for mouth ulcers) changes the radiation's effect, and Dodd comes back to life fifteen years later in a scrap yard in Piedras Negras, Coahuila. Thinking he is a bunny, Dodd heals, eventually killing a mutated, nuclear rabbit and skinning its head to wear as a mask. Dodd, now Bunnyhead or Hell Bunny, goes on a murdering spree, killing all those who had a part in his demise. The second part of *Del Rio*, "Laurie," is an "allocution" written by Dodd's now adult daughter. Laurie grows up to be a border patrol agent under the guidance of her adopted father, Refugio Romo, a corrupt agent who tortured Dodd. She investigates Dodd's murders after Bunnyhead kills Refugio, and, finding Dodd's diary (the first half of the novel), uncovers the lie that has been her adult life.

Jones' border novel is contextualized with controversies surrounding the storage of material from not only nuclear power plants, but decommissioned nuclear weapons, toxic soil from atomic "incidents" and reclaimed mines, and the materials used in each of these nuclear places. In addition to the earlier mentioned Yucca Mountain project, where the U.S. government attempted to create a permanent home for high-level waste in the Nevada desert (vetoed by the Obama administration in 2011), the Texas border is home to a "nuclear alley," which hosts the Waste Isolation Pilot Plant storing low-level nuclear material in caverns (a site which experienced a leak in 2014), and the Waste Control Services (WCS) storage area outside Eunice, NM, an independent business that also stores low-level waste. The United States still lacks a permanent storage area for high-

level waste, and Texas, home to four nuclear power plants that currently store their high-level waste on site, has a vested interest in solving this problem. Starting in 2012, Texas governor Rick Perry actively backed storing more nuclear materials in Texas, providing the permanent national repository that would allow power plants to move their waste products, such as spent plutonium rods, as well as the government's dismantled nuclear weapons, to a single location.

The substances Dodd moves across the border represents the broader nuclear material that threatens Texas. The "moon rocks" that fuel the story's plot—black, radioactive stones—first make their appearance in Piedras Negras (black rocks), Coahuila. Piedras Negras is a border city with Eagle Pass, TX; it is also the name of the Mayan ruins of Piedras Negras in northern Guatemala, less than a mile from Mexico. The rock's name invokes two borders, three countries, and a swath of thousands of years. The rocks were discovered:

> Two years before, [when] some graduate anthropology student had uncovered a mass of molten metal and rock deep underneath a Mayan ruin of some sort. Not a pyramid, like for worship, but more like the way you cap off a well.
>
> There was nearly a thousand pounds of the stuff. And none of the tests they did on it made any sense—even the Geiger counter never gave the same reading twice. The backhoe that tried to pull it up stopped working, and the truck they tied to it, it threw a rod, and nobody's watches or flashlights would stay working around it. (93)

The actual ruins of Piedras Negras has a notably large sinkhole nearby, not only a place in Mayan philosophy that was likely related to the underworld, but also an originary locale for the "moon rocks" Dodd mules across the border. A student unearthed the rock from a Mayan nuclear disposal site (clearly much safer than the ones the United States is trying to locate on Native land), and the Mayans nuclear containment is compromised for

the sake of anthropology. The Mayan's successful storage of the material hearkens to their ability to recognize it as alive, or as kin, as Indigenous science requires; "the black rock the Mayans had found, it was the kind of alive that didn't want to be broken up. It didn't really think, or resist pain or any of that. It just simply liked being together. It felt like home" (102). The philosophy of the Mayan containment site allowed for the material's natural state, whereas the atomization characterizing western culture (and commerce) tore the rocks apart. Reassigning blame displaced onto Native people for the nuclear cycle illustrated in Ortiz's poem "It Was that Indian," Jones illustrates how western (social) science is actually at fault. It is an anthropology student intent on understanding the Mayans that is unable to grasp the relationality between humans and non-humans, unearthing the stones in his studies. The student's incomplete insight typifies western science's engagement with Native paradigms of knowing and balancing.

It's not just the stones that express the buried nuclear cycle. Dodd himself, in his murder and transformation to Bunnyhead, embodies the problems with nuclear storage on Texas' borders. When Dodd is killed, wrapped in a roll of wire, and delivered back across the border to Piedras Negras, he spends fifteen years reanimating and dying again—living the very half-lives his nuclear decay undergoes—leeching nuclear material into the ground around him. The radiation effecting Dodd mutates some of the rabbits, finally creating a gargantuan rabbit that Dodd feeds as a baby, kills in his passage back to humanity, and skins for his transformation to Bunnyhead. Dodd also mutates a pack of jackals escaped from a circus into what the locals see as chupacabra, demonstrating the danger of storing "spent" nuclear products.

Dodd's contamination of his surroundings continues through the waterways of the

Southwest. Crossing back and forth across the Rio Grande, Dodd saturates the U.S.-Mexico border with his radioactivity. He finally comes to rest in a well outside Uvalde, reminiscent of the Mayan well that stored the black rocks in the first place:

> he went to the one place he knew would take him, Jacob's Well, and he stood on the slick brown rocks for a long while, holding Lem Marsh, his old best friend, the chupacabra nipping and whining around him, and maybe he remembered standing there with me, even. He did, yes. Right at the end his hand opened and closed around the memory of mine, and then he nodded, looked back in that way he has, and stepped into the calm water, and went down and down and down forever, until not even the sunlight could touch him, all the way to Edwards Aquifer, and if you haven't figured out yet how smart my lawyer is to have got me to write this all down in a tablet with a big red Private at the top, then you probably don't know what a mistrial is either.
>
> It's what happens when you tell the city of Austin about the rabbit content of their drinking water. Information you couldn't possibly have had, except by reading this. So, yeah, this is it, the end. (208-09)

The novel closes with Dodd's nuclear body following the waterways to a major city in Texas, indicating the danger of nuclear storage even if it is buried in the desert, purportedly away from large groups of people. As Dodd is touted to be immortal in the novel, or perhaps is just bound to the black rocks' decay rate, his "storage" in the area's water supply clearly reflects the danger inherent in warehousing nuclear material beneath power plants in cooling vats.[12] Such as the South Texas Project nuclear plant, which provides 16% of Austin's power ("The State"), is touted as a clean energy alternative to battle growing air pollution, but stores its own waste, and actually presents a hazard to the city, as well as Houston and smaller cities in the area.

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[12] As the United States has no permanent storage for high-level radioactive waste (such as spent fuel), right now nuclear power plants store the fuel in water or "wet" storage pools. These pools are meant to be temporary storage areas. Some plants have "dry" storage vaults or casks, where materials can be moved after the required 9-12 months in wet storage. For more information about nuclear storage, see Macfarlane's "Interim Storage of Spent Fuel in the United States."

But it's not just the possible contamination of ground and water that fuels the debates over nuclear storage in the Southwest, whether the now defunct Yucca Mountain project in Nevada, the recently leaking WIPP site in New Mexico, or Texas' WCS storage. Waste transportation to the potential storage areas girds the opposition to these disposal areas. Grassroots and local campaigns against storage areas often arise from the cities and towns through which the waste would travel, as accidents leading to nuclear disaster areas across the highways and railway systems of the United States present real threats hundreds (if not thousands) of miles away from the storage areas. It is neither the Native complaints against poisoning a sacred site nor destroying the water reserves of Nevada's tribes that led to the end of the Yucca Mountain project, but the overwhelming protests of non-Native citizens who don't see the benefits of nuclear transportation as worth the costs. Waste transportation to the potential storage areas girds the opposition to these disposal areas.

Del Rio complicates these issues of nuclear traffic headed to and through the Southwest with the United States' anxieties surrounding nuclear trafficking across the country's border with Mexico. In the wake of the 9/11 attacks, U.S. immigration policy changed drastically. Fear of nuclear terrorists accessing the country from Mexico shaped immigration policy for the foreseeable future. Alden explains that immigration laws were "the primary weapon used to keep suspected terrorists out of the country, or to detain them if they were already inside the United States" (258). The single-minded focus on deterring attacks through immigration control gave

> traditional immigration opponents a club they had long been lacking. It was one thing to argue the immigrants were overpopulating the schools or draining social service budgets or that a new generation of immigrants would for some reason be more difficult to assimilate than the previous

> generations; it was another to argue that some of them might be plotting to kill thousands of Americans. (Alden 270)

The fear of immigrants and nuclear attack materialized in ways ranging from members of the brutal minute-man militia conflating Mexican immigrants with nuclear terrorists to paranoia about Tzotzil Natives converting to Islam and taking part in "subversive activities," as Gilchrist, the Minutemen's founder, erroneously accuses. In 2005 Condoleezza Rice said that "Indeed we have from time to time had reports about Al Qaeda trying to use our southern border" (qtd. in Nicholls 34). Post 9/11, the Mexican border became conflated with Islam, the Middle-East, and non-materializing fears of Al-Qaeda-constructed dirty bombs.

Dodd mules "alien" moon rocks across the border *and* nuclear material, making him—the clearly white American—a metaphoric Mexican, "illegal alien," and post-9/11 Arabic terrorist rolled into a single, ironic package. Dodd's body demonstrates the conflation of nuclear "terrorism" and "illegal" immigration across the border as it undermines the racialization of these terms. The irony subverts the layers of U.S. myth and rhetoric surrounding those who facilitate border crossing—mules that purportedly carry drugs, coyotes that transport people, and terrorists that transport atomic destruction. Chupacabra flank Bunnyhead as well, what Alemán calls Mexican America's "monstrous version of Dracula." The mythic canine "links bloodsucking to all kinds of concerns about the economic viability livestock in relation to competing forms of economies [. . .], environmental change and development, and, in its most recent sightings, alien or mongrel bodies" (54). Through their links to a shifting Mexican economy, a move from ranching to, in this case, border trafficking, chupacabra point to the broader border problems in Jones' novel. They serve as a perfect analogue for the conflation of

immigration and nuclear terrorism, especially as chupacabra sightings are also frequently linked to real and imaginary nuclear disasters, people refuting alleged sightings of the beasts as mutated dogs. From birth, Jones' animals are set in complete disregard for the border. Before they are irradiated, Jones' chupacabra were jackals, "whelped out in the scrub where the mother ran off from the carnival [. . .] their territory not concerned with national borders or city limits" (97). When the jackals "go nuclear" and cross the border, they become mythic chupacabra. Their nature is subsumed beneath myths of Mexican immigration; they are not monstrous because they are nuclear mutations pointing to the environmental devastation caused by nuclear trafficking, but because they embody problems that Anglo culture thinks should stay in Mexico.

Jones shores up the ideology conflating migrants to terrorists by having the movement of the nuclear rocks create a more impenetrable United States. The cartels smuggling the rocks use the already existent paths across the U.S.-Mexico border, coyotes and drug mules such Dodd. They burn these paths, literally frying the men with radiation, the entrance of new atomic substance closing the border behind it. Or at least closing the "illegal" border. The cartels' use of nuclear material supports national borders—upholding immigration standards, and supporting post 9/11 fears of an invisible nuclear threat and Mexican immigration. Jones reveals how fear of an atomic terrorist attack from Mexico screens anxiety about the United States' stability post 9/11. In other words, Jones' black rocks represent the United States' inability to cope with the present, and its desire for an insulated, isolated existence, whether it is from the possibility of nuclear retaliation or Mexican immigration. Jones uses the atomic end-cycle (transporting and burying waste) to showcase the environmental racism inherent in the nuclear

Southwest as he reveals the anxiety surrounding trafficking in nuclear arms to be a displacement of the fear of Mexican immigration in the United States. Far from being the villain, Dodd/Bunnyhead embodies the inability of borders to protect the environment from science's atomic creation, showcasing the failure of the United States to contain its nuclear waste and bury its history.

Ceremony reveals Native presence in atomic history from uranium mining to Native culpability for the bombing of Hiroshima and Nagasaki. *The Ballad of Billy Badass and the Rose of Turkestan* follows the fallout caused by these explosions and the continued testing on Indigenous people globally. *It Came from Del Rio* chases nuclear waste and terror across the Americas' borders. Together, these three works provide a complete picture of the nuclear cycle, one which doesn't repress the histories of Native and Indigenous subjects' participation, but instead complicates the master narrative of nuclear discovery and challenges the scientific racism imbedded in atomic history. By revealing the long-term and less-known effects of atomic fission, Native science fiction catalogues this failure. All three texts then provide a Native scientific method to prevent future damage and redress the core philosophical issues that allowed the problems to proliferate in the first place. These authors leverage science fiction, a genre known for presenting scientific dreams and nightmares, to discover new paradigms for managing and preventing nuclear disasters. Discoveries based in traditional, tribal ways of understanding humans and their relationship to the world. Discoveries based on recognizing how scientific practice is not unbiased, but a philosophical system that, in practice, uses Indigenous bodies and land to "advance" technological "progress," much as Ortiz contends the deliberate environmental racism of the United States' government

policy does. The United States' rhetoric of civilization and legacy of abuse against Native people creates a critical mass from which scientific theory and practice is not exempt. The nuclear cycle's effects on Native people is just another link in colonization's chain reaction, a reaction that can be broken through replacing the atomizing philosophy of western science with a more accountable and integrative philosophy that sees all life as indispensable parts of a whole: kin working for kin.

I think that I shall never see
Any Chicanos on TV.
It seems as though we don't exist
And we're not ever even missed.
And yet we buy and buy their wares
And no Chicanos anywhere.
[. . .]
There are Chicanos in real life
Doctors, lawyers, husbands, wives.
But all they show us on TV
Are illegal aliens as they flee
Or some poor cholo that they bust
Flat on his face, he's eating dust.

Script writers never write for us.
I think it's time we raised a fuss.
Casting directors never call
They don't remember us at all.
Edward James Olmos and Montalban
That's all we've got, son of a gun.

-Lalo Guerrero, from "No Chicanos on TV"

From Code to Codex:

Tricksterizing the Digital Divide

Adam J. Banks' 2006 *Race, Rhetoric, and Technology* deploys the digital divide, a term arising in the mid-nineties to define the class gap in access to digital technologies, as a metonym for the racial divide in the United States. Focusing on how "an entire group of people have been systematically denied the tools, the literacies, the experiences, the codes and assumptions behind the design choices, [and] the chance to influence future designs," Banks argues digital access and authorship shapes "people's educational success, employability and thus their incomes, roles in the society, and their political power" (xxi). He reveals the material ramifications of being left out of technological advancement for people of color generally, black Americans specifically, and the far-reaching consequences a lack of digital representation and literacy creates. Lisa

Nakamura similarly finds the internet promulgates a "discourse of color blindness in terms of access, user experience, and content" that deliberately erases people of color (4).

The digital divide for Latina/os in the U.S. is particularly prevalent. From lower Latina/o internet use and literacy than white people, to a disproportionately smaller number of Latina/os earning degrees in STEM subjects as Hauschild reports, the digital divide leaves Latina/os behind as both creators and users of digital spaces.[1] Because of the gap in literacy, education, and access, Latina/o cultural representation in digital and mainstream media is unequal as well, and heavily shaped by non-Latina/os.[2] Consequently, Latina/os are absent or saddled stereotypically with "laziness, the siesta, tequila, [and] banditry," characters "serv[ing] as vivid synecdoches for a particular and peculiar sensually charged form of evil potentiality" (Nericcio 196, 192), leaving Latina/o portrayal to serve interests not their own. The lack of Latina/o representation in the fields creating and mediating digital technologies indicates the trend will continue without intervention.

However, the Latina/o digital divide elides a far more disturbing multi-national divide between those who create the digital era's products and those with access to them. Much as the nuclear cycle's beginnings and endings are obfuscated as Sharp contends and as is discussed at more length in Chapter 2, the beginning and end of the United States' computer revolution is hidden and disproportionately affects those with the least access to its benefits. From the high numbers of maquiladoras on Mexico's northern border producing electronics for United States (and increasingly Japanese) corporations

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[1] STEM fields include science, technology, engineering, and mathematics.

[2] In this chapter I use the term *media* to refer specifically to mainstream U.S. news, television, film, internet, as well as video games.

to the twenty to twenty-five million tons of waste produced yearly in the U.S. by the replacement of electronics devices (Robinson 183), the production and destruction of the digital era in the United States sits outside of (and on) its borders.

This chapter contends that Chicana/o science fiction shatters the dominant culture(s) master narratives—analog, celluloid, visual, electrical, digital—programs designed to overwrite and delete the presence and agency of Mexicans and Chicana/os. Encoding resistance between the lines, Chicana/o science fiction builds a network across the digital divide that refracts and diffuses U.S. media's monolithic creation of reality, inserting histories, stories, and futures the master narrative tries to eclipse. At the same time, Chicana/o science fiction theorizes how to dismantle the digital divide's hidden foundations, the infrastructure that uses Mexico (and other developing nations) for the raw materials, labor, and waste management needed to support technological development. Building on Lysa Rivera's contention that "the imperatives of multinational capitalism and globalization have produced a new mechanized labor force that, vast as it is, remains largely invisible to the consumers who benefit most from its production," (421), I argue Chicana/o science fiction, in addition to its keen focus on labor exploitation, cracks the impermeable image the United States crafts of itself, making visible the hidden cost and extent of the digital divide—if you know how to decode the messages.

Alejandro Morales' 1994 *The Rag Doll Plagues* predicts the post-NAFTA industrial and digital divides, envisions the material ramifications of this gap for Mexicans and Chicana/os, and forecasts the digital and historical erasure that continues to create Mexico a site of exploitation. From the first book, "Mexico City," to the last,

"Lamex," Morales traces the history of erasure and waste in North America, eerily predicting a future for the U.S. and Mexico that reflects current trends in waste processing and digital absence for Chicana/os. The chapter then engages how Rosaura Sánchez and Beatrice Pita's *Lunar Braceros: 2125-2148* links a lack of education in the sciences to a lack of power in the digital era. The novel follows digital invention back to mining and forward to waste storage. It reveals the effects of digitization on capitalism's underclass as it searches for ways to combat these conditions. Finally, Ernest Hogan's *Smoking Mirror Blues* acknowledges the destructive history of digitization and the representational trends and policies creating these digital divides, then refuses them. His trickster novel dances across the divide, seizing control of the digital future and creating a neo-Mexica network in its place. These three Chicanafuture texts, to borrow Catherine Ramírez's term, expose the consequences of the digital divide for Chicana/os, Mexicans, and the rest of the developing world, as they provide methods of resistance through digital recovery, much as Ramírez contends, "By appropriating the imagery of science and technology, Chicanafuturist works disrupt age-old racist and sexist binaries that exclude Chicanas and Chicanos from visions of the future" ("Afrofuturism" 189).

The Rag Doll Plagues is a triptych novel, a set of three diaries that chronicles three similarly named doctors' experiences battling *la mona*, a plague that recurs by different names. "Book One: Mexico City" follows Don Gregorio, the director of colonial Spain's Protomedicato, from Spain through Mexico City at the end of the eighteenth century. Gregorio helps cure the plague by ensuring the birth of a mestiza child, beginning a new, "clean" epoch for the colony. Doctor Gregory Revueltas spends "Book Two: Delhi" in Orange County, California, during the late 1970s. He tries to save his

wife, Sandra Spear, from AIDS, *la mona*'s newest incarnation, eventually failing but writing the battle in his diary. "Book Three: Lamex" chronicles the efforts of Doctor Gregory Revueltas, grandson of the previous Gregory, in defeating a resurgence of *la mona* called the Blue Buster in the late twenty-first century. The dystopic future centers on Lamex, a post-NAFTA conglomeration of Northern Mexico and California under the direction of the Triple Alliance of Canada, the United States, and Mexico. Gregory finds a cure for the plague in transfusions from "pure blooded" Mexico City Mexicans, which saves Lamex, but relegates Mexicans to a life as "virtual slaves" (López-Lozano, "Cultural Identity" 94).

Morales eerily predicts the effects of NAFTA on Mexico in his novel, both in the use of Mexicans as exploited labor, as Rivera emphasizes, and with the environmental devastation that accompanies neocolonial industrialization in developing nations, as Gamber suggests. Morales' novel also presages the digital erasure brought on by the information age. Published on the cusp of NAFTA's enactment, *Rag Doll Plagues* also follows fast after the internet became a mass technology, folded comfortably into U.S. media's consumerist model. Lisa Nakamura identifies the mid-1990s as a turning point in the digital era, a time when the internet, rising in concert with U.S. multinational capitalism and the language of color blindness, shifted from a "utopian space for identity play, community building, and gift economies to a more privatized, profit-driven model" (3). Morales predicts how the internet is coopted by corporations with the novel's digital archive. Controlled by the governing Triple Alliance, the archive is the master narrative regulating the future, erasing its own maintenance and waste management. *The Rag Doll Plagues* enacts textual resistance by corrupting the archive, coding multivocal histories

and fictions into the computer systems—Chicana/o science fiction—causing literal ghosts in the machine who continue the process of breaking down the master narrative that shrouds the Triple Alliance's abuse.

The archives predict the problematic relationship between digital information and Chicana/os—a relationship that erases the abuse of Mexican and Chicana/o labor and the devastation of Mexican land to thrive. The economic divide that leaves millions living in garbage colonies in Lamex's Mexico City is censored, minimized, and otherwise justified by the "mega knowledge banks" housed in Lamex's computers. The novel's digitization of writing provides the Triple Alliance centralized control over history and the present, mediated by technology. Books are "obsolete artifacts" (141) that only Gregory seems to read. Information is disseminated through a network, and "computerized pocket books [. . .] dominate the literary marketplace" (141). Only people of "Higher Existence possessed supercomputers and had access to the mega knowledge banks. Paper books were housed in one of nine archival museums of the Triple Alliance and recorded into mega-computers. Those who qualified and could afford it, paid for continuous updating" (142). The loss of paper books leaves knowledge at the hands of the rich and powerful, "updating" records at will. History, fiction, and current events are mediated through class, and this technology serves the hegemonic Triple Alliance. In other words, the complete electronic control of information leaves history at the mercy of the digital copy: a copy that can be changed, deleted, or otherwise mangled and instantly downloaded into the populace's ebooks. The fluid, digitized archive of Lamex gives the Alliance total control over information, interpretation, and thus power in the dystopic future.

The novel manifests the power of the digital archive's erasure by demonstrating

how it upholds and obscures the United States' exploitation of Mexican bodies and land. Current scholarship on *The Rag Doll Plagues* thoroughly explores how Lamex's waste, labor, and environmental policies reflect the United States' relationship to Mexico. Gamber describes how the novel correlates mestizaje, cultural toxicity, and environmental devastation. Herrera-Sobek asserts that the novel's "critique of capitalism and the exploitation of the Mexican in the United States is intertwined with the ecological concerns related to pollutants, environmental contamination, and virulent epidemics" (106). López-Lozano suggests the environment of contagion presents "the conditions of unequal exchange" in a dystopic post-NAFTA borderless North America ("Politics" 64). Not only does the text "systematically sustain an ecological perspective," as Herrera-Sobek theorizes, but it connects the labor policies of the United States (and Spain) to the waste produced in a digital, capitalist culture "concerned more with industrial profit that the preservation of natural life" (Morales 69). The discussion of waste in the novel signifies Mexico's relationship to the United States created with the Bracero programs and the looming possibility of NAFTA. The abusive labor practices, waste, and environmental devastation that runs rampant across Lamex (and the land's previous incarnations) also predicts Mexico's relationship to the digital era, as the practices directly support the archive, a gloss for the post-NAFTA internet, and provide the infrastructure for the archive to exist.

Similar to how the United States' atomic narrative expunges the beginning and end of the nuclear cycle through its focus on building and detonating atomic bombs and expanding the country's power plants, the post-NAFTA internet edits its complete life cycle, shrouding how electronics are created and destroyed outside the United States. *The*

Rag Doll Plagues exhibits the manufacture and destruction of digital products in Mexico, predicting our present in the destruction of Mexican land (and people) for the United States' technological boom. Morales' future, just like our present, has a "massive labor force in the *maquiladora* factory belt" (195, emphasis in original). The novel reflects how U.S. electronics manufacturing's major movement to Mexico began in 1965 with the Border Industrialization Program, which promised to "creat[e] jobs to replace the employment opportunities that had vanished when the U.S. ended the Bracero Program" (Sklair 27). The move shifted the United States' focus from importing workers for labor in industrial factories to exporting raw materials to Mexico for assembly at a substantially reduced cost. The electronics manufacturing's birth with the invention of the transistor and the following boom in the 1950s provided a massively growing industry to fuel the new maquila program—one which continues to thrive on the U.S.-Mexico border.[3] As the value of exports from all maquiladoras in Mexico has steadily risen from 2007-2013, Caulfield remarks, increasingly expensive transportation costs coupled with the NAFTA tax breaks encourages U.S. companies that have moved manufacture and assembly to other developing nations to relocate back to Mexico. Workers are most often transplants to the borders, predominantly young women migrating to northern Mexico (although a growing number of workers have been men since the 1980s). Factories are notorious for providing low wages, unsafe working conditions, and a culture of patriarchal repression.

[3] The "largest concentration of [electronics] plants is in Tijuana (51%), followed by Ciudad Juarez (29%) and Mexicali (20%). Over half of these plants were opened in the 1990" (Schatan and Castilleja 122). Schatan and Castilleja's study found that between 1988 and 2004 the manufacture and assembly of electronics in the maquilas of northern Mexico have tripled their contribution to Mexico's gross domestic product, and between 1994 and 2004, foreign investment in electronics rose from 256 million to 700 million dollars (110, 111).

A large number of sexual assaults and murders come along with the financial opportunities the factories provide.[4] The construction of the digital world's infrastructure is divided across national borders: assembled in Mexico; sold in the United States.

Maquiladoras don't just create problematic spaces for their workers. Maquila waste management is a rapidly growing problem. Schatan and Castilleja add that the factories are "lagging behind rapidly advancing international electronics environmental standards" as "around one half of them have no environmental policy within the firm" (110). The lack of an overreaching environmental policy coupled with the industry's continuing growth and an (obsessive) increase in United States citizens' replacement of computers, televisions, phones, and other electronics has led to a substantial increase in electronic waste. E-Waste, Robinson reports, is both highly toxic and desirable as it contains rare earth minerals and metals that can be recycled. However, strict environmental regulations make recycling the products prohibitively expensive, so most developed nations export their waste to developing nations (or send it to landfills) "where it may be recycled using primitive techniques and little regard for worker safety of environmental protection" (Robinson 184). A 2013 report by the United States International Trade Commission found that the United States exports more electronics waste to Mexico than any other single country (Williamson et. al. xiv). Surprisingly, they also discovered that material exported for recycling and destruction is often refurbished and sold, providing people in developing nations with technology they wouldn't

[4] Maquila culture and maquila abuses have been extensively documented. For an overview, see David E. Lorey's *The U.S.-Mexican Border in the Twentieth Century*, Leslie Sklair's *Assembling for Development,* Kathryn Kopinak's *The Social Costs of Industrial Growth in Northern Mexico*, and Norma Iglesias Prieto's *Beautiful Flowers of the Maquiladora*.

otherwise be able to afford. Although some of the materials contribute to the toxicity of the soil and air in Mexico (the very thing corporations send the waste out to do), some of the materials covertly digitize developing nations.

Morales' Garbage Colonies, such as El Pepenador, a town outside Mexico City built atop and surviving on the Triple Alliance's trash and populated by, as the name implies, "pickers" of waste, foreshadow the United States' use of Mexico as a repository for the digital era's garbage as they represent a global phenomenon of people in developing nations surviving off developed nations' trash. *Pepenadores* in Mexico (and other developing nations) pick through waste to find salvageable or recyclable material to sell. They most often live with their families on or near vast garbage dumps, and as Medina relates, in Mexico City they have an average lifespan of 39 years, compared to 67 for the general population (57). *Pepenadores* receive "as low as 5% of the price industry pays for recyclables, while middlemen obtain high profits" (58), guaranteeing the continuation of poverty for the estimated two percent of the population in developing nations that survive as scavengers. In Morales' dystopic future, the garbage colonies such as El Pepenador, "where millions of people scavenged and lived off the salvageable waste" (Morales 164), function as repositories for the overpopulated Mexico City as well as its trash. Gamber's analysis that the *pepenadores* as figures of survival and resistance, recycling and repurposing waste and contamination to create sustainable life out of no "real" resources, echoes what Williamson et. al. report on the actual fate of electronic materials exported for recycling: some of the "waste" electronics are instead repurposed and revitalized, allowing people access to phones and computers who would otherwise be locked out of the digital era**.**

The Rag Doll Plagues likens the Triple Alliance's treatment of waste to that of its people, making clear that there is no real difference between recycling people and waste. Parallel to Morales' "garbage people" scavenging through the city's waste, the officials of the Triple Alliance have so utterly lost control of the environment from toxic environmental processes—a reflection of the United States' treatment of Mexico—that they raze an entire city, including its population, to prevent the spread of disease: "Bulldozers worked through the night. By the next morning three of the ecomodern buildings were pulverized. Salvageable steel and other metals were separated and airlifted out by helicopters that blew the smoke and ashes of the cremated into the air and out to the polluted sea" (154). Although the city was destroyed due to biological contamination, the expendability of its residents coupled with the method of "recycling" the area—burning buildings, harvesting the valuable metals, and letting the resultant contaminants seep into the water table—resembles the ways in which some waste shipped to developing nations for recycling meets its end.

The Triple Alliance has crafted a narrative of absence surrounding *la mona*'s cause, much as the United States makes invisible what happens to used computers and cellphones. Gregory speaks of the plague as a force disconnected from any history, "Its appearance was inevitable. It had to come up some place and time. Who knows from where it traveled, or from what time it came?" (129). By severing the links between cause and effect, the past, present, and future, the Triple Alliance can continue its destructive practices without critique. The novel, however, has embedded within it resistance to the expunging of the Alliance's destruction of the environment as well as its erasure of Mexican history. Franco marks the archive—both Lamex's mega-computers and the

collected print writing of all the Gregorys—as a site of cultural remembrance and the "recitation of historical trauma" that confronts "not only the dominant narrative, but also the dominant structures of historiography" (381), making clear what has been erased as well as how the erasure continues.

What is a tool of the Triple Alliance becomes Gregory's site of resistance against the digital erasure that supports and protects the Triple Alliance's abuses. Gregory inserts lost histories from print sources into the mega-computers, effectively "corrupting" the Triple Alliance's information and embodying erased ghosts of the buried past. "Into the computer in which he [grandfather Gregory] created his fiction and introduced his self-description, I computerized my reports. My history and my fiction simultaneously dwelt with him, not knowing for sure who had control of the vast knowledge banks at our command" (142). The incorporation of Chicana/o history from print sources, medical texts from future Gregory, and fiction from his grandfather into the digital record fractures the Alliance's master narrative and decentralizes history, thus diffusing power over the present.[5] From Gregory's digitization springs computerized ghosts, literal specters of the present-day Gregory and Papa Dámian, Morales' grandfather remembered in his autobiographical novel *The Brick People*. It is through the computer's own programming, its digital archival process, that Gregory's ancestors push through what should be "a flood of decontextualized statistical and medical information, facts that lack narrative structure or plot," as Franco calls it (380), into a literal manifestation of

[5] The digitization of Gregory's recovered knowledge reflects current trends in the digital humanities, such as UCLA's Chicano Archival digitization projects and UC Santa Barbara's California Ethnic and Multicultural Archives. Morales again prefigures the digital future and new possibilities for recovery.

resistance to the very metanarrative the computer creates. His grandfathers' texts in the Triple Alliance's archive create enough fractures that the computers reincarnate his ancestors in less-than-flesh but more than idea. The technology shifts beyond human control: ghosts in the machines, glitches in the mega-computer's programming, writing and recording the events surrounding them, continuing to provide the data that corrupts the system.

Morales theorizes a method of digital survival clearly linking text, history, memory as what's at stake for Chicana/o and Mexican subjects in the post-NAFTA digital era, a method fueled by Chicana/o science fiction. The novel itself enacts resistance to historical text as monolithic truth by undermining the possibility of a unilateral reading and creating textual paradox between its books. The three books are discreet stories, linked together through the protagonists' writing. Delhi's Gregory learns about his "*tocayo*," or namesake, through a religious library in Mexico, where Gregorio's diaries chronicling his battle with *la mona* reside, and Gregory of the future remembers his grandfather through writings stored in the library he inherits. The Gregorys' textual connections complicate a digitized, centralized narrative by presenting history as a Möbius strip where time is continually moving but running over the same track again and again (*revuelta* if you will), much like a person running a pencil along the two-dimensional object. [6]

[6] A Möbius strip has only one edge and only one side. Moving along the length of the strip will lead you across its entire surface without picking up the writing implement. Also, crossing the "border" of the strip (what appears to be its width) leads you right back to the same side again—the figure eight-shaped paper is a collection of edges that separates nothing from itself. Most scholars, including Priewe, Martín-Rodríguez, Franco, Herrera-Sobek, and Martinez engage the work as circular,

Each book complicates its predecessors, changing the "truth" of events, overwriting the previous book but not erasing it, layering presence over digital absence. In Lamex, Gregory uncovers that his grandfather, presented as a devoted doctor and husband through the second book, is actually a science fiction author, "who posited his vision of the future world" (157). Gregory does not write any science fiction in the text of book two, which creates a space of uncertainty about the "facts" of the narrative and the completeness of the stories we are given. Additionally, future Gregory discovers "one of Grandfather's manuscripts, a 400-page novel entitled *The Rag Doll Plagues*" (157) that creates, relates, or remembers dystopic medical tragedies, as do all of author-Gregory's novels to which we are privy. When the grandson first encounters the manuscript, he relates that, "I grasped my inability to discern fact from fiction. Grandfather Gregory's novel became a history" (159). Gregory's manuscript, the novel's *tocayo*, calls into question everything the reader has encountered. As future Gregory loses the division of fact and fiction, the distinction between what is narratively presented as events and what is Gregory's science fiction also collapses. The possibility of books one and two being manuscripts Lamex's Gregory reads and his grandfather writes arises; they, after all, are labeled as books too. *The Rag Doll Plagues* manuscript not only predicts the death of Lamex's Gregory, but Lamex's Gregory lives through scenes that "took place in the future of his [grandfather's] books" (141). We learn that Lamex is a creation of the science fiction writer at the same moment we discover Grandfather Gregory is not the man book two presented. The present reveals the future as fiction as the future reveals its

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acknowledging the recursive behavior of the text. Gamber refers to Morales' time as "liquid," as "the past, present, and future are not separate but integrally connected and influencing (as well as repeating) one another" (65).

past as false.

What this postmodern tangle of memory, history, fact, and fiction teaches us is that science fiction can fight against digital erasure by allowing Chicana/o authors to displace and overwrite "factual" narratives, or the dominant culture's metanarratives of science, technology, and history, with alternatives that deploy complications and make room—demand room—for marginalized subjects. Reframing the present as a fiction, one that we can only recognize as fantasy from the future, demonstrates the multivalent nature of reality. Far from just playing with how we see time, memory, and reality with its structure, Morales uses the form of his metafictional novel to disrupt how science fiction presents science, fiction, and history, and how access to foundational texts construct Chicana/o and Mexican physical realities. As Ramírez considers, Chicanafuturism is a genre "that attends to cultural transformations resulting from new and everyday technologies (including their detritus); that excavates, creates, and alters narratives of identity, technology, and the future; that interrogates the promises of science and technology" ("Deus" 77–78).

Unfortunately, Morales deploys textual resistance in a manner that reaffirms heteropatriarchy's master narrative and maintains the digital and labor divides for women and queer subjects. The metatextual tangle available to the Gregorys, the spectral possibilities, are not accessible for women, whom Morales grounds in their corporeal forms. The clearest example of this is future Gregory's assistant Gabi Chung, a doctor who amputated an arm to install a mechanical appendage designed to be a medical laboratory and link to the mega-computers. Martinez marks Gabi's arm as a sign of her failed humanity—sacrificing a piece of herself to advance her career and knowledge in a

capitalist system. The arm is not a good fit, the smell of burning flesh announces its low battery charge, its malfunctions grow more severe, and Gabi finally kills herself. Her failure is related to the failure of feminism in the text, and the failure to envision gender constructions that allow women to move away from biological reproduction and patriarchy-defined roles.

Women in the novel serve primarily as wombs. Marisela ends up a literal womb: arms and legs amputated, lying on a table struggling to maintain her pregnancy and life long enough for her child to be viable. Sandra is a failed womb, miscarriages causing her AIDS and signaling that a failed mother is somehow diseased. It is with her transformation to Coatlicue, the mother of the gods, that she becomes a positive figuration of womanhood. As Gamber argues, "Coatlique's maternal role correlates to Gregory's comment that he imagines Sandra giving birth to the world. He defines her predominantly in terms of her sexuality" (73). Doña Rosina is the mother of the entire barrio—a nurturer that holds the community together. Gabi is a woman whose very body rejects her focus and sacrifice for work, exemplified by her arm's failure. It is the Garbage colony girl whose heteronormative blood transfusions save a soldier and Amalia who births the next generation of mestizaje who provide successful images of women in book three. Women are mothers in this text, or they are disruptive.

In addition to the piece's gender politics, its depictions of sexuality are far from flattering. *The Rag Doll Plagues*, as Gamber notes, creates an essentialized, "naturalized, compulsory heterosexuality" (86) through the male-to-female blood transfusions in Lamex. It also connects the only gay character in the piece, La Monja Alférez, to the plague through timing and naming. She is always referred to with the definite article "La

Monja," a name strikingly similar to *la mona*, even in sound. The nun is a crown-sanctioned flouting of heteronormativity, one which Gamber reads as positive "liquid gender ambiguity" (86) creating "a usable Latin American past," even as the later, compulsory heterosexuality makes this ironic (61). However, La Monja could be read as the actual plague—the coming of la Monja to the new world and the onset of la mona are similarly timed, and instead of an ironic twist of purpose, seeing La Monja's queerness as the onset of disease, and the return to heteronormative blood mixing as its cure provides a more consistent reading of the novel. When considered next to the second book's conspicuous lack of gay characters in its rendition of AIDS victims, the homophobic undertones are unmistakable.

While *The Rag Doll Plagues* provides a prescient prediction of the problems in a post-NAFTA, digital era and posits a method of textual resistance to erasure, it problematically replicates patriarchal gender and sexuality ideologies. The archival resistance provided Gregory through recovery is unavailable for women and queer subjects, and the critique of the United States' abuse of Mexican labor does not extend to women. Instead women are punished for laboring outside of motherhood. Whether intentional commentary how women figure in the United States' relationship to Mexico or a replication of patriarchy, Morales' depictions of women should not eclipse his frighteningly accurate depiction of his future, our digital present, and the United States' abuse of Mexican labor and land, but it should serve as a caution about patriarchy recreating the digital divide for women and queer subjects even as Chicanos may begin to bridge it.

What Morales predicts and theorizes about the digitized, post- NAFTA future,

Rosaura Sánchez and Beatrice Pita's *Lunar Braceros* interrogates. In a labor-centric novel, Sánchez and Pita reveal the globalization (or, more accurately, interstellarization) of the maquila industry, the mining processes that devastate developing nations to support electronics construction, the growing electronic waste problems caused by consumer culture, and the digital era's labor politics that uses marginalized bodies as tools and trash. *Lunar Braceros* encapsulates the displaced beginning and end of the digital cycle in shuttles traveling between the moon and Earth. Bringing waste to the moon on the ships' incoming trips and hauling ore back to the planet for manufacturing, the emptiness of space becomes the border between consumers and producers, between the United States and Mexico, between multinational corporations and developing nations. *Lunar Braceros* fictionalizes the United States' erasure of Chicana/os, and predicts that the continuing digitization of writing in the information age will make history easily malleable. Like *Rag Doll Plagues*, the novel deploys textual resistance, characters using the electronic word to remember the truth the digital era erases and arguing for a revolution, both physically and in how science is practiced.

Primarily a story to Pedro, the son of the protagonist Lydia, *Lunar Braceros* retells the experience of seven lunar "*tecos*," who are storing Earth's waste products on the moon. Related in a series of "nanotexts" compiled by Pedro just before his eighteenth birthday, the primary plot of the book narrates the *tecos*' discovery that workers were not being sent back to Earth as promised, but instead are murdered by ExoChev and buried on the moon to save cargo space for minerals. The discovery of the murders prompts a successful escape, followed by a flight back to earth and a move to Peru where the *tecos* raise Pedro communally. They eventually return North to revolt against the system of

reservations that keeps people of color and poor whites in perpetual indentured servitude. Interspersed with the "linear" plot, the novel explains several events and epochs: the creation of Cali-Texas, a corporate-sponsored state starting as the southwestern United States and Northern Mexico and eventually comprising the United States, Canada, and Mexico; the rise of global corporations and subsequent environmental degradation caused by conservatism; and the creation of reservations to house the unemployed and provide indentured labor for the growing multi-planetary conglomerates.

In a more technologically advanced construction than *The Rag Doll Plagues* archives, Sánchez and Pita's interplanetary corporations enact erasure both textually and bodily to maintain the fictions that allow capitalist exploitation to thrive, a future reflection on the consumarist internet. Lydia "learned, for example, that the government was hard at work on two related memory projects. One involved purging memory on all digitized materials that were publicly accessible. This called for revising historical accounts not favorable to the Cali-Texas government" (38). Even as Lydia takes 3000 ebooks with her to the moon so she can keep working on her knowledge accumulation (from "the classics" to practical scientific and computer texts), the very digital copy that allows her to bring a library with her is in constant danger of erasure and revision. The other project works with Alzheimer's patients using "implanted nodules" that "converted brain waves to digitized data" to revise people's memory (38). Under the auspices of beneficial scientific advancement, the government can break the last chain in cultural (and class) remembrance—memories from the people whose recollections of history differ from the narrative that enacts erasure: Chicana/os, other people of color, and poor whites. The novel engages human's growing interdependence with digital technologies,

positing a time when the computer is literally in your head, and your very thoughts are controllable.[7] After all, controlling information is how powerful groups stay in power and how the future's governments keep workers on the reservations from revolting, controlling the internet to silence anti-capitalist rhetoric and monitoring all communications on the moon to keep *tecos*' language in line.

The Cali-Texas government has a vested interest in controlling the narrative, as Rivera notes, to keep its labor sources under control and mechanized. The text explains how education, and thus access to science as well as other master narratives that shape the world, is a matter of class and race deployed to reinforce class. People on the reservations are less educated, thus are less likely to find themselves employable in white-collar jobs, or even jobs outside the indentured servitude into which reservations residents are forced. Lydia and her brother were allowed into school as children because they showed potential in math and science, and were later given scholarships because of the "surprising" nature of this aptitude. However, Lydia loses that education when she is arrested for taking part in anarchist organizations. It is her fight against the class and labor-based system of Cali-Texas that ensures her loss of a graduate education that would have prepared her for higher-class jobs, such as the research positions in the lunar labs. This education loss reflects the school to prison pipeline in the United States that impacts black and Latina/o children, and like the creation of black people as biologically deviant discussed in Chapter 1, supports the prison industry and silences threats to the master narrative.

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[7] See Donna Haraway's "A Manifesto for Cyborgs" and Katherine Hayles' *How We Became Posthuman* for extended examinations of the possibilities connecting humans and machines in the digital age affords.

In Sánchez and Pita's future, access to knowledge about the universe's construction, only afforded to scientists that have advanced graduate degrees and positions in research laboratories, serves as a metaphor for the larger class-based control of information that supports multinational capitalism. It is science that will lead to eventual control over the universe, but the residents of the reservations, miners, and *tecos* are locked out of the labs, and without graduate degrees, they cannot expect access. Even though a young Lydia and her brother hope that space exploration will offer them a utopic world, it is the reality of science as a privileged field that reinforces the class, race and digital divides of the novel's dystopia. Knowledge allows people to see the invisible forces holding the capitalist system together, and it is education in science that provides access to the places, processes, and procedures that can change the universe's order.

Without education, people in the future are stuck within the cycle of mining and recycling that multinational capitalism promotes and that produces the infrastructure that digitizes and controls the master narrative. Though profoundly invested in and focused on the U.S.-Mexico border as Rivera contends, interplanetary corporations allow Sánchez and Pita to link globally marginalized classes outside the confines of the U.S.-Mexico border. Corporations in the novel's "borderless" future mine for minerals on the moon, and send the raw materials back to earth where they are assembled on the reservations in factories such as the electronics assembly maquila for which Lydia's father works (28).[8] The products are used by the middle and upper classes and sent back to the moon as waste. The interplanetary electronics cycle *Lunar Braceros* creates reconstructs the actual

[8] Rivera links the lunar mining to uranium mining in Arizona, which I discuss in Chapter 2, and "global capitalism's starvation of the indigenous to fatten the capitalists" (416).

electronics cycle globally**.** Most mining happens outside the United States, most notoriously digging for rare earth elements required to build the resistors that power circuit boards and battery cells, which are excavated principally from Africa and China with devastating effects.[9] As mentioned previously, the U.S. ships much of its e-waste to Mexico for potentially toxic recycling. Although the novel primarily follows the *tecos* of the Cali-Texas Waste Dump, they escape by colluding with the miners at the ExoChev Mining Camp who undergo the same fate—killed at the end of their work tour, their bodies, per ounce, not as valuable as the ores returning to Earth. The U.S. hides the dangerous and toxic stages of its electronics production across borders, obscuring the real digital divide, and *Lunar Braceros*' characterization of this cycle moving across the yawning emptiness of space postulates that given a chance, corporations would bury their toxic legacy (and those who handle it) where no one has access. After all, in space no one can hear you scream.

Refusing the yawning silence that corporations create in the space between Earth and the Moon, *Lunar Braceros* uses both extra- and intertextual literary devices to reinscribe repressed history and culture by replicating oral traditions textually. Like Morales' Gregorys, the *tecos* encode messages in the master narratives, and Sánchez and Pita use their novel's unconventional form to perform resistance with multivocality. Lacking chapters, *Lunar Braceros* is broken into small sections ranging from a sentence

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[9] For example, mining in the Congo in many ways worsened the civil war at the end of the twentieth century. The country had 60 percent of the lanthanides—tantalum and niobium—that combine to create coltan, an ingredient in most cell phones. As the global need for the two elements rose during the mid-1990s, people in the Congo collected the materials in mass, easily dug from the ground, and a huge cash infusion made the already brutal conflict that much more devastating. For more information, see *Consuming the Congo* by Peter H. Eichstaedt.

to five pages long, each separated by a line of thirteen circles depicting phases of the waning moon. The nanotexts themselves are stylistically distinct, ranging from a "standard" serif font, fully italicized sections, bolded italicized sections, and sections in a "small caps" non-serif font. Instead of indicating speakers, perspectives, or time period, these sections are more indicative of tone or narrative tempo (other than the bold italics that bookend the rest of the nanotexts—Pedro framing his mother's collection for his uncle Ricardo—the "author's" prologue and epilogue). They are "***lunar posts, lessons, bits and pieces of conversations, and notations with friends***" (5, emphasis in original). The texts are primarily creations of, or representative of Pedro's mother's voice. Lydia's experiences on the moon and her conversations with her son dominate the novel. However, Lydia is not the only voice in the document. Other characters like Pedro's father Frank expand on or disagree with the information Lydia provides. Even Johnson, the man who orchestrates the slaughter of ExoChev's lunar workforce, narrates a nanotext. This communal set of voices represents history, the present moment, and multivocality enacted to combat the government's digital erasure. The multiple speakers, like the multiple fonts, create a textual community of disparate voices narrating perspectives that change based on speaker.

Alongside the historical and cultural remembrance orchestrated with the novel's structure, the novel presents science as a metaphor for erasure and resistance to removal. The most narratively jarring nanotexts are those that relate content from astrophysics and quantum mechanics. Italicized, these sections are ostensibly Lydia musing about the broader universe with Pedro, considering with him the possibility of becoming an astronomer. These sections begin by relating information about the big bang theory and

black holes, focusing on the expansion and contraction of the universe (94). She summarizes the difference been classical and quantum physics via an argument about black holes between Stephen Hawking, who "*implied that in a black hole evaporation all information is lost,*" and Leonard Susskind, who "*insisted that information leaked out with the heat*" (102, emphasis in original). In a novel overly concerned with the conservation of history and memory, the difference between ordering the universe at a microcosmic level, Susskind's string theory, and a macrocosmic reading of space, Hawking's physics, is tantamount. Recovery can only exist when information is not lost.

Sánchez and Pita use theoretical physics to enumerate on another difficulty for cultural recovery movements: seeing what is missing from the current narrative. Matter, energy, and information that can't be seen can't be accessed. Lydia tells Pedro about dark matter, mass that might take up 80% of all matter, but is only detectable in that some objects in space behave as if their mass is much larger that we can measure—scientists decode its existence through strange behavior of visible objects. She tells Pedro that dark matter may make up entire other dimensions that we cannot access (110). Additionally, when queried about the existence of black holes as invisible objects that do not let light escape, Lydia responds:

> *So how do we know it exists if it does not emit light? That's actually a very good question, Pedro. We know because the mass of that black hole retains its satellites in orbit. The galaxies all orbit around these gigantic black holes. So we know that black hole is there by its effect on other masses in space. And then there are also the voids in space. We still don't know anything about them.*" (100, emphasis in original)

The scientific information Lydia relates to Pedro provides the reader with another way of understanding the novel. The voids in the text—the spaces between the nanotexts—are clearly pulled together and held in orbit by a large mass, a black hole or dark matter: what

is not overtly stated but must be discovered. The characters and reader must read between the lines of history to find the past. Even as information might seem to be gone, sucked out into space and onto the moon, buried in a mine or stored in a cavern, it still exists somewhere. The spaces between lines in most novels and histories must be decoded, spaces that preserve Chicana/o subjectivity, culture, and history.

The Rag Doll Plagues and *Lunar Braceros* reveal the growing digitization of the United States and other developed nations as a calculated erasure of Chicana/os and other marginalized people as they expose the material conditions that build the digital era: mining for rare earth elements in developing countries, assembling electronics in the maquiladoras on the U.S.-Mexico border, and the toxic recycling process for electronics in Mexico and across the developing world. They present digitized recovery movements as resistance to these processes, revealing cultural connections to the past and showcasing methods of bridging digital, economic, and border divides. Instead of revealing the material conditions for Chicana/os, Mexicana/os, and other disenfranchised people in a digital era where electronics' construction and destruction are hidden from view, Ernest Hogan's 2001 *Smoking Mirror Blues* unapologetically seizes control of history and technology, using it against capitalist media that exploits Chicana/os and other marginalized people, working from within digital representation to fight against its erasure. In effect, Hogan's novel enacts a Reconquista of Aztlán with the tools of a digital age. While the digital divide proposes to leave Latina/os in the past, Hogan invokes the Mesoamerican, specifically Aztec mythology and images, to rupture the codes of technologized racism. Just as Catherine Ramírez theorizes that Chicanafuturism "questions the promises of science, technology, and humanism for Chicanas, Chicanos,

and other people of color" ("Afrofuturism," 187), Hogan's novel interrogates the promise of Chicana/o visual and digital representation in the U.S., tracing the lack of access to digital spaces for Chicana/os as authors and consumers to earlier disparities in American film and news. Advocating for digital, transcultural nationalism, Hogan reveals the future's dependence on mass media for culture as he creates space for Chicana/o techno-signification to "to tricksterize the mediasphere, and even tricksterize the real world" (Hogan 22).[10] In *Smoking Mirror Blues*, Hogan seeks to reclaim mass media to recover Chicana/o histories, from Aztec myths to the Zoot Suit riots, recasting Chicano nationalism's practices for a new digital era. However, the novel's radical conscription of visual media uncritically replicates problematic representations of women, limits women's characters to familiar stereotypes, and reinscribes women's presence as scopophilic objects for the male gaze. Even as it refuses Chicana/os' erasure and seizes control of their commodification, the novel's return to Chicano nationalism replicates *El Movimiento*'s privileging of masculinity, unintentionally revealing problems with its otherwise imaginative digital mestizaje. Much like *The Rag Doll Plagues*, the novel creates a problematic national network, privileging masculinity and heteronormativity.

A "hyperactive, racy, imaginative novel" (Cannon and Zaleski 61), the piece narrates the reincarnation of a virtual pantheon with a "god-simulating program" (Hogan 36) to tricksterize the current world and reclaim the future as an extension of the Americas' Aztec past. Half the drunken reeling of Oscar Zeta Acosta's *The Autobiography of a Brown Buffalo* and half the digitized decadence of William Gibson's

[10] The future's mediasphere is a neologism for the United States' agglomeration of mainstream film, television, music, advertising, and the internet (Hogan "Guest Post," 2001).

Neuromancer, *Smoking Mirror Blues* takes place in a dystopic, cyberpunk Los Angles/El Lay during Dead Daze, a cultural amalgamation of Halloween, Día de los Muertos, and a Mardi Gras-esque street party centered largely on the corner of Hollywood and Vine. Resplendent in recomboculture—a mixture of global cultures, mass media's presentation of these cultures, and the commodification of "otherness" as trend—Dead Daze presents a new height of fragmented identity. The novel follows Beto Orozco, a Chicano computer game designer just returned to El Lay from Mexico with his Aztec roots in the form of an AI program. Beto uses the program, bolstered with "a crazy, mumbo jumbo" (12) Aztec ceremony to digitally incarnate the trickster god Tezcatlipoca. The newly minted god takes over the mediasphere and simultaneously hypnotizes Beto, animating the Chicano's body as Smokey Espejo, an English/Spanish translation of the god's Nahuatl name.[11] In bifurcated form, digital Tezcatlipoca and embodied Smokey, the trickster makes himself the star of Dead Daze—appropriating a corporate-sponsored gang, the Olvidadoids, commandeering a band, Los Tricksters, and adapting their "Tezcatlipoca Blues" to "Smokey Mirror Blues" in an attempt to hypnotize the world with music. The piece ends with Smokey Espejo pushed from Beto's body and Tezcatlipoca loose in the mediasphere, as the newly-freed Beto sits in a psychiatric ward, dreaming of a raft of snakes, chanting "I am Quetzalcóatl, I am Quetzalcóatl, I am Quetzalcóatl..." (209) promising the return of the trickster's more lawful brother.

The core narrative the novel uses as its mythic history is from the Florentine Codex (*Historía general de las cosas de Nueva España*), a document whose creation was organized by the priest Bernardino de Sahagun and several Indigenous scribes and

[11] Smoky Mirror

painters from 1576-1577. The codex chronicles Aztec history, myths, and culture as well as documents Spanish contact narratives in Spanish, Nahuatl, and pictorially. Most significant to *Smoking Mirror Blues* is the story of Quetzalcoátl's time as a human Toltec in Tollan, and his voluntary banishment from the continent. The codex tells of the god's passing as a human and working towards his own perfection in the ancient city. It is a golden era for Tollan: crops flourish, the people have good health, and all are content. Tezcatlipoca becomes jealous of his brother's happiness and tricks him into looking into a mirror (*tezcatlipoca*) where Quetzalcóatl sees his disheveled reflection, magnified by the god's focus on spiritual matters above physical ones, and he is horrified. The trickster offers Quetzalcóatl pulque, a strong alcoholic beverage, to help soothe his nerves. After getting drunk, Quetzalcóatl has sex with his sister, Quetzalpetlatl. The now incestuous god resigns as leader, ending the prosperity of Tollan, and he eventually walks to the sea, boards a raft of snakes, and floats off to the east. Quetzalcóatl is prophesied to return in year 1-Reed (the beginning of a 52 year cycle) to restore Tollan to its former glory.[12] Since then it has been the dark, chaotic years under the trickster Tezcatlipoca. Echoing the legacy of Chicano nationalism, Hogan reclaims this history for his characters.

What's starkly different is Hogan's incarnation of the trickster Tezcatlipoca as a cloned artificial-intelligence residing in a "bio nanochip" (12): a masterful piece of "silicon-biological technology" (13) that blends cybernetic memory with neural nets. It is a triptych collaboration of carbon-, silicon-, and myth-based technology that fuses "traditional" science, questions of sentience, and remembered cultural history into a new

[12] Ironically, the year Cortes landed was 1-Reed, accounting for how he may have been mistaken for a god.

type of technology. As Tezcatlipoca, he is at once a computer, the mediasphere, the watch or implant Beto's body uses to connect to this consciousness, the bio-chip that spawned him, and the programming on that bio-chip. As Smokey Espejo, he is Beto's body, Beto's memory, and Smokey's consciousness in that body. Finally, both figurations of the trickster have the memories of the Aztec god who lived in mythic time. The (re)creation of Tezcatlipoca (and later Quetzalcóatl) embodies human, machine, culture, myth, and history. The god's arsenal, both bodily and digitally, blends science, biology, and cultural history to challenge the use of technology against Chicana/o subjects.

This challenge centers on visual and digital media, and how tools such as cameras and computers distort their reflection of reality. The counter to these technologies is the *tezcatlipoca*, or obsidian mirror, that recovers an Aztec perception of self and culture infused with visions and possibility. Tezcatlipoca's entrance into Beto's body signals a shift in sight from concrete "reality" to visions of possibility. The newly embodied Smokey Espejo sees "his new face" in "the obsidian mirror attached to the monitor screen" (26). He notes that Beto's bathroom "mirror wasn't of obsidian—not a smoking mirror, a tezcatlipoca—and it made everything look so unnaturally bright and clear. You could stare into this mirror for days and all you'd see would be this sharp reflection of what things looked like, no visions would come" (26-27). Not only does this present a different way of choosing to see reality and the future, one that leaves room for the unexplainable and ambiguous, the focus on the smoking mirror as reflective of truth recreates older technologies of seeing in a hyper-mediated world. The novel presents silvered-glass mirrors, the "clear" way of self-reflection, as "unnatural" and limiting for

vision. The position of the *tezcatlipoca* on the computer monitor links the two forms of representation in the text. Computer monitors, televisions, and other screens when powered down provide a similar surface to a flake of obsidian: a distorted, muted reflection. When turned on however, the screens can provide "visions" of anything a programmer or camera can capture. From capitalist-driven advertisements to a simulated god flashing his name at a user, the novel emphasizes the power inherent in digitized content, and links this power to Aztec vision.

Smoking Mirror Blues deploys a meta-narrative in which the author traces the digital divide and exclusion of Chicana/os to the signifying practices in mainstream media, particularly early film. It recreates what is arguably the most important locus in Hollywood's history as a prediction for what is the most important moment in digital representation through the novel's "mythic" setting on the "fabled corner of Hollywood and Vine" (Hogan 18), the location of Hollywood's biggest growth spurt in the 1920s. The massive Dead Daze street party centers on the intersection, characters moving back and forth through the costumed crowd. Beto's conapt sits there as well. Finally, the novel's detectives for hire, Tan Tien and Zobop Delvaux, have an office in "a refurbished, burnt-out floor of the building that used to be the Bank of America on Hollywood and Vine" (9). It is a location mentioned repeatedly in the novel, and a place most likely referencing the Hollywood Guaranty Building on Hollywood and Ivar. Built in 1923, the building housed Guaranty Savings, a bank that helped finance the rise of Hollywood, and as the building's application for historical status claims, was vital in "establishing Hollywood and Vine as the city's central district" (5). In addition to the bank, the building also housed offices for members of the entertainment industry,

including Charlie Chaplin and George Burns. Gilbert Beesemyer, the building's owner and director of Guaranty Savings, also "played a starring role in the demise" of Hollywood's "prosperity. The depression did not hit Hollywood as hard as other parts of the country, but what effects it had were directly attributable to Guaranty Savings" (5), as Beesemyer embezzled $7,630,000 from the bank on December 9, 1930, leaving many of its customers, from Hollywood stars to producers, penniless. The building was sold in 1931 after the crash, and Bank of America moved into the lower-most floors. It was bought again in 1988 by the Church of Scientology and continues to house their main offices.

By setting the novel in the context of Hollywood and Vine and the Guaranty building, Hogan evokes a legacy of movie representation shot through with financial, political, and religious pressures, in addition to problematically racialized political legacies. The location chronicles the boom of Hollywood in the 1920s, its financial corruption during the Great Depression, and film's dominance of mass culture through the rise of the "talkie" and government-supported efforts to raise American morale through movies. Significantly, Hollywood's history inversely reflects Latina/os presence in film. During the silent movie era, as Berg reminds us, Latina/os were some of Hollywood's biggest stars: playing characters of various ethnicities and starring in major motion pictures. After the addition of sound, any film stars with "ethnic" accents (except for Greta Garbo) moved to the margins of film (263, 266). The shift away from using Latina/o stars also began the process of codifying images of Latina/os in film to a small set of roles and stereotypes, which Berg marks as "*el bandito*, the harlot, the male buffoon, the female clown, the Latin lover, and the dark lady. Sometimes the stereotypes

were combined, sometimes they were altered superficially, but their core defining—and demeaning—characteristics have remained consistent for more than a century" (66). The beginning of the "talkies" in Hollywood cemented the representation of Latina/os to this day.

The significance of timing here is key. Dobbs argues that "in the 1920s mass culture helped to replace individual ethnic culture as radio, mass circulation magazines, professional and college sports, and movies, for example, became the dominant" methods of recreation (208). Mass culture shifted during the depression when "Hollywood-produced movies were the dominant popular culture in the United States" because Hollywood focused on providing cheap tickets for a middle-class audience, even as one-third of studios were closing (208). As Latina/os' roles in cinema changed and Hollywood actors became more white and homogenized, film's position as arbiter of mass culture was cemented, undermining the astounding racial and ethnic "leveling" silent film provided Latina/os. Thus the cinemascape delivered a limited version of Americanness just as the United States' mass culture replaced individual ethnicity—to be American was visually encoded as being white: a "celluloid divide" which provided a framework for the current digital divide.

At the same time, Hollywood's representation of Latina/os reflected the United States' immigration policies towards Mexico. The Mexican Revolution of 1910 saw a marked increase in Mexican expats traveling to the United States to avoid the war (10 percent of Mexico, according to Van Nuys). Simultaneously there was an influx of Mexican workers invited through the Immigration Act of 1917, which "favored Mexican male laborers needed to work on the railroads and in the agricultural sector" and excepted

Mexicans from the English language requirement and entrance tax until 1921 (French 72).[13] The act is often referred to informally as the first Bracero Program. During the Depression Era, the United States' invitation to immigrate ground to a halt with the closing of the border, as U.S. governments (local, state, and federal) tried to reverse the previous decade's migration with the 1929-1939 Mexican Repatriation Program. Seen a potential solution to increasing unemployment among both whites and Mexicans, ideally, the program offered volunteers free transportation (and food) back to Mexico in tandem with the Mexican government, which would then return repatriated citizens to their homes. In reality, it caused unilateral deportations of Mexican nationals (and U.S. citizens) from across the United States, backed with threats and acts of violence. In addition to the unemployed Mexicans the program ostensibly targeted, physically and mentally ill people, the elderly, orphaned children, and women without men were summarily deported (Balderrama and Rodríguez 133, 136).

Much as Hollywood was the center for disappearing Latina/os from visual representation in the U.S.' mass media, Balderrama and Rodríguez locate Los Angeles as the "hotbed" of repatriation (129), or disappearing Mexicans from physical representation in the United States. Thus the setting of *Smoking Mirror Blues* recalls the rise and fall of Latina/os representation in the early 20th century California, a time where film begins to define contemporary "American" culture and financial corruption becomes a normalized part of Hollywood, as evidenced in the Guaranty Savings and Loan scandal. Hogan's piece recreates what is arguably the most important point in Hollywood's history as a prediction for what is, also arguably, the most important moment in digital

[13] This was due to increasing anti-Chinese and Japanese immigration policies.

representation. The collapse of Bank of America parallels Guaranty Savings and Loan, and the omnipresence of digital media in the United States reflects Hollywood's presence as the arbiter of mass culture from the great depression on. The digital divide becomes the de facto representational hurdle for Latina/os in Hogan's future. Beto's invented god steps smoothly into this space. An embodiment that Zobop predicts when he first notices the digital surges marking Tezcatlipoca's electronic machinations as "the spirit of Hollywood manifesting itself in the mediasphere?" (43). Tezcatlipoca's construction heralds a shift in representation and power—one rooted in Hollywood's history, as well as the digital present and Aztec past.

While Hogan's gloss of Hollywood and Vine's legacy enables him to recover the history of Chicana/o representations and subsequent exclusions in Hollywood film, *Smoking Mirror Blues* uses vignettes of late twentieth century network news and documentary film to demonstrate how "factual" reporting sensationalizes Los Angeles' legacy of police violence, racially-motivated rioting, and gang warfare. From as early as the 1943 Zoot Suit riots to the late 1990s coverage of Rodney King, ratings-fuelled representations of violence, especially related to Chicana/os, Mexicans, and blacks, terrified Anglos, much as last year's Dead Daze riots loom menacingly over Hogan's celebrations. *Smoking Mirror Blues* is shot through with vignettes of network news and documentary film that highlight the fear-mongering present in "factual" media coverage generally, and for Chicana/os in Los Angeles specifically. Hogan's authorities call out the National Guard to provide Anglo citizens a sense of security against the potential violence, and similarly the late nineties' terror over racial violence and rioting demanded legislation and police action to stem the perceived rise in crime, which resulted in an

increase in illegal and brutal action against Angelinos of color, a situation that Hogan's novel retraces back to media representations and corporate sponsorships of information: sensationalizing racial violence for profit.

Much as in film, the National Association of Hispanic Journalists' annual report, *The Portrayal of Latinos in Network Television News*, regularly remarks that Latina/os are vastly underrepresented in network news; their stories consist of less than one percent of news coverage each year the report has come out but one.[14] Additionally, these representations primarily focus on crime and immigration (36% of coverage from 1995-2005), leaving viewers with a skewed perception of Latina/os as either criminals or "illegal" immigrants. The 2005 report interviews Latina/os about their perceptions of themselves in the news, and subjects overwhelmingly responded that media represents crime without context—networks refuse to delve into underlying causes, such as poverty and systemic racism. Coupled with the network's rising coverage of crime (even as crime rates are lowering, as Beale notes), network news' presentation of Chicana/os creates an image of the group as mired in violence, gangs, drugs, and other illegal activity.

Although sensationalized, sexualized, violent presentations of the Dead Daze events saturate the novel, one particular event pulls together issues of representation with their material effects, demonstrating the power that control over digital representation confers. The gang Los Olvidadoids confronts Smokey as he sits in the streets playing the teponaxtle. Smokey promptly kills their leader, shoving drumsticks through his brain. The trickster then takes control of the gang via their corporate sponsor. The documentary filmmaker wandering through the celebrations catches the act on camera and exclaims:

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[14] 2000, the year Elian Gonzales' custody battle and was a major story.

"It's great! We caught a SoCal citizen exercising his legal right to kill a certified gangster in self-defense! Every network on the planet will want it!" (35). Hogan adds in the filmmaker's capture of the footage: "Hold on the crowd fighting with the police for the corpse of the Olvidadoid leader—wouldn't it be great if they got it and tore it limb from limb? Talk about a chingow spectacular scene. Uh-oh, guess not. The police got it, too bad. Now cut to the guy who killed him being carried around" (38). The news programs that buy the footage remark that the "spectacular act of violence" was filmed as "the crowd went wild, and Smokey may just be the hero of this Dead Daze" (64).

Smoking Mirror Blues next connects news depictions of Chicana/os to legislation and police action against them, reinforcing the material importance of media control. The violent representations of Dead Daze by the documentary director in the novel reflect what Sara Beale contends are actual media practices of adjusting violence-levels for corporate sponsors to attract viewers (421-22). After all, "viewers love glimpses of blatant illegality" (Hogan 33). The practice can be traced back to the rise of Hollywood, as Dobbs notes, as the 1920s marked a rise in corporate sponsorship in newspapers and radio, creating a shift "from muckraking to consumerism" (210) in media coverage. For more contemporary news media, Hamilton shows

> that broadcasters adjust the level of violence in entertainment programming on television to the target audiences they seek to attract and the products to be advertised. They manipulate violence in entertainment programming to establish specific brand identities, increase viewership during periods when local advertising rates are set, and counter especially popular programming on competitors' channels. In the context of entertainment programming, use of violence is an economic strategy to develop specific types of audiences. (qtd. in Beale 421-22)

The commodification of information strongly shapes the news' presentation of events. The unfortunate caveat is that the public's opinion about crime and violence shapes

legislation, enacted to combat what is a perceived rise in violence, and which includes "mandatory minimums, longer sentences, and treating juveniles as adults" in the legal system (Beale 398): practices that disproportionately affect men of color.

Hogan links news media's presentation of Chicana/os to the legislative effects against Chicana/os with the "Sepulveda Law," a law that allows gang members to be killed on sight by citizens. The name echoes the Langdon Street Injunction against gang members along the Sepulveda corridor of LA in 2000, the year before the novel's publication. The legislation was part of an set of injunctions banning members of the Sepulveda gang from "associating in public, hanging out on private property, flagging down cars, using walkie-talkies and other activities" including a 9:00 curfew for members (McGreevy and Larrubia). As one of a cascade of (ineffective) injunctions against gangs in East LA, the name demonstrates both the police violence against East Angelinos in the late 1990s and the media violence against Chicana/os at the end of the century.

Smoking Mirror Blues also critiques the commodification of Chicana/o bodies and the reification of Chicano males as always already gang members by parodying how increased police violence and corresponding rises in media ratings creates advertising dollars for news corporations. The death of the Olvidadoid's leader, for instance, demonstrates how El Lay's Chicana/os are trapped by companies' search for capital. His mother protests:

> Chingow! Chingow! Chingow! This is such an outrage!
>
> How can they let this maniac kill my son, and then say it's all perfectly legal! There's something wrong here!
>
> People are still thinking in old stereotypes. It's not like gangs are what they were thirty years ago! Nachito worked his way up through the gang to leader honestly, and the corporate sponsors had their eyes on

him—I'm sure he would have ended up and executive in a few years. (49)

In addition to humanizing the gang leader through familial connections, showing his "forgotten" or *olvidado*, heritage, the mother's speech demonstrates the lack of opportunities afforded marginalized men in El Lay. Gangs provide one of the few (ironically) legitimate ways of making money in the novel for Chicana/o youth, as gangs become corporate-sponsored, but remain illegal, and killing gang members reflects the news media's (also corporate-sponsored) lust for violence and ratings. The creation and destruction of gang members provides money for corporations and demonstrates how the non-violent media representations of Chicana/os in Los Angles (and El Lay) are also *olvida*, as they are not profitable. Hogan's dystopian futurescape thus resonates allegorically with the contemporary disenfranchisement of and systemic violence against Chicana/os in the form of digital and media violence shaping actual violence against Chicana/os.

The computer games Beto designs demonstrate the potential revolution that digital art provides and the resistance it enables against mass media's gatekeepers. Perhaps most convincing is its presentation of video games as a site of creation and resistance to digital absence, and by extension, the absence of power in a digital era. Digital erasure is most obvious in Beto's character before Smokey Espejo overruns him. Beto is a computer programmer who codes "virturealistic" games such as *Serpents & Sacrifices* for Worldkom (16). However, his adherence to an Aztec aesthetic threatens his success with, and access to, mainstream production. Beto's games are artistic: the scenery is photorealistic, but the light doesn't fall where it should, and the game's Aztec characters "looked like drawings from codices" (17). Beto literally turns code to codex,

flashing Aztec imagery on the computer's smoking mirror screen. His business partner Ralph, representative of white, male corporate control, sees Beto's programs as lacking "a sense of the appropriate" and delving "too far into Aztec culture" and "postpostmodern art" (16). In other words, Beto's work moves beyond the "appropriate" place for Chicana/os in video games. Aldama forwards that "[w]hile advances have been made in the representation of Latinos in multiply mediated formats, Latinos typically appear as a nonplayable character, obstacle to overcome, or simply part of the backdrop" ("Getting" 241) in video games, and "appear to spice up a story as drug kingpins, comic buffoons, or oversexed machos" (257), much as they do in film. The representational lacuna maintains even as, Aldama reminds us, Latina/os represent more video game players than whites do.

Ralph considers Beto's deviations from the norm as not "acceptable to a contemporary audience" as well, a phrase he immediately imagines Beto would clarify as an "Anglo audience" (16). Conflating ethnicity and temporality—screening "Anglo" as "contemporary"—removes all racially "other" subjects from the novel's present (our future). White means the same thing as existing in the present. The conflation highlights the importance of representation for Chicana/os in digital space as an issue tantamount to cultural survival, much as the news representation of marginalized subjects impacts their physical survival. Ralph's contradictory consideration of the game rests in a refusal to allow Chicana/o history into the present. He sees the game as simultaneously too archaic in its historical plot (occurring during the height of the Aztec empire), and too "postpostmodern," embracing the stylistic and artistic trends of Beto's contemporaries. One cannot have Aztec traces in the present; one cannot allow Chicana/o history

integrated into the digital future. Hogan's creation of Beto with a career in the technology industry undermines the implied absences of people of color in the technological present, as his partner's reception of his work exemplifies conflicts people of color face in presentations of the future. Hogan's novel acknowledges the conflict and then refuses it.

The god uses commodity culture and scientific advances to create a new master narrative and provide a Dead Daze "coming out" party for the Chicana/o body politic. Dreaming, Ralph sees Beto burst through his door and collapse in a pile of blue smoke just after handing him

> a human heart that didn't have a speck of blood on it—it was still beating. Ralph put it down next to his computer. Blood-red wires wormed out of the heart's venal and arterial openings and, with crackling sparks on contact, worked their way into Ralph's computer. The monitor flickered. Then there was a nuclear blast. (33)

Though easily read as a recall of his time being sacrificed in Beto's VR game, the prescient image of Beto taking over a computer with his heart, his blood, alerts the reader to Beto's power as it remembers Chicana/o and Mexicana/o artists, such as Marion Martinez, blending technology and Chicana/o and Mexicana/o culture.[15] The image demonstrates the invasion of the digital realm with the heart and soul of Aztec culture. Beto's art works its way into Ralph's unconsciousness, reflecting the presence of Chicana/os in "contemporary" culture and representation: repressed, but not lost or erased. Much as Ralph knew his Anglo-centric response to Beto's game was problematic, his mind knows technology and the future are threaded through with Chicana/os. His fear of Beto's influence on the mediasphere reveals the reason for his rejection and attempted

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[15] For example, Santa Fe's Museum of International Folk Art's 2001 exhibit *Cyber Arte* Ramírez uses to frame her discussion in "Afrofuturism/Chicanafuturism: Fictive Kin."

repression of the video games: a loss of power and control, a fear of the nuclear blast that would obliterate the current order.

The (re)animated trickster god creates more than resistance to the lack of digital access for Chicana/o subjects; he uses capitalist and consumerist networks to control the population of El Lay and implies that control will eventually be global. Tezcatlipoca most directly controls people through media—television screens, music, computers. Ostensibly, his control is easy people are "crying out for gods" in the new world (44), but more specifically because the removal of history and cultural significance predicated on the commodification of cultural practices in recomboculture leaves people open to the influence of media as the ultimate arbiter of morality, culture, and thus reality. The digital god first controls Beto via a flashing computer screen. He then becomes the official leader of the corporate-sponsored los Olvidadoids by using his "infosystem," or watch/phone link, to change his registration with Novacorp as the gang's new leader (44). He hypnotizes people with his electric teponaxtle, drumming up dazed obedience (146). He then takes over every station, each television in the novel presenting interviews, concerts, music videos, or promotional ads starring Smokey Espejo.

Tezcatlipoca plans to use another traditional art form taken over by corporate media to enact his Reconquista. He tells the world: "You need me to sing the blues for you. To jolt you out of the prison you call your self. To heal you. To allow you to dance the ecstatic, chaotic dance of life" (160). Connecting the African American tradition of blues as resistance to the trickster aesthetic of chaos and destruction as reinvigorating, the god's song, "Smoking Mirror Blues," is a song that "had the right hypnotic effect that would make listeners unable to resist his influence. If they were under the influence of a

drug like Fun, the effect would be increased. They would become his slaves, his tools, agents of his marvelous chaos" (159). Tezcatlipoca takes the power of the blues and infects mainstream media. The god plans to use the digital, multinational entertainment industry to control the capitalist world. The revolution *will* be televised.

Hogan's god thus creates a digitized Chicana/o nationalism reveling in its own contradictions to fight erasure in a commodified, recomboculture world. A simulation himself, Tezcatlipoca denies his fabrication and demands a biological link back to the real. This is either a playful contradiction, or as Sheila Contreras notes of Chicano nationalism's reappropriation of Aztec identity, a modern primitivism ignoring the actual Native people of Mexico and belying the colonial impulses girding Chicana/o history. Unlike Contreras' critique of Alurista and Gloria Anzaldúa, Hogan's nationalism undermines the very history it constructs, replacing the nostalgic conscription of Aztec past with digital copy, underscoring its own constructedness. For example, Tezcatlipoca pushes Beto into his own unconscious to discover an ironic, essentialized link to his Mexica ancestry. After having a direct neural link to the computer implanted in Beto's body, Tezcatlipoca locks Beto into his own brain, claiming he

> was alive and well and living in your DNA long before you had any claim to it, long before you were even born, back when your ancestors crossed the land-bridge from Asia, and later when you searched the deserts and mountains of Mexico for Lake Texcoco where you would build the glorious city of Tenochtitlán; I was running your brain the way you run your computer. I gave you all your ideas Beto. . . . I made you conjure me out of the god-simulating program. (111)

The naturalization of a biological Aztec identity by a clearly-manufactured computer program redefines Chicano nationalism with postmodern trickster play, as this naturalized identity arises in a simulated god who revels in a cultural milieu incorporating

all cultures (modern primitive to technophillic) as equal parts of mestizaje.

Control of the future means control over both access to digital media and development of digital content. Tezcatlipoca embodies representational possibility and synthesizes the contradictions involved with creating ethnic identity in a culture of colorblind racism. His mastery of the mediasphere allows him to inject Chicana/o history into digital representation. Hogan's gods actually take over Aztlán, and Hogan naturalizes this control by projecting that all American technologies, histories, and cultures were built off Mexican/Aztec code(x), even as he demonstrates the fabrication of the construction. The possibilities and problems for the future are most clear in how the digital version of the trickster god lives on, a recombo of what has been his body and soul through the novel, alive and well in the digital realm. Far from being vanquished, Tezcatlipoca becomes the mediasphere. The message is clear. We are everywhere. We are timeless. You cannot make us disappear. We are inside you.

As the novel demands space for Chicano authorship, it simultaneously erodes women's claims to authorial agency and relegates women to accouterments of men's art. For over a quarter century, Chicana feminists have critiqued the Chicano movement for its uncritical display of heteronormative and patriarchal ideals, relegating women to positions as heterosexual mothers and lovers. The novel's nationalism replicates these problems even as it addresses the complications involved in creating a neo-nationalist identity as a challenge to the digital divide. Beto's video game represents the raw artistic material that mainstream media refuses to promote, but the truly powerful digital content in the novel is the god-simulating program itself, written by Xochitl and cloned without permission by Beto to animate Tezcatlipoca. Xochitl receives little textual credit as

author of the chip, but overwhelming attention is given to her as the body holding the program, or a mother figure. She "births" the program before the novel's opening, writing the lines of text that allow gods to be formed and laboring through the creative process. Yet the reader first gets introduced to the program through Beto's "crazy, mumbo jumbo ceremony" (12-13) that allows the code to come alive and become a powerful force. Beto stands on Xochitl's labor, shaping the trickster force that allows digital Chicano nationalism to exist—she births the art, he structures it. What recognition she gets is erased when Tezcatlipoca insists that his origin predates the chip's. Moreover, Xochitl has no control of the code once Beto lets it loose into the mediasphere. She can create a "truncated version of her god-simulating program" (183) to affect goddesses with Tan Tien's help, but Xochitl is powerless against her textual creation. In bringing Tezcatlipoca to life on women's labor and simultaneously marginalizing women's work, the novel inadvertently reveals broader problems with women's authorship in digital spaces.

To keep control over what would otherwise be a strong, independent Mexicana, the novel punishes Xochitl for being a competent scholar and a "decent, practical Mexican woman" (10), what Isabel Molina Guzmán refers to as part of "longstanding U.S. archetypes of Latina immigrant femininity and domesticity, that of the self-sacrificing, almost-virginal, always-religious ethnic mother" (183). The novel forces Xochitl through a gauntlet of eroticized violence: chased, manhandled, and molested for the reader's pleasure. For example, an extremist religious organization wants the program to create the "One True God" (163), and their disciples accost her several times: "The ghosts carried Xochitl through the streets of University City. Two figures … carrying a

kicking and screaming, nightgown-clad woman just wasn't anything unusual" (30). Even though the novel's commercial documentary director focuses his attention on gang violence in El Lay, he also captures the violence against Xochitl. The camera leers at her, providing a scopophilic entry into the scene: "try to get some closeups—she doesn't have any underwear on and there may be the chance for some nudity, which always ups the salability. Ah, yes, one of her breasts has popped out—be sure to get as close as you can, and in focus!" (31). Hogan seeks to critique the scopophilia of the digital age, which is a continuation of Hollywood's practices. But the camera's lens, coupled with Hogan's overly-graphic descriptions, ultimately eroticize the physical and visual violence against Xochitl, inviting readers to take pleasure in "controlling" and "punishing" her (Mulvey 64). Xochitl's body becomes a site of violence as she denies what patriarchy demands should be given to men (the chip and her body). The novel replicates visual media's eroticization of violence against women without critique.

The women not controlled by violence are instead presented as overly-sexual objects for male consumption and as the very stereotypes the novel otherwise refutes. The male gaze directs visual media's depictions of women; they are filmed, placed, dressed and otherwise presented for men's pleasure (Mulvey 58). Ralph's description of Tan Tien exemplifies both the limitations of women's roles in the novel—and by extension in digital media—and the text's exoticization of Asian women. When Ralph first sees Tan Tien, she is at her detective agency. He notes, "She was barefoot, and wearing a short kimono and loose jeans—her tiny feet were gorgeous. Her overpowering feminine presence bowled him over instantly. She was so small and delicate, yet strong and powerful; she could be lover, mother, sister, daughter as the moment demanded" (92).

She is defined by her potential relationship to men (lover, mother, sister, daughter), a move that reflects Xochitl's typing as the "almost-virginal" mother and limits women's agency outside male influences. Celine Shimizu reminds us that "popular [representation] for Asian/American women is infused with a particularly powerful and perverse sexuality in U.S. cinema and performance in the twentieth century" (12), and women of color are constructed as "pathological: excessive, aberrant, and deviant" to normalize white women's sexuality (279). Tan Tien is described as an exotic, Asian other (a generic "asio" in fact), and her sexual escapades, from tantric yoga to sex as "healing magic" (205) provide an outlandish entry into an imagined sexuality. She is unfailing proper, polite, and mysterious with her "Mona Lisa half-smile" (39). Either sipping tea or engaging in outrageous sex with Zobop, she is limited by the submissive and polite Lotus Blossom stereotype in which she is cast. Tan Tien, like Xochitl, is an intelligent woman; however, the novel's presentation of her over-sexed body focuses the reader's gaze on her fetishized flesh.

Furthermore, the novel uses Phoebe Graziano, a white woman, to provide an idealized figure of womanhood that reinforces women's positions as objects for the male gaze and signifiers for masculinity. She is the most fetishized person in the text and embodies La Malinche, a Mexican construct of betrayer and whore based on Malinalli, the Indigenous woman sold into multiple forms of servitude whose claim to agency also involved helping Hernán Cortés conquer the Aztecs, and who subsequently bore his child. Phoebe is an empty shell, a hedonistic woman driven solely by desire for sex, attention, and drugs. Phoebe thinks, "the whole world should want inside her vagina!" (134). Her need for attention, particularly sexual attention, leads her to switch sides

several times in the text, playing either Smokey's prized groupie or Caldonia's lover. She becomes a symbolic prize for the characters; Tezcatlipoca wants her because her presence keeps Beto under control, and Caldonia wants her as a lover. The pull and push for control of her body drives the second half of the narrative, and conquering the white woman sexually becomes Caldonia's primary and Smokey's secondary objective. Possessing Phoebe, keeping her locked in a hotel room under guard and his hypnotic command, reinforces Smokey's machismo, substantiating Mulvey's contention that the female body is "a signifier for the male other, bound by a symbolic order in which man can live out his fantasies and obsessions" (58). Her desire for Smokey as well as her desirability elevates Smokey's status, and her hedonistic bisexuality functions as a heterosexual male fantasy.

Similar to the camera's focus on the violence against Xochitl's body, it and the novel's descriptions partake heavily in voyeurism of lesbian sex, framing the novel's queer subjects for the male gaze. When the director sees Phoebe and Caldonia he demands, "Zoom in on the two women kissing—they're dressed as an angel and a medusa on that motorcycle that's blocking traffic" (2001, 21). Gill argues that lesbians in mainstream media are visually "packaged…primarily for a straight male gaze" (152), and Lisa Diamond contests "the most desirable and acceptable form of female–female sexuality is that which pleases *and* plays to the heterosexual male gaze, titillating male viewers while reassuring them that the participants remain sexually available in the conventional heterosexual marketplace" (105, emphasis in original). Hogan seeks to weave this type of scopophilia into his critique of Chicana/os' commodification, but falls into the trap of inviting the very gaze he critiques. Phoebe's relationship with Caldonia

ultimately provides soft porn graphic images for the readers that denature lesbian identity. The only other lesbians the novel presents is at "Lesbos West," where "homely dykes whose fat, lumpy asses seemed to be permanently grafted to the barstools up front" (78) eat tiger penis soup, the women devouring the very phallus they should be worshipping. Because they are inaccessible, the novel makes them undesirable, ugly, man-haters, whereas Phoebe's bisexuality increases her value, as men can partake in lesbian scopophilia without being excluded from sex with the objects of their desire. The two women who do not actively participate in their own sexualization for men, Caldonia the lesbian and Xochitl the virgin mother, are forced into heterosexual spectacle to reify their availability for the male gaze. To put program "control elements" (204) on Tezcatlipoca and push him from Beto's body, the women use a truncated version of the god simulating program to contain Tezcatlipoca within a digital bed of phallocentric erotics as goddesses. Choosing the women unavailable to conventional voyeuristic pleasure to play in the simulation clearly marks their position in patriarchy: you can say no unless we need/want you. As this is the novel's only representation of digitized women, it also concretizes the existence of women as digital scenery, present to charge a scene sexually for male viewers.

Smoking Mirror Blues refigures *all* women's power to their heterosexual prowess, turns queer women straight, but does not enact sexual inversions on men in the same manner. Male heterosexuality is instead deified through Smokey and reinscribed through women's actions. Hogan's contradictory recovery and digitization of Aztec mythology is powerful, defying Anglo definitions of Chicano and Mexicano subjectivity and using postmodern play to contain, but not resolve, modern primitivism and the socially-

constructed nature of Chicana/o identity. As Hogan says in his "Chicanonautica Manifesto," his heroes are "Chicanonauts" who "explore, but since they carry the complex Chicano cultural baggage, they aren't cool or detached. The stories they generate crackle with conflict in the new environments" (132). However, the novel recreates patriarchal essentialism without critiquing it, duplicating digital absence for Chicanas instead of exploring and challenging it. This future denies women the authorial agency Tezcatlipoca's revolution creates, refusing them the access digital representation provides.

While Hogan provides a radical paradigm for upsetting the digital divide for Chicanos, the ways in which it reproduces the dominant media's reflection of women occludes its otherwise visionary intervention. The novel calls for, albeit unintentionally, a queering of Chicano nationalism, bringing intersectional conceptions of identity into the digital age. *Smoking Mirror Blues* inadvertently points to its own shortcomings, invoking other marginalized groups' struggles and highlighting the need to queer Aztlán more fully than Tezcatlipoca's machinations manage. Enfolding a critique of gender and sexuality in addition to race and class within the novel's tricksterizing of the digital divide would permit the deconstructing of "dominant ideological signs" so to transform them into "a new, imposed, and revolutionary concept" (Sandoval 78). In short, the lacuna in the text demarcates not only an absence of Latina/os in the digital divide, but also women and queer subjects in a nationalized space where digital media is facilitated by visual representation.

Hogan's novel provides a problematic capstone for Chicana/o science fiction's fight against technological and digital erasure. It moves beyond addressing the material

ramifications of the digital era for Mexico, its border with the United States, and developing countries globally, presenting instead ways of claiming digitization and commodity culture for mestizaje and infecting capitalism with the cultures it has erased or conscripted. *Rag Doll Plagues* and *Lunar Braceros* work together to link the digital divide to border divides and present what has been erased in the space between—maquiladoras on the border, workers either killed or stranded on the "wrong side" of the gap, and materials transmuted from natural resources to toxic waste as they cross the divide. By engaging the entire electronics cycle, they expose the real costs of a digital world and use coded messages to infect the master narrative that makes these processes invisible. Hogan, on the other hand, focuses on beating the system from within, leaving out decoding messages in favor of outlandish digital reconstructions of codices. What is apparent, however, is that access to and safety from the digital world are necessary for continued survival, access that must address that which is erased in the gap of the digital divide.

It is up to us to create our own content. People of color, black people, women of color. We need content like this, starring us. We are the stars, we're not the sidekicks, we're not the sassy girlfriends. No. We are the stars of our own stories and of our own lives.

-Reagan Gomez, commentary after *Surviving* Season 1 Episode 7

(Un)Natural Resources:

Biocolonialism, Hollywood, and Science Fiction Film

The cover of Alex Rivera's 2008 film *Sleep Dealer* features a Mexican man, Memo Cruz (Luis Fernando Peña), dressed in a sleeveless, button-up work shirt with

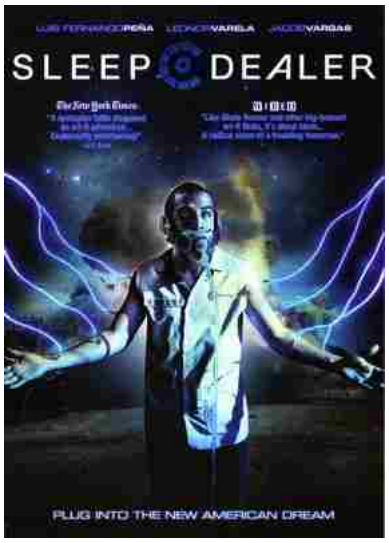

Image 1 (Rivera)

Cybracero emblazoned on one breast and D30285 on the other (see Image 1). The man's eyes are frosted-over, and his face is half-covered by a respirator. Eight electric-blue wires radiate from his outstretched arms. Behind him a traditional *milpa*, Memo's family farm, explodes in a cloud of dirt and debris. Across the bottom, in letters the same color as the wires extruding from Memo's arms, the cover invites viewers to "PLUG INTO THE NEW AMERICAN DREAM." The image visually encapsulates some of the biocolonial conflicts plaguing not just the Mexico-U.S. border, but also Latin America and the third world buried within the first. The film frames how the inescapable presence of multinational capitalism, in Lysa Rivera's words, is embodied in "*fronterizo* workers whose very livelihood is problematically reliant upon—yet alienated by—the new global

(multinational) economy" (424-25).[1] Memo's body becomes a computer, a central processing unit powering a machine across the border, nodes siphoning his thoughts through electrical circuits into steel mechanisms, his life flowing out of the blue wires in a grotesque replacement for what was formerly free-flowing rivers feeding the area's farms.

The *milpa*'s destruction in the image's background, instead of simply acting as a backdrop to Memo's biomechanical labor, is central to understanding how multinational capitalism's complex web of resource theft coupled with coerced labor from humans, machines, and cellular processes often involves what Sharada Balachandran Orihuela and Andrew Carl Hageman note is the destruction of Latin America's ecosystem as well as its workers. The *milpa*'s detonation unseats a foundation for understanding multinational capitalism's mechanization of human labor as primary. Instead, Alex Rivera deploys what Grace Dillon and Gregory Cajete term Indigenous science—a holistic, relational understanding of and practice within the connections between human and non-human beings—to resituate the theft and mechanization of life itself as a biocolonial practice.[2] From corralling the area's water to destroying small farms and siphoning neurological labor from locals' minds, the image illustrates how biocolonial practices break ancestral relationships between humans, water, and corn, making traditional living unsustainable

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[1] I use the phrases "multinational capitalism" and "multinational corporations" to refer to companies and economic policies that are based in one or more "home" countries while operating in multiple other countries. I use the term *transnational* in the vein of transnational feminism, such as Sylvanna Falcón's work on research paradigms. It most frequently refers to the processes, cultures, and conversations operating in, around, over, and/or without regard for national borders.

[2] See Gregory Cajete's *Indigenous Science*, Dillon's introduction to *Walking in the Clouds*, Vizenor's concept of natural reason in *Manifest Manners* and *Native Liberty*, as well as Chapter 2.

and ensuring that work as a cybracero is one of the only alternatives to support life.

In tandem with *Sleep Dealer*, other science fiction films produced by people of color in the United States and Latin America frame how multinational biotechnology corporations use marginalized life-forms' physiological interiors to perform labor and to fashion commodities, a practice that is increasingly militarized. Laurelyn Whitt refers to biotech's practices as extractive biocolonialism, seeking to own, patent, and sell life itself through genetics. Vandana Shiva categorizes them as biopiracy, also highlighting how genetic engineering turns organisms and cells into machines that can no longer independently function. The films use science fiction to trace how the international field of genetic science, rising concomitant with the information age, steals, mechanizes, and commodifies marginalized people's bodies *and* knowledge on a cellular level. Additionally, the films predict that neurology may follow suit and harness humans' neurons as electrical and informational impulses to control computer programs for multinational corporations' monetary and military security. Ethnic science fiction film addresses biocolonial practices by simulating futures that reveal scientific "progress" as repeating cycles of destruction—allopoietic systems fed by multinational capitalism. The films refuse biotechnology, both contemporary genetics and a projected future neurological informatics, as myopic sources of knowledge, and instead reaffirm Indigenous methods of knowing and living as an alternative to current problems western science is creating and trying to fix.

The chapter's shift to discussing biocolonial science parallels its extension into Latin America. While one can look at biotech within the United States' borders, this perspective quickly reveals its limits. Thacker recounts that biotechnology is a global

industry that has engendered complicated relationships between multinational corporations, governments, and Indigenous people globally. As Whitt emphasizes, "biocolonialism arises from the ideology, the policies, and the practices of a new imperial science, marked by the confluence of science with capitalism – a relationship mediated by a distinctively American, increasingly international, intellectual property system" (xiv). The industry also engages in what Bliss calls "biomedical imperialism," exporting U.S. racial categories as stringent requirement for sorting genetic material by race and beginning to codify the United States' notions of race as global (12). This is not to say U.S. racial categories hold true transnationally, but to note that the United States, Britain, and other western countries' racialization processes, like their science, bleeds across borders.

Thus far, this project has focused on how black, Indigenous, and Chicana/o science fiction address racism in science differently, as scientific practices impact each group uniquely. While specific, my readings have consistently addressed the novels' transnational critiques of science's abuses, whether discussing Mexico's electronics maquiladoras or Kazakhstan's nuclear testing sites, as authors correlate science's relationship to people of color in the United States to its engagement with economically-disadvantaged people in developing nations and Indigenous people globally.[3] In the same

[3] Butler's *Xenogenesis* and Hairston's *Mindscape* engage with genetics in futures where the *entire planet* is colonized by aliens, and people in different zones or camps represent the transnational effects of genetics. To illustrate nuclear science's disregard for national borders, Silko's *Ceremony* connects Japan to the United States, Sanders' *The Ballad of Billy Badass* parallels colonial and nuclear projects in the U.S., the USSR, and Iraq, and Jones' *Del Rio* follows nuclear waste from Texas through Mexico and Guatemala. Morales' *The Rag Doll Plagues*, Sánchez and Pita's *Lunar Braceros*, and Hogan's *Smoking Mirror Blues* all demonstrate how digital

vein as transnational women of color feminism collaborates with third world women's feminism to, as Grace Kyungwon Hong argues, "create models for coalition between [. . .] divergent formations without occluding important differences" (xvi), U.S. ethnic science fiction speaks across borders to illuminate how scientific racism facing people of color in the United States intertwines with scientific abuses globally.

Combining the earlier chapters' racially specific textual readings with a transnational understanding of biocolonial science and science fiction highlights both differences and similarities in science's (ab)use of marginalized people and science fiction's response. While my readings spotlight historically specific, culturally grounded responses to scientific racism, focusing solely on U.S. writers' understanding of science's international effects ignores the ability of people in developing nations to speak for themselves and elides the opportunity to create coalition that attends to differences and similarities. While a complete rendition of how science fiction produced outside the United States critiques biocolonialism's effects is far too large for the scope of this project, it would also be remiss not to consider international productions as part of the conversation, particularly ones that solicit western audiences and speak to multinational capitalism. Latin American science fiction has a particular stake in multinational capitalism's biotech industry, as its material costs, much as the burden of genetic "discovery," nuclear development, and expanding digital technologies, often falls on people in developing nations. Even as it has a distinct literary history, Latin American science fiction speaks about and to the same globalized scientific processes as people of

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technologies fracture borders to critique NAFTA as a multinational alliance. *Lunar Braceros* lands in Ecuador and looks to other Latin American countries as models of Indigenous resistance.

color in the United States.[4]

This chapter makes a second shift, from written fiction to science fiction film, a decision rooted in previous novels' focus on visual and media representation as a cornerstone of the processes that allow scientific racism to flourish, the transnational collaboration science fiction film allows, and the increasingly transformational role film has in the science fiction genre.[5] For example, Alex Rivera says *Sleep Dealer* "has been part of a search for a way to use film language to talk about immigration and assimilation, border issues, globalization; to talk about all these big and abstract concepts through visual language" (Guillen par. 17). Film allows Rivera to juxtapose images, such as the cover's blending of border labor, technological "advances," environmental destruction, and attacks on Indigenous, traditional ways of relating to the world. *Sleep Dealer*'s production also resists Hollywood's fleet of science fiction films that support white authors, directors, and actors most often from the U.S. or Europe. Orihuela and Hageman note that the film's "transnational production histories with independent financial backing and relatively low budgets [. . .] blur conventional boundaries of the nation-states and the film industries involved" (170) while placing it firmly in

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[4] Andrea Bell and Yolanda Molina-Gavilán note that while critics in the United States commonly trace Latin American science fiction to magical realism, this has more to do with which texts are chosen for translation into English. People in Latin America are often constructed as the victims instead of creators of technology and thus are seen as lacking in what (predominantly white males) have constructed as the foundations required for science fiction. Spain and Latin America have their own strong science fiction roots that, like U.S. and U.K. science fiction, trace back to Jules Verne, among other authors, and that have authors just as scientifically literate as science fiction in English does.

[5] This chapter discusses more than traditional film, focusing more so on short films and other series presented primarily online. For simplicity, I use the term *film* as a broad term for all of these productions unless a distinction between the different modes of production is significant to the argument.

conversation with Hollywood's methods of formulating film. Rivera's production practices reflect *Sleep Dealer*'s subject matter, encapsulating how ethnic science fiction film can, in subject and construction, resist the biocolonial labor practices and resource theft that the United States creates, then uses its visual media industries to erase.

Similar to U.S. authored ethnic science fiction's transnational conversations, the previously discussed novels strongly speak to film production as vital to both science fiction as a genre and marginalized people's livelihood globally. *Mindscape* revolves around film companies' practices, such as slaughtering Extras for cheaper productions, as it imagines the possibilities for visual media to shape reality, as a movie camera captures a living piece of the novel's alien barrier. Stephen Graham Jones' and William Sanders' nuclear narratives reclaim monsters from 1950s science fiction films and place them within Indigenous history as a way of conversing with white depictions of nuclear terror and the repression of the nuclear cycle's effect. Hogan's Tezcatlipoca has to take over Hollywood, both the place and the visual medium, to (re)conquer Aztlán. The authors center the lack of people of color in visual production as a symptom and cause of broader problems in U.S. culture and science. This chapter's shift to film extends the argument these novels make, that (re)claiming media and visual representation is an important step toward decolonization.

The move to film also addresses the problematic fact that while science fiction has become a visual medium, people of color in the U.S. have less access to film production than fiction publication (although the shift towards independent and internet-based films is providing alternative production routes). Chapman and Cole report that subsequent to *Star Trek* successfully presenting science fiction television as more than a

marginal genre in 1966, and since *Star Wars* and *Close Encounters of the Third Kind* became hugely successful blockbusters in 1977, visual media have effectively made science fiction a mainstream genre and continue to be the genre's primary methods of consumption. In the twenty-first century, this trend seems to be shifting to cyberspace, exemplified by how the newest iteration of the *Star Trek* series is avoiding traditional television all together and instead will stream on CBS All Access, as producer Brian Fuller attests (Goldberg par. 29). However, funding by mainstream production companies continues to support the notion that works by, or heavily featuring, people of color are "unbelievable" or "unmarketable" productions.[6] U.S. mainstream science fiction erases people of color from the future in favor of neoliberal multiculturalism that attenuates ethnic identity and supports global whiteness at best, or in favor of an entirely white-populated future "utopia" at worst.[7, 8]

Where people of color and issues surrounding race-based discrimination do show up in film, it most often benefits white writers, actors, directors, and producers. *The*

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[6] Even films written by people of color that have people of color as main characters, such as the upcoming reboot of Mamoru Oshii's *Ghost in the Shell*, are coopted in a way that supports white actors and producers. *Ghost in the Shell*'s American reboot is directed by a white man, the screenplay is written by white men, and the film features Scarlett Johansen as the main character, Major Motoki Kusangi. Post-production shots from the film ended up on the internet in April of 2016, featuring Johansen's character digitally altered to look more Asian in what Paramount and DreamWorks Studios later claimed was just a test.

[7] Bernardi refers to science fiction's neoliberal multiculturalism as "a galactic melting pot" constituted with a "neoconservative montage, particularly a future-time that capitulates to multiculturalism while continuing with Trek's tradition of securing—perpetuating and naturalizing—the superiority of whiteness" (112). In other words, for science fiction, neoliberal multiculturalism visually appears as a multiracial cast, however ethnic identity is attenuated in favor of representing whiteness.

[8] For more on representations of people of color in science fiction film see Berkhoffer, Berg, Chon A. Noriega's *Chicanos and Film*, Adare's "*Indian" Stereotypes in TV Science Fiction*, Knopf's *Decolonizing the Lens of Power*, and Bernardi.

Hunger Games' District 11 metaphorically stands for southern slavery, but class trumps race in the film, and District 11 functions primarily to add to the dark atmosphere surrounding the white main character. Neill Blomkamp's *District 9* and *Elysium* both tackle race-based social issues (apartheid South Africa and U.S. Mexican immigration, respectively), but they do so with white main characters. People of color who address the same issues in their fiction lack films. Octavia Butler, Samuel R. Delany, and Nalo Hopkinson's award-winning novels have yet to be made into motion pictures, although Allen Bain acquired the rights to Butler's *Dawn* and is planning a television series (ethnic science fiction has been more successful on TV than in film), and Canadian Sharon Lewis has successfully run an Indiegogo campaign to fund a film based on Hopkinson's *Brown Girl in the Ring*. Ethnic science fiction filmmakers in the United States either bury social commentary within layers of metaphor or produce outside the mainstream, creating short, often crowdsourced or university funded films to sidestep Hollywood's funding formula that refuses their future. These short pieces rely on the film awards circuit or online venues such as YouTube for distribution, much as *Sleep Dealer* was funded in part by a Sundance Film Festival award.

Ethnic science fiction produced in the Americas outside the United States tends to have stronger support than productions based in the U.S. For example, Beverly Singer chronicles how Canada's 1969 "Challenge for Change" program supported training for Indigenous people to become filmmakers, and marginalized groups continue to receive funding from bills and grants designed to help underrepresented people have a presence in television, radio, and film. Mexican film directors have also had more access to science fiction. Notable Guillermo del Toro (*Pan's Labyrinth* and *Hellboy I and II*) and

Alfonso Cuarón (*Gravity*) successfully produce science fiction in Hollywood; however, as Escárcega remarks "sus películas no son mexicanas, puesto que son de producción totalmente estadounidense" (their movies are not Mexican, as their production is entirely United Statesian), and more significantly for this chapter, their productions heavily feature white actors and lack any engagement that would link them to either Mexican or Chicana/o issues.[9] This is not to say that Mexico lacks science fiction; Bell and Molina-Gavilán highlight that both Mexico and Argentina are in the middle of a science fiction revolution, but that it, like other Latin American countries, has a complicated relationship with Hollywood. As a production force, the United States dominates the global film industry and thus shapes consumption across Latin America. As Austin Mango and John Hecht report, only 6% of Mexico's box office earnings were from Mexican-produced films in 2015, and the highest grossing film was *Avengers: Age of Ultron*. Mexico's industry earnings reflect the rest of Latin America, where locally produced cinema only captured between 3.4% of the box office in Chile to 13% in Argentina and Brazil. Not only do sales from Hollywood dominate the remaining percentages, but in 2015, it was Hollywood *science fiction* that provided the largest grossing films in Mexico, Chile, Brazil, Colombia, and Argentina: specifically *Avengers*, *Minions*, and *The Hunger Games: Mockingjay Part 1.* The very erasure of ethnicity that solidifies the United States' racialized construction of the future, like atomic radiation, does not stop at the border.

Two of the only people of color who have substantial success in Hollywood

[9] As their heart, Cuarón and del Toro push at the imprecision between race and nationality for Latina/os and embody the problems inherent in shifting from a U.S. race-based discussion to a transnational critique of power dynamics inherent in the biotech industry's practices.

science fiction as writers, producers, and directors are George Romero and Robert Rodríguez. Both directors employ critiques of the United States and whiteness in their films, but they do so in a manner that is shrouded in metaphor and buried beneath pounds of gore. Screening their social commentary makes the films more palatable to production companies, as does casting white actors in many starring roles. *Sleep Dealer*, an independent production, can present visceral images of cybraceros as zombiesque workers, manifestations of mechanical reification enacting repetitious tasks in the air, visually demonstrating the bodily and cultural effects of multinational capitalism. Discussions of biocolonialism in ethnic U.S. science fiction film is often shrouded within zombie films, a science fiction horror hybrid which, as Kyle Bishop explains, "had always represented a stylized reaction to cultural consciousness and particularly to social and political injustices." (19). The intensely biotech-focused zombie science fiction produced in the United States provides an excellent venue to expose how multinational corporations extract cellular labor from people of color in the United States, weaponize the resulting product, and deploy it against people globally to protect corporations' resource theft without being explicit. Exposing how people of color's bodies are used against them at a cellular level, U.S. ethnic science fiction also refuses responsibility for solving the problems the weaponization of biotech is bound to create, rejecting the biological labor required to "save" the state, instead turning to Indigenous ways of living and walking away from the destruction of western science and capitalism.

These critiques scaffold off George Romero's directed and co-written *Night of the Living Dead* (1968), which brought zombies back to life at the height of the U.S. civil rights movement, infused with what Aléman categorizes as a "critique of middle-class

America, religion, domesticity, news media, race, science, and the nuclear family" (50). However, Romero's success was quickly cannibalized by mainstream Hollywood and his message was coopted, overturned, and used against people of color as profits moved into the hands of large production companies. Scores of zombie movies followed *Night of the Living* Dead (including Romero's three *Living Dead* sequels, with remakes) and white filmmakers overtook the genre in both film and television productions. The zombie became a representation of society's fear of biotech (*28 Days Later*, *Resident Evil*), a vehicle for representing white fears of being "overrun" by people of color (*Alien*), and as Saunders remarks, zombies became "phantasmal stand-ins for Islamist terrorists, illegal immigrants, carriers of foreign contagions, and other 'dangerous' border crossers" (80).

Robert Rodriguez's 2007 *Planet Terror*, half of a grindhouse double feature presented alongside Quentin Tarantino's *Death Proof*, re-infuses the genre with critiques of whiteness and capitalism while updating it from Romero's concerns about the lives of people of color in the United States to a critique of science owning and weaponizing life itself at a cellular level. Rodriguez's zombies, Aldama posits, hearken directly to Romero's, not just in their critique of the mainstream masses, but more literally through Rodriguez's casting Tom Savini from Romero's 1978 *Dawn of the Dead* as a sheriff's deputy.[10] The first half of the film relates the beginning of a zombie apocalypse in a small Texas town from the point of view of several characters and follows the common trope of an infection slowly making people progressively sicker. Infected people eventually turn violent, attacking and trying to eat the brains of the uninfected. The heroes realize the

[10] Tom Savini was also the makeup artist for *Dawn of the Dead* and the director for *Night of the Living Dead*'s remake.

apocalypse is upon them, and run around shooting zombies while looking for safety.

Instead of continuing the cliché, Rodriguez quite literally breaks the current zombie genre, the film catching fire and burning away an hour into its running time, transforming from Romero's horror-focused flight from flesh-eaters to a biotech science fiction farce where transnational militarization and biotech experimentation collaborate to secure resources for the hungry United States. The break excludes a destroyed "MISSING REEL" from the film (see Image 2), jumping the plot from a sex scene in a barbeque joint's temporary safety to the characters trying to escape the building, now ablaze and surrounded by a hoard of the undead townsfolk. The missing narration shifts the film from the horror genre into science fiction, but more significantly it fast forwards the film from a tribute to Romero's *Dawn of the Dead* and the height of the civil rights movement to the present day, skipping over the waning of the movement, the growth of multinational capitalism under Regan, and the birth of genetics. Rodriguez's zombies also kill Savini's character shortly after the film resumes, tearing him limb from limb and thus amputating the civil rights era from the present, or devouring it entirely. In effect, the movie jumps to 2007 and asks where civil rights took the U.S.—a state Rodriguez characterizes as caught between being torched or eaten alive.

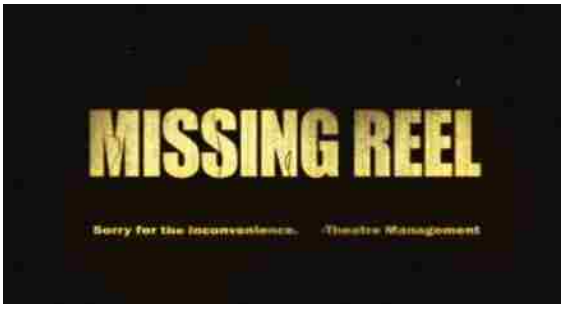

Image 2 (Rodriguez)

Planet Terror advances from Romero's undead to address how international collaborations between science, business, and the military export the United States' violence against bodies of color internationally, while simultaneously contracting,

creating a weaponized cellular burden for marginalized people. Rodriguez's zombiism works in two registers, transnational and cellular, coupling multinational capitalism's global destruction with its colonization of life's building blocks. Special forces commandos from Operation Enduring Freedom, the U.S.' military actions in Afghanistan, bring *Planet Terror*'s zombiism back to Texas after killing Bin Laden. The soldiers infect the town, looking for immune subjects from whom they can synthesize a cure. Rodriguez simultaneously invokes the United States' invasion of Iraq looking for weapons of mass destruction—both nuclear and biological—and the military's use of nuclear and biological agents against their own soldiers.[11] The U.S. government tested the effects of mustard gas and lewisite on its own soldiers during WWII, exposed soldiers to nuclear blasts from 1945-62, used Agent Orange on the foliage of Vietnam (exposing soldiers, Vietnamese people, as well as greenery to the toxin), and admitted that Operation Desert Storm's biotoxins caused (what Veterans' Affairs prefers not to call) Gulf War Sickness. The film's U.S. government abandons the soldiers after Bin Laden's assassination because, as Lieutenant Muldoon (Bruce Willis) explains, "he wasn't supposed to be there, we weren't supposed to be there, and I sure as fuck wasn't supposed to be the one to punch his dialysis ticket. So instead of a chest full of medals, we get a face full of DC2," the bioweapon that causes zombiism. Not unlike the Department of Defense and the Department of Veteran Affairs' refusal to pay for treatment for "Atomic Vets" exposed to radiation during military testing until the 1990

[11] Patricia Lewis notes that Iraq did have extensive bioweapons in the 1980s, "including bacillus anthracis, clostridium botulinum, clostridium perfringens and brucella" (162), but dismantled this program in 1991. After the war, the search for weapons continued until its close in January of 2005 where the investigating body declared there were no bioweapons.

Radiation Exposure Compensation Act and the decades delayed acknowledgement of Gulf War Sickness, the infection of Muldoon's platoon, coinciding with the unplanned killing of Bin Laden, backed them into a classified corner where they have no resources to combat their zombiism.[12] Rodrigues demonstrates how war's violence is internalized in soldiers' bodies, and then externalizes it as the solders come home to the United States and create the zombie outbreak. The film refuses the erasure and denial the U.S. government deploys by making the effects of war visible and contagious.

The film occludes which government is responsible for the existence of DC2 gas, but unambiguously marks it as connected to a multinational biotech industry in collaboration with either the U.S. military or militarized forces in Afghanistan. The film strongly implicates the scientists creating bioweapons, pointing to the marriage between biotechnological science and multinational capitalism through Abby (Naveen Andrews), "someone from the other side," who sold canisters of DC2 to Muldoon after his infection. Abby blithely remarks, "science comes first, but business comes a close fucking second" when confronted with his participation. Abby demonstrates that it is scientists who enable "bioterrorism," and they, like the U.S. military, are ultimately in the service of business interests and the almighty dollar. The film showcases how the U.S. government and scientists refuse the labor required to fix the biological problems they create, instead allowing them to be displaced onto vulnerable populations. Turning the Texas town into a

[12] The involvement in radiation testing was classified, so until the repeal of the secrecy acts in 1996, veterans' ability to discuss the testing, and thus receive funding for the care they were warranted, was limited. Compensation legislation required documentation that the Advisory Committee on Human Radiation Experiments notes was often absent as the DOD removed the requirements that the Army document experiments and exposures

large-scale laboratory experiment, the abandoned military force pushes the labor of biowarfare and capitalis violence onto civilian bodies.

However, what is revolutionary about the film is the main characters' refusal to participate in the biocolonial labor. Even as they find out that their bodies are the cure—they are immune to zombiism—they defy any moral obligation to become science experiments and help save the world from the disease, instead creating a new civilization with their "backs to the ocean" in the Mayan ruins of Tulum, Mexico. They refuse to take part in biocolonialism, where their cells would be harvested, engineered, patented, sold, and used to control the effects of biological weapons. The heroes, by living their lives, collecting "the lost, the weary, those that have no hope" and bringing them to a new home amidst Indigenous ruins, reject the capitalist, colonized, militarized present and refuse to give their bodies to save it. The film's ending juxtaposes images of a desolate, crumbling collection of skyscrapers high on a cliff with the ruins of Tulum surrounded by lush grass, trees, and the blue ocean. The blacks and dark blues of the nighttime that engulfed the film give way to bright day, hearkening to a future disentangled from violent globalization and rooted in Indigenous practices. Rodriguez reverses *Sleep Dealer*'s images of the *milpa*'s annihilation and cyborg laborers' dominance, disowning the destruction of the present and the problems created by militarized multinational capitalism, allowing it to destroy itself and reviving ancestral life instead.

Reagan Gomez's 2015 webseries *Surviving* is fueled by a critique similar to *Planet Terror*'s assessment of science as a militarized and corporatized project that attempts to use (what are eventually coded as) Indigenous bodies for cellular labor. A biologist-created, government-conscripted virus causes the zombie transformation in both

pieces, and the biotech creations are immediately weaponized. The cure, in both cases, can only be synthesized within the bodies of the main characters. One major difference between the two pieces is that Gomez's webseries is not bound to major production companies and can more directly render U.S. whiteness as abject, cannibalistic, and uncanny, while visually reversing the biotech industry's practice of mechanizing and dehumanizing bodies of color. All of Gomez's uninfected humans but one are people of color, and she casts whites as many of the zombies.[13] Similar in choice to Tananarive Due's zombie-filled *Danger Word* (2014) and Moesha Bean's mind-controlled humans in *The Dark Rises* (2013), Gomez's casting deliberately undermines mainstream zombie movies' practice of killing off most people of color before the piece starts, while she refuses to present people of color as what Faulkner terms "easily disposable cardboard characters superfluous to the main narrative" (par. 5). The three pieces also feature black women as protagonists, deliberately creating roles and plots for people pushed out of Hollywood while refusing the supposition that whites must fix the world. *Surviving*, like *Danger Word* and *The Dark Rises*, was funded through crowdsourcing, using an Indiegogo campaign to complete the first season and direct donation on Gomez's website to fund the second (yet to be completed). While Rodriguez and Romero manage to produce in the mainstream, finding a place in the corporatized film industry, Gomez's work, featuring people of color and women; eschewing white actors; and more fully

[13] The one white non-zombie, Charlie, is a wise friend of the main characters' father who helps the sisters discover their buried past. In many ways this character inverts the "magical negro" trope in cinema where black people are used as wisdom bearers to further the white protagonist's purpose. Rue in *Hunger Games*, Morpheus and the Oracle in *The Matrix*, and most of the aliens in *Avatar* are a few in science fiction films. See Matthew W.'s "Racializing Redemption, Reproducing Racism" and Sheree R. Thomas' introduction to *Dark Matter*.

critiquing whiteness, the militarization of the United States, and the weaponization of science, is unlikely to be supported by a major production company even though Gomez has a history as a mainstream actress, including regular roles in productions such as *Steven Universe*, *Love that Girl!*, *Almost Home*, and *The Cleveland Show*.

Independent funding allows *Surviving* to perform a more expansive critique than *Planet Terror* and *Night of the Living Dead*. Like *Planet Terror*, the series heavily implicates the U.S. government in the zombie apocalypse (as do many zombie films). Where Rodriguez's ending proffers an Indigenous, Latina/o refusal of militarized, multinational capitalism, its critique of whiteness is buried beneath levels of metaphor and signification and heavily loaded at the end of the film. Where Gomez's series differs is its explicit demonstration of how the biotech industry and multinational capitalism colonize people of color generally, and women of color's bodies specifically. In contrast to Rodriguez's rag tag group of white, Latina/o and mixed race loners as heroes, Gomez's film places a black family at the center of the infection. The series follows two half-sisters, Doctor Shayla Robinson (Cynthia Kaye McWilliams) and college student Lucy (Zayden Bates) as they try to find their missing father Charlie (Phil Morris). We learn in the fourth episode that Charlie is a government scientist who created the zombie virus to try and save Shayla's mother. After his wife dies, Charlie injects Shayla with the cure and flees the government, which is trying to steal his research. The government later kidnaps Charlie's second wife, infecting her with their own strain of zombiism while Lucy is in utero. Charlie rescues Lucy after his second wife dies, synthesizing a cure for the second virus and inoculating Lucy before disappearing.

Charlie's testing on his wives and daughters highlights how women of color's

bodies are used for medical and cellular labor by the biotech industry. Similar to how Johns Hopkins harvested Henrietta Lacks' cancer cells without her permission in 1951, creating a million dollar cell line that provided the foundation for countless biological experiments while her family lived in poverty, the militarized, government-supported biotech industry in Gomez's future uses black women's cells to create, experiment with, and attempt to cure bioweapons the U.S. government wants to use against unnamed enemies.[14] While Charlie is clearly used and abused by the U.S. government because he creates a weapon they find useful, his obsession over saving his wife and daughters—twice—also echoes mad-scientist fiction where men use women's bodies, often in the name of love, as sites of experimentation (Hawthorne's "Rappaccini's Daughter" and *Batman*'s Mr. Freeze are classic examples). His experiments reflect the lack of agency black women have over their bodies within the home as well as within the medical field by demonstrating that men's possessiveness of women gets culturally sublimated, and approved of, as passion.

Surviving captures structural racism against women of color to refuse this categorization. Lucy's body is the keeper of the antidote, performing cellular labor that can be used to cure humanity *in toto*, or, as the government plans, to control the damage that the virus can do as a weapon. A family friend remarks that the cure is "in her [Lucy's] blood" and she must be protected as the government and military, "have a weapon, they want to control it, and they want the cure. They will extract the cure from Lucy and they will kill her." Lucy is not important to the world as a person, but as a metaphoric womb for incubating the cure, treatment that reflects black women's status in

[14] See Rebecca Skloot's *The Immortal Life of Henrietta Lacks* and Chapter 1.

the United States since slavery.[15] By making Shayla the protagonist, a doctor intent on protecting her sister from a life and death focused on her cellular labor, Gomez refuses the categorization of black women as solely bodies for sexual, domestic, medical, and mechanical labor. Instead, she reframes cinematic images of black women as agents, gives black people control over science, and reiterates the importance of black families, especially relationships between women.

Surviving, *Planet Terror*, *Danger Word*, and *The Dark Rises* share a postapocalyptic vision that presents the strongest threats to life itself as growing from within the United States and its mechanized, militarized science. It is here that people are mindless zombies hell-bent on destroying the people around them (some literally hell-bent, as *The Dark Rises* features people mind-controlled by Satan). Ethnic science fiction film produced in the United States demonstrates how issues of biocolonial control are invariably entwined with militarized, multinational capitalism. More than simply sharing a vision of that presents whiteness as cannibalistic and rendering settler colonial bodies instead of colonized people as abject and uncanny, the films reveal biotech's focus on cells in laboratories as another form of body ownership that has material implications for people of color in the United States and is militarized to create violence for people in developing nations. Producing "in the belly of the beast," means that people of color are already cannibalized, a state for which zombie science fiction provides the perfect metaphor.

However cleverly visual productions in the United States use zombies and other

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[15] See Marie Jenkins Schwartz's *Birthing a Slave* for a thorough rendition of how black women's' bodies were used as wombs during slavery.

forms of science fiction to resist biotech's abuses and to clarify the connections between science, the military, and the U.S. government, biocolonialism greatly impacts people outside the United States. Coupling biology's transnational and digital reality, the United States' increasingly electronically-powered and remotely controlled weapons of war, and the electronic global capital market, Latin American science fiction predicts that current digital trends in biology will enable science to harness people's neurons as electrical and informational circuits. The proliferation of science fiction concerned with corporations owning or controlling the body's interior (genes, nervous system, cells, etc.) points to the possibilities of neurological colonization as technology changes. Peters and Venkatesan illustrate how the simultaneous rise of "genomic biology and bioinformatics" (102) digitizes life, turning it into transcribable code that can be transferred globally. If "life itself" can be reduced to a digital design, as Franklin reports biotechnology does (188), how does (re)programming and (re)producing life on a genetic level produce the conditions for (re)programming and (re)producing it on a neurological one? Specifically, the neurological control these films deploy predicts how scientists' attempts to link neural impulses to electronic circuits—evidenced by projects such as John Hopkins University's mind-controlled prosthetic limbs (Hotson et.al. 1) and increasingly complicated military drone controls—could make biological the evolving media platforms used to disseminate pro-U.S. ideologies and fully disconnect people's lives in the U.S. from the militarized, multinational biocolonialism that supports them.

Federico Heller's 2015 short, *Uncanny Valley*, uses virtual reality to critique the growing intersection between video game technology and U.S. military activity. The film recalls the United States Army School of the Americas brutal training in Argentina to

predict how the dehumanization inherent in the school's training and the Dirty War that followed could pale in comparison to the dehumanization caused by engaging in digital war. The film was created by 3dar, an Argentine visual effects and animation company that produced its first independent film in 2013. *Uncanny Valley* is scripted as a documentary, starting with shots of "junkie" men in a dilapidated house using virtual reality through a removable septum ring. The scenes are interspersed with images of the emaciated users explaining their experience in the game and their inability to get along in the "real" world, a social worker providing "psychological assistance" to the users, and shots from the game where players fight aliens on a rocky, hostile planet reminiscent of video games like *Halo*. It is not until one player experiences a visual glitch in the game that the viewer sees users are remotely piloting Kevlar branded android fighters attacking what are clearly unarmed people in a city's desert wasteland. While the drones piloted in Rivera's *Sleep Dealer* participate in what Orihuela calls "drone-based enforcement labor" (177) and are knowingly operated by soldiers, Heller's film replaces willing participation with unwitting neurological labor, coerced from people the United States has no humane mechanism to handle.[16]

Uncanny Valley provides a mechanism for biocontrol that moves beyond the media's brainwashing on which *Sleep Dealer*'s (and the drone-era United States') corporations rely, a shift that ensures both cheap bodies for the labor of war and a complete lack of empathy for the people under attack. Rudy's participation in *Sleep*

[16] See See Loïc Wacquant's "From Slavery to Mass Incarceration," Michelle Alexander's *The New Jim Crow*, and Khalil Gibran Muhammad's *The Condemnation of Blackness* for an explanation of how the United States manages the "undesirable" or "unmanageable," which is often code for people of color.

Dealer's drone program is in many ways predicated on his own ignorance and his inability to connect to his roots in Mexico and the traditional farmers whose resources the U.S. steals, militarizes, and sells. The media reinforces the disjunction between self-image and reality by publicizing the killing of people near corporate-controlled resources with *DRONES*, a reality series glorifying "such antiterrorist attacks live by celebrating the remote control 'pilots' of the drones as (national) heroes protecting the property of (American) corporations worldwide" (Heide 104). Training soldiers, paying pilots, and providing an effective media campaign to justify mass drone killings is expensive. The U.S. pays a high premium to secure the neurological labor that supports its resource extraction. Heller's android pilots, on the other hand, are fully-biocolonized neurological puppets, utterly divorced from their bodies, the knowledge of the androids they are piloting, and arguably any culpability for their unknowing acts. Capitalizing on the United States' extremely introverted, violence-prone, mentally-ill, and addiction-prone populations, the corporate-sponsored military not only manages to house bodies that would otherwise be incarcerated, homeless, or in a mental institute (not to mention in active, paid military service), but maintains a military entirely focused on fighting without having to shoulder the cost. The virtual soldiers live for the game, only stopping to eat food printed by a machine and to sleep.

The film's title, *Uncanny Valley*, is a term created in 1970 by Masahiro Mori, referencing when a piece of technology designed to resemble a human is both close enough to human in likeness and far enough away that it elicits revulsion, unease, and

Image 3 (Heller)

other negative responses. Heller's film exploits this premise by plunging all of the actants in the United States' transnational violence into the uncanny valley, using the term as a metaphor for how (para)military forces are trained to see their targets. The game renders the people slaughtered by the androids as fluidly-moving, oil-slicked humanoids devoid of features but a gaping maw full of sharp teeth (see Image 3). The players are more literally refigured of their own volition into junkies in a derelict house, emaciated, dirty, and beyond mainstream U.S. culture's empathy (see Image 4). Finally, the Kevlar robots are built as faceless androids instead of more traditional (and perhaps functional) machines like current remotely piloted weapons, instilling a greater level of fear in their victims (see Image 5). All participants in the military action are rendered as less than human, whether through VR screening, exploiting people's psychological and economic problems until they manifest physically, or through deliberate drone construction that mimics a human fighter.

Image 4 (Heller)

Uncanny Valley uses visuals to address the United States' foreign policies toward Latin America during the Cold War generally, and in Argentina specifically. The biotech critique reshapes how, what Menjívar and Rodríguez point to as the U.S.' investment in controlling Latin America "to promote social conditions favorable to capitalistic development" (6), was disguised beneath the images of fighting communists during the Cold War. Menjívar and Rodríguez mark the U.S. as the

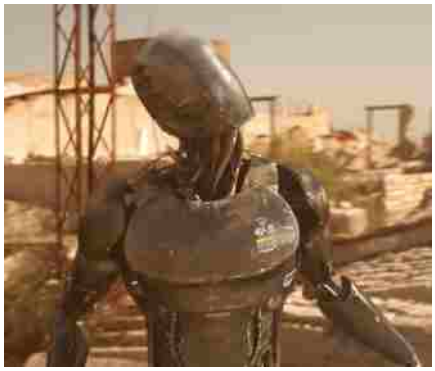

Image 5 (Heller)

instigating nexus of calculated political violence that subsumed Latin America from WWII arguably to the present. To accomplish this critique, Heller's film, while clearly a futurist rendition concerned, like *Sleep Dealer*, with the use of biotech and drones by the U.S. military, literally places itself in the ruins of Argentina's 1976-1983 Dirty War. When the gamer's VR connection starts to glitch, he ends up with an unfiltered vision of violence against people in a wasteland. The android's location is marked by a ruined building standing out amid the city's rubble, a crumbling sign— "MATADERO," or slaughterhouse—erected in brick letters atop a disintegrating building's wall (see Image 6). Filmed in the ruins of the deserted Villa Epecuen, Argentina, which was abandoned in 1985 after a flood, the MATADERO building serves more than a sign describing the fleet of androids' massacre of unarmed people; it is also a signifier for the ruins left behind by U.S. intervention in Argentina. The destruction and abandonment of Villa Epecuen took place just after the United States Army School of the Americas (SOA), which trained leaders and (para)militaries across Latin America, moved from Panama to Ft. Benning, Georgia. Armony chronicles that the SOA's "counterinsurgency" techniques included mass assassinations, torture, interrogations, destabilizing communities through disappearing people, and the psychological battery of communities. SOA training spanned Latin America, claiming to have trained over 64,000 Latin American soldiers, and scores of these trainees were leaders orchestrating brutal atrocities from 1946 through the present. Argentina not only adopted this training, but also provided it to other countries, such as

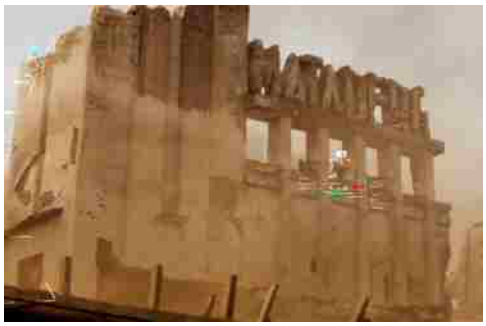

Image 6 (Heller)

the brutal torture squad Battalion 3-16 in Honduras.[17] 1983 also saw the end of the military junta ruling Argentina that disappeared tens of thousands of people marked as leftist communist collaborators—remembered as *los desaparecidos*—both members of actual guerrilla organizations such as the Montoneros and the Ejército Revolucionario del Pueblo, and members of "labor unions, peasant leagues, student organizations, and many other groups within civil society that were perceived to be part of the 'subversive' apparatus" (Armony 315).

Villa Epecuen's flooded and crumbling slaughterhouse, metaphoric ruins from Argentina's U.S. supported massacres, traces the virtual disappearance of people in Heller's future "game" to the history of *los desaparecidos*, warning ominously of the historic effects of dehumanization. It predicts how the continuing use of video games and drones, especially as the technology continues to fuse with humans' biology, will essentially make everyone inhuman. As one of the game's players remarks, "there's no people. Just targets." What Mead calls the United States' hugely expanding "military-entertainment complex"—remotely piloted machines of war among other digital technologies—reconstructs human targets as equivalent to video game villains. The U.S. military actively recruits gamers, and Mead reports over 80% of current Army soldiers play video games. The Army has also successfully used video games (such as *America's Army*, a blockbuster from 2002-08) to improve gamers' opinions of the armed forces and to increase their recruiting. But what Mead does not address is the effects of using video game technology in war on how soldiers understand "the enemy." Galliott argues that

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[17] See Joan Kruckewitt's "U.S. Militarization of Honduras in the 1980s and the Creation of CIA Backed Death Squads" for a more full rendition of the U.S., Argentina, and Battalion 3-16's abuses in Honduras.

using unmanned robots makes soldiers more likely to kill and jeopardizes military ethics. Royakkers and Olsthoorn reveal that soldiers sometimes have trouble distinguishing between piloting drones and playing a video games, and "it is only a minor step to let operators think they are playing a computer game, and destroying enemy 'avatars,' while they are actually killing real people at the other side of the globe" (7). Soldiers are likely to take the disassociation involved with simply playing a game to actual military encounters. Mead does admit that video games, especially those designed by the military for recruiting and training, have an implicit value system, logic, and set of rules players do not question, and the lessons learned from the game can easily transfer to their behavior during war. Where Rudy feels remorse for killing Memo's father, the gamers of *Uncanny Valley* have entirely bridged the connection between war and game, ominously predicting how the SOA training that dehumanizes supposed communist allies could function in the growing military-entertainment complex.

Uncanny Valley manifests how neurological manipulation (whether intensive military training or VR gaming) can brainwash subjects, making clear that controlling the internal spaces of the body is a frighteningly effective method of coercing cheap, violent labor from humans to ensure possession of natural resources. While characters in U.S. zombie films struggle for their cellular autonomy, and in the case of *Planet Terror*, romanticize developing nations as sites of resistance, Heller's film implicates all people in the United States as participants in multinational capitalism's violence in Latin America. United States citizens are metaphorically addicted to video games or other media, leaving the government, in service to business (the Kevlar androids are presumably built by DuPont USA, a multinational biotech corporation), to promote

violence in Latin America and beyond.

Jose Nestor Marquez's 2014 made-for-TV film *ISA* demonstrates how similar controls could provide fuel for the United States' economy with his biocolonial critique of the DREAM Act and the rhetoric surrounding the United States' DREAMers.[18] Tapping into children's neural nets to run stock market programs, *ISA* constructs a futuristic biocolonial resource extraction to explain how the United States' immigration legislation and mass media productions impact Mexico. *ISA* is the debut film of Fluency Productions, an arm of Telemundo Media. It is a bilingual picture that, like *Sleep Dealer*, straddles the Mexico-U.S. border, and like *Uncanny Valley*, frames U.S. legislation and media coverage as supporting biocolonial resource theft: in this case, the theft of Mexican children's bodies and minds for the U.S. economy.

ISA uses the trope of neurological control to reveal that the rhetoric casting undocumented youth as deserving of the American Dream is a move that conscripts Mexican youth to support capitalist exploitation such as maquiladoras, NAFTA, and other economic abuses against Mexico. The practice of using Mexican children's minds for the United States' economic gain is embodied in Isabel Reyes, an orphaned Chicana

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[18] The Development Relief and Education for Alien Minors Act (DREAM Act) was first presented to congress in 2001 and reintroduced nearly yearly. It sought to provide young, educated, undocumented people who were in the United States "through no fault of their own" safety from deportation and a path to United States citizenship. Although the Act failed to pass, in 2012 President Obama enacted the Deferred Action for Childhood Arrivals (DECA) program, which protected from deportation undocumented youth who registered as long as they fulfilled the DREAM act's original requirements. While the DREAM Act and DECA provide a certain group of undocumented people rights and protections in the U.S., as Walter J. Nicholls writes, the rhetoric surrounding the DREAMers buttresses the myths of American exceptionalism and multinational capitalism as it demonizes other undocumented people, including the DREAMers' parents, as deviant law breakers.

high school student in Los Angeles. Isabel is a computer genius who, we later learn, was once a member of a child brain farm in Michoacán, Mexico, where a U.S. company used Mexican children to run a stock market manipulation program. While the children are cocooned in biotech wombs, neural nets connected to a mainframe through chips in their heads, the company uses the children's dreams as code for their trading platform (see Image 7). The bio-powered computer engages in what Tuck and Yang refer to as the theft of life—Mexican children are literally stolen for profit, their neurology separated, modified, and transformed to perform digital labor.

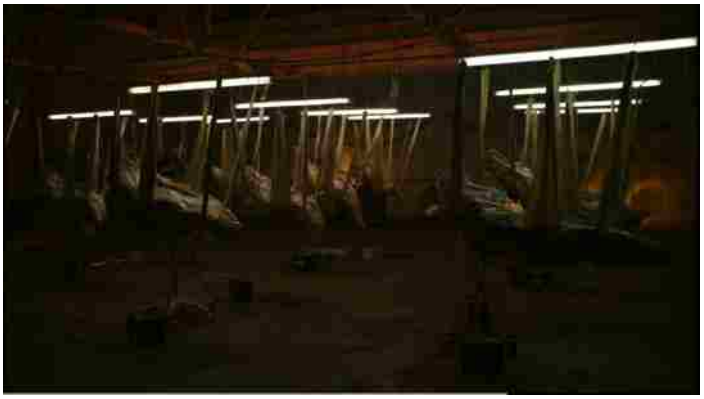

Image 7 (Marquez)

Biocolonialism is dependent on fissuring a specific subject from its relations and informationalizing its biological processes. Shiva categorizes the removal as making autopoietic systems allopoietic. Corporate scientists take self-sustaining and self-organizing systems that "grow from within" and exist in a diverse space (autopoietic systems) and isolate a specific piece, changing it to perform labor as a machine separated from the whole. This allopoietic system cannot function without outside input. Instead of a part of nature, colonization separates beings, or parts of beings, and places them as machines within the capitalist system. Plants become pharmaceuticals, and human DNA becomes a lab culture on which to experiment. Both produce for multinational corporations and work within capitalism's labor formulations.

Marquez couples his biotechnical presentation of cross-border body snatching to

the destruction of the monarch butterfly and its migration routes to emphasize how the removal of Mexican youth from their home (in Mexico and the United States' southwest), breaks their natural migrations and living practices, making them allopoietic objects. *ISA* presents the monarch's life cycle in a nature documentary in Isabel's science class. The film triggers the chip implanted in Isabel's brain, providing her access to the companies' stock market program and marking her as a potential asset for the biotech firm as it metaphorically connects Isabel to the butterflies. Monarchs, unlike other butterflies, summer across the United States and then travel up to three thousand miles to winter in California and Mexico, particularly in Michoacán. The monarchs' life cycle is currently interrupted by the United States' industrial and housing developments in California and by Mexico's maquiladoras, making their future ability to breed uncertain. The natural migration of the monarchs impacted by capitalist expansion indelibly links balanced, homeostatic ecosystems broken by national borders to U.S. immigration decisions and policy. Like the monarchs, both Indigenous people and Mexicana/os once crossed freely through what is now the United States' southwest and Mexico, a migration challenged by the theft of the Southwest through war and decades of immigration policy whose subtext is to make America white "again" and whose goal is to control the labor and natural resources of Mexico. The attempts to make educated Mexican youth citizens through the DREAM Act deliberately targets undocumented immigrants most useful to the U.S. economy—educated Mexicans, fluent in English, and raised with capitalist values who have a long career in front of them. *ISA* likens "trapping" the DREAMers in the U.S. to blocking the natural migratory path of monarchs, unbalancing the ecosystem and stealing children's minds, a move that uses the metaphor of biocolonial theft and destruction to

naturalize Mexicans' place in the Southwest.

The literal, biological mind control used against the children in Marquez's brain farm exaggerates the United States media's ability to shape popular opinion. The DREAMers' success lies in their carefully scripted media presence, according to Nicholls. Using the already mythic belief in America as the land of opportunity, pushing for the DREAM Act replicated the rhetoric prevalent in most U.S. cultural production that glorifies capitalism as freedom and the United States as exceptional. Isabel "doesn't understand the difference" between dream and reality, hinting at the pervasiveness of the American Dream in the unconscious of those in the United States. The monarchs, from cocooned Mexican children in Michoacán to Isabel's own dreams of butterflies as she tries to understand her shrouded life as an undocumented immigrant, challenge this rhetoric indirectly. Instead of reversing the dehumanization caused by electronic images, as does *Uncanny Valley*, *ISA* marks Mexicans as a part of the broader ecosystem, or as Shiva would say, turns them from allopoietic objects to autopoietic subjects. They are not re-humanized, but returned to balance with the world around them as part of a larger pattern of migratory animals. *ISA* also turns biocolonialism's tools back on U.S. capitalism; Isabel's neural link, put in her head by the biotech corporation, allows her to literally shape reality, and eventually drives her back to Michoacán, her homeland, to uncover her heritage.

Isabel's return to Mexico reintegrates her with the broader world, and her eventual (tenuous) control over the chip infuses current technologies with older ways of understanding life as interrelated. Like Native science fiction's return to story provides a method of understanding and managing nuclear science, Isabel's return to the monarch's

migratory pattern, bolstered with her new technological access, promises to destabilize the U.S. government's use of militarized science and cellular labor that ethnic zombie movies produced in the United States unearth. Isabel's use of the chip also refuses the neurological extraction of labor—or the theft of ideas—from people in developing nations while claiming the very tools the United States uses in the process, similar to Rudy's theft of his drone in *Sleep Dealer*. *ISA*'s return to non-human methods of organizing life also points to larger conversations Latin American and Indigenous ethnic science fiction film uses to critique biocolonial practices.

Protocolo and *The 6th World* take what is a metaphorical link between humans and the ecosystem evident in *ISA* and further decenter humans. The films challenge the use of genetic engineering to create organisms designed solely to provide mechanical labor for humans. As Gregory Cajete says, Indigenous science recognizes that all life is interrelated as a primary premise (64-66), and what Whitt defines as extractive biocolonialism—the theft of Indigenous healing knowledge, the genetic modification of plants and microbes, patenting these organisms made into products, and marketing them globally—steals knowledge cultivated by Indigenous people for centuries and often causes the "assimilation and loss of biological and cultural diversity" (24). The lost diversity is replaced by monoculture, the destruction of traditional farming practices and biomes in favor of single (often patented GMO) crop production, as Shiva attests. Monoculture destroys community sustainability and fosters the loss of thousands of different plant varieties, which is particularly significant for Indigenous communities, as destroying the balance of the ecosystem also fractures the relationships between human and non-human people. These productions predict how the reliance on genetically

modified resources is dangerous, as their long-term effects are unknown and the production methods surrounding their use often deplete or completely destroy diverse and traditional organisms.

Rodrigo Hernández Cruz's 2013 *Protocolo* | *Protocol F* exemplifies how the biotech industry reduces all life to a patentable commodity to be used as a "natural" resource as it engages Mexico's contemporary conflicts over genetically modified organisms (GMO) from multinational agribusinesses based in the U.S. The short film, produced in Mexico by the Centro de Capacitación Cinematográfica, depicts a series of clones (Emilio Savinni), each more degraded then the last, being "born" in a lab, interfacing with the lab's technology, and being killed by a spideresque security robot (see Image 8). The film's epigraph, written in Spanish and English, states:

Image 8 (Cruz)

> When natural resources were exhausted on Earth the last hope was Cloning.
> Industrial complex [sic] called "Multipliers" created clones and organic matter.
> Multipliers were human kind's salvation, they were built to last centuries.
> Multiplier's [sic] protocol had only 2 priorities:
> 1.- Constant cloning production
> 2.- PROTECT FACILITIES AT ALL COSTS;
>
> Clones won the same rights and civil liberties of every other human being.
> All Multipliers were banned and evacuated.
> Current status of facilities remains unknown.

The construction of factories creating hordes of clones for corporate labor clearly reflects the use of Mexicans in maquiladoras as exploitable labor for the United States post-

NAFTA, a practice thoroughly explored by scholars such as Lorey, Sklair, Kopinak, and Prieto. More ominously, it predicts the conjoining of multinational corporations' labor practices and biotech resource theft with what Peters and Venkatesan describe as biotech's focus "on nascent theories about the possibilities of a new age of genetic capitalism which is 'self-renewing' in terms of resources" (101). Craig Venter, the "bio-informational entrepreneur scientist" (102) who helped found the field of genetics, speculated in a 2008 TED talk that the next step from digitizing biology is "trying to ask, can we regenerate life, or can we create new life out of this digital universe?" Answering Craig Venter's questions, the Multipliers embody the dark potential embedded in this vision of life made-to-order. Their function makes literal the philosophical question surrounding genetic creation summed up by Cooper as "where does (re)production end and technical innovation begin?" (3-4). The Multipliers create "clones and organic matter" to solve the exhaustion of Earth's natural resources. The genetically-human clones, though eventually winning their humanity, predict the outcome of defining reproduction as production and applying the logic of patent laws to life itself.

While enacting the notion that mechanically producing life could lead to human rights abuses, *Protocolo*, in producing clones *as* natural resources instead of people, also invokes current biotech practices involving animals. Transgenic animals are engineered for, among other things, study in research labs and to produce chemical products for pharmaceutical companies. For example, pigs are genetically engineered to provide organs for xenotransplantation, produce human hemoglobin, and create human protein C (Bagle, et. al.). Shiva critiques this process as separating animals from their natural habitats, removing them from their relations, and using them solely as objects for

production. The point is not that the human clones are treated like animals, but that life forms can be treated like, and used as, machines. Cruz makes no indication of what purpose the clones were created to serve, and while most innocently we can read them as laborers, the genetic modifications to animals by 2013 coupled with the prologue's specific reference to a lack of natural resources—not labor—insinuates far more sinister possibilities.

Cruz's clones did eventually gain human status. However, their continuing (re)production in sealed factories whose "current status of facilities remains unknown" invokes how incomprehensible genetically-engineered life forms' impact on the Earth is. Current genetic engineering, such as Monsanto's (re)production of crops resistant to their herbicide glycophosphate, has long term effects on the entire planet's ecosystem. GMO corn particularly impacts Mexico, as corn is its largest crop food base. Mendoza-Cano et. al. relate that post-NAFTA, Mexico's importation of U.S. produced corn tripled (primarily GMO), drastically decreasing the corn's price, putting local farmers out of business, having greater negative environmental and human health, and threatening agricultural diversity. Post-NAFTA, Mexico's food security plummeted. In 1998, Mexico banned cultivating engineered corn, and in 2008 it instituted the Biosecurity of Genetically Modified Organisms law, which seeks to protect local plant varieties. In 2013, shortly after *Protocolo*'s production, a federal judge suspended all GMO corn, an act that specifically impacts Monsanto and DuPont.[19] *Protocolo*'s clones, in addition to questioning the ethics behind artificially creating life, point to Mexico's loss of food stability post NAFTA, a conversation entwined with the controversy over GMO crops in

[19] The ban was overturned in 2015 and reinstated on appeal in 2016.

Mexico and the transgenic production of life forms.

This Multiplier houses a (likely) infinite number of clones to be murdered by the security system, an unforeseen side effect of engineering them and automating their production. While clearly a commentary on murder, the clones' circular destruction depicts humans, or all life forms, as industrial waste and highlights how scientists eschew responsibility for their products' birth-to-death cycles. Who knows what other Multipliers are producing, or how many clones will be (re)cycled in this abandoned machine. *Protocolo* embodies the possibility of Craig Venter's vision of synthesizing life as a biocolonial nightmare, predicting the ethical problems with engineered organisms. The clones' continuing (re)production also indicates the danger of letting scientific production industrialize under governments that support multinational capitalism, legislation that favors business interests above the broader world's health. Companies like Monsanto deliberately break regulations knowing that the fines pale in comparison to the profits, or that legal tools, such as formal "risk assessments," allow them to "act on their wants at the expense of the whole (e.g., whole communities and countries, or the seventh generation from now) without appearing to be doing so" (O'Brien xviii).

However, *Protocolo* is not an indictment of just the United States' biotech industry; the film's American Chinese Cloning Company diffuses responsibility through the increasingly complicated, always already globalized system of biotech and the business of science. Cooper reminds us that East Asia is a rising hub of biotech investment and production, India's longstanding relationship to the pharmaceutical industry complicates the country's relationship to genetics, and the U.S., UK, and Germany all have industries with unique ethical and practical issues plaguing them. The

multilingual film, boasting Chinese characters, English and Spanish prologues, English instruction on the computers, and a repeating warning in English, German, Spanish, and Mandarin, implicates globalized participation in the mechanization of life and the militarized protection of life as biomechanical property.

Protocolo's clones directly indict biotech for its treatment of humans as indistinguishable from machines, whereas Nanobah Becker's 2011 short, *The 6th World: An Origin Story*, demonstrates how non-human beings resist biocolonial exploitation. Critics such as Gabriel Estrada and William Lempert have thoroughly untangled how Becker's film deploys Indigenous science to refuse monoculture and reject the isolation of life forms from their environments and histories. I present it here not to offer new insights into Becker's work, but to allow Becker's future to offer new insights into the other films. Like *Planet Terror*, Becker's film resituates issues of biocolonial theft and biotechnology's scientific practices in an Indigenous context, and as Estrada and Lempert remark, places the world's future within the context of Navajo creation. Estrada argues that "[e]mploying Navajo visual sovereignty, *The 6th World* critiques genetically modified organism agribusiness as an example of postmodern corporate sterility while emphasizing the survival of Navajo Nation migration beliefs, matriarchy, and spirituality" (522). The film narrates the fate of a corporation-backed endeavor to create the first human colony on Mars. Called Project Emergence, the Mars colony's shuttle depends on GMO corn for its oxygen and food. When the corn falls to blight, the Navajo pilot Tazbah Redhouse (Jeneda Benally), replaces it with "Indian corn," smuggled on the flight by General Bahe (Roger Willie), as "company approved corn substances" are the only corn DNA allowed on the shuttle. The GMO corn contrasts starkly with the Indian

variety, bereft of everything except what the scientists consider "usable parts"—the cob and kernels.

Estrada and Lempert both remark on the corn's existence as a non-human person, a piece of the world that works within a web of relations and holds an important part of the Navajo creation stories. Tazbah insists the xenobiologist "can rebalance the system with these, with my ancestors' corn." The corn induces the homeostasis required to provide the astronauts with oxygen and revises western with Indigenous science. Lempert remarks that Tazbah's actions, both replacing the corn and offering a traditional prayer (singing a Hoop Dance Song), is "radically enacting a cultural future" and finding a way to live between assimilation and traditionalism that takes advantage of both (168). Images of corn in Monument Valley open the film in a prophetic dream, and close the film with red-tinged shots of the new Mars colony. The location, as Estrada connects, invokes and reclaims the Western genre, which heavily relied on Monument Valley for its on-site filming, and centers the future Mars colony within Dinétah, or the Navajo traditional homeland. Becker remarks, "I feel like I make an effort . . . to include landscapes. We are on our ancestral homeland. The stories are in the land, in the landscape. So that's very important to me as an indigenous filmmaker" (qtd. in Estrada 523-24).

Becker's work deliberately reintegrates corn, the land, and the people in science, and in the new world on Mars. The moment of catastrophe is small in the film: the failure of the monoculture corn that General Bahe mocks with the statements, "Corn with no husks? No stalks or tassels? That's creepy. Some people use those parts. If they have use on earth, they can be used on Mars." Instead the film focuses on the power of tradition to frame and understand new discoveries: future science should be imbedded in tradition

and the past. All of the films in this chapter (except *Surviving*, as it has yet to be completed) use this form of recursive, nonlinear time to critique the (re)cycling of racist science, or to present non-western scientific methods that eschew "forward" momentum by collapsing the past, present, and future. Becker's closing shots of cornfields on Mars parallel the closing shots of *Sleep Dealer*, which feature Memo watering corn he has planted where the sleep dealer workers live. Memo's story begins in the *milpa*, and closes with a new farm created where workers devastated by U.S. scientific progress live. *Planet Terror* ends with an image of survivors creating a new life in Tulum, stepping out of time and progress to survival based in Mayan ruins. *ISA* closes with Isabel in a truck headed for Michoacán, carrying the U.S.' technology back to the home she didn't know she had.

These endings contrast starkly with the other productions' closings. The clones from *Protocolo* seem destined for repeated annihilation, stuck in a (re)cycling loop that produces the same murder no matter the clone's actions. Another player kills *Uncanny Valley*'s VR junkie who sees beyond the video game's charade. He becomes the very target he previously hunted, and the manner of his death ensures that anyone who could challenge the VR world's violent reality is easily turned into another alien invader. These two cycles—one returning to the past for knowledge and one replaying violence created by scientific "advancement" provide a clear message. Current scientific practice, funded by corporate interests and fueled by resources from marginalized people, will be an unending loop of destruction, whereas placing science in contexts—past, present, and future—(re)turning them (in)to Indigenous systems of knowing can rebalance the world. The films temporal circularity reinforces the relationality between human and non-human people and the autopoietic systems that nature creates. The films implicate biocolonial

science as creating unsustainable, fractured systems that damage the world around them and reinforce the notions of forward progress as leading to aggressive militarization and resource extraction—biological and environmental—justified as advancing science.

Conclusion: After the Postapocalypse

Bree Newsome is a science fiction filmmaker. Andrea Hairston began her education in physics. I write these statements not as flippant throwaway micro-biographies but as observations that illustrate the firm intersections between ethnic science fiction, the arts, the sciences, and anti-racist advocacy. Most of the United States knows Bree Newsome as the activist who climbed the flagpole at the South Carolina state house to take down the confederate flag on June 27, 2015. She was arrested for this action, and her defiance against the symbolic support of centuries of racism and slavery in the United States fueled public pressure that permanently lowered the flag the next month. Newsome's schooling was in the arts, and work such as her award winning short film *Wake* place her firmly within the tradition of Afrofuturism. As Newsome's quotation in the dissertation's epigraph remarks, "It's hard to be an artist and not be an activist. Not if you are going to tell any kind of truth about what you see in the world."

Andrea Hairston, the hugely successful Afrofuture playwright whose novel is discussed in Chapter 1, was the president of both the math and science clubs at her High School, rounding out her education at her mother's insistence with theater and dance. She started as a physics major at Smith College, remarking in an interview that "At the time, they were on strike because of Kent State. They were very political, and so was I. So I thought this was the place because I could do science *or* theater, *or* music, *or* dance" (Gunnels 1, emphasis in original). During her Junior year at Smith, Hairston switched majors to theater "because women in math and women in science in 1970? Real hard. And a black woman? Really, really hard." (4). Hairston's educational experience and her turn to Afrofuturism speak to the structural and cultural problems that lock people

(especially women) of color out of the sciences—a situation that has not improved much since her experience in 1970. This is not to say that ethnic science fiction serves as an outlet to those, like Lydia in *Lunar Braceros*, who have their access to the sciences cut off, but to speak to the inherent structural problems in the production and practical application of science that allows scientific racism to continue, perhaps even flourish. Hairston, much like all of the authors discussed in this text, uses ethnic science fiction to present critiques of science—in its theory as well as practice—and to (re)claim scientific methodologies as sites of cultural recovery and discovery.

The expunging of women and people of color in the sciences is echoed in the literary erasure of ethnic authors, typified by science fiction's historically white, male production. Literary erasure controls people's connections to their past and present and supports the creation of a monolithic myth supporting the United States' actions as always already just and equitable. The deliberate construction of a U.S. literary canon and a deluge of popular media presentations shrouded the genocide against Native Americans as it built an image of the U.S. as distinct from Britain, as Phillip Deloria Jr.'s *Playing Indian* stresses. It justified black slavery and used blackness to define and defend whiteness as Toni Morrison investigates in *Playing in the Dark*. National narratives also created Mexicans as racialized subjects to justify the expansion of an imperialist empire, as Lázaro Lima's *The Latino Body* and Shelley Streeby's *American Sensations* contend. As the United States constructed its myths of Manifest Destiny, American exceptionalism, and the American Dream through textual production, it used representations of people of color to bolster the fictions of access while eliminating

ethnic people's access to the new empire.[1]

Similarly, the sciences function in support of American empire and racial oppression, continually couched and justified through the rhetoric of objectivity. Contemporary biotechnology and biology continues to racialize people of color in the guise of better health care, but far more clearly as a way to increase profit. Nuclear technology constantly regenerates the secrecy that marked its discovery in Los Alamos, not for national security but to erase the nuclear cycle's entirety because it coopts Indigenous lands globally and impacts Indigenous people's lives and health. Similarly, the information era replicates other methods of media erasure to hide how the digitization of the globe is destroying developing nations to manufacture infrastructure that erase people of color. All of these processes are biocolonial and hearken to the future of an informationalized, digitized planet, fed electricity through nuclear production, and supported by the labor (cellular and bodily) of people of color and the ecologies around them.

Ethnic science fiction is, perhaps, not relentlessly dystopic but surely ambivalent about this future. While focused on demonstrating how science recapitulates its racist origins and practices in the contemporary era, much ethnic science fiction is more concerned with individuals' and groups' ability to recover and discover non-colonial and non-western methods of organizing the world and themselves. The strongest movement towards refusing science's narratives involves the rejection of linear time—technological

[1] See John O'Sullivan's (1839) "Great Nation of Futurity" for an example of how discussions of nation building, manifest destiny, American exceptionalism, and relentlessly forward progress both justify U.S. imperialism and create a "future history" that erases other narratives (430).

"advances," scientific "progress," and experimental "gains" that orient science towards a "better future." Instead, ethnic science fiction (re)frames science as recursive and nonlinear, shredding the concept of time in favor of relationality and demonstrating how science's "forward progress" is instead circular reproduction of the very structures that make it problematic—science is caught in a cycle of destruction. *Xenogenesis* reflects on how scientifically justified incarceration creates test subjects to continue producing science that justifies incarceration. "Like Daughter" (re)rebirths racialized epigenetic problems in black women to demonstrate how the medical field focuses on treating symptoms instead of underlying conditions, ensuring people continue to need their products. *Mindscape* recalls how creating race generates the need for racially-tailored medicine, which requires people of color as consumers and test subjects, rewarding genetics for constantly (re)creating race. *It Came from Del Rio* enacts the continuing rebirth of the nuclear cycle echoed in the half-lives of decaying atomic disasters. *The Rag Doll Plagues* and *Lunar Braceros* demonstrate that the technology that erases the United States' neocolonial abuses against marginalized people globally is manufactured by the very abuses it hides. Finally, *Uncanny Valley* and *Protocolo* predict a continuously cycling death for people fashioned by technological "advances." In a reversal of the cycle of poverty, science is stuck in an unending loop fueled by corporate needs for profit that ensures the continuing consumption of people of color for bodily, cellular, and consumerist labor.

In contrast, ethnic science fiction presents recursive, non-linear conceptions of temporality and existence as foundations for scientific work. *Mindscape* finds solutions in both a reversion to specific ethnic traditions, but also returning to a time before the arts

and sciences became separate disciplines. *Ceremony* and *The Ballad of Billy Badass* reintegrate the present within oral tradition, placing scientific "advances" into the stories that contextualize their existence and provide answers to current problems. *The Rag Doll Plagues* and *Lunar Braceros* fracture the linear narrative with codes inserted from the past—pulling the future back into the past and collapsing the temporal distinctions to create space for a (re)turn to science framed with decolonizing methodologies. *Smoking Mirror Blues*' digital revolution is literally invoked by (re)animating Aztec Gods, and as previously mentioned, *Planet Terror*, *ISA*, and *The 6th World* reject scientific "progress" in favor of a return to tradition, not unlike the lunar *tecos* return to the rainforests and communal living before starting the revolution.

And ethnic science fiction has revolution at its core. Sometimes wild and violent spectacles (Bunnyhead's massacres, Tezcatlipoca's Dead Daze extravaganza), but more often creating the structural changes needed in science (and a broader multinational capitalist culture) to arrest "progress" and return to sustainable, relational living. In addition to understanding people and the land as relations, as Simon Ortiz and Gregory Cajete mark as the core of Indigenous science and worldviews, it is about understanding disciplines as relational: science, art, activism. Narratives of advancement and forward movement only support the heteropatriarchal, capitalist, racist conditions in the United States, conditions it is keen on exporting to the rest of the world. Ethnic science fiction provides a way of arresting this "progress," theorizing and dreaming the past in the future and collapsing it into our present.

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