



PROJECT MUSE®

Wastelanding

Traci Brynne Voyles

Published by University of Minnesota Press

Voyles, Brynne.

Wastelanding: Legacies of Uranium Mining in Navajo Country.

Minneapolis: University of Minnesota Press, 2015.

Project MUSE., <https://muse.jhu.edu/>.



➔ For additional information about this book

<https://muse.jhu.edu/book/40057>

PREFACE

In Search of Treasure

In early August of 1864, a contingent of thirty-six U.S. soldiers, led by an army captain named John Thompson, left Fort Defiance in the northeastern corner of Arizona Territory and trudged north under the hot sun through the sprawling homeland of the Navajos. Diné Bikéyah, as Navajos call their land, spreads over mountain ranges, arid plateaus, and desert lands across what is now the Four Corners region of the United States where New Mexico, Arizona, Utah, and Colorado meet. Captain Thompson and his men were not the only military personnel traipsing through Navajo country—not by a long shot. He and his men were merely a small part of a much larger U.S. military campaign commanded by one General James Carleton, a ramrod straight military man who loved the “frontier” and despised the Navajos, and carried out by the famous scout-turned-army colonel Christopher “Kit” Carson. The larger U.S. campaign had one goal: to rout the Navajos from their homeland and march them some 300 miles southeast to Fort Sumner, which was, for all intents and purposes, a military concentration camp. The Diné, as Navajos call themselves, were known throughout the Southwest for their long and storied history of resistance to colonial invaders, a reputation (and reality) that the U.S. colonizers found none too pleasing.¹ Additionally, settlers in New Mexico and Colorado were keen to discover whether Diné Bikéyah was as rich in mineral resources as it was rumored to be; the age-old colonial apologia for conquest, it seems, was just as alive in 1864 as it had been in 1492, when Columbus wrote back from the New World to Spain that he had discovered a land with a marvelous abundance of minerals, metals, and mines.

Captain Thompson had, by that August of 1864, already proven himself up to the task of forcibly removing the Diné from their homeland. The previous March, he had rounded up 2,400 Diné on behalf of Colonel

Carson, and led them in a forced march to Fort Sumner, a journey dubbed “the Long Walk” by Navajos. In those early weeks of August, however, Thompson’s mission was of a different sort. He and his thirty-six men headed straight from Fort Defiance to the deep gorge at the heart of Diné Bikéyah—Tséyi’ or Canyon de Chelly,² the now-famous canyon lined with swaying cottonwoods and pockmarked with ancient Pueblo ruins.³ As Thompson and his men marched through the canyon, digging here and there for the pools of fresh water running just below the surface of the sandy canyon floor, they engaged in a fierce, and roundly victorious, battle against an unlikely enemy: the peach orchards that had been cultivated over hundreds of years by Diné families. In the course of his march, Thompson and his soldiers felled a remarkable 4,150 fruit-bearing peach trees and, for good measure, “effectually destroyed” at least eleven acres of corn and beans. Oddly, these binges of violence against Navajo peaches, corn, and beans came *after* the majority of Diné in the area had already surrendered to the army, following an aggressive and violent campaign for their removal from the canyon.⁴ In fact, an expedition six months earlier, led by Captain Asa Carey, had declined to destroy the Canyon’s peach orchards precisely because most of the Diné in this area had already surrendered—to put it simply, there was no point in ruining the food supplies of people who were no longer there. Yet the army’s desire to make war against the peach trees endured even after Thompson’s campaign. Not long after Thompson returned to Fort Defiance, leaving a trail of rotting peaches in his wake, a third group of soldiers was sent into Canyon de Chelly under the leadership of Captain John Butler, slashing another 1,000 trees to the apparent satisfaction of his superiors.

We can ask, of course, just what it was about these peach trees, corn stalks, and bean plants that invited such unnecessary violence, such “systematic eradication” of fruits, grains, and legumes.⁵ Historian Peter Iversen muses, “perhaps the army simply wanted to remove evidence that contradicted the image of Navajos as full-time nomadic wanderers,” which had provided the (quite effective) rationale for their removal in the first place.⁶ Perhaps, too, the orchards and fields evidenced a Diné proficiency at agriculture in the high arid climes of the New Mexico territory that surprised Americans who expected Navajo country to be useless for agricultural purposes, a sprawling wasteland described in 1868 by William Tecumseh Sherman, the general of Union Army fame, as “utterly unfit for white civilization.”⁷ It is not implausible to venture a guess that these binges of violence against peach trees occurred as proxy to settler and soldier frustrations about the newly conquered Southwest and the challenges it presented to American notions of what good agricultural land should look like. Indeed,

ideas about landscape and people, throughout this notorious removal campaign, served as the primary and most powerful impetus for colonial violence against people and peaches alike. Notions that the Colorado Plateau was uninhabited wasteland unfit for farming draw us quite a clear map of how we get from Thompson and his vexed tree felling to more contemporary cases of the interplay between nature, people, colonization, and power.

In this book, I explore the ways in which resources come to enact, enable, and sometimes embody colonial relationships between the U.S. settler colonial state and Native nations, focusing on the ways in which discourses about lands and the peoples who inhabit them shape how colonial violence occurs. In Captain Thompson's expedition, peach trees played a significant role in how the U.S. military sought to subdue the Navajo landscape, which military personnel and white settlers often took to be desert, deserted, and agriculturally barren (but potentially rich in minable resources). The primary focus of this book, uranium mining on Navajo land, takes us a century past Captain Thompson's expedition, but the themes crystallized in his assault on peach trees, corn stalks, and bean plants remain ever present. The power exerted over environmental resources, and the ways in which those in power construct knowledge about landscapes, are a central part of how what we now call social injustices are produced. In this work, I bring together environmental history and environmental justice studies to build what Sylvia Hood Washington calls an *environmental justice history* of uranium mining: a history undertaken with an eye toward building environmentally and socially just futures.⁸ This does not mean only giving a more detailed historiography of how uranium mining, and indeed the relationship between the United States and the Diné and their land, developed over time. It also means to situate environmental injustice in larger historical context and to think historically about the role of this story—and how it is told—in shaping how we understand the relationships between coloniality, nature, and, ultimately, decolonization.

Diné Bikéyah is mapped by the Diné as being situated within four sacred mountains: Tsisnaajinii (Blanca Peak) to the east, Tsoodzil (Mount Taylor) to the south, Dook'o'osłíid (San Francisco Peak) to the west, and Dibe' Ntsaa (Mount Hesperus) to the north.⁹ Ranging from the solidified lava flows of Yé'itsoh Bidił (El Mapaís National Monument) to the forested Ch'óshgai (Chuska) mountain range, to the stark red rock formations of Tsé bii'nidzìsgai (Monument Valley), this landscape contains a remarkable diversity of ecosystems as well as plant and animal life. Currently, the Navajo Nation encompasses more than 25,000 square miles of land, on which more than 170,000 Diné live, while an additional 130,000 Diné live in other parts of the United States.¹⁰ The Diné emerged into this land, the

fifth world, from worlds below, bringing with them the *dzilleezh*, or mountain soil, that would make up the four sacred mountains.¹¹ In their long tenure within these four mountains, the Diné maintained agricultural and sheepherding practices that sustained their large population, migrating seasonally through Diné Bikéyah in a way that maintained spiritual and environmental *hózhó*, or “balance, beauty, harmony, health.”¹² In a very strong sense, the Diné are a land-based nation: their culture, history, geography, religion, and economy are derived from a particular landscape (Diné Bikéyah) and set of natural resources. These connections to landscape are both deeply rooted and evolving.¹³ The peach orchards of Canyon de Chelly, laid to waste by Thompson and his contemporaries, exemplified the Navajo proficiency in using pastoralism to maximize the environmental resources of their land: while only roughly 300 denizens of the canyon country lived in the canyon year-round, each fall Navajos would travel from all over Diné Bikéyah to attend the peach harvest,

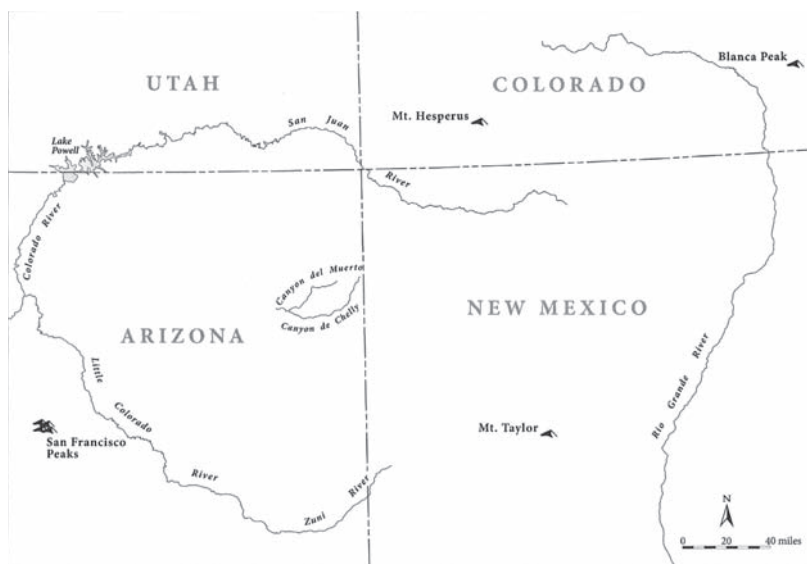


FIGURE 1. Diné Bikéyah comprises the land within the four sacred mountains, as well as what are sometimes called the four sacred rivers (the Rio Grande River to the east, the Zuni River to the south, the Little Colorado and the Colorado Rivers to the west, and the San Juan River to the north). Marsha Weisiger, *Dreaming of Sheep in Navajo Country* (Seattle: University of Washington Press, 2011), 62.

distributing the fruit—a food source and a commodity—among a wide swath of the Diné population.¹⁴

The relationship of the United States to Diné Bikéyah has most consistently been organized around resources: the desire for them, the management of them, the perceived dearth of them in this high, arid landscape. Indeed, from the onset of formal U.S. relations with this land, when U.S. troops invaded in 1846 to seize the northern third of Mexico's territory, the Diné were seen primarily as a problem in direct relationship to resources. Navajos were perceived as ruthless and violent raiders, who made their living by stealing livestock and crops from nearby Pueblo and Nuevo-mexicano settlements. The subtext, frequently, was that Diné land was not of high enough quality to support the Diné people. They had to steal to survive, and they were happy, it would seem from U.S. accounts, to do so. The complex relationship of Diné to their resources and land base, cultivated over centuries of experience, was rarely if ever in evidence in hegemonic historical narratives.¹⁵

The history of changing constructions of Diné land and resources is embedded in the very etymology of the name "Navajo." Spanish explorers and settlers were the first to call the Diné "Navajos"—although the Diné have adopted the name and often use it interchangeably with "Diné," "Navajo" has no origin in the Diné language. Most scholars attribute the adoption and use of "Navajo" by the Spanish to Franciscan friar Alonzo Benavides's 1630 reference to the Diné as the "Apaches de Navahu" in his *Memorial to the King of Spain*.¹⁶ Benavides and his fellow Spaniards borrowed "Navahu" from the nearby Tewa-speaking Pueblo tribes, for whom the word meant "large area of cultivated fields," a reference to Diné reliance on and talent for agriculture as well as sheepherding. In the twentieth century, however, scholars began to question the veracity of this etymology for "Navajo," some arguing that "a more likely claim" for the name's origin "is made for a Spanish derivation," from the Spanish "nava, meaning flat piece of land, plus the suffix ajo," lending the name a "depreciative" air in which "Navajo would mean a large, more or less worthless field."¹⁷ A handful of years later, Clyde Kluckhohn and Dorothea Leighton concurred, making reference in their influential 1947 monograph *The Navaho*, to "some support for deriving 'Navajo' directly from the Spanish in the sense of . . . a large, more or less worthless, flat piece of land."¹⁸

The social construction of the high, arid landscapes of the Southwest as "more or less worthless" has been a fundamental component of colonization of the Diné, as well as other southwestern and Great Basin tribes.¹⁹ In fact, the inhabitation of dry, arid landscapes by Native nations was used as evidence of their low status on the Western hierarchy of civilization,

following a kind of environmental determinism that posited that “barren” landscapes supported villainous and savage peoples. In his 1849 reconnaissance survey of Navajo country, for example, Lieutenant James Simpson wondered whether his contemporaries were correct in assigning the blame for “the curse of barrenness” of land to “the wickedness of the people who inhabit it.”²⁰ Classic Western histories resurrect the image of the Navajos as “wicked” people on a “barren” land; as Diné historian Jennifer Nez Denetdale points out, Navajos have consistently been portrayed as a vicious people who relied almost exclusively on raids of nearby Spanish villages for sustenance.²¹ Historians and archeologists have roundly debunked this mythology surrounding the Navajo practice of raiding and its presumptions about the poverty of Diné land leading to a need to steal to survive. As ethno-archeologist Klara Kelley notes, Navajo raids on Mexican settlements were almost always undertaken as retribution for the lively trade that existed in northern New Mexico for Navajo slaves, supported by the Spanish and then Mexican colonial governments and continuing into the period of U.S. colonization after 1848.²² Cebolleta, the oldest settled land grant community in the borderlands of Diné Bikéyah, had particularly well-known Sunday slave markets, specializing in the sale of Diné women.²³ Kit Carson himself had three Navajo children in his household, two of whom had been purchased from slave parties.²⁴

The power of thinking about Navajos as violence-prone nomads and of their land as barren desert country was in evidence not four years after Thompson’s march into Canyon de Chelly, when the horrendous conditions at Fort Sumner compelled U.S. military leadership to admit that the camp was a failed experiment in Indian policy. Between their removal in 1863 and the closure of Fort Sumner in 1868, the interned Navajo population went from 12,000 to 9,000 people; the 3,000 who died in the camp perished largely from starvation, malnutrition, untreated infections, and interpersonal violence. The surviving Diné were to return to Diné Bikéyah, and General Sherman, who made the final decision to permit the Diné to return to their homeland, did so believing that he was sending them to what he considered, as one historian put it, a “waterless worthless waste”—certainly not the kind of land, we would imagine, that would support fine orchards of thousands of fruit trees and scores of acres of beans and corn.²⁵ In fact, upon returning to Diné Bikéyah, the Navajos of Canyon de Chelly masterfully regrew their orchards and, by the 1880s, were harvesting peaches once more.

Before allowing the Diné to return to their homeland General Sherman made an ominous prediction. The Navajo claims to their homeland, he believed, would, “sooner or later, be interfered with by people from Colorado

and New Mexico in search of treasure.”²⁶ Sherman was eventually proven partly correct and partly mistaken. Over the course of the next century and a half, prospectors and mining companies made repeated incursions into Diné life, interfering, to be sure, with Navajo connections to their homeland. A rapid succession of energy resources, ranging from oil to hydropower and from coal to uranium, and other in-demand metals, such as vanadium, shaped the twentieth-century relationship between the United States and the Navajo Nation. In the 1920s, the discovery of oil on Diné Bikéyah led to the formation of the first federally recognized Navajo governing body, which was needed to approve oil leases.²⁷ In the 1930s, Navajo sheepherding was seen as a potential barrier for successful completion of the Hoover Dam, which would go on to provide hydroelectric power to the cities of California and the Southwest. Thus ensued a mass roundup and slaughter of Diné sheep, goats, horses, and cows. Intensive coal mining on and around Navajo country began in the 1960s and continues to be a hotly contested industry with high stakes for Navajo people in terms of both economic development and environmental health. Hundreds of billions of dollars in coal profits have gone to coal companies, rather than to the tribe or families forced off their lands by coal companies. Coal mines and power plants have produced catastrophic environmental problems, and wrangling over coal mining rights has resulted in major struggles over land and environmental quality.²⁸

Uranium mining, the subject of this book, has likewise had a massive impact on the Diné and their land. Within the four sacred mountains, the radioactive ore was mined between 1942 and the mid-1980s, first for the secret Manhattan Project and then for the Atomic Energy Program. Currently, renewed interest in nuclear energy has kickstarted what is being called the “new uranium boom.” Uranium companies have increased pressure to open new mines and reopen old mines in environmentally sensitive and tribally sacred areas, from the Grand Canyon to Tsoodzil (Mount Taylor), the sacred Diné mountain of the south. In the course of nearly five decades of uranium mining and milling in and near the Navajo Nation, over 2,500 mines employed more than 3,000 Diné. As they provided the labor that in turn provided more than half of the country’s domestic uranium reserves, Navajo miners and millers were often relegated to the lowest paid, least protected positions.²⁹ Increasing evidence, already well known in the early 1940s, of uranium’s toxic effects on miners’ lungs was actively kept from the miners and their families.³⁰ The largest spill of radioactive waste in the United States took place on July 16, 1979, when 93 million gallons of radioactive waste was released from a mill site into the Río Puerco. All the while, the primary incentive for the Navajo Tribal Council to

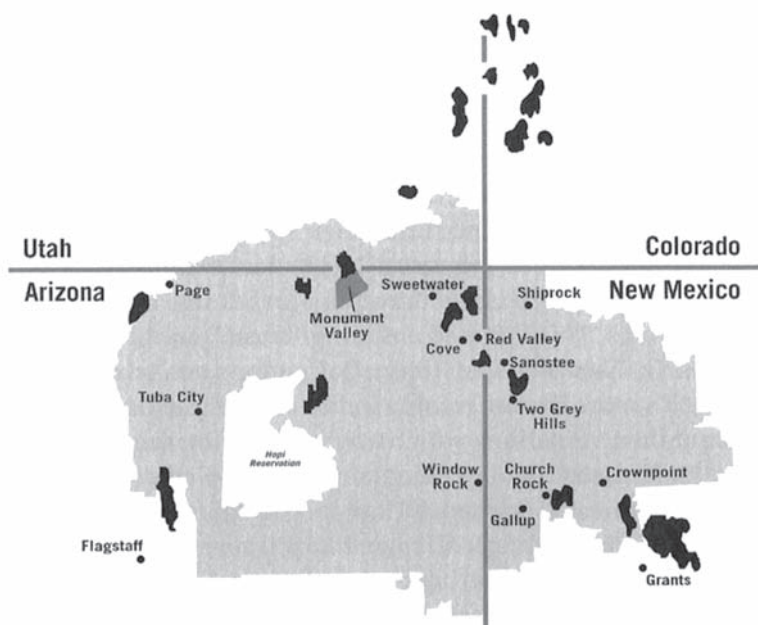


FIGURE 2. Areas of major uranium activity on and near the Navajo Nation from 1942 to 1985 are shown here in black. Doug Brugge, Timothy Benally, and Esther Yazzie-Lewis, *The Navajo People and Uranium Mining* (Albuquerque: University of New Mexico Press, 2007), 28.

permit uranium mining on their land, economic development, was never realized in large part because royalties for uranium ore obtained from tribal lands were kept artificially low.³¹ The devastating environmental and human health conditions that ensued from these decades of uranium mining have been at the center of struggles over resource extraction and environmental injustice in Diné Bikéyah.

Despite these repeated incursions into Navajo land and life for the purposes of resource extraction, these incessant interferences “by people in search of treasure,” the Diné have consistently contested and resisted colonial imposition and environmental violence. Diné environmentalist and environmental justice organizations have worked on a wide range of issues and had considerable success. In 1979, Navajos together with a coalition with other New Mexico indigenous activists, as well as white and Chicana/o activists, organized a three-day occupation of Tsoodzil (Mount Taylor) to protect the mountain from renewed uranium mining. In 1988,

Diné activists successfully blocked the siting of a toxic waste incinerator in Dilkon, Arizona, forming Diné Citizens Against Ruining Our Environment (Diné CARE), an organization that has been internationally recognized for its rigorous work on behalf of grassroots environmental justice.³² In 1990, with considerable participation from Diné CARE, Navajos hosted a national meeting of indigenous activists that went on to become the Indigenous Environmental Network (IEN), an organization with powerful influence in environmental justice struggles worldwide. Several long-standing groups, such as the Eastern Navajo Diné Against Uranium Mining (ENDAUM), the Dooda (No) Desert Rock Committee, and the Multicultural Alliance for a Safe Environment (MASE), have made considerable progress in preventing new environmental incursions by mining industries on and near Diné land. The work of organizations like these, and the legacy of Diné environmental activism, lends support to a Navajo Nation Council moratorium on uranium mining that was put in place in 2005. By working with and leading local and transnational environmental justice and indigenous sovereignty movements, these organizations chart the ways in which the local and global are intimately intertwined in struggles over the environment, indigenous nations, and natural resources. This work contradicts long-standing notions that the colonial desire for Navajo resources would *ever* go uncontested by a people who draw on centuries of labor to maintain their connections to their land.

INTRODUCTION

Sacrificial Land

The Colorado Plateau was one of the last areas in the United States to be developed economically. Before the 1880s it was virtually empty except for Indians.

—ROBERT DURRENBERGER, *ANNALS OF THE ASSOCIATION
OF AMERICAN GEOGRAPHERS*, 1972

Empty Except for Indians: Wastelanding, Race, and Space

Long before uranium was commonly known for its associations with both nuclear power and nuclear bombs, and long before atomic power took hold of the American public imagination as a fearsome signifier of new human relationships to technology, to the environment, and to each other, uranium was mostly considered waste. Miners came across it when they blasted apart carnotite, a composite rock that can often be recognized by characteristic streaks of red, black, and bright yellow, to get at the real prize: vanadium, which was used to strengthen steel alloys in a range of products, from automobile parts to gun barrels.¹ Vanadium alloys were integral to the design of the Ford Model T, Henry Ford claiming to have discovered vanadium's uses while sifting through the innards of a wrecked French race-car.² The peak of vanadium's marketability came during World War II, when the federal government formed the Metals Reserve Company to encourage metal mining for war armaments. Vanadium, it turned out, was a highly sought-after ingredient of President Roosevelt's arsenal of democracy. In the vanadium mines scattered throughout Arizona, New Mexico, Utah, and Colorado, carnotite rock was blasted apart, the vanadium recovered, and the rest of the rock—uranium included—thrown into piles of waste

materials (more commonly called *tailings*). Sometimes the uranium from these mines was salvaged for use in glazes for dishes and glassware, which were manufactured and sold everywhere from Woolworth's to Tiffany's.³ Uranium oxide glazes were responsible for the orange-red color of the popular Fiesta ware dishes. Uranium, like vanadium, could have been used to strengthen steel alloys but was much too costly. Manufacturers were hard pressed to find a use for uranium that was "of a sufficiently distinctive character to make it a commercial product."⁴ In 1917, when the global market for radium hit its pre-World War II peak and uranium's radioactivity was discovered, a white trader to the Navajo Nation named John Wetherill hauled some uranium-bearing carnotite ore to Flagstaff, Arizona, to be sent to France for Marie Curie's radiological experiments.⁵ By 1920, an Arizonan named John Wade was operating a company called Carrizo Uranium Company, which had forty claims in the eastern Carrizo Mountains, mining both vanadium and uranium.⁶

Mostly, though, the uranium was tossed.

That changed forever on October 9, 1941, when President Roosevelt held a secret meeting to deputize the Army Corps of Engineers to take on an atomic program. What came to be known as the Manhattan Project was charged with the development of an atomic bomb, using an element radioactive enough to render it "unsteady as a reeling drunk": uranium.⁷ The Manhattan Project sought domestic supplies of uranium from the only source of which it was aware, the vanadium mines in and around the Navajo reservation. With that, uranium went from being a waste by-product of vanadium to the most sought-after ore of the twentieth century.

By 1945, when newspaper headlines blared declarations that unmasked the secret Manhattan Project, like that of the *Santa Fe New Mexican*—"Los Alamos Secret Disclosed by Truman: Atomic Bombs Dropped on Japan"—the government had acquired roughly 10,000 tons of fissionable uranium.⁸ Most of that tonnage, however, had been shipped in from foreign sources, a process that was both expensive and fraught with potential security risks.⁹ Only 15 percent of the ore had come from the continental United States, much of it secreted from the vanadium mines on and near the Navajo reservation and pulled from vanadium tailings piles.¹⁰ Between 1943 and 1945, an estimated 44,000 pounds of uranium were secretly recovered from Vanadium Corporation of America (VCA) East Reservation Lease area—the site of John Wade's Carrizo Uranium Company claims in the Carrizo Mountains.¹¹ Monument Valley mines, also run by VCA, provided an additional 489 tons of ore.¹² Despite these sources, and despite stepping up its exploratory drilling on the Colorado Plateau to a rate of 200,000 feet per year, the AEC "continue[d] to receive most of its uranium from the

Belgian Congo and Canada.”¹³ “Our own country,” the commission conceded in 1949, “has produced little uranium.”¹⁴

Half a century later, Diné land hosts upward of 2,000 now-abandoned uranium mines, mills, and tailings piles, in which over 3,000 Navajo miners wrenched and blasted raw uranium ore from the ground and then processed it into yellowcake. Abandoned mines sit open, poorly covered, or insufficiently marked.¹⁵ Radioactive tailings piles litter the Navajo landscape, leaching radon gas into the air and water and scattering radioactive debris throughout the ecosystem.¹⁶ In addition to being radioactive, these piles are littered with other toxic contaminants, including arsenic, vanadium, and manganese. The combined environmental contamination of mines, mills, and tailings piles has caused dramatic problems for the water quality of a landscape where water is already in short supply. Expensive water pipelines have yet to be built to serve the estimated 30 percent of Diné people who live near and use unregulated water sources, many of which are contaminated with uranium or arsenic.¹⁷ Homes have been built out of debris from mines, including chunks of rock blasted into neatly squared-off blocks, often at the encouragement of mine operators. These “hot homes” were occupied by multiple generations of families before someone thought to test them for radiation.¹⁸ The U.S. Environmental Protection Agency (EPA) has identified nearly 800 structures and residential areas contaminated with uranium; fewer than forty of the structures had been demolished as of 2014, and only seventeen of those demolished had been rebuilt.¹⁹ Whereas most of the mines were closed by the mid-1980s, when uranium was no longer profitable, a rise in uranium prices has led to a new uranium boom since 2005. The Navajo Nation, still grappling with environmental and human health disasters from its first three decades of experience with the uranium industry, responded by passing the Diné Natural Resources Protection Act (DNRPA) in 2005, which placed a moratorium on new mines in Navajo country. Companies seeking permits to mine in the uranium-rich eastern borderlands of the reservation have denied that the land in question can be considered “Indian Country” despite being overwhelmingly populated by Navajos and being formally represented in the Navajo Nation government.²⁰

Although there was ample evidence by the 1950s of the deadly nature of uranium mining, particularly because of the risk of lung cancer, miners were not informed of these health risks, nor were they provided adequate protection from them. High death rates among miners in the uranium-rich Erz Mountains on the border of Germany and the Czech Republic were reported as early as the mid-1500s. As the U.S. Public Health Service itself reported in 1952, “it has been known for centuries that the [Erz] miners

die in the prime of life with symptoms of damaged lungs.”²¹ From the late nineteenth century on, uranium was identified as the primary culprit in these high death rates, and by the 1930s Erz miners experienced a mortality rate of up to 70 percent, largely due to lung cancer.²² Further suggesting the deadly nature of radiation exposure, Marie Curie herself died of radium poisoning in 1934.²³ By 1952, radon, a radioactive gas released in the uranium mining process, had been singled out as the primary culprit in these elevated lung cancer rates among miners, although other health problems, including silicosis, tuberculosis, pneumonia, and emphysema, also contributed to high death rates for miners.²⁴ These discoveries, however, did not lead to changes in mine safety for workers or for the people living near uranium districts.

Rates of lung cancer and respiratory disease have skyrocketed for the Diné, a population described as recently as the 1950s by public health experts as being “immune” to lung cancer.²⁵ By the mid-1980s, researchers found astronomical rates of cancer deaths among former uranium miners. Miners contracted lung cancer at rates 56 times higher than the national average, and had an average life expectancy of only 46 years.²⁶ Rates for stomach cancer were 82 times the national average. Miners were more than 200 times more likely to get liver cancer, almost 50 times more likely to get prostate cancer, and over 60 percent more likely to have cancers of the bladder or pancreas.²⁷ Nor were cancers the only health problems among former miners and their families: researchers also found increased incidents of tuberculosis, fibrosis, silicosis, and birth defects, all linked to exposure to uranium from mines and mills. Radiation-related diseases are now endemic to many parts of the Navajo Nation, claiming the health and lives of former miners to be sure but also those of Navajos who would never see the inside of a mine. Diné children have a rate of testicular and ovarian cancer fifteen times the national average, and a fatal neurological disease called Navajo neuropathy has been closely linked to ingesting uranium-contaminated water during pregnancy.²⁸ Studies have also found that uranium has genotoxic and mutagenic effects; that is, uranium poisoning can change the genetic material of a chronically exposed population, even further expanding uranium’s influence on future populations in ways that are yet unknown.²⁹ While studies have long suggested a relationship between congenital defects and uranium exposure, a Navajo Birth Cohort Study seeks to measure outcomes for 1,500 Diné newborns in highly contaminated parts of the Navajo Nation.³⁰

When uranium remains encased in carnotite rock and in underground ore bodies, it poses little threat to human health or to the environment. Clearly, once released its impacts have been catastrophic. Moreover, one

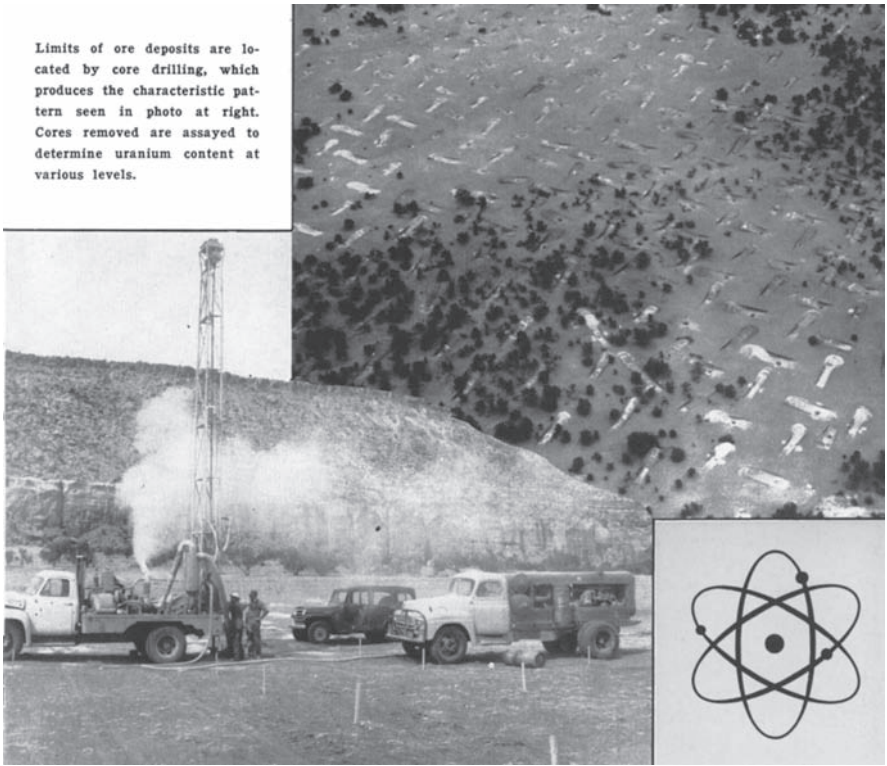


FIGURE 3. The aerial photograph at the top right shows the patterns created on the landscape as core drilling holes pockmark potential mine sites. The ore samples removed from these holes were then tested to determine their uranium content. The image at the bottom left shows a core drilling crew hard at work. Albuquerque National Bank, *Albuquerque Progress*, 22, no. 5 (May 1955). Courtesy of The Albuquerque Museum Photoarchives—Albuquerque Progress Collection.

of the most problematic components of the struggle for justice over nuclearism has been that, except in extreme circumstances, the ill effects of radiation exposure take ten, fifteen, sometimes twenty years, and sometimes multiple generations, to manifest. This makes uranium mining in Diné Bikéyah a kind of “slow violence” or “delayed destruction” that emerges over time.³¹ In uranium country, which, like so many mining industries, is governed by the rule (or lack of rules) of boom and bust, this has meant that by the time many miners got sick, the companies that employed them were long gone. Now, the responsibility for cleaning up mine and mill sites

has been taken on by the Navajo Nation itself. Of the six regions of the Navajo Nation that host the highest concentration of abandoned uranium mines, the Navajo and federal EPAs have prioritized the most heavily contaminated: the eastern borderlands, near the communities of Church Rock and Crownpoint, New Mexico; the area surrounding Cameron, Arizona, in the southwestern corner of the Navajo Nation; Monument Valley in the north; and the area surrounding Cove, Arizona, where mines are scattered across the Chuska Mountains and Red Valley. Now, three decades after the uranium market hit a precipitous decline in the Southwest and the last mines operating on the Navajo Nation were shuttered, life-saving cleanup of abandoned mine sites is only recently underway.³² Before cleanup was even considered by federal agencies, Navajo families and the Navajo Nation spent decades seeking recognition of the very real connections between uranium mining and the environmental health impacts with which they lived.³³

The state of environmental and human health problems in the Navajo Nation as a result of the uranium industry, and the fact that uranium was so disproportionately mined on and near Native land, makes this a clear-cut case of environmental racism, which occurs whenever communities of color are disproportionately exposed to or deliberately targeted for environmental harm.³⁴ Examples of environmental racism are diverse and varied: to name just a few, there are the petrochemical processing facilities that share fence lines with historically African American communities in Louisiana; the overwhelming tendency of toxic waste facilities to be located in and near African American, Latino, Asian American, and Native communities; and the “food deserts” in inner cities, where fresh produce cannot be found for miles.³⁵ The basic premise behind environmental justice as a social movement and as a field of academic inquiry is that our growing environmental problems—polluted air, water, soil, changing climate, accelerating industrialism, and so on—are disproportionately born by racially and economically marginalized communities both in the United States and globally and moreover that these marginalized communities are often targeted for environmental degradation.³⁶

Feminist scholars hasten to add that even within these marginalized communities, environmental problems tend to be borne differently by women than men.³⁷ Women occupy the socially constructed role of caretakers; women are most likely to live in poverty, to experience hunger, and to bear the financial and care responsibilities for children and elderly or sick family members. Women are also often most likely to be in close contact with environmental resources: they haul water, grow and cook food, and wash clothes. By virtue of this close contact, women can be seen as “the first environment,” not as essentialized Mother Earth but rather as occupants of

socially constructed roles in the home and family that often place them in a unique relationship to environmental ills.³⁸ Women's exposure to toxins in the domestic sphere, moreover, illustrates the unbounded ways in which toxins move between industry and home. In the case of uranium mining, women were exposed to radioactive and chemical toxins from the mines and mills when workers came home wearing contaminated clothes. Women also worked in the mines, lived in hot homes built with radioactive tailings, and bore severe economic hardship when their husbands were hospitalized and later died of radiation-related diseases. The widows of uranium workers became the first and often most effective activists against mining when the adverse health effects of the industry began to take shape, reflecting a larger pattern in environmental justice organizing in which women often make up the majority of participants in environmental justice struggle.³⁹

Although scholars of environmental justice studies most often focus on contemporary (post-1982) examples of environmental injustice,⁴⁰ Native Americans are quick to note that the tendency of those in power to exert their power by manipulating resources and degrading the natural environment is something with which colonized people are all too familiar; in fact, "the most workable date for the founding of the Native [environmental justice] movement . . . is 1492."⁴¹ This close relationship between environmental justice and Native Americans derives from the similarly close relationship between environmental racism and settler colonialism. Settler colonialism is a distinct form of colonial power, with a very particular relationship to resources and land. Whereas we might think of colonialism as tending to be mainly invested in the extraction of resources—labor, goods, or raw materials—for the benefit of a metropole, or colonizing home country, settler colonialism adds a layer of complexity: it is a form of colonial power that involves the settler making a home in a land that is already home to indigenous peoples. To quote Deborah Bird Rose, indigenous peoples "got in the way" of settler colonialism "just by staying at home," because *home* is precisely what the settler colonial state seeks to occupy and remake.⁴² Remaking Native land as settler home involves the exploitation of environmental resources, to be sure, but it also involves a deeply complex construction of that land as either always already belonging to the settler—his manifest destiny—or as undesirable, unproductive, or unappealing; in short, as wasteland.

No one driving down the curvy switchbacks of Narbona Pass would be particularly inclined to think of Navajo country as wasteland—or even desert. Carving through the verdant Chuska Mountains just on the New Mexico side of the New Mexico–Arizona state line, Narbona Pass links the towns of Crystal, on the east side of the Chuskas, with Sheep Springs, on

the west. The Chuskas here are a rich palette of mauve and burgundy, sage and peridot green. The air is thick with the piney smell of evergreens, and the air is sharp and cool even in the summer months. The Chuskas are the heart of Diné forest resources, and Narbona Pass puts these resources on full display.⁴³ The rich woodlands of the pass speak neither to the long-standing image of Diné Bikéyah as austere desert country nor to the underlying conditions of drought, water shortage, and tree death (from foresting, global climate change, and invasive species) with which the Diné have been contending.⁴⁴ The realities of environmental conditions, and the complex relationships of the Diné to their environment, are made invisible in settler discourses that construct this land as unqualified desert country or claim that it is “empty except for Indians.”

In this book, I argue that the history of the uranium industry on and near Diné Bikéyah demonstrates how landscapes of extraction are, to borrow from geographer Gillian Rose, forms of representation as well as empirical objects.⁴⁵ Notions of Navajo country as “uninhabited” wasteland create a representational criterion by which ideas about the land have been formed. When prospectors, mining companies, and the Atomic Energy Commission (AEC) identified the Four Corners area as what one newspaper called “the scenic topsoil of America’s vast energy storehouse,”⁴⁶ extractive industrialism was naturalized as indigenous to the landscape itself, and indigenous inhabitants of the land were placed under erasure to be “always disappearing” in the face of settler colonialism’s advance.⁴⁷ The land, occupied and claimed by tribes, with its own unique sets of ecological conditions and realities, ceased to be an empirical object—the material conditions of Narbona Pass, with its shimmering greens and crisp air, is forgotten in favor of an interpellation of Navajo country writ large as wasteland. This book is a history of contested representations of landscapes, representations that produce starkly urgent material conditions with high stakes for humans, animals, air, water, and earth. Following Valerie Kuletz, who argues that deserts are targeted for environmentally destructive industries because they are understood as worthless in a Euro-American worldview, I explore the mapping of Navajo land and, by extension, other kinds of lands rendered pollutable through discourses of race, gender, class, and/or sexual difference as “wasteland.” The wasteland discourse, as Kuletz framed it, is a current in the American environmental imagination that sees deserts as threatening, marginal, and—revealing the distinctly gendered framework of this marginalization—“barren” places predisposed to what she calls deterritorialization.⁴⁸

Environmental sociologists have outlined the ways in which environmental problems in the context of contemporary industrialism (the post-World

War II period of “late modernity”) are imbricated in a treadmill of production, in which extraction of raw materials and dumping of material waste are expanding with markets, often exponentially.⁴⁹ The treadmill requires “wastelands” from which resources are increasingly extracted and where (often toxic) waste is increasingly dumped. Patterns of environmental racism tell us that race has become a primary way by which those landscapes of extraction and pollution are marked as racialized spaces excluded from or ignored by the regulatory protection of the state.⁵⁰ Because environmental inequality is an inherent feature of the way in which industrialism operates contemporarily—raw materials for products, after all, must come from somewhere, and toxic waste must go somewhere—the wasteland is the “other” through which the treadmill of production is constituted. In this way, just as civilization has been constituted on and through savagery, environmental privilege is made out of the discursive process of rendering a space marginal, worthless, and pollutable.⁵¹ This produces a strong relationality between environmental injustice and environmental privilege as mutually constituted phenomena. For the energy industry in the United States, which has been disproportionately reliant on indigenous resources,⁵² the extraction of energy’s raw materials (uranium, coal, oil, natural gas, water, and, increasingly, wind and sunshine) has devastated Native lands while Native people often benefit the least in terms of economic development and cheap energy—a phenomenon that can be shorthanded as energy injustice.⁵³ Here, the treadmill of production can quite clearly be seen as being built on and through the degradation of Native land and life; as one Diné resident of Black Mesa noted, “Somewhere far away from us, people have no understanding that their demand for cheap electricity, air conditioning and lights twenty-four hours a day have contributed to the imbalance of this very delicate place.”⁵⁴ To put it another way: if, as historian Ned Blackhawk has argued, the indigenous body in pain is the ultimate symbol of colonial progress and modernity, indigenous land laid waste is its territorial corollary.⁵⁵

I call this process *wastelanding*.

Wastelanding, I argue, has been a key and underexplored component of environmental racism. The “wasteland” is a racial and a spatial signifier that renders an environment and the bodies that inhabit it pollutable.⁵⁶ The problem of land laid waste is complicated by the fact that environmental degradation is not only relegated to lands that Americans find aesthetically distasteful; quite to the contrary, while we find radioactive tailings piles in the desert, we also find leaking barrels of Agent Orange on Bahamian beaches, dioxin-releasing copper mines near the shores of the Great Lakes, and strip mines in the rainforests of South America.⁵⁷ Thus, it is not only a

matter of a Euro-American distaste for dusty arid locales that renders deserts “wastelands” but rather a condition in which even the most marvelously abundant of jungle-scapes can come to be seen as just so much waste of space. This book, therefore, argues that colonial epistemologies do not just look on deserts as wastelands but that wastelands of many kinds are constituted through racial and spatial politics that render certain bodies and landscapes pollutable. Wastelanding builds on Kuletz’s “wasteland discourse” to explore how this convergence of discourse and space has been deployed in multiple contexts, including nondesert landscapes, and how environmental racism can be theorized at multiple scales.

Wastelanding takes two primary forms: the assumption that nonwhite lands are valueless, or valuable only for what can be mined from beneath them, and the subsequent devastation of those very environs by polluting industries. Hydroelectric dams in James Bay, Canada, for instance, would, according to the National Audubon Society, “‘make James Bay and some of Hudson’s [*sic*] Bay uninhabitable for much of the wildlife dependent on it.’”⁵⁸ This very pollution results in the common designation of wastelanded spaces, including those of the uranium industry on Diné land, as “sacrifice” zones. As sacrificial lands, these landscapes of extraction allow industrial modernity to continue to grow and make profits. In scholarly parlance, these two forms of wastelanding can be termed *social construction* and *reification*: first, a culturally agreed-upon logic that derives from taken-for-granted categories of difference, which we then understand as natural and common sense, and second, the process of materializing, of making real, or of acting on those constructions.⁵⁹ Wastelanding reifies—it makes real, material, lived—what might otherwise be only discursive. Like race, which is a social construction made material by the embodied consequences of racism (threats and acts of violence, foreshortened life expectancy, incarceration, under and uncompensated labor, inequalities in wealth accrument, and so on), ideas about the value of environments are manifested by the material consequences of environmental destruction (or, in the inverse, by environmental protection⁶⁰). Patterns of environmental racism make clear the connections between race and wastelanding. Race and space are connected through a social construction of difference that becomes spatialized through segregation and unequal distribution of resources. As Allan Pred puts it, through racism, “The socially barred become locationally removed from opportunity-yielding social, economic, and political networks.” By a “feat of ontological magic,” the “idea-logics of cultural racism are—abracadabra, hocus-pocus, simsabalim—concretized.”⁶¹ Wastelanding is a primary one of these “feat[s] of ontological magic,” wherein racialized lands are made to seem uninhabited or unimportantly inhabited, represented as

worthless, and then—"abracadabra, hocus-pocus"—systematically stripped of their material and ideological worth.

Nuclearism makes a fitting site to study wastelanding because it is so clearly a multiscalar problem. Radiation is spatially multiscalar, with impacts that can be measured at the bodily, the ecosystemic, or the planetary level; it holds potential to change our very cells or affect the ways in which organs change over time. Its effects can be traced from the subatomic to the ecosystemic and everything in between (from cells and organs to sheep and corn). It can be as unimaginably small as the split nucleus or as nightmarishly large as the mushroom cloud. Likewise, nuclearism is temporally multiscalar: its impacts range from the moment an explosion initiates a nuclear chain reaction, to the tedious process of a miner chipping away at an ore body, to the limits of the human temporal imagination (uranium 238, for example, uranium's most common isotope and the one that is used to produce plutonium, has a half-life of 4.46 billion years). Nuclearism's deadliness can manifest in the immediacy and violence of acute radiation exposure or, more commonly, in the slow growth of tumors in lungs and genetic mutations passed down through generations. And because its effects are not always felt immediately, because the causal relationship of radiation to health outcome is a moving and precarious target, and because it is impossible to see, feel, or taste your exposure to radiation, nuclearism triggers human anxiety to an almost incomparable extent. Nuclearism's affective multiscalearity has produced gut-wrenching fear in communities downwind of nuclear test shots, defiant rage in environmental activists, and apocalyptic bravado in the culprits behind the Cold War's mad doctrine of mutually assured destruction. These multiscalar natures of nuclearism—environmental, spatial, temporal, and affective—make it a particularly apt site for exploring wastelanding as a racial and spatial process of signification that makes extreme environmental degradation possible.

Wastelanding, too, is multiscalar: in uranium country, destroying the environment through uranium mining does not just mean destroying the nonhuman world and ecosystems. It means to wasteland, to render pollutable, the lungs, the cells, and the respiratory tracts of everyone involved in the nuclear cycle. It also means to wasteland Navajo worldviews, epistemology, history, and cultural and religious practices. In order for uranium mining to occur on the level it did (and still does), indigenous ways of knowing landscapes and their worth must be themselves rendered pollutable, marginal, unimportant.⁶² To borrow from poet Adrienne Rich, in wastelanding—rendering an environment pollutable in ways that are both ideational and material—"The words are purposes. / The words are maps."⁶³

The Words Are Purposes: The Wasteland as Floating Signifier

On July 4, 2008, I pulled into the town of Kayenta, Arizona, in the northwestern corner of the Navajo Nation, on an empty gas tank. I was less than thirty miles away from where I had stopped on the side of the road to gape open-mouthed at the 200-yard section of the Black Mesa coal conveyor belt visible from Highway 160—a highway, not incidentally, built to usher uranium ore out of Tsé bii'nidziszgai (Monument Valley) and usher tourists in. The coal conveyor stretched forbiddingly across the highway, angling up to a leering tower on the east side of 160. To the west, it cut into the face of Black Mesa, stretching to the mesa's horizon in the oddly linear negative space of cleared trees. Four miles to the west, at the intersections of Indian Route 41, Peabody Coal Company Access Road, and Haulage Road (more inscriptions of resource extraction on the built environment of Navajo country), were the headquarters of the coal mining operation, which I could not see but knew was there from the crinkled topographic map spread out on my passenger seat. Making a sudden turn up a dirt road that sent my dog lurching onto the floorboards in the back of my Jeep, I wasted most of the quarter tank of gas I had left seeking a better angle from which to view this coal mining monolith.

Thirty miles later, I coasted into Kayenta on fumes to fill up my tank at the dusty gas station that presides over the town's single major intersection. Filling a tank with gas, during this particular summer, was an even more politically charged activity than usual, especially in the Navajo Nation, where people regularly drive large pickups long distances over hard roads to fill water tanks, get groceries, visit family, or attend to livestock located in remote parts of the country. During the summer months of 2008, the price for a tank of gas shot up to almost \$5 a gallon; oil companies raked in record profits, and a barrel of oil cost an unprecedented \$145 dollars. Global political-economic forces of resource extraction and transnational corporate capitalism occupied an elephantine presence in every gas station in the continental United States, and this particular 7-Eleven was no exception. That summer the *Navajo Times* was full of articles and editorials that had a central, driving focus: the incapacitating effects of gas prices on the Diné.

This part of Diné Bikéyah is not just home to coal mines but is also a major access point to the western reservation's uranium mine sites, which were abandoned after the climax of the uranium boom and left unreclaimed, with the radioactive guts of the mines exposed nakedly to the surrounding air, earth, water, animals, and human population. The mines in nearby Monument Valley were among the first to be exploited in the early years of the

Manhattan Project, and they left behind some of the most dangerous environmental legacies in the form of uncovered mine shafts, polluted water, and hot homes. During the early uranium booms, Diné workers arrived at these mine sites from across Diné Bikéyah, taking advantage of any opportunity for wage work during decades (the 1940s and the 1950s) when poverty gripped the reservation more than it had since the years after their removal to Bosque Redondo. Navajos tended to prefer jobs in the mines to other options—railroad work or venturing to California as farm laborers—because the mining jobs were close to home. Over the course of the 1940s, 1950s, and 1960s, uranium mining and milling in the western reaches of the reservation dramatically changed the geography of Monument Valley and the area surrounding Kayenta: new roadways were mapped and paved and new bridges built to sustain the traffic of heavy uranium haulers. Entire mesas in Monument Valley were blasted out of existence, and mills operated twenty-four hours a day to transform ore rock into yellowcake.

Not three hours north of Monument Valley, where I gazed at the familiar mesas and buttes with a sense that I had been there before—a symptom of my “imagined intimacy” with this postcard-ready landscape⁶⁴—I arrived in a very different kind of southwestern desert town: Moab, Utah. Here, the gas was just as expensive, but the sheen of a thriving, well-developed tourist destination in the height of the summer season posed a stark contrast to Kayenta, despite the fact that both towns sit in equally striking landscapes, and each has intimate history with the uranium industry. In Moab during the uranium boom years, some of the largest and most famous uranium strikes made this town among the most famous of the Colorado Plateau’s “yellowcake towns.”⁶⁵ In total, three-quarters of all uranium miners during the booms of the 1950s to 1960s were non-Native and worked in mines in yellowcake towns like Moab: Grand Junction and Uravan, Colorado; Marysvale and Monticello, Utah; and so on.⁶⁶ Now, the legacy of uranium is remembered quite differently in these non-Native yellowcake towns than in Kayenta, a difference illustrated perhaps nowhere so clearly as in downtown Moab, where the Uranium Bike Shop hosts racks of high-end mountain bikes and a three-foot-tall graffiti-style mural of its name. Farther along Moab’s Main Street, an antique-looking sign on an office building reads matter-of-factly “Uranium Offices, 11 N. Main,” named thus during the height of the uranium frenzy and left unchanged, presumably, out of nostalgia for those boomtown days.

These two experiences of two very different towns, so closely juxtaposed, would eventually come to frame my own personal take on mine country, how uranium was inscribed on landscapes differently, and how the



FIGURE 4. The Uranium Bike Shop sits near downtown Moab, Utah, illustrating one of the many ways in which the legacy of uranium mining is inscribed on the built environments and political economies of former uranium boomtowns. In this image, the shop's name is painted in a three-foot-tall faux graffiti tag over the display windows. Photo by the author.

radioactive ore came, over time, to acquire very curious meanings. In Kayenta, and in the Navajo Nation in general, uranium is one of a litany of metals and minerals that have been extracted from the land to a devastating extent, leaving behind scarred earth and ongoing environmental health disasters. In Moab and former uranium boomtowns like it, such as Grand Junction, Colorado, mining has assumed an oddly nostalgic affect, a history that lends local flavor to ski areas, camping hot spots, and mountain biking destinations. In and around the Navajo Nation, mining is a very contemporary site of struggle over land, jobs, and sovereignty; in other parts of mine country, it is a colorful narrative of national history, its museums offering tourists an alternative activity on rainy days.

The contrast between Kayenta and Moab suggests that deserts have shifting meanings. These towns, less than 200 miles apart, have radically different histories with energy-extractive industrialism. This difference is, to a large extent, the very unnatural evolution of starkly different political-economic

histories of mining in different places. These different evolutions of pollution and geography in turn suggest that that wastelanding—a racial and spatial signifier that renders landscapes pollutable—is only *incidentally* about deserts. The wasteland, I argue, is a floating signifier in the Western environmental imagination: it does not always have a specific somatic or material referent, but rather it flexibly (floatingly) marks different objects, landscapes, and bodies. Deserts, thus, are not the reason for wastelanding. They are, rather, its frequent but not exclusive target. Just as race is a discursive technology with often deadly material effects, so too is wastelanding the process by which pollutability is materialized.

My explorations of the wasteland are thus very much about race, not only because environmental racism and wastelanding are conceptual intimates, but also because race is a discourse that is only incidentally a referent to different human body types. Just so, wastelanding is a discourse that is only incidentally a referent to different kinds of landscapes (including deserts). Race is quite deeply involved in wastelanding the environments that are deemed resource-rich for settler industrialism, just as certain human bodies are deemed productive reserves of labor (itself a resource) for settler industrialism and rendered exploitable via race. One might go so far as to say that racialized bodies are in many ways themselves wastelanded. Race intersects with the environmental imagination, even as it intersects with gender and sexuality, to produce wastelands: places that are marked, physically and ideologically, for exploitation, resource extraction, and national sacrifice. Just as race is embodied, often violently, despite being in essence strictly a discourse (as I tell my students, race is a *discourse* powerful enough to make *genocide* possible), “wastelanding” is a discourse-made-material through the degradations of targeted environments and their human and nonhuman denizens. It is through this process that even verdant landscapes—or nonlush places that are nonetheless aesthetically pleasing or otherwise fitting for American environmentalist affect—can be rendered pollutable, and desertscapes embraced as protectable. The referent of wastelanding is inconsistent; the outcome is not.

As scholars of ethnic and women’s studies have long pointed out, we can recognize categories of human difference as being socially constructed by the ways in which their meanings change over time, space, and culture. Race, for example, can be recognized as a social construct rather than an expression of essential, or inherent, human difference by the ways in which racial categories are constantly in flux: what it means to be white has changed dramatically over the course of just the twentieth century, often in response to negotiations between legal and cultural constructions of whiteness;⁶⁷ for

Mexicans in the Southwest in the aftermath of the Treaty of Guadalupe Hidalgo, legal race status was tied to citizenship and differed from cultural or “common sense” race status;⁶⁸ for African Americans in the Jim Crow South, race status could change by the simple act of crossing state borders; and so on. As these examples attest, race is not a reflection of essential or innate difference but a malleable structure of feeling and exclusion that organizes populations’ life experiences and outcomes and access to resources. Feminist scholars have likewise demonstrated how gender and sex are social constructions, on the basis of their malleability over time, space, and culture.⁶⁹ The argument here is that social constructions are not always, or even *initially*, about bodies themselves. Race, gender, and sexuality are structures of exploitation that are only most spectacularly about organizing social resources according to types of human bodies. They are an intersecting web that renders exploitable, negligible, and marginal a range of symbolic, psychical, and physical entities—in other words, a multiscalar range of materialities and symbols.⁷⁰ This is how scholars of race come to talk about the myriad things, bodies, ideas, and feelings that can become, as we say, *racialized*: they take on or seem to inhere raciality precisely because race is a discourse made material rather than a materiality made discursive. Bodies can be racialized; so too can voices, ideas, clothes, places, costs of labor, gestures, words, foods, jobs, sexualities, and so on.

If we extend this analysis of the relationship between social construction and materiality to spaces, we can see how wastelanding is not so much about the inherent value of wastelanded places as it is about the *meaning*—social, cultural, ecological, or juridical—that we make out of them. Consider the inner-city “ghetto” that becomes gentrified by upper-middle-class white settlement: the meaning of the space shifts through discursive and material meaning-making practices, as well as racialized and classed repertoires of dispossession and displacement. In that shift in meaning, the “ghetto” moves from being *pollutable* to being *protectable*—from urban wasteland to “Back Yard” (as in, Not in My Back Yard). There is nothing essential or inherent to the urban space itself that invites disdain; the material conditions of the place derive from the hegemonic meaning that is ascribed to it.

Just so, there is nothing about the desert itself that invites disdain, even white Western disdain with its clear cultural preferences for lush and verdant landscapes.⁷¹ This is precisely because that preference is culturally and historically constituted and contingent on the particularities (and peculiarities) of how the white Western environmental imagination has evolved in the “New World.” Environmental historians have pointed out how wilderness

areas, lush forests included, have in the past been understood as distinctly evil locales precisely because they were seemingly uncultivated—"wild"—the same quality that now marks out "wilderness" areas for environmental protection.⁷² Those lush, verdant landscapes have likewise been themselves seen as "Desarts [*sic*]," in the sense of being uncultivated and vacant to the eye of a European settler.⁷³

Deserts as we now understand them have been differentially interpellated as sacred or profane, as *constitutive* of the white masculine settler subject or as his demise. Particularly in the saga of nineteenth-century Western exploration, deserts constituted the geographic barrier to the mythical land of California; no matter what route overland travelers chose to get to California's storied gold mines, beautiful coasts, and rich agricultural lands, they had to first pass through deserts that threatened, and often took, their lives. Thus, deserts came to be imagined as an environmental specter threatening the white masculine settler and the larger project of settlement itself. When John C. Frémont, the Great Pathfinder, looked upon the deserts of the West, he saw them as "'forbidding,' 'inhospitable,' 'desolate,' 'bleak,' 'sterile,' 'dreary,' 'savage,' 'barren,' 'dismal,' 'repulsive,' and 'revolting.'" ⁷⁴ Environmental determinism coupled with biological theories of race meant that the desert tribes were particularly reviled by settlers, their desert lands seemingly evidence of a distinctly savage nature. Deserts as "environments of scarcity" led explorers and settlers to develop a view of desert tribes, in Frémont's words, as "the nearest approach to the mere animal creation."⁷⁵ Ironically, the fact that desert tribes survived—in fact flourished—in "environments of scarcity" in which white settlers so struggled could have been evidence, by the same racist (il)logic, of the tribes' superiority rather than inferiority, an excellent example of the ways in which, when it comes to social constructions, "logic is in the eyes of the logician."⁷⁶

As the desert came to be incorporated in the American environmental imagination, however, it came to acquire a range of cultural meanings, not all of them negative. When John Muir visited Arizona in 1905 and beheld what is now, thanks in large part to his advocacy, the Petrified Forest National Park, he included this desert-scape as part of the sacred "wilderness" that helped to constitute the Progressive-era American preservationist (what we now call environmentalist) movement. This category of protected wilderness had, until that point, largely revolved around mountainous, or at least *green*, landscapes that more closely fit American aesthetics of the wild places of the Western continent. With that, the American environmental imagination began to see deserts as protectable wilderness, too, a trend that grew as arid canyon country, particularly the Grand Canyon, became a centerpiece of environmental tourism and wilderness conservation legislation.

The Canyon, in particular, went in a very short space of time from “an ‘unprofitable locale’ to the ‘sublimest thing on earth.’”⁷⁷

The image of deserts changed most dramatically, perhaps, during the mid-twentieth century, as cultural representations of the “frontier” and “winning the west” centered on narratives that, quite often, took place in desert locales, thanks in large part to the rise of the Hollywood western.⁷⁸ Picture a pair of Old West gunslingers headed into a saloon, and your imagination will more than likely call up a dusty town scene in the middle of desert country, a place surrounded by sagebrush, piñon pines, and craggy mountain passes—a place, in short, “no more specific than ‘the Southwest.’”⁷⁹ If these narratives are part of what “America” now means, then we can rightly say that the settler state has grounded itself in the desert Southwest, making the desert central to how we understand our history and ourselves. During the uranium booms, in which uranium was closely conflated with nothing less than the very survival of the nation-state, the nation was, materially and ideologically, remaking itself through the resources of desert country.

In Monument Valley, just outside of Kayenta, the valorization and degradation of the desert occurred simultaneously in the 1940s and 1950s; even as film crews shot the westerns that would underscore white Americans’ collective “imagined intimacy” with this part of Navajo country as the symbolic setting for their imagined community, uranium companies were busily blasting its famous red mesas into nonexistence for the uranium encased inside. This simultaneity of valorization and degradation is perhaps symbolized nowhere so well as in the story of Monument Valley’s Cly family, told in the 2000 documentary film *The Return of Navajo Boy*. The Cly family was first captured on film in the 1950s by director Robert J. Kennedy, who depicted them herding sheep, weaving Navajo rugs, and cooking meals outside of their hogan. Kennedy’s work, however, made no reference to the enormous changes under way for Monument Valley Diné in the 1950s, Clys included, coming from both the film and the uranium industries. Over the course of subsequent decades, the Cly family came to embody those changes: the family’s matriarch, Happy Cly, once described as “the most-photographed woman in America” for the widely circulated postcards bearing her image,⁸⁰ died of lung disease in 1960, which her family attributed to nearby uranium mines.⁸¹ Upon her death, her youngest grandchild was adopted away from his family in what the Clys thought would be temporary missionary foster care. The child was never returned, and his connection to his family serves as the primary emotional draw of the film. (His eventual return to them as an adult, moreover, gives the film its name.)

That youngest son bears an uncanny name: John Wayne Cly, a name given him by John Wayne himself while the actor was in the valley on one

of his several film shoots. John Wayne Cly grew up on and near the reservation, working, among other wage work, in uranium mines, before finally finding his family again in Monument Valley—a family much changed by the environmental health problems attendant with unregulated uranium mining.⁸² The Clys were thus multiply marked by settler colonialism: they witnessed the death of family members from radiation-related diseases, were archived in photography and film as archetypal western “Indians,” and lost a child—named after an American icon in an iconic American landscape—to the assimilative practice of adopting out Native children to white families. *The Return of Navajo Boy*, therefore, tells a story of the multiscalar implications of the uranium industry within a larger context of settler colonialism, reflecting the powerfully complex interweavings of the colonial, familial, bodily, and ecosystemic causes and consequences of resource extraction for nuclearism in desert country.

Deserts, clearly, are more complex than mere wastelands: they are home to both John Wayne and John Wayne Cly, home to Kayenta’s unregulated mine sites and Moab’s Uranium Bike Shop. Wastelands, in turn, are floating signifiers deeply joined to race, class, gender, sexuality, and coloniality in their demarcation of spaces as pollutable.

The Words Are Maps: Colonial Cartographies, Borderlands, and the Production of Justice

In 1955, in the midst of a booming uranium rush in the northeastern part of the state, the New Mexico State Mapping Agency released its annual report. The cover bore an image of a plane hauling away a mountain and leaving behind a smooth, flat topographic map—in effect doing away with nature in favor of charts. The image serves as a powerful representation of the false universalism of modern colonial episteme, what Donna Haraway calls the “god trick of seeing everything from nowhere,” and a reminder that maps are a powerful means by which states exert control over peripheral spaces, particularly those that are rich in resources.⁸³ In the mid-1950s, when the image was produced, mapping the uncharted domain of the state was a project of critical importance to the state as a whole; mapping projects, after all, were kindled by the desire to locate potentially minable ore deposits, and uranium occupied no small part of that imperative. By 1955, uranium was widely considered the state’s golden ticket into the modern industrial age.

Cartographic practice in the mid-twentieth century was, of course, not a “view from nowhere”; it was a view from deeply embodied—and very specific—perspectives on space. In exploring the evolution of these wasteland discourses in the twentieth century, and how they connect to the

environmental degradations of the uranium industry, my central questions revolve around the subjectivity of dominant cartographic discourses and the construction of Diné Bikéyah as peripheral, distant, marginal, desert, or deserted: “empty except for Indians.” Geography and notions about space have, of course, long been matters “of considerable imperial significance.”⁸⁴ Colonized terrain has been representationally contained and restrained in maps, just as the practice of surveying and cartography, the productive labor of mapping, represents a *repertoire* of colonial action—a practice of power relations.⁸⁵ Central to the work of understanding settler colonialism, then, is the project of explicating the ways in which the production of knowledge about space is historical, social, and deeply laden with power.⁸⁶ Suffice to say: as Ann Laura Stoler calls historians to turn from “archive-as-source to archive-as-subject,” so must those of us who are geographically inclined begin to read cartographic discourses as revelations of colonial ontology and technology, as *subjects* of our research and theory, rather than as objective representations of the natural, social, or political world.⁸⁷

In the Southwest, cartographic discourses and articulations of territoriality are deeply complex. This region is in multiple senses spatially and ideologically liminal—in other words, it is a borderland. The history of uranium mining aptly illustrates this liminality: uranium country is simultaneously Navajo country, which, more often than not, is also claimed by Pueblo nations, by Nuevomexicano land grant communities, and by multiple state and federal agencies. Uranium mining, moreover, has existed at multiple kinds of ideological or affective borders. As such, each chapter of the book addresses spatiality and borderlands in a different way. In chapter 1, I explore how the pre-uranium mining history of federal relations to the Diné constituted a kind of economic borderland: during the period of livestock reduction in the 1930s, in which Diné herds were “reduced” (a euphemism, often, for slaughter) by tens of thousands, Navajo poverty was treated as a result of what was deemed irrational land use. The Navajos came to be seen as occupying the space between rational conservation practice and abject poverty during a time when both conservation and poverty were crucial concerns for Americans in general. During this period, the Navajo herd owner as a “social problem” constituted a grim counterpoint to the trope of the “ecological Indian,” and Diné poverty was seen as the direct result of the tribe’s failure to understand its land base and resources.

Chapter 2 explores the early years of the uranium boom, looking to the ways in which uranium in the Southwest seemed to constitute a *temporal* borderland between the anachronistic past and the technological (nuclear) future. As *Time* magazine so artfully put it in 1952, “For years, the parched, mountainous wastelands of the Colorado Plateau were known for their scattering of dinosaur bones and the ruined homes of prehistoric cliff-dwelling

Indians. But now the area is known for something far more important: uranium.”⁸⁸ Crediting uranium with creating what the magazine called “the wasteland’s glorious new reputation,” this kind of rhetoric created a tension between the anachronistic space of “dinosaur bones” and “pre-historic cliff-dwelling Indians” and the “far more important” technological futurity promised by uranium.⁸⁹ Similarly, chapter 3 explores how the Diné and other southwestern tribes were placed, often through little or no action of their own, in a position of manning this temporal borderland between past and future—ushering in the uranium booms of the future and then quietly disappearing into the past. This chapter also traces the transmogrification of Diné country from “waterless, worthless waste” to spectacular tourist attraction and star of the Hollywood western, making it a kind of *affective* borderland between cowboy and Indian (self and other) in the U.S. popular imagination.

In chapter 4, I examine the ways in which the spatiality of risk in Diné Bikéyah shattered the imagined division between public and private in the uranium wage economy. Despite the fact that uranium companies and other industrialists touted the importance of wage work in assimilating Navajo workers (in large part because wage work was predicated on normative gender roles and binary gender spheres—men laborers in the uranium mines bringing wages home to wives and children), the impacts of uranium in the 1960s and 1970s increasingly obviated such a division between public and private spaces. The risks of radiation crossed the borders between industrial and domestic spheres, violating that public/private “fiction of gender.”⁹⁰ By the late 1960s, when more than 200 Diné miners and millers had died of radiation-related diseases, women and children were also beginning to experience the adverse health effects of the industry; their appeals to industry and government for compensation, moreover, were largely denied or ignored because radiation risk was officially understood to end at the borders of the work site.⁹¹ Thus women’s activism for environmental justice has revolved in large part around counter-mapping, or using maps “to delineate and formalize claims to . . . territories and resources,” in two senses: counter-mapping their claims to land taken over by the uranium industry, and counter-mapping the transboundary nature of radiation’s risk.⁹²

In chapters 5 and 6, I follow the general geographic trend that the uranium industry took beginning in the late 1960s: off of the reservation proper to the eastern reaches of Diné Bikéyah near Tsoodzil (Mount Taylor). Uranium activity in other parts of Diné Bikéyah slowly ground to a halt in the latter half of this decade; all mines in Monument Valley were closed by 1968. The East Reservation Lease mines in the Carrizo Mountains were closed by 1967. The Kerr McGee Shiprock mill shut down in 1968,

leaving behind a fearsome amount of radioactive tailings directly adjacent to the reservation's largest population center. The land of northwestern New Mexico, just to the east of the Navajo Nation border, was easily the largest producer of uranium in the United States. Despite being outside of the official boundaries of Navajo Nation, it is quite clearly Navajo country, home to multiple Navajo communities and central to Diné world-views and history. Adding to its analytic and material complexity, this area is also claimed by multiple Pueblos, Nuevomexicano land grant communities, ranchers, and federal and state land management agencies.

In moving from west to east, the uranium industry, and by extension the narrative trajectory of this book, goes against the way that Navajos most often articulate geographical knowledge. Although each of the four cardinal directions are crucial to Diné geography (as represented by the four sacred mountains), "east is the direction Navajos emphasize."⁹³ Hogans, six- or eight-sided Navajo homes, have one eastern-facing door; and more often than not, Diné creation stories often begin in the east.⁹⁴ When Navajos list the four sacred mountains, they generally begin in the east with Tsisnaajinii (Blanca Peak) and then move south, west, and end in the north. The uranium industry, perhaps fittingly given its deeply destructive relationship to the Diné, goes against this geographical grain, moving from the early mines in Monument Valley, to the Carrizo Mountains near the Arizona–New Mexico state line, to Shiprock, to the eastern reaches of Diné Bikéyah in the area surrounding Tsoodzil. Just as east to west is important, so too is below to above. While Diné geographies are generally oriented east, then south, then west and north, they also emphasize emerging into this world from worlds below. Here, too, the uranium industry has inverted Diné geographies: uranium deposits were, more often than not, discovered via aerial surveys of the land, and cartographic practice in the twentieth century in general relied heavily on views of the land from above, as did the New Mexico State Mapping Agency in its 1955 cover. This book is thus, in large part, a project of mapping out these conflicting perspectives on landscapes as they emerge in the history of uranium mining, all the while keeping a close eye on what is at stake when toxins meet tissues.

Mines that remain to be sufficiently cleaned up are called, poetically enough, "legacy mines." On the Navajo Nation, this designation gestures to the larger colonial imaginary in which the history of uranium mining is entrenched. The "legacy" of these mines comes to be tangled up with pollution, environmental decline, and the material and ideological deprecations of race as it is constructed and practiced under conditions of ongoing settler colonialism. The "legacy" of mining in Navajo country and elsewhere might indeed stand in for what race scholars have called the

“sedimentation” of racism over time, which occurs when inequalities and privileges alike accrue over time in ways that compound, rather than alleviate, the effects of racism in social structures.⁹⁵ It is an appropriately material metaphor. As legacies and sedimentations do, mining has come to shape the *affect* of power relations between colonizer and colonized; it has shaped the experiences, bodily health, and life expectancy of the Diné long after the problem should have been rectified; and it has altered the very landscape, real and ideological, of Diné Bikéyah. The wasteland, desert or otherwise, becomes a place where pollution and environmental degradation collect, settle, and form sediment that makes a lasting impact on human and nonhuman bodies. Likewise, wasteland discourses collect and sediment to give shape to power relations between peoples and geographies, creating a highly spatialized set of power relations that invoke place as well as race.⁹⁶

This book contends that settler colonialism is so deeply about resources that environmental injustices, whether on Native lands or lands of other others, must always be viewed through the lens of settler colonialism. While the connections between the two forms of power are various, the body is a good place to start—just as race and racial power are organized at the level of the body, so too are the functions of environmental violence.⁹⁷ Theorizing environmental justice at the level of settler colonialism, slavery, for example, can be seen as the degradation of the racialized environment of the body, the radical devaluation of the resource of black labor for colonial economies, and directly tied to contemporary manifestations of the ways in which blackness is racialized (for example, the structural and cultural ghettoization of urban communities, subjection of the black body to environmental violence and sanctioned state violence, as well as the more commonly cited cases of environmental racism, such as the disproportionate siting of toxic waste dumps or petrochemical plants in black communities). All of these manifestations derive from the bodily or material effects of racialization and speak to the ways in which “race” can be seen as an arbiter of resources, if resources are defined as ranging from access to clean air, water, and food to clean jobs, state services, community self-determination, or even what sociologist Avery Gordon calls complex personhood.⁹⁸ In the context of extreme and ongoing environmental violence, decolonization cannot be imagined outside of environmental justice, and vice versa. They are twinned projects. I argue in this book that, although uranium mining provides a powerful, and pulsing, explication of the twinned interests of environmental justice and decolonization, it is but one piece of a much larger system of power relations.

This is not such a radical leap. The study of environmental injustice is the study of race, resources, and power and their intersections with gender

and sexuality. Although the context for many studies of environmental justice cases is temporally and geographically local out of necessity, as these struggles are born of life-and-death urgency in local communities, most derive from a larger context of colonial power relations. While the degradation of the natural world has been a constitutive component of modern capitalist economies, race has been a central technology by which that degradation has occurred.⁹⁹ By the same token, race is and has often been performed through environmental degradation. The raciality of Natives in the “New World,” for example, was marked precisely through the desire for resources and through the mythic degradation of the imagined Native body (“animallike,” hyper- or asexualized, unclean, monstrous, “red”).¹⁰⁰ What followed was actual degradation of real Native bodies: rape, mutilation (often sexualized), mass slaughter, military aggression, and so on. Native encounters with settler colonialism are so deeply entangled with environment and resources that even the phrase “environmental racism” can seem to lose all meaning in a tribal context, quite simply because “racism” has *always* meant environmental violence for Native peoples. The desire for indigenous resources is the primary way in which colonialism marks the indigeneity, whether the desired resources are the land of the North American continent, or uranium, oil, and natural gas, or more intangible resources like Native spiritual and cultural practices (here, think of “resources” as dream catchers, Blessing Way ceremonies, hippie beads, hipster headdresses, and the myriad other ways in which non-Natives have sought to constitute whiteness through “playing Indian”¹⁰¹). In Patrick Wolfe’s estimation, “Whatever settlers may say—and they generally have a lot to say—the primary motive for [genocide] is not race (or religion, ethnicity, grade of civilization, etc.) but access to territory.” “Territoriality,” he concludes, “is settler colonialism’s specific, irreducible element.”¹⁰² As settler colonialism has progressed in the twentieth and twenty-first centuries, Wolfe’s use of “territory” might helpfully be substituted with “resources,” of which territory is one of many.

Wastelanding is thus a fully colonial project of rendering resources extractable and lands and bodies pollutable, rather than merely a problem of distribution of environmental “bads.” Thanks in no small part to mainstream narratives that posit environmental justice cases as problems of unjust distribution that are best solved through the legal system, environmental justice activists and scholars have had to grapple with a purely juridical model of justice: the notion that, like lawyers in a grand class action lawsuit, scholars and activists offering overwhelming *evidence* of damage and disproportion will lead to the redress of environmental injustice.¹⁰³ This juridical model derives from the deeply liberal notion that justice is the

natural condition of modern political systems and that offering evidence of *injustice* will produce the requisite distributional changes. Andrea Smith calls this kind of reasoning “the liberal myth that the United States was founded on democratic principles . . . rather than a state built on the pillars of capitalism, colonialism, and white supremacy.”¹⁰⁴ This liberal myth denies the reality that, as David Pellow puts it,

The production of social inequalities by race, class, gender, and nation is not an aberration or the result of market failures. Rather, it is evidence of the normal, routine functioning of capitalist economies. Modern market economies are *supposed* to produce social inequalities and environmental inequalities.¹⁰⁵

Environmental justice activists, moreover, are presumed to be concerned merely with the presence of toxins rather than with the larger structures of power that produced these toxins and funneled them into wastelanded communities in the first place. Quite to the contrary, these activists are most often “*not simply* challenging the distribution of toxins within communities of color” but “also challenging the justice of oppressive . . . institutions *themselves*.”¹⁰⁶ In the context of uranium mining, the disproportionate distribution of the uranium industry on Native land can be seen as a deadly component of the larger structures that organize Native relationships to the settler colonial state: heteronormativity, patriarchy, sexual violence, racism, land dispossession, and resource exploitation. Doing environmental justice work in this way calls into question not only the unjust distribution of environmental harm but also the capacity of the settler colonial state—“a state built on the pillars of capitalism, colonialism, and white supremacy”—to create and distribute more acceptable kinds of rights.¹⁰⁷

The distributive model of justice operates from the kind of “theory of change” that imagines an impossible future: one *with* the environmental contamination built into the modern risk society distributed along “just” lines (to each according to their consumption).¹⁰⁸ This world is impossible because modern forms of capitalism, industrialism, and environmental contamination cannot exist without technologies of racial and colonial domination. Put simply, the treadmill of production relies on artificially cheapened resources and labor—artificially cheapened through the discourses of race, class, gender, and coloniality.¹⁰⁹ Thus, the distribution of toxins is merely the *signifier* of the foundational, enabling modalities of modernity: “capitalism, colonialism, and white supremacy.”¹¹⁰ To ask for “just” distribution of industrial pollution, waste sites, mines, unsustainable and toxic labor, and so on, is not to ask for redistribution but rather to ask for modernity to throw up its hands and dismantle itself.¹¹¹ This kind of

rearticulation of the distributive model has been shorthand by environmental justice activists as a move from the politics of NIMBY (Not In My Back Yard) to the politics of NOPE (Not On Planet Earth);¹¹² Winona LaDuke perhaps said it best: “we don’t want a bigger piece of the pie. We want a different pie.”

Approaching environmental justice at the level of settler colonialism rather than distribution changes the nature of what we mean by *justice* and *injustice*. If the injustice in question is primarily articulated as being about problems of distribution, “justice” is limited to the fictive notion that redistribution of environmental harm solves the problem of environmental racism. Quite to the contrary, a state that has structurally excluded populations of color, the queer, immigrants, and others is not compatible with meting out justice for those communities, precisely because it is constituted on and through their exclusion.¹¹³ These others, as Charles Mills puts it, “mark the limits of the sovereign’s full responsibilities”; in other words, they come to inhabit the sovereign’s borderlands.¹¹⁴ By extension, industrialized capitalism cannot function without designating landscapes pollutable. The exclusion of wastelanded geographies from state protection and the structural reliance on the treadmill of production combine to make the settler state a likewise unfavorable source of justice for nonhuman nature.

Environmental justice holds potential for helping us rethink and remap these questions of justice and injustice outside of the frame of rights discourse because of the transformative ways in which it theorizes *environment* as wherever humans “live, work, play, and pray” and *environmentalism* as a political practice deeply invested in class, race, and gender justice. This kind of analysis moves environmental justice studies, particularly studies of environmental injustice on Native land, to a more complex understanding of nature and justice in the past, present, and future of settler colonialism. It is precisely this more complex understanding of nature and justice that this book seeks to engage. In looking closely at the representations of the territory on which settler colonialism is grounded, we find, more often than not, wastelanding at work. Through wastelanding, the logic of settler colonialism denies that its “wastelands” could be sacred, could be claimed, could have a history, or could be thought of as home. Instead, to wasteland a space is to defend the notion that the land is, always has been, and always will be “empty except for Indians”: to mark it and make it, ultimately, sacrificial land.

CHAPTER FOUR

Hot Spots

Justice, Power, and Gender
in the Radioactive Present

People got in the way just by staying at home.

—DEBORAH BIRD ROSE, *HIDDEN HISTORIES*, 1991

Land is that physical mass called our bodies.

—CHERRIE MORAGA, *THE LAST GENERATION:
PROSE AND POETRY*, 1993

Washboards and Women's Liberation

On October 18, 1979, pronuclear women across the United States hosted over 4,000 meetings for their neighbors and friends to explain just how vital nuclear power was for women's lives. Called "energy coffees," these meetings featured speakers from the nuclear energy companies and pronuclear lobbying groups who used the meetings to explain the benefits of nuclear energy for American women. This was, as it was dubbed, a national Nuclear Energy Education Day put together by the organization Nuclear Energy Women—a day and a group with very apropos acronyms: NEED and NEW. Taking place just as nationwide protest against the nuclear industry was reaching a fever pitch in the wake of the partial meltdown at Three Mile Island, NEED showcased the industry's best arguments in favor of nuclear power. NEED's pronuclear politics, moreover, seemed to be disproportionately aimed at middle-class women; nuclear power, NEW argued, was a boon to American women's lives. In San Luis Obispo, California, eight women calling themselves the "No Washboard Coalition" did their part to participate in NEED by performing a skit that credited new energy technologies, and particularly nuclear energy, with enabling women

to wash clothes with “modern appliances” rather than with the “back breaking” methods of old. This coalition, like NEW, was made up of women who worked as or were married to employees of nuclear energy companies—but, as one journalist helpfully pointed out, “they all said they wrote the skit without help.”¹ NEED as a whole was the result of a well-financed campaign drawing on an odd interpretation of women’s liberation: “If women want to be free . . . and if women want jobs, then nuclear energy is needed to run the dishwasher and washing machines.”² As antinuclear protest gained momentum throughout the 1980s, NEW carried on with their pronuclear message, using considerable “determination and imagination” to emphasize the relationship between nuclear power and women’s lives.³ In 1983, for example, in an attempt to change the public’s stubborn opinion that irradiated food might be bad for them, NEW members attended a meeting of food editors from national newspapers and served eighteen-day-old irradiated shrimp and mushrooms.⁴

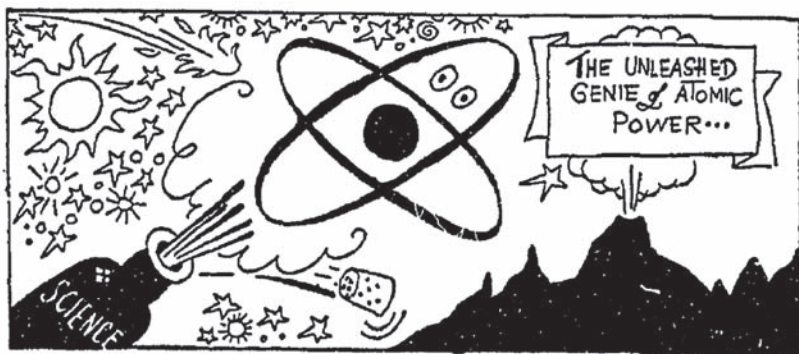
Pronuclear organizations like NEW had their work cut out for them, particularly when it came to framing nuclear power as a means toward women’s liberation. *Antinuclear* politics were part of the platforms of all the major U.S. women’s rights organizations, including the National Organization for Women (NOW) and the League of Women Voters, and nationwide antinuclear protests were characterized, conspicuously, by the leadership and participation of women.⁵ In the 1970s, polls indicated that just over half of U.S. women supported the nuclear industry, compared with 70 percent of men. After the Three Mile Island accident in the spring of 1979, just six months before NEED, the number of pronuclear U.S. women shrank to 30 percent, versus 60 percent of men who were still in favor of nuclear energy.⁶ Whereas the pronuclear lobby eagerly, albeit unsuccessfully, sought support from NOW, the League of Women Voters, as well as major civil rights organizations, it had to settle for support from renowned right-wing organizations such as the John Birch Society and the Ku Klux Klan, both of which espoused pronuclear politics. NOW and the League of Women Voters maintained strong antinuclear positions, despite the best efforts of the pronuclear lobby.⁷ Likewise, feminist publications such as *Ms.* and *Off Our Backs* regularly published feminist critiques of nuclearism and its attendant dangers for women’s health and the environment.⁸ Pronuclear attempts to link women’s liberation to cheap energy missed the mark, to put it mildly; feminists of the time were unlikely to be swayed by an argument stipulating that unequal divisions of labor in the household were fine so long as they were cheap and easy.

The pronuclear lobby’s focus on the need for nuclear energy to run the appliances of suburban white America followed from a shift in AEC

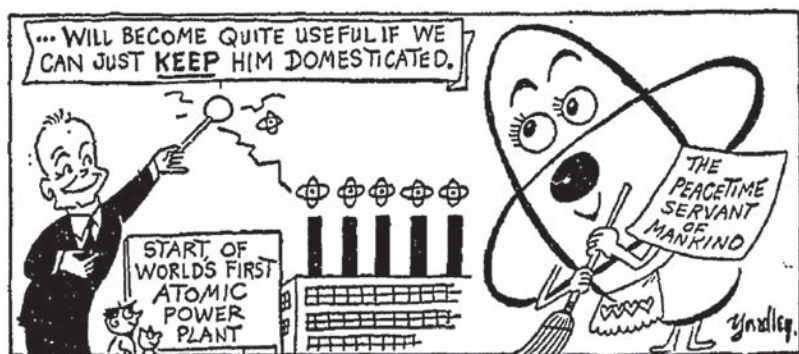
policy and, consequently, a shift in how the atom was imagined as part of American life. As early as 1956, the AEC recognized that the “the foreseeable supply of uranium increased from desperately short . . . to adequate, to surplus.”⁹ Expansion of uranium exploration for the weapons program was no longer necessary; by late 1957, the AEC began to reel back its earlier promises to the uranium industry that the government would continue to buy the ore it was blasting from mine sites across the Colorado Plateau, causing no small amount of consternation among uranium companies. Without the federal government as a guaranteed purchaser, the uranium industry faced collapse. Rather than allowing it to do so, in May 1958, “With the objective of fostering the development and utilization of atomic energy for peaceful purposes,” the AEC announced that miners and millers could sell their uranium on domestic and foreign markets for energy production.¹⁰ With that, they transformed what began as a temporary wartime industry to a potentially permanent energy industry. The atom, moreover, shifted in significance: from bomb to vacuum cleaner, from war zone to kitchen, and from a hot war to a cold one.

An illustrative 1954 political cartoon, “A New Career for Mr. A,” demonstrated the distinctly gendered politics of this shift. In the first panel, “the unleashed genie of atomic power”—an atom—erupts from a bottle labeled simply “Science.” Phallic symbolism abounds as science gives birth to the atom with no help from a mother. In the second panel, Mr. A the atom makes “his debut as a terrifying warrior,” flinging missiles at the earth where humans flee from rising mushroom clouds. In the final panel, however, Mr. A has lost his warrior costume. Now in drag as a housewife, wearing an apron dotted with hearts and demurely batting long eyelashes, the atom’s “new career” in the home will be “quite useful if we can just *keep* him domesticated.”¹¹ In the background, the “world’s first atomic power plant” pumps out the energy that, presumably, powers Mr. A’s home. In the context of the Cold War, the notion of “American superiority” over the Soviets “rested on the ideal of the suburban home, complete with modern appliances and distinct gender roles for family members”—public and private, masculine and feminine.¹² During this period, the “‘model’ home, with a male breadwinner and a full-time female homemaker, adorned with a wide array of consumer goods, represented the essence of American freedom.”¹³ Implicit in this idealized, resource-consumptive home, was a ferocious demand for cheap energy. Nuclear power, in its shift from public warrior to private housekeeper, held the potential to fill just that need.

In short, while the uranium industry employed Native workers as some of the most underpaid and overexposed workers in uranium mines and mills and created massive environmental problems across Diné Bikéyah, nuclear



A New Career for Mr. A.



—Yardley, in the Baltimore Sun

FIGURE 13. "Mr. A." provides an apt illustration of the changeable gender identities ascribed to nuclearism. Nuclearism's transition to energy production in the final panel is reflected by a corresponding feminization of the atom's gender. Richard Yardley, "A New Career for Mr. A.," *Baltimore Sun*, September 14, 1954. Reprinted with permission of The Baltimore Sun Media Group. All Rights Reserved.

public relations campaigns targeted white women as *consumers* of nuclear energy in the home, the beneficiaries of environmental destruction in “other” marginalized parts of the world—a clear case of energy injustice, and a deeply gendered one. In the context of 1970s feminism, the industry framed cheaper energy technology as a means toward the end of women’s liberation (desperately misguided though this interpretation of feminism was). In a speech to the wives of congressmen and diplomats, one speaker framed the priorities between white women energy consumers and the stakes of energy mining and development in stark terms: the speaker “didn’t care where the energy came from . . . but she knew that women needed it to continue to be liberated. If that meant nuclear energy, then so be it.”¹⁴ Tellingly, this liberation of suburban housewives from domestic labor would come about through the degradation of Native environmental and bodily health in and around Diné Bikéyah. In this chapter, I explore the gender politics of uranium mining, looking to the ways in which the proliferation of radiation impacted (and continues to impact) men and women differently; how different gendered ideologies shaped the development of the uranium industry as well as Navajo responses to it; and how Native women organized against uranium mining as an environmentally racist—in fact colonial—imposition on Navajo life and environmental health. In this context, the push to win over white women consumers of energy in the domestic sphere can be seen as predicated, quite clearly, on ongoing colonial impositions in Native gender relations and, in the Diné context, subversions of long-standing Navajo gender egalitarianism.

While gender was an important factor that contributed to ways in which uranium mining and milling played out on Diné Bikéyah, the pronuclear politics of NEW attested to the ways in which gender, and particularly white womanhood, was central to nuclearism in the larger United States. The focus on white women as the most important consumers of nuclear power, picked up by organizations like NEW in the 1970s, was preceded by two decades of approaches to nuclearism that reflected larger gender, sexual, and racial politics involved in the U.S. experience of the nuclear arms race. White women, in fact, had long been central to the ways in which nuclearism was articulated and understood by the U.S. public; throughout the 1950s, these women were considered key parts of the otherwise masculine-dominated uranium and nuclearism story. The episode of *I Love Lucy* in which Lucy discovered a uranium deposit outside of Las Vegas as well as the “Uranium Rush!” children’s board game, both discussed in chapter 2, illustrated the ways in which uranium prospecting was understood, at least in its public image, as a (white) family affair. Manufacturers of prospecting tools and outfits demonstrated the family-centered nature of uranium prospecting by

marketing prospecting suits for the whole heteronormative family, including “Mother’s U-235 suit” and the little girl’s “Diggerette Jr.” outfit (see Figure 14). Throughout uranium country, white women became mascots for the uranium industry and nuclearism in general through local “Miss Atomic Energy” pageants, which marked young white women as the sexualized mascots for the booming uranium industry. The winner of one such pageant in Grand Junction, Colorado, in 1955, surrounded by her “court” of runners-up, was awarded for her win with a crown and a pile of uranium ore.¹⁵ Lucky girl. More famously, in 1957 a Las Vegas dancer named Lee Merlin was “crowned” Miss Atomic Bomb and posed for now-iconic photographs wearing a swimsuit in the shape of a mushroom cloud.¹⁶ The race, class, and gender identities of these uranium mascots, to say nothing of their sexuality, marked a crucial way in which nuclearism was integrated into American life.

American anxieties about nuclearism and its effects on human health and the environment were likewise deeply gendered. Particularly during the 1950s, when the effects of nuclearism were least understood by the public (in large part due to government silence or misinformation on the matter), fears about the potentially apocalyptic outcome of nuclear technology were often assuaged or elided through the use of these gendered mascots—heteronormative, white, pretty, and sexually nonthreatening, like the “Diggerette Jr.” and Miss Atomic Energy, or overtly sexualized, like Las Vegas’s Miss Atomic Bomb. Public fears were also confronted through gender-coded language that feminized anxieties about radiation and atomic bombs. Antinuclear anxieties were regularly downplayed as overly emotional, paranoid, and irrational. Promotional films released by the Department of Defense trivialized fears that radiation was bad for humans and the environment: these were the concerns, the message implied, of irrational women and effete men. As Carol Cohn notes in her investigation of the symbolic language of nuclear militarism, defense intellectuals “portray those who are radically opposed to the nuclear status quo as irrational, unrealistic, too emotional.”¹⁷ In short, they are feminized, seen in opposition to “the smooth, shiny” rationality and objectivity of nuclear (masculine) technocrats.¹⁸ Moreover, AEC and DOD public relations messages argued, nuclear weapons were necessary for achieving the decidedly manly end of protecting the domestic sphere—the home, women, and children—from potential nuclear war with the Soviet Union.

Pronuclear gendered rhetoric shifted from protecting a white U.S. domestic sphere from hypothetical Soviet aggression to the power plant as a technology that would service that same domestic sphere’s growing demand for electricity. In 1966, in an apt demonstration of the shift from government bombs to private energy industry, the Connecticut Yankee Atomic



FIGURE 14. As uranium mining boomed in the Southwest, a marketplace of prospecting gear rose to sell products to would-be prospectors. In this 1955 *Life Magazine* photograph titled “The Nuclear Family,” prospecting is portrayed as an activity for the whole family, with a “Diggerette Jr.” suit for the young girl and a “U-235” suit for the mother. “As Thousands Go Prospecting, a New Industry Outfits Them,” *Life Magazine*, May 1955. Photograph by Nina Leen. Courtesy of Getty Images.

Power Company produced a ten-minute film designed to frame the need for nuclear power in terms of women's domestic energy consumption. The film, *The Atom and Eve*, opens with a montage of images of white women—Eves, all—using domestic appliances, with a “virtually uncontainable desire” for these energy-hungry machines, while the deep voice of the narrator intones, “Eve and thousands of Eves like her live in truly an electrical Garden of Eden.”¹⁹ This “electrical Garden of Eden,” the narrator informs us, requires abundant affordable energy, which would be best provided through nuclearism. There is a direct line between “The Atom and Eve,” the No Washboard Coalition, and NEW's irradiated appetizers: women, as both imagined and real mothers and homemakers and consumers of domestic energy use, came to be a crucial factor in the development of nuclear energy production and consumption.

As uranium production was moving toward private industry for energy production, and as white womanhood helped frame the development of nuclearism from bomb blasts to washing machines, their ideological and real relationships to uranium mines and power plants were enabled by ongoing colonial relationships between the United States and tribes that allowed for excessive and cheapened resource extraction. During the period of uranium mining for first bombs and then energy, federal termination and relocation programs sought to transform the relationship between tribes and the government, placing a heavy emphasis on assimilation through wage work. On reservations, tribes were encouraged to develop their natural resources for private industry as a means of survival outside of the trust relationship and the dependency it had created over the course of the late nineteenth and twentieth centuries.²⁰ Tribes across the country were encouraged to build industrial parks and provide worker-training programs to make themselves attractive to employers.²¹ As E. R. Fryer, the former superintendent of the Navajo reservation who oversaw livestock reduction, put it in 1966, “Indians” were on a “threshold”: “They can either stand on the sidelines of the future, or they can join the mainstream of American economic life and capture for themselves the primary income from development.”²² Gender played a crucial role. As feminists have long noted, the capitalist system of wage work is predicated on a heteropatriarchal family model that emphasizes a gender-dichotomous division of labor: masculine work in the public sphere, feminine work in the private sphere. Though it rarely, if ever, functions in this idealized manner (particularly for families of color, in which women have always had to do public- as well as private-sphere labor), the image of the gender-dichotomous labor system has long undergirded U.S. social and economic policy. Creating gender-dichotomous family relations was integral to promoting industrialism in Diné Bikéyah.

By the early 1960s, bringing industry to the rural Navajo reservation was considered of utmost importance to the future of the Diné. One publication called for New Mexico to become “a showcase for Indian-based industry.” Seventeen different industrial plants were located on or near New Mexico reservations midway through the decade. The Navajo Ordnance Depot in Bellemont, Arizona, long the only significant manufacturing plant on or near the reservation, was joined by plants owned by Babyline Furniture Company, Cardinal Plastics, Navajo Concrete, Armex Corporation, Westward Coach, Fairchild Camera and Instrument Corporation, and General Dynamics Corporation, as well as a number of smaller manufacturing operations.²³ In these plants, Navajos went to work assembling products ranging from tennis shoes to cribs to campers. The Navajo Tribe itself paid for most of the site development, construction, and worker training for these facilities, hoping for the kind of economic growth that would “prove that their reservation could be a viable place to live, not only socially but economically.”²⁴ Most of the companies, however, closed up shop as soon as tribal subsidies expired.²⁵ In addition, the actual employment record for these industries reveals that attracting industry did not link to steady employment for Navajos; one report indicates that in 1966, only 680 of the state’s more than 56,000 Natives were working in these and similar plants.²⁶ Navajo unemployment remained high, reaching 32 percent in 1967, compared with 4 percent of the United States as a whole.²⁷ This was not for lack of desire to work on the part of the Diné, as evidenced by the workers’ own engagement with wage labor. Diné workers and their families often interpreted their relationship to labor in terms of “how well they conducted their lives according to the teaching of their elders,” in sharp contrast to how their bosses might have understood the role of wage work for the Navajos.²⁸

Despite these efforts on the part of the federal government, business interests, and the tribe itself to bring a diverse range of manufacturing jobs to the reservation, most of the development on Navajo land was in uranium, oil, gas, and coal extraction.²⁹ Indeed, on the Navajos’ “vast and arid” reservation, “Business men [were] now taking a second look at this apparently empty land” and “preparing bold, new projects to develop timber, coal, water, and other natural resources.”³⁰ By 1960, the Four Corners area was providing \$22 million in mining royalties to the United States and by the middle of the decade, New Mexico was first in the nation in uranium mining, fifth in crude oil and natural gas, and fourth in copper mining.³¹ In all, the state was seventh in the nation in total mineral yield.³² Two major coal contracts, for the Four Corners Power Plant in 1961 and the Peabody Coal Black Mesa coal strip mine in 1964, went on to greatly

impact the Navajo Nation's environmental and economic health for the worse.³³ As noted by historian Peter Iverson, when the Tribal Council signed those contracts, national politics surrounding the coal industry led them to believe that "their coal could only be of value in the immediate future; nuclear power facilities would make the Navajo coal practically obsolete for energy-producing purposes."³⁴

Their belief that nuclear power would mitigate the impact of the coal contracts was bolstered by the shift in AEC policy that allowed uranium to be traded on public energy markets. The uranium industry in New Mexico, in fact, was once again booming: in 1967 alone, the state's uranium production value increased by 17 percent, yielding more than \$13 million.³⁵ The market for yellowcake was booming, and "Claim-staking and exploration-development activities were at a high level throughout the State."³⁶ These moves toward industrial development of the reservation coincided with larger federal moves to terminate the federal-tribal trust relationship and replace federal financial support with wage work on and off reservations. This largely one-sided development of energy resources on Navajo land during the 1960s led to the formation of and Navajo participation in the Council of Energy Resource Tribes (CERT) in the late 1970s, a coalition of more than twenty Native nations working to negotiate fairer leases for their resources and to lobby for increased control for tribal governments from the DOI.³⁷

As coal mines, uranium mills, and manufacturing plants had an increasing presence on the reservation throughout the 1960s, a decade dubbed by Iverson as "years of striving and strife" for the tribe, gender and labor were clear ideological frameworks through which economic development was articulated, a pattern reflected throughout tribal lands in the United States during the 1960s and 1970s.³⁸ These changes had direct material effects on Diné women's status in the tribe. Since the introduction of wage work to the reservation in the 1930s, alongside livestock reduction, Navajo women had become increasingly dependent on husbands, fathers, and other male relatives. Having less economic power in their homes or in the tribe as a whole thus meant that a woman's position in the family was weakened, despite a long history of Diné women being powerful economic and politics actors in Diné life.³⁹ The transition to the wage economy was thus an upheaval to Diné gender roles, even as it degraded the environment and thus challenged the Navajos' ability to continue to be a land-based people. This pattern was repeated for tribes across the United States; oil and gas development, for example, wreaked havoc on women and the environment on Lubicon Lake Cree land in the 1970s, when "ties to the land were ruptured by oil and gas activity," which caused "the traditional economic

base [to be] destroyed.” This in turn interfered with tribal “roles and relationships,” many of which functioned to actively maintain egalitarian gender relations between women and men.⁴⁰ On Navajo land, energy development from uranium, coal, and oil extraction likewise transformed Diné life and social relations, causing Navajo activists, many of them women, to draw links between energy industries, racial and domestic violence, and destruction of the environment. Thus energy injustice during this time functioned in distinctly gendered ways: as energy flowed from Navajo land in a way that destabilized the political and economic power of Diné women, it flowed to non-Native cities to, in part, save middle-class white women from the eventuality that “Instead of appliances wearing out, we will.”⁴¹

Good Navajos: Gender and Labor in “Years of Striving and Strife”

Much of the language of development on Native land in general and Navajo land in particular was implicitly gendered, putting Navajos in the feminized role of making themselves “attractive” to industries and spreading out “the welcome mat” for development.⁴² Navajos who left the reservation for jobs or as part of the government’s relocation program had “cut the cord,” a powerfully suggestive image of reconstituting one’s individuality and manhood through the severing of ties from a feminized homeland.⁴³ Sometimes the gender politics of development were invoked more explicitly; the cover of a 1958 edition of *Albuquerque Progress* featured a Navajo woman, turned away from the camera to look at the workings of Kerr McGee’s uranium ore sampling station at Shiprock. In her arms, she holds a baby in a cradleboard. Her Navajo clothes, a velveteen blouse, full skirt, and heavy concho belt, and the baby’s traditional cradleboard are starkly contrasted against the mill and the ore pile at her feet. The baby stares directly into the camera, his gender implied by the lone headline scrolled across the top of the image: “THE INDIAN: His importance to New Mexico’s economy.” Here, the Diné are temporally gendered: the Diné mother, with her traditional clothes, represents a Navajo past that is marked as both feminine and racially other. The child, on the other hand, gazes at once into the reader’s eyes and into the (industrial) future. “His importance” to the economy lies in his ability, as a masculine waged worker, to transcend his mother and what the magazine calls his “ancient and honorable tribal life.”

The image, according to the magazine, perfectly illustrates a situation in which this “ancient and honorable tribal life . . . stands face-to-face, without intermediary, with the atomic age.” Inside the magazine, another image depicts an elderly Diné woman holding a sleeping child in a cradleboard.

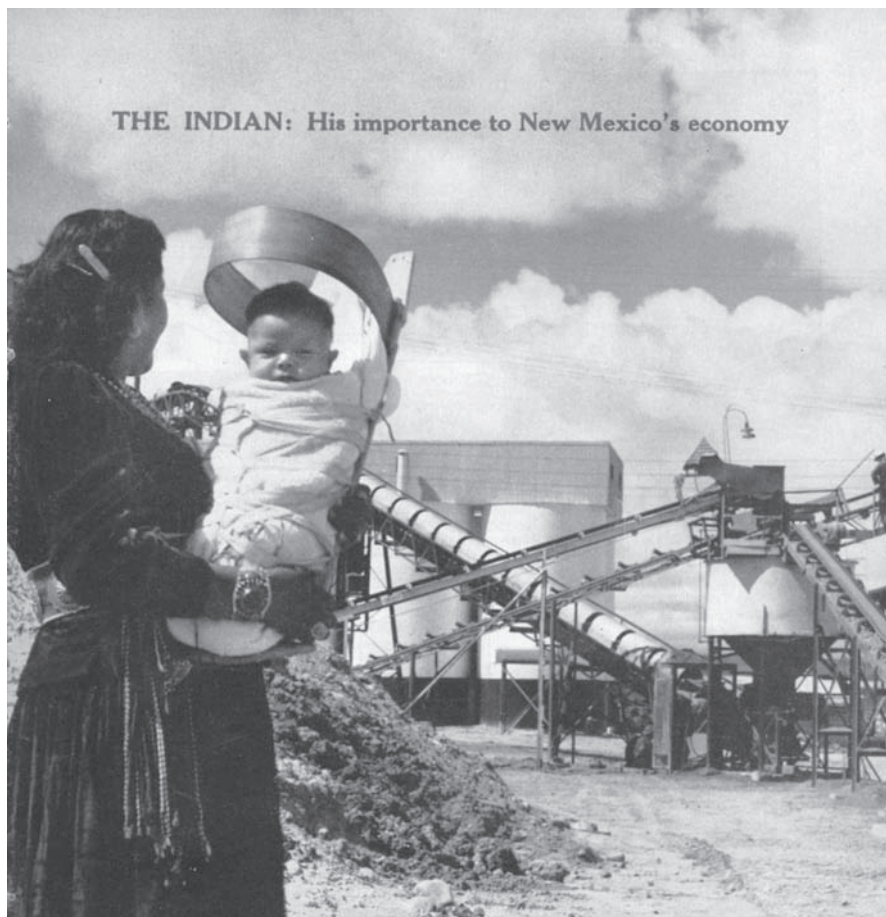


FIGURE 15. A Navajo woman holding an infant in a cradleboard stands in front of a Kerr McGee ore sampling station at Shiprock, New Mexico, where uranium ore was tested before being transported by conveyor belts to the mill. Albuquerque National Bank, "The Indian: His Importance to New Mexico's Economy," *Albuquerque Progress* 25, no. 3 (May–June 1958). Courtesy of The Albuquerque Museum Photoarchives—Albuquerque Progress Collection.

As in the first image, the woman does not look at the camera. Instead, she gazes at the baby in her arms. Here again, the woman and child implicitly represent the gendering of the tribal (feminine) past versus industrial (masculine) future. "Grandmothers of all centuries and of all races," the caption reads, "have always looked at the face of a sleeping child—and wondered what the future held." In both images, Diné women embody the past

even as they find themselves in “face-to-face” conflict with the future represented by Navajo children. The change entailed in this “face-to-face” interaction between tribal life and the atomic age, moreover, is so “profound” that it “cannot take place without bruises to those being changed,” leaving the reader to wonder who exactly, nurturing woman or young child, is to be bruised.⁴⁴

Native feminists have shown the ways in which colonialism has as much to do with domination over gender and sexuality as with domination over land and resources.⁴⁵ As Laura Tohe notes, Navajo women continue to occupy positions of strength and responsibility in the tribe “*Despite* five hundred years of Western patriarchal intrusion.”⁴⁶ Native experiences with settler colonialism, in other words, are intersectional: they combine to compound experiences of oppression for Native women and result in differing experiences of oppression according to varying constructions of gender, sexuality, racialization, and class. Indeed, in the discourse that revolved around industrialism, the manhood of Navajo wageworkers was often constructed as oppositional to Diné women and community life, to the feminized domestic sphere, and to the feminized landscape. Part of developing wage work on the reservation entailed constructing oppositional, binary gender roles, where manhood and masculinity were constituted through the subordination of that which was seen as feminine, domestic, or maternal. The “ontological valorization” of masculinity, wage work, the public sphere, and heteronormative family structures were all inherited in the promotion of industrial development of the reservation.⁴⁷

Rhetoric about economic development on the reservation reveals how race, gender, and community life intersect in the development of industry. In a 1958 report about the status of the “Navajo in the Machine Age,” Arch Napier and Tom Sasaki explored how the Kerr McGee workers in the Shiprock uranium mill disproved common stereotypes, what they call “old generalizations,” about Navajos being unsuited to industrial work. Navajos, they found, could be productive laborers under the right conditions—conditions that revolved almost entirely around subverting Diné gender politics and deemphasizing Navajo community life. As one Kerr McGee statement on its Shiprock mill employees put it:

Our basic approach assumes that the Navajo is an intelligent and resourceful American. If a Navajo has had no previous training or industrial experience, he (like any other job applicant) must necessarily start as a common laborer. If he develops skills or shows aptitude and job interest, his chances of advancement are just as good as they are for any other employee. . . . We have found no field of endeavor in which the Navajo is excluded by any racial trait.⁴⁸

However, Kerr McGee concedes on the topic of “racial traits” that “ceremonies contribute to absenteeism.” Indeed, a large part of the focus of developing industrialism on reservation was in training Native workers in the white work habits of punctuality and consistency. Navajo employees in general, Kerr McGee reported, did not at first understand the need for consistency in showing up for work. As the company observed of workers in its mines in the Lukachukai Mountains, “when Kerr McGee first began mining on the reservation, the turnover of Navajo labor was very high, mainly because many of the men did not easily accept routine,” and only after several years had the mine operation benefited from workers who “appreciated the need for reporting daily to the job.”⁴⁹

Although Kerr McGee primarily understood this problem of absenteeism as arising from Navajos “work[ing] only long enough to satisfy their immediate needs,” ceremonies—what the company called “squaw dances”—were also seen as a primary culprit.⁵⁰ Diné workers often missed work to attend ceremonies in other parts of the reservation, or to attend to a range of other community and family needs. The company had to “carefully explain” “that production must continue without interruption,” which in turn suggested that Navajo employees had to learn to prioritize company profits over community life:

Although they made co-operative employees, they place high value upon their free time and are reluctant to trade it away for extra overtime money. This attitude may change as more and more consumer goods become available in the area, but at this time it offers an interesting field of study.⁵¹

Thus, companies’ insistence that “Indians” “learn such habits as punctuality” was about much more than just transformation of the worker but rather entailed a gendered assimilation of entire Navajo lifeways. This change was not seen as being limited to the worker; quite to the contrary, “Whole families [could] become involved with learning how to budget expenses from payday to payday and to use wisely the increased income” in addition to learning to rely on “more and more consumer goods” rather than subsisting on local agriculture and stock raising.⁵² In one illustrative anecdote, which the authors seem to find endearing rather than troubling, Napier and Sasaki tell of a Navajo worker in the Shiprock mill who was so confounded by Kerr McGee’s policy on absenteeism and so afraid of being replaced that, while his wife was in the hospital, he drove forty miles each way every day from the hospital to the mill to let his supervisors know that he needed to miss his shift. This kind of prioritization of wage work over family responsibilities (and his wife’s health) seemed to provide a

fitting example of what Kerr McGee called a “‘good’ Navajo.” As the company asserted with pride, “If he is a ‘good’ Navajo, we want him to work for Kerr McGee.”⁵³ A “bad” Navajo, we can infer, would be one who chose to miss work or lose his job, causing disruption of the milling process and possibly company profits, in favor of his wife, family, and community.

Over time, it seems, the “good” Navajos were “learning” through “firm administration” that they could not leave work to help “cousins” or spend too much time at “squaw dances.” The emphasis on employees not attending ceremonies (“squaw dances”) is revealing: it both feminized and degraded the importance of ceremonies, and by extension Navajo community and religious life, for the “‘good’ Navajos” who forgo these kinds of ceremonies in favor of wage work. In addition to their religious significance and importance for bodily and spiritual health, multiday ceremonies had long been opportunities for the Diné, a tribe that is often spread out over large swaths of land, to come together and spend important time developing community ties to each other and to their shared history as Diné. These ceremonies are also recognized as opportunities for unmarried Navajos to meet potential romantic partners from other clans. Ceremonies are thus productive in multiple ways: they simultaneously build the nation through family, culture, religion, and commerce. In the Western system of binary conceptual organization, these kinds of ceremonies—shorthand as “squaw dances” with all that the notions of “squaw” and “Indian dances” implied for whites—were very much part of a backgrounded, feminized realm: cultural and *reproductive* rather than economic and *productive*; they intermix the public and private spheres (or, more accurately, they belie that a division between the spheres exists at all); they focus on community life rather than individuality; and they reveal the importance, and power, of women in Diné life, worldview, and history.

In addition to the “squaw dances” keeping their workers from showing up consistently, the Diné domestic sphere was regarded as a revealing symptom of the need for economic development in a wage economy. The problems with Diné domesticity, for industrialists and others, were represented most aptly through the specter of the Navajo hogan, which was almost invariably represented as a place of squalor much in need of the reform that wage work would provide. Diné women, being closely associated with the hogan and family life, were thus implicated in what was seen as a deplorably unhealthy domestic geography. On the need for wage labor, one journalist opined, “life in the nonwired, nonplumbed hogans is the same primitive, smelly, overcrowded horror it has always been.”⁵⁴ One magazine snidely remarked, “Though you can’t tell it by looking at [the hogans] . . . things are picking up economically” for the Diné.⁵⁵ A third observer

remarked of “the Navajo” in general, “his miserable hogan made from logs and dirt barely keeps him from freezing in the winter.”⁵⁶ In this way, the “horror” of Navajo home life, and the feminized sphere of life it represented for whites, was constructed in direct opposition to “things picking up economically” in the public sphere. Navajo land use was likewise implicated in this feminization of Navajo poverty: “Partly because of their wandering lives and partly from stubborn resistance, they have until recent years virtually refused to be educated” in the ways of industrial waged work.⁵⁷ Diné land, “pretty poor stuff for grazing,” had long been monstrosly feminized as barren and inadequate for supporting Diné people and herds. Navajo land-based agriculture and stock raising, thus, had also long been seen as irrational subsistence practices.

As evidenced by the reference, in the preceding quotation, to the Navajos’ “wandering lives,” the land, the “squaw dance,” and the hogan were all temporalized as part of a poverty-stricken and “primitive” Diné past, one that could be transcended only by a system of resource-extractive wage work that organized political economic life around heteronormative gendered spheres of life and labor: the public and the private, the economic and the domestic, the productive and the reproductive. In fact, the domestic sphere, represented by the squaw dance, the hogan, and the land itself were all seen as culprits in Navajo poverty and highly visible ways to shorthand what were seen as the larger problems of Diné domestic life, namely, that Diné men and women alike were deeply invested in what were considered domestic sphere concerns: community cohesion, cultural reproduction, relationships to the nonhuman world (the land and the livestock in particular), and so on. Thus, assimilation into a capitalist wage economy was quite clearly assimilation into a gender-dichotomized (and heteronormative) life.

The promotion of gender-dichotomous divisions of labor in the private and public spheres has long been emphasized throughout U.S. economic development policy, but it has been hyperarticulated in colonial economic development schemes.⁵⁸ The case of developing wage work on the Navajo Nation thus drew strong comparisons to other colonized or global South development projects. In the report quoted by Napier and Sasaki, Kerr McGee’s “success at Shiprock” was attributed “partly to the previous experience of some of its management people in newly-industrialized nations in South America and elsewhere.” Likewise, a 1959 letter from a U.S. congressman to William Zimmerman denounces the lack of industrial “opportunity” for “Indians” by comparing it to Puerto Rico: “Puerto Rico has cut a pattern that can and should be followed in offering special inducements to industry. It has worked for Puerto Rico. It will work on Indian reserva-

tions.”⁵⁹ Puerto Rico is an apt comparison; as argued by Laura Briggs, gender, sexuality, and reproduction were central to the colonial project in Puerto Rico, as they were in the colonization of Native lands.⁶⁰

Part of the problem with imposing Western gender dichotomies through colonial economic development policies is that it forecloses (in fact, colonizes) indigenous notions of gender. Diné worldviews, like those of many indigenous nations, do not easily adhere to Western binary gender schemas—man and woman, masculine and feminine. Like all such binaries, the gender binary in Western thought is understood to be exclusive, oppositional, and hierarchical.⁶¹ The binary, moreover, is falsely universalized, reflecting socially constructed rather than universal categories of gender that change over time, space, and culture. Native scholars add that most non-Western cultures recognize more than two genders and rarely construct what we call “masculine” and “feminine” in ways that dovetail neatly with European-derived understandings of men and women. The Diné, for example, have never seen *’asdzáá* (woman) as the powerless and subjugated “relative being”⁶² that underpins European constructions of femininity.⁶³ As Wesley Thomas notes, “Women are the heads of household and the primary decision-makers among traditional Navajo people.”⁶⁴ Likewise, Diné history has been shaped by the role of an additional gender category that is neither *’asdzáá* nor *hastiin* (man): the *nádleeh*, who can be male-bodied and feminine-identified; female-bodied and masculine-identified (also called *dilbaa*); some combination therein (what we might call genderqueer); or intersexed.⁶⁵ The *nádleeh* were the first of the Diné to be born to First Man and First Woman, as twins who “were neither entirely male nor entirely female.”⁶⁶ Diné origin stories reveal the integral role of the *nádleeh* to the success and survival of the tribe, as well as to achieving peace and balance among the genders: in the fourth world, the last world the Diné occupied before coming to their present homeland, an argument between the *’asdzáá* and the *hastiin* led them to separate and live on opposite banks of a river. The *nádleeh* saved the People from perishing by providing crucial care work to the *hastiin*, without which they, and therefore the tribe, would not have survived.⁶⁷ The centrality of the *nádleeh* role in Diné history and worldview, reflected by this story, runs directly counter to the Western practice of shoring up the gender binary by ignoring and subverting queer history, culture, life, and sexualities (often violently).⁶⁸ The richness of these gendered epistemologies were entirely lost on industrialists who arrived on the reservation with designs on making good workers out of Navajo men, and, by extension, good homemakers out of Navajo women.

Hot Spots: Radioactive Geographies of Private and Public Spheres

The trend toward promoting industrialism on the reservation was certainly not limited to uranium mines and mills, nor were men the only workers employed in new reservation industries. In the mid-1960s, a Salt Lake City businessman traveled to Navajo country on vacation (quite probably arriving in Diné Bikéyah via roads constructed for facilitate uranium haulers). While there, he noticed Navajo women stringing necklaces made of small light brown beads. The beads he saw were what Diné call juniper's eyes: the dried pits of blue juniper berries, which are gathered and cached by small rodents. The animals crack small holes in the pits to get at the food inside. Diné girls then gather the cached juniper's eyes, "select[ing] the seeds that have already been broken open, so as not to deprive the animals of food," and use an awl to turn the pits into beads.⁶⁹ Necklaces made of juniper's eyes, assembled in this way, represent balance in the form of "a three-way partnership" "between the tree that gives its berries, the animals which gather them, and humans who pick them up."⁷⁰ From a Diné perspective, the necklaces made of juniper's eyes are thus a reminder of the state of mind needed for balance and proper relationship to the world and are used for preventing nightmares, which are a sign of an unbalanced life.⁷¹

At a time when cultural trends in the mainstream United States famously turned toward "playing Indian"—as white radicals and suburban kids alike took to wearing their long hair in braids, tacking feathers onto headbands, and wearing fringe-trimmed leather—the vacationing businessman saw an opportunity in the brown beaded necklaces. Seizing on the favorable conditions for bringing new industry to the reservation, by 1968 he was in business in Navajo country, employing Navajo women to string as many as 200 juniper's eyes per stand onto necklaces that were then distributed across the United States, rechristened "Navajo Love Beads." This business thereby turned on its head the Diné practice of at once maintaining *hózhó* while crafting beautiful clothing in a sustainable way—something at which Diné textile weavers and silversmiths had long been adept. The only downside of the business, from the owner's perspective, was that it still depended on small rodents (which one journalist called "indispensable middlemen," as though the squirrels and chipmunks were necktie-wearing corporate employees) to make the initial hole in the bead.⁷²

In 1968, twenty-five Navajo women worked for the Love Bead company, gathering and stringing the juniper's eyes that would be sold to "big city hippies and fashion devotees who have never seen a mesa."⁷³ The workplace rented out for the employees' hours of stringing beads was a former uranium mill in Mexican Hat, Utah, constructed in 1956 by Texas-Zinc

Minerals Corporation and closed for milling purposes in 1965. This meant that even while these Diné women worked to export a crucial resource in Navajo cultural and ecological balance, they were exposed to dangerous levels of ambient radiation and chemically toxic materials in the unregulated former mill site.⁷⁴ The community in and around Mexican Hat and presumably the owner of the Love Beads business were uninformed of the dangers of using the former mill, even though links between ambient radiation and health risks were clearly established in the late 1960s. The abandoned mill was even used for a vocational school in the early 1970s, again because the community was uninformed about risks.⁷⁵

The story of the Love Bead company reflects how radioactive geographies—"hot spots" like uranium mines, mills, and tailings piles—became new ways to map Diné Bikéyah. The two dozen women workers stringing Love Beads in a former uranium mill illustrated that while radiation was not contained spatially in the mill or in the body of the uranium mine or mill worker, neither was it contained temporally to the tenure of the uranium companies. Radiation thus became spatialized and temporalized in complex ways, in the land and the built environment, as well as carried in the bodies of those who worked and lived in uranium country. As the Navajo Nation sought to develop new economic possibilities on Diné Bikéyah, the legacy of the uranium industry meant that the tribe would have to build new futures on a (literally and figuratively) radioactive foundation. In this section, I explore these fluctuating and fixed radioactive geographies, looking to the ways in which gender roles and gendered relationships to wage work shaped the spatiality of exposure to radiation. While participation in the wage economy, for men and women alike, was more likely to increase exposure to radioactive materials, uranium traveled through Diné land and life in other ways as well, often actively subverting the gender-dichotomous division between public sphere and private that industrialism was so intent on reifying.

To be sure, throughout the uranium booms, gender roles influenced the ways in which Navajo men and women experienced radiation hazards across Diné Bikéyah. Although employees in mining and milling occupations were primarily (but not, as we will see, exclusively) men, women were exposed to radioactivity when men came home from work covered in radioactive mud and dust; when they laundered workers' clothes; when radioactive dust settled onto the swept dirt floors of their hogans, where children played; and when they slaughtered, prepared, and ate contaminated livestock. Women, moreover, did most of the work to shear and weave the wool from sheep that had grazed downwind from mines, mills, and the open-air trucks that carted exposed uranium ore across rutted roads. All

of these represent ways in which the wage work of their husbands, brothers, and fathers, in the ostensibly separate public sphere, permeated the domestic world. The private and public were interwoven, radiating into and between one another. If these transits of radioactive dust were to be mapped, they would reveal a fluid and highly mobile radioactive geography, illustrating quite clearly the relationships between sheep and humans, between the mine and the hogan, between wind and tissue. More important, such a map would reveal that these worlds—animal and human, public and private—permeate one another and are in an ever-intertwined, rather than binary, relationship.

Tailings piles offered a troubling illustration of the mobility of radioactive materials. By 1970, there were over 90,000 tons of tailings at thirty-five different mill sites in the western states, a large proportion of them in and around the Navajo Nation. The radium in the tailings had a half-life of 1,600 years or more, and few tailings piles had been stabilized in effective ways to prevent erosion. Debris from the piles could be moved by wind and rain, eroded by the curious explorations of children and animals, and used by unwary locals. Efforts to stabilize the piles were largely ineffective; as noted by a *Los Angeles Times* reporter in 1970, one pile “stabilized in 1963 has since been eroded by gophers.”⁷⁶ Studies conducted on tailings piles across the reservation produced similarly troubling results. At Tuba City in 1967, radioactive debris from the El Paso Natural Gas Company mill tailings pile had been scattered by wind all across the company’s property, resulting in nearby radiation levels twelve times higher than the recommended maximum.⁷⁷ At Mexican Hat, radiation levels were higher downwind than upwind from the Texas Zinc Minerals pile—a “condition [that] could very well worsen” as the pile continued to dry out—and the groundwater at that site contained uranium “significantly above background” levels.⁷⁸ The AEC, in the person of Donald Nussbaumer, chief of the agency’s Source and Special Nuclear Materials Branch, responded to concerns about tailings by pointing out that “by law we have never had regulatory authority over mill tailings,” but “Of course, we have made an informal effort to keep all the uranium mills and the state health departments . . . aware of potential tailing hazards.”⁷⁹ In an impressive example of using passive voice to dodge culpability, Nussbaumer conceded that “In retrospect it now appears *someone* should have kept central records on the use of the tailings. *It would have been better if these wastes were watched more closely*” (emphasis added).⁸⁰

The retrospective concern about “the use of the tailings” expressed here by Nussbaumer probably emerged from increasingly strong evidence that mill operators had adopted a practice of ridding themselves of their

radioactive waste materials by giving them away to local residents and building contractors for use in construction projects. In just one Utah town, radioactive tailings materials had been used to build a fire station, a warehouse, a meat packing plant, a gas station, and a sewage plant. By 1970, federal and state officials were testing hundreds of homes in western Colorado for high indoor radon levels. In January of that year, in the small town of Uravan, Colorado, Union Carbide went so far as to evacuate families whose homes had tested positive for radon at levels ranging from sixteen to over 700 times the recommended maximum. These families “became the first families in history forced to vacate their own homes to escape indoor radiation,” the *Los Angeles Times* reported; but, as the paper conceded, “They will not be the last.”⁸¹ Indeed they were not. The following year, Congress authorized a massive cleanup effort in Grand Junction, Colorado, where over 4,000 private and commercial properties “eventually had tailings removed, at a cost of \$250 million.”⁸²

On the Navajo reservation, it took several more years for federal and state agencies to express concern over the now decades-old practice of mill operators giving away tailings for use in construction. By 1975, four years after the Grand Junction cleanup was funded by Congress, the lack of action on the problem of tailings on the reservation prompted Navajo Tribal Council chair Peter MacDonald to send a letter to the federal Energy Research and Development Administration seeking to spur it to action: “We are puzzled,” he wrote,

at the apparent reluctant progress of the Federal government in resolving the problems associated with these millsites. Their continued presence imposes a burden on the Navajo Nation that we should not be obligated to bear, especially, since Tribal resources were utilized in the development of national security needs accruing to all Americans.⁸³

The Tribal Council identified four major areas of concern, all of them the sites of abandoned uranium mills: the Cane Valley area of Monument Valley, Tuba City, Mexican Hat, and Shiprock. Seeing no help from the federal or state governments on the problem of hot homes, the council eventually took the initiative to send the Navajo Environmental Protection Commission (EPC, renamed the Navajo Nation Environmental Protection Agency [NNEPA] in 1995) to survey the problem in Cane Valley, where a tailings pile 55 feet high and 20 acres wide sat not far from several homes.⁸⁴ Tony Yazzie lived just 700 feet from the pile.⁸⁵ This action by the tribe spurred the federal government, in the form of a U.S. Environmental Protection Agency (EPA) team of nine radiation experts, to finally take note of the problem in Cane Valley. The team found radioactive waste “in

concrete floors, exterior stucco, mortar for stone footings, cement floor pathes [*sic*], and . . . cement plaster.”⁸⁶ Additionally, “Uranium ore was found in footings, walls, and in one fireplace.” The radiation, in other words, was ubiquitous. Sixteen of thirty-seven homes had been constructed with uranium ore or tailings, as had “Other structures, not used as dwellings.”⁸⁷

The gendered effects of radiation in uranium country could be mapped in ways that show that the toxic products of the “public sphere” mine and mill work interpenetrated with the “private sphere” of Navajo domestic life. This was, of course, ignored by industrialists who promoted wage work as a reification of the public/private binary. But, as the example of the Love Bead workers attests, radiation also affected women through their wage work in reservation industries, including in the uranium mines and mills themselves. Throughout the 1950s and 1960s, mining and milling work was informally segregated along the lines of race and gender; while Navajos, as compared with white workers, were generally relegated to the lowest paid and most dangerous jobs, women workers largely occupied traditionally feminized positions, notably secretarial and clerical work. The Kerr McGee Shiprock mill, for example, reported employing a Navajo “girl” as a clerk in the mill’s ore receiving and sampling department, reporting that she “satisfactorily fills a job requiring skill, accuracy, and dependability.”⁸⁸ Mining jobs, however, were almost exclusively occupied by men.

This had begun to change in the early 1970s, when conditions of poverty and dependence on wage work combined to create difficult economic conditions for women in uranium country. In June 1979, an anthropology student named Lenora Foerstel traveled to Laguna Pueblo land to conduct ethnographic research about Laguna women. In her unpublished report based on that summer of research, “From Matriarchy to the Mines: American Women in the Southwest,” Foerstel noted that Native women as well as men increasingly sought jobs in the uranium mines and mills. The Kerr McGee mine in Church Rock, she found, employed a number of Navajo women, many of them of childbearing age, to scan areas around and within mines for radiation levels; the company’s Grants mines, she reported, employed over fifty women in various jobs both aboveground and below. At the Laguna Pueblo Jackpile mine, the country’s largest open-pit uranium mine, many of the several hundred Pueblo employees were women. While most of these women worked aboveground in jobs ranging from prospecting to clerical work, Foerstel observed that some worked in the mines themselves, probably using Geiger counters to test and record ambient radiation levels as the miners worked.⁸⁹ These women mine employees, she notes, largely fell into two groups: divorced women, who needed

the income to support children, and younger, unmarried women, indicating that work in the mines was very much a matter of monetary need for economically vulnerable women. When asked whether they were aware of the health risks of uranium mining or the risks to a potential pregnancy, none of these women workers reported knowledge about uranium's risks. At least one woman in Foerstel's study, moreover, reported working as a pillar miner, a much more dangerous (and more strictly gender-segregated) form of labor in the mines. In her account of her work to Foerstel, she echoed the troubling conditions reported by male counterparts in these and other mines: eating lunch in the mine shafts in order to save time, not washing their hands before handling food, working in deep pools of water, and being given radiation detection equipment that either did not work or was not properly explained.⁹⁰

By 1970, mortality rates from the PHS studies predicted that within twenty years, between 600 and 1,000 of the country's 6,000 uranium miners would succumb to cancer. Of the more than 3,000 miners involved in the PHS study, 144 had died of cancer by 1974, 114 more deaths than statistically expected, adding to the rapidly mounting evidence that the uranium industry was producing a devastating and deadly epidemic. Uranium miners were dying at a rate four times the normal population. By the latter half of the decade, it was clear that lung cancer was not the only concern: studies found a sharp uptick in stomach cancers, with 82 percent of cases occurring between 1975 and 1984.⁹¹ Perhaps most alarming, the occurrences of radiation-related diseases were not limited to the men and women working for the mines and mills; quite to the contrary, epidemiological effects outside the industry were beginning to emerge and take shape.

This spread of uranium-induced disease from the population of miners and millers evidenced the ways in which radioactive geographies would become difficult to map spatially or temporally in subsequent years, particularly as activists and community members increasingly sought to curtail the advance of the uranium industry. Indeed, even as mines, mills, and hot homes were being identified as the most dangerous radioactive geographies, recognizing these hot spots was merely a matter of scales: at the scale of Diné Bikéyah as a whole, the hot spots could be seen clustered around Shiprock, the Lukachukai-Carrizo district, Red Valley, Monument Valley, and Ambrosia Lake; at the more local scale, however, individual tailings piles moved the radioactive risk with the rain, wind, and animals, and unidentified hot homes made the threat unnervingly ubiquitous. At the even more local level of the body, having already been exposed to radon gas was, as one PHS employee put it, "sort of like walking around with an atom bomb in your lungs"—a way of imagining the spatiality of risk that makes

bodies themselves the most intimate of all radioactive geographies.⁹² This kind of embodiment of radioactive risk underscores the critical urgency of struggles against uranium mining; “walking around with an atom bomb in your lungs” telescopes the range of risks involved in nuclearism, from bomb to cell, in a way that makes devastatingly clear that, as Cherrie Moraga notes, “land is more than rocks and trees, the animal, and plant life . . . land is that physical mass called our bodies.”⁹³ Moreover, as women began organizing against the uranium industry and its radiating risks, it was clear that their work emerged from an understanding that “all these ‘lands’”—rocks, trees, and bodies alike—“remain under occupation by an Anglo-centric, patriarchal, imperialist United States.”⁹⁴

The Question of Genocide: Justice and Sovereignty in the Radioactive Present

In 1974, in the context of a burgeoning Red Power movement, the activist organization Women of All Red Nations (WARN) was formed as a Native women’s organization allied with the American Indian Movement (AIM).⁹⁵ In addition to focusing on the Red Power politics of decolonization, cultural revitalization, and treaty rights, the women of WARN brought to the fore issues crucial to Native women specifically: reproductive rights, sterilization abuse, health care (particularly high maternal and infant mortality rates), and child care.⁹⁶ Sterilization abuse quickly became a key issue for Native women organizers, for good reason: by the 1970s, as many as 25 percent of Native American women of childbearing age were sterilized by federal health care practitioners in Indian Health Service (IHS) hospitals and clinics, many of them without their consent.⁹⁷ This pattern of coercive sterilization reflected an alarming trend in reproductive injustice for Native women and non-Native women of color, which ranged from sterilization to the removal of their children to adoptive and foster families.⁹⁸ “Tribal dependence” on a nexus of federal agencies—the IHS, the Department of Health, Education, and Welfare, and the BIA—made Native women “a unique class of victims” of sterilization abuse even within larger national trends of sterilization experienced by African American and Latina women.⁹⁹ Native women reported having been under- or uninformed about the tubal ligations and hysterectomies that were performed on their bodies, or otherwise manipulated into undergoing these extreme, and largely permanent, surgical procedures.¹⁰⁰ As Lakota activist Mary Crow Dog put it, sterilization for Native women was so commonplace in the 1970s, “it is hardly worth mentioning,” a sentiment that echoes the nickname given to sterilization procedures by African American women in the South: “Mississippi

Appendectomies.”¹⁰¹ Rather than downplaying the effect that this epidemic of coercive sterilization had on women of color, this emphasis on the everydayness of sterilization abuse reflects how pervasive the abuse had become, occurring so frequently and to so many women as to become a part of everyday life for women of color in the United States. The local effects to individual tribes were measurable: from 1970 to 1980, the Diné birth-rate dropped from 3.72 children per woman to 2.52. For the Zuni Pueblo, it sank from 3.35 to 1.90. Across all tribes during this decade, the birthrate fell from 3.29 children per mother to 1.30.¹⁰²

By the late 1970s, WARN and other organizations of Native women activists had begun to draw connections among these high rates of sterilization abuse, other problems of sexual violence for Native American women, including rape, and the reproductive health risks of the uranium industry.¹⁰³ WARN thus adopted anti-uranium politics within this larger reproductive rights framework, drawing direct links between the gendered implications of uranium contamination and other manifestations of sexual violence and reproductive injustice. Members of WARN framed uranium mining as “a problem ‘that is destroying our future, for our grandchildren and for the unborn’”¹⁰⁴ and mounted opposition to uranium mining arising out of a “common concern that our children will be born with deformities.”¹⁰⁵ In 1980, WARN published results of a preliminary study of uranium industry–related reproductive health problems on the Pine Ridge reservation in South Dakota. The study found that in

one month alone during 1979, 38% of the pregnancies reported to the Public Health Service hospital in Pine Ridge, resulted in spontaneous abortions (miscarriages before the 5th month of pregnancy) and excessive hemorrhaging. Of the children who were born, 60 to 70% suffer breathing complications as a result of undeveloped lungs and/or jaundice. Children have also been born with such birth defects as cleft palate and club foot.¹⁰⁶

WARN linked these problems with radiation in the water source at Pine Ridge, deriving from uranium mines in the Black Hills region, a major hub of uranium activity by the early 1980s. The proximity of Black Hills mines to the Pine Ridge reservation, as well as the spiritual and historical significance of the Black Hills to the Lakota, made this an urgent site of struggle against the uranium industry outside of Diné Bikéyah.

Although this study was specific to Pine Ridge, the kinds of birth defects, reproductive anomalies, and spontaneous abortions (miscarriages) reported among Navajo and Pueblo women in the Southwest reflect similarly gendered implications of the uranium industry. In the Laguna Pueblo, where

Anaconda's Jackpile mine continued to be the largest open-pit operation in the world, a staff member of the Senate Committee on Indian Affairs reportedly conceded that more than one hundred birth defects had been reported in Pueblo by 1978. Nick Franklin, secretary of the New Mexico Department of Energy and Minerals, likewise linked birth defects to the Jackpile mine: "A stream running through the Jackpile mine area picks up large amounts of radiation," he reported, and "There is a very high frequency of birth defects in the children of Jackpile miners."¹⁰⁷ Navajo activists made similar observations. One such activist noted in 1981, "I've seen many health problems that may be linked to exposure to . . . uranium. I'm seeing children who have cancer of the throat or skin lesions and sores" and a "high percentage of miscarriages among Navajo women."¹⁰⁸ As with many incidents of environmental contamination, community knowledge preceded scientific findings; as environmental justice activists often point out, science tends to be deployed in the aftermath of pollution rather than the other way around, making toxins innocent until proven guilty—often, as in this case, *after* significant harm is done. Epidemiological studies in subsequent decades have bolstered the early observations made by WARN, state and federal officials, and Navajo and Pueblo community members. Studies have shown that the toxicological, as well as radioactive, nature of uranium significantly affects rates of birth defects and genetic mutations in populations exposed to uranium mill tailings, unreclaimed mine sites, and uranium-polluted water.¹⁰⁹

These early indications of elevated rates of birth defects and miscarriage point to the ways in which the environmental health impacts of uranium mining are deeply gendered—that is to say, they affect men and women differently due to their different socially constructed roles. What environmental justice scholars have called environmental sexism occurs when women's roles as caretakers compound the burden of environmental problems in their lives: it is women who take up the labor of care when family members become sick; it is women who often assume doubled financial responsibilities when their husbands or partners die and women who undertake a large amount of the labor of family care; and it is women who are at the front lines of the reproductive havoc that many modern toxins, including radiation, wreak on human bodies, including increased risks of miscarriage, stillbirth, and birth defects.¹¹⁰ Moreover, women, particularly women of color, are often the most economically vulnerable and politically powerless members of a community, making them less likely to have been consulted when toxic industries move into their communities. Historically, Navajo women have been neither economically vulnerable nor politically powerless within the tribe; however, colonial policy and practice since the

1860s had consistently undermined their property rights and political visibility, as when livestock reduction decimated the herds owned largely by women or when the formation of the Navajo Tribal Council in the 1920s included only men as important political leaders of the tribe. Thus, the same colonial policy that shored up the division between public and private spheres and relegated Diné women to the private sphere with little economic and political power made women more vulnerable when their miner husbands died of lung cancer and uranium pollution began to spread out from the mines and mills.

WARN and other activists and organizations thus fittingly connected problems of environmental health, reproductive justice, and the uranium industry to larger characteristics of the colonial power relations between Natives and the United States. The political praxis among Navajo environmental justice organizers and feminist activists acknowledged the fact that the disproportionate distribution of uranium mining on Native land is not the whole problem; rather, it is a part of a much larger nexus of conditions of the settler colonial state. One Navajo anti-uranium organization described the problem in this way:

uranium and other natural resource exploitation on our lands is *directly tied* to other issues affecting our lives: broken treaty promises; violation of land and water rights; *sterilization of native women*; the imprisonment or killing of Indian leaders and the complete destruction of the environment and people at the hands of profit-mongering energy companies backed up by our government. For them the choice is simple—genocide or survival. (emphasis added)¹¹¹

Winona LaDuke concurred, arguing, “The issue at hand is the question of genocide,” as did Lorelei Means, a founder of WARN, who summed up the problems with environmental health on reservations as it related to colonization in this way:

We have real, physical documentation: unborn children, deformed babies, youth suffering and dying from leukemia and ever-increasing cancer victims. Already 25% of our women have been sterilized. We are still under attack; this is genocide.¹¹²

The strong leadership of these women against uranium mining reflects larger trends in environmental justice movements, which are often characterized by the leadership and labor of women. Throughout the environmental justice movement, women have made up as much as 90 percent of the “active membership” of environmental justice organizations.¹¹³ The central role of women in these kinds of social movements has frequently

been seen as a product of women “pursuing traditional women’s interests”: protecting their families, particularly their children, from environmental contaminants.¹¹⁴ This explanation for women’s investment in environmental justice struggles has been critiqued by feminists because it uncritically draws from women’s socially constructed roles as caretakers, extending this caretaking to environmental concerns: care for the environment and future generations thus comes to be seen as an issue of good mothering.¹¹⁵ In this “traditional environmental justice narrative,” women activists are in a sense reduced to their roles as mothers, which, by extension, slips easily into the tired trope of the feminized “Mother Earth.”¹¹⁶

Native women activists, however, engaged in the environmental justice struggle against uranium mining in ways that clearly destabilized these “traditional environmental justice narratives” about women’s participation in environmental activism. By framing uranium mining as one facet of reproductive injustice, environmental degradation, and racism entailed in a larger process of colonization by the United States, Native women activists entered this environmental justice struggle in a way that posited their work as, first and foremost, *anticolonial*, paying heed to the gender and sexual implications of the process of colonization. Their motherhood, under clear attack by both sterilization and the uranium industry, was a central terrain of struggle over the future of their nations and “the question of genocide,” a crucial part of what Paula Gunn Allen has called “The central issue that confronts American Indian women throughout the hemisphere”: “survival, *literal survival*, both on a cultural and biological level.”¹¹⁷ These politics thus saw Native motherhood not as the culmination of a woman’s socially constructed role as a caretaker but rather as part of the struggle for sovereignty. As one WARN member put it, “We must preserve our rights for the next generation to live the way we want to—SOVEREIGN.”¹¹⁸ Women’s activist politics in the struggle against uranium thus help environmental justice scholars move beyond an analysis of environmental injustice not merely as an issue of the distribution of environmental harm, but as evidence of a much larger, systemic problem—in this case, of the deeply intersectional nature of race, gender, and reproduction in colonization for Native women.

In Diné Bikéyah in the 1970s, “grassroots activity suddenly seemed alive everywhere,” as it did across Native America.¹¹⁹ This grassroots activity occurred simultaneously with more formal moves by the tribe to protect and promote Navajo rights, sovereignty, and quality of life. On the grassroots end, the late 1960s and early 1970s saw the formation of a number of organizations, both national and local, that directly involved Diné organizers and addressed issues in Diné Bikéyah: the Southwest Indian

Development Corporation, a nonprofit focused on economic and social justice for Navajos; the National Indian Youth Council (NIYC), a highly influential national organization of young Native activists founded in New Mexico and led in part by Pueblo and Navajo students;¹²⁰ the Committee to Save Black Mesa; the Coalition for Navajo Liberation (CNL); the Navajo student group Indians Against Exploitation; the alternative newspaper *Diné Baa-Hani*, with its mission to “communicate with the Diné about . . . the controversial issues affecting the Navaho Nation”;¹²¹ and the American Indian Environmental Council (AIEC). More formal changes included the tribe’s creation of Diné Ahilndáálnish, Inc., or The People Working Together, to replace the Volunteers In Service To America (VISTA) program on the reservation, and the funding of Dinébe’iiná Náhiilna be Agha’diit’ahii (DNA), a legal aid service to promote economic justice for Navajos, a sorely needed initiative at a time when Navajo unemployment hovered around 40 percent and the median income for Diné was 28 percent of the national average. In a further attempt to improve labor conditions on the Navajo Nation, the Tribal Council formed a Labor Relations Council in 1973, which in turn drafted a series of guidelines for companies that employed Diné workers (by the end of the year, however, not a single one of the more than 100 companies operating on Navajo land had agreed to accept the council’s guidelines).¹²² The tribe also established the Navajo EPC in 1972, charged with protecting human health and environmental quality according to Diné values and worldviews, which included the delicate balance between human well-being and the nonhuman world.¹²³ The environmental health effects of radiation were of central concern to the EPC’s early work.¹²⁴

Widows of former miners were perhaps the most visible and active group of anti-uranium activists in Diné Bikéyah throughout the 1960s and 1970s. As noted by widows and their advocates, these women suffered severe long-term effects in terms of environmental health, economic security, and emotional trauma when they lost their husbands to lung cancer. As early as 1960, when lung cancer had already claimed the lives of ten Diné miners and heart disease among uranium workers was eleven times higher than expected, widows were already “coming together to talk about their husbands’ deaths” at the Tse’ Lichii’ (Red Rock) chapter of the Navajo Nation—the chapter that, in the coming decades, would bear the devastating legacy of being home to the largest number of former uranium miners who succumbed to radiation-related diseases.¹²⁵ By 1967, when the federal government set the first federal limits on radiation in the mines, the testimony of widows was seen as a crucial means to communicate the dire stakes of the issue to legislators.¹²⁶ Throughout the 1970s, widows became central to how

problems with uranium mining were understood and articulated by activists on and off the reservation.¹²⁷ A coalition of journalists and activists, the New Mexico People and Energy Research Project, developed a slide show that they presented across the state, focusing largely on widows' struggles; in the opening slides, "The faces of the lung cancer widows flash on the screen and they speak of their inability to get workmen's compensation for the deaths of their miner husbands."¹²⁸

In addition to this kind of public testimony, widows were also at the forefront of legal struggles to get compensation for their husbands' deaths; the multiple lawsuits that were brought against the federal government and uranium companies throughout the 1970s, 1980s, and 1990s were largely brought by and on behalf of widows. One case in particular demonstrates the kinds of barriers to justice faced by uranium widows in the courts: in 1972, a Navajo miner named Clifford Yazzie died after spending twenty years in uranium mines in and around Cove, the last five of which he spent in mines operated by Foote Mineral Company (which later merged with VCA). In 1973, his widow, Fannie Begay Yazzie, filed a claim for benefits with Foote's insurance company. Her claim was promptly denied. She appealed to the Industrial Commission of Arizona, which sided with Foote. In 1975, the Arizona Court of Appeals heard her case, and, after two days of hearings, ruled in favor of Foote, concluding that Yazzie had not filed her claim within the required six months of her husband's death, and was therefore ineligible for benefits whether or not the company was responsible.¹²⁹ In April 1980, several miners and widows of miners paid their own way to travel from the Navajo Nation to Washington D.C. to testify at the National Citizen's Hearing for Radiation Victims. The Navajos delivered impassioned accounts, including that of Fannie Yazzie, who lost her father in addition to her husband to lung cancer. Yazzie testified to her experience having "no money . . . and no hope that her situation will change." "What she does have," a journalist for the Native newspaper *Akwesasne Notes* pointed out, "are radioactive tailings piles in her back yard and abandoned mine shafts surrounding her home."¹³⁰

As Navajo women entered into anti-uranium activism, their work testified to the ways in which activism against uranium mining was always seen as a multi-issue struggle, emerging from wasteland discourses of Diné Bikéyah and flourishing through colonial gender politics and the racial antagonism that existed in boomtowns. As noted by Lucy Keeswood, an activist from the Tse Daa K'aan (Hogback) chapter of the Navajo Nation near Farmington, New Mexico, women often entered the struggle against uranium mining because "Men were on the job or they were afraid." "They kept telling me it was a woman's place to stay home," Keeswood recalled,

“but I saw that no one else was trying to change things.”¹³¹ Far from staying at home, Keeswood and her daughters, Esther and Corisea, became important political actors in the eastern reservation borderlands throughout the 1970s. As three among hundreds of women who were politically active around Native sovereignty and environmentalism in New Mexico in the 1970s, the Keeswoods’ work illustrates a pattern of women’s activism that addressed the intersectionality of racism, sexism, classism, and environmental degradation in their experiences of U.S. energy injustice. Corisea Keeswood, for example, aided DNA—which was, at the time, working to provide compensation for miners and their widows—to collect firsthand evidence of health problems across the Navajo Nation. In the course of her work, Corisea Keeswood also gave talks and held workshops to educate miners and other community members in the problems with the uranium industry, with a focus on helping widows.¹³²

Meanwhile, Corisea’s mother Lucy gave crucial testimony at the New Mexico Advisory Committee to the U.S. Commission on Civil Rights in July 1975 and worked with her daughter Esther to help found the CNL, which went on to be a major force in contesting the multipronged issues of racial violence, human rights violations, resource extraction, and environmental degradation in and near the reservation border town of Farmington, New Mexico. By the time the Keeswoods helped form the CNL, Farmington was widely considered a deeply violent place for Navajos. Racial tensions in Farmington illustrated the problems of rapid energy industry development in general, and in this part of New Mexico in particular: in 1974, a string of racially motivated murders of Navajos inspired the chairperson of the U.S. Human Rights Committee to declare that “Perhaps one day the name ‘Farmington’ will rank right up there with Selma and Birmingham.”¹³³ The murders, some of which involved sexual violence against Native men—cruelly evidencing the intersections of gender and sexual politics of racial violence—crystallized major conflicts in reservation border towns that were directly related to energy industry development. As the Human Rights Committee report on Farmington attests, the massive influx of Native and non-Native workers to the area for mining jobs and the sudden transformation of a previously land-based community to a gender-dichotomous wage economy created dangerous conditions for Native men and women alike.

By 1978, these dangerous conditions of energy industry boomtowns—side effects of the larger pattern of energy injustice—were also a central concern among women in Shiprock, New Mexico, one of the largest population centers within the Navajo reservation and the site of major uranium development and oil mining. Beginning in 1977, Navajo women living in

and near Shiprock began to hold meetings to discuss disturbing patterns of domestic violence in that part of the reservation, directly connecting domestic violence to the development of uranium mining and its associated patterns of boom and bust. As one woman noted, the

old ways are going fast as the white-owned businesses sell their liquor, clothing, and groceries at exorbitant prices . . . the mining companies hire Navajos at low wages and subject them to white supervisors and substandard conditions. Air and water pollution are now everyday facts of life.

In this troubling context, the Shiprock Hospital saw elevated rates of rape and domestic violence victims, and women drew connections between this gender-based violence, joblessness in the aftermath of Shiprock's uranium bust (the Kerr McGee mill having been shuttered in 1968), and alcoholism. All of these factors contributed to the formation of Shiprock's Asdzani Doo Alchini Dabaghan (Women and Children's House) Association in 1978. The Association called these combined effects of industrial boom and bust the "pressure cooker syndrome" in which "woman battering and child abuse—once practically non-existent among the Navajos—has now reached crisis proportions" in Shiprock. The Association paid heed to the ways in which the loss of Diné systems of gender egalitarianism preceded this rise in violence against women; as one woman noted, "We are women, and we are now talking about women's rights. That used to be the Navajos' way, and we are getting it back." Another concurred: "We want to preserve and strengthen the traditional place of respect for Navajo women—a place of equality and importance." The "breakdown of the extended family" was also cited as a cause for these elevated rates of gender-based violence, a nod to the historical Diné system in which married couples went to live with the wife's family, a practice that long helped protect Diné women from domestic violence and abuse.¹³⁴ As Paula Gunn Allen has noted, escalated rates of violence against Native women within tribes are often the consequence of colonial systems of development and assimilation that target gender-egalitarian tribes.¹³⁵ Indeed, non-Navajo sociologists have noted since the 1950s the ways in which systems of maintaining Diné gender egalitarianism in rural parts of the reservation were "reversed" in urban area, to the detriment of women's position in their families.¹³⁶ Members of the Asdzani Doo Alchini Dabaghan Association, as well as other women activists across Diné Bikéyah and in other parts of uranium country, consistently pointed to the ways in which these problems with development were intimately tied to the larger colonial structure of power relations between Native peoples and the federal government.

These various actions by Native women came as part of a set of strategies among Navajos and their allies to curtail the havoc wreaked on Navajo land and people by the uranium industry. By using the framework of both colonization and reproductive injustice to contextualize the industry's environmental violence, activists pointed to the material and symbolic ways in which the effects of environmental injustice are deeply gendered. These rhetorical strategies emerged to contest the uranium industry and characterize the human and environmental toll of the industry not just as violent but as violent in both gendered and colonial ways. They likewise situate the uranium industry in a national context of sexually violent colonial practices, where the frontier, like the concept of "Nature" in general, is constructed as feminine, and colonial ventures into it are "penetrations" that can be understood as deeply sexualized acts of violence against the natural environment and indigenous peoples alike.

Through the kinds of material and ideological rearticulations undertaken by Diné and other Native women against uranium mining—articulating uranium and other industrial development as what Native feminists today would term heteropatriarchal—these activists created space for both Native sovereignty and a decolonized, feminist future. In this way, these anticolonial feminist approaches to contesting the uranium industry both prefigured and informed the current state of indigenous feminist scholarship, which asserts that decolonization cannot leave patriarchy and heteronormativity along the wayside as it seeks to dismantle colonial structures of racism, classism, and land dispossession. Nor can feminism properly call itself liberating if it does not take on a critique of settler colonialism, a component of Native feminism that underscores its alliance and ideological affinity with women-of-color feminisms. This wave of indigenous feminist theory critiques the colonial origins of heteropatriarchy, and the ways in which heteropatriarchy works to operationalize some of the most destructive practices of colonialism.

Given all of the ways in which the uranium industry, and the larger policy of industrial development of which uranium was a part, had deeply gendered impacts on Native women's lives, it is perhaps no surprise that women were leaders in the struggle for environmental justice. To be sure, these complex articulations of the coloniality of wage work, the affinity between radioactive pollution and compulsory sterilization, and the breakdown of Diné systems of gender egalitarianism paint a much more effective, and feminist, map of women's liberation than did larger U.S. contestations over the role of gender, and women, in nuclearism. In her unpublished research report from her fieldwork in New Mexico, Lenora Foerstel provided a compelling anecdote that, to her, seemed to illustrate the connections between

these themes of gender, activism, labor, and mines. One day during Foerstel's research, a young Laguna woman sketched out a map to explain to Foerstel the stakes of energy industries on and near Pueblo land. She indicated the close proximity of strip mines, over thirty uranium mines, and uranium mills to the Pueblo, emphasizing that 60 percent of the Native residents of the area lived without access to electricity—a gross irony, and, given that resources from their land go directly to providing power for the major cities of the Southwest and California, a clear example of energy injustice. For these reasons, Pueblos engaged in resistance when and where they could: pulling up stakes that marked potential mine sites, refusing to build fences to mark off land, and continuing to graze their herds on collectively held tribal ranges. In the end, however, Foerstel reported that the young women viewed matrilineal gender roles as the most important component of maintaining Pueblo life. The role of women in the tribe, in short, was the component most at stake in the context of ravaging energy industries.

In drawing Foerstel this map, and contextualizing it in Pueblo gender relations and ongoing struggles against resource extraction, this unnamed Laguna woman provided a specifically *cartographic* articulation of what industrialism meant in the lives of southwestern tribes. This anecdote provides a powerful example of the ways in which Native women activists connected mining on their lands to the larger problem of building sovereign futures on polluted ground. Andrea Smith has argued that Native activists work toward decolonization, in part, by engaging with “prolineal genealogies,” or new histories for sovereign futures, a concept that derives from the Foucaultian notion of genealogies as histories of the present.¹³⁷ In making genealogies prolineal, according to Smith, Native feminism requires histories not of the present, but of potential (and potentially decolonized) futures, making room for indigenous life, futurity, and complex personhood—the very things that are foreclosed by settler histories. This concept derives from the very real problem that settler epistemology requires Native disappearance; settler futurity is in fact balanced on the relegation of Native peoples to the past. Prolineal genealogies, on the other hand, recognize the complex personhood of Native people, their capacity for self-determination, and their sovereign futures. In this light, the Laguna woman in Foerstel's account was engaged in the creation of what we might call a *prolineal geography*—a map of a complex, toxic present that could give way to a decolonized, feminist future.