WASTELANDING

Wastelanding

LEGACIES OF URANIUM MINING IN NAVAJO COUNTRY

Traci Brynne Voyles

University of Minnesota Press
Minneapolis
London



Portions of chapter 1 were previously published as “Intimate Cartographies: Navajo Ecological Citizenship, Soil Conservation, and Livestock Reduction,” in *American Studies, Ecocriticism, and Citizenship: Thinking and Acting in the Local and Global Commons,* vol. 15, ed. Joni Adamson and Kimberly N. Ruffin, 50–63 (New York: Routledge, 2013).

Copyright 2015 by the Regents of the University of Minnesota

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Published by the University of Minnesota Press
111 Third Avenue South, Suite 290
Minneapolis, MN 55401–2520
http://www.upress.umn.edu

Library of Congress Cataloging-in-Publication Data
Voyles, Traci Brynne.
Wastelanding : legacies of uranium mining in Navajo country / Traci Brynne Voyles.
Includes bibliographical references and index.
ISBN 978-0-8166-9264-4 (hc : alk. paper)
ISBN 978-0-8166-9267-5 (pb : alk. paper)
1. Navajo Indians—Government relations—History—20th century. 2. Navajo Indians—Health and hygiene—History—20th century. 3. Uranium mines and mining—Political aspects—Southwest, New—History—20th century. 4. Uranium mines and mining—Social aspects—Southwest, New—History—20th century. 5. Radiation—Health aspects—Southwest, New—History—20th century. 6. Navajo Indian Reservation—History—20th century. I. Title. II. Title: Legacies of uranium mining in Navajo country.
E99.N3V69 2015
979.1004'9726—dc23

2014028049

Printed in the United States of America on acid-free paper

The University of Minnesota is an equal-opportunity educator and employer.

21 20 19 18 17 16 15 10 9 8 7 6 5 4 3 2 1

CONTENTS

	Preface: In Search of Treasure	vii
	Introduction: Sacrificial Land	1
1	Empty Except for Indians: Early Impressions of Navajo Rangeland	27
2	Prospecting for Magic Ore in America's New Frontier	55
3	Cowboys and Indians in Navajo Country	87
4	Hot Spots: Justice, Power, and Gender in the Radioactive Present	117
5	Monsters and Mountains: Competing Geographies of Uranium	151
6	The Big Hurt: Boom and Bust on Contested Ground	185
	Conclusion: Zombie Mines	211
	Acknowledgments	219
	Notes	225
	Index	273

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 Iverson 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, Tsoodził (Mount Taylor) to the south, Dook'o'oosłííd (San Francisco Peak) to the west, and Dibe' Ntsaa (Mount Hesperus) to the north.[9] Ranging from the solidified lava flows of Yé'iitsoh Bidił (El Mapaís National Monument) to the forested Ch'óóshgai (Chuska) mountain range, to the stark red rock formations of Tsé bii'nidzisgai (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 *hózhǫ́,* 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,

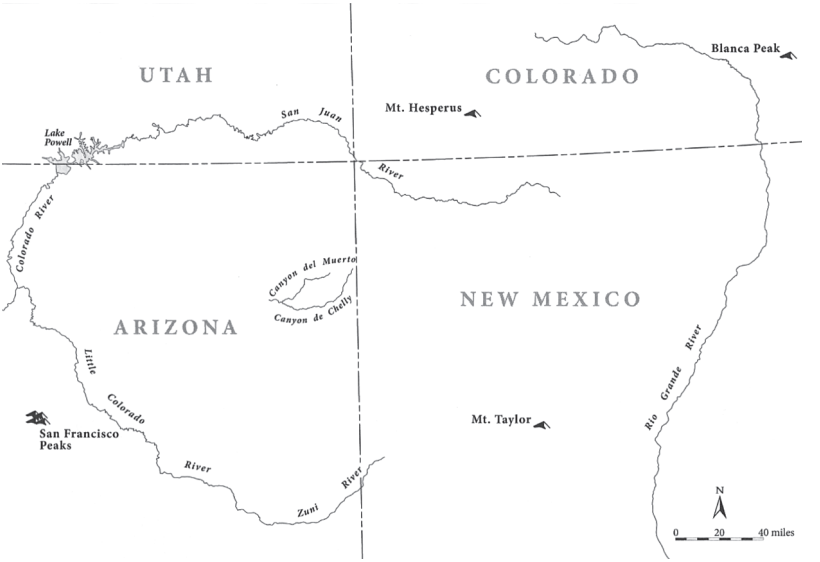


FIGURE 1. Diné Bikéyah comprises the land within the four sacred mountains, as well as what are sometimes called the four sacred rivers (the Rio Grande River to the east, the Zuni River to the south, the Little Colorado and the Colorado Rivers to the west, and the San Juan River to the north). Marsha 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 Nuevomexicano 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 Tsoodził (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

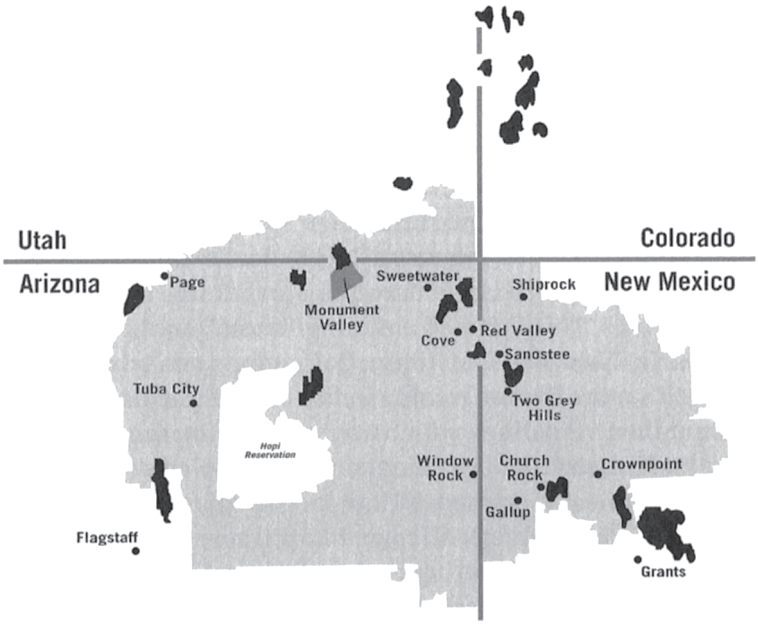


FIGURE 2. Areas of major uranium activity on and near the Navajo Nation from 1942 to 1985 are shown here in black. Doug Brugge, Timothy Benally, and Esther Yazzie-Lewis, *The Navajo People and Uranium Mining* (Albuquerque: University of New Mexico Press, 2007), 28.

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 Tsoodził (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 racecar.[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 Fiestaware 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 Carriso 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 Carriso 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

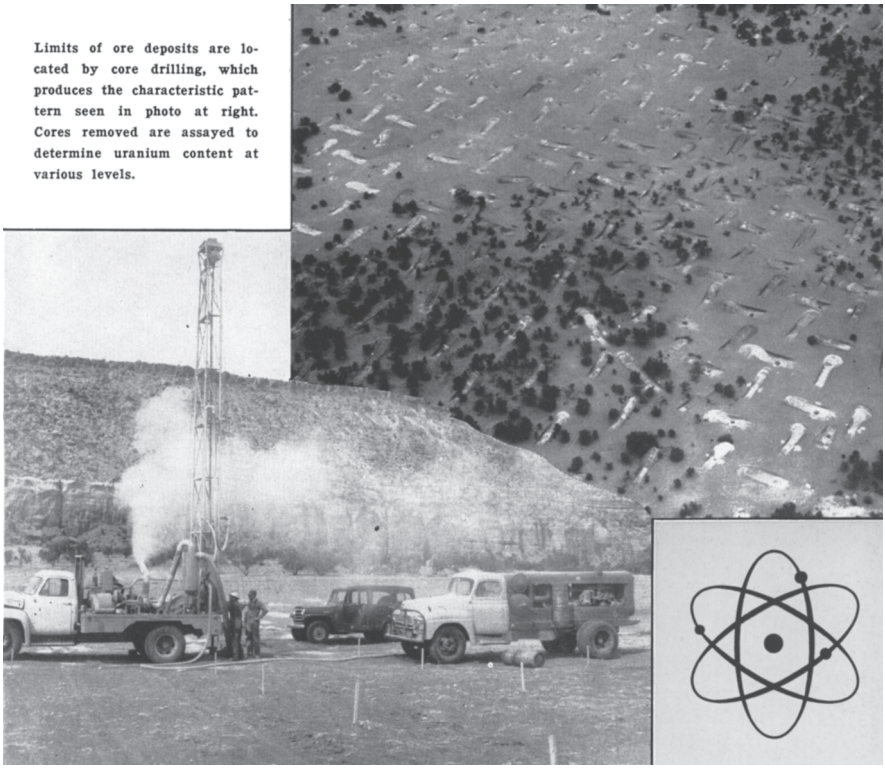


FIGURE 3. The aerial photograph at the top right shows the patterns created on the landscape as core drilling holes pockmark potential mine sites. The ore samples removed from these holes were then tested to determine their uranium content. The image at the bottom left shows a core drilling crew hard 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 accruement, and so on), ideas about the value of environments are manifested by the material consequences of environmental destruction (or, in the inverse, by environmental protection[60]). 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, simsalabim—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 is it impossible to see, feel, or taste your exposure to radiation, nuclearism triggers human anxiety to an almost incomparable extent. Nuclearism's affective multiscalarity 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'nidzisgai (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 landscape[64]—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 racialist (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 leaden 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 "prehistoric 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 Tsoodził (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 worldviews 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 Tsoodził. 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 depredations 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 shorthanded 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 ONE

Empty Except for Indians

Early Impressions of Navajo Rangeland

> When four tectonic plates of liberation theory—those concerned with the oppressions of gender, race, class, and nature—finally come together, the resulting tremors could shake the conceptual structures of oppression to their foundations.
>
> —VAL PLUMWOOD, *FEMINISM AND THE MASTERY OF NATURE,* 1993

Obscenity and Science

In 1934, a federal biologist named Waldo Lee McAtee was sent to Diné Bikéyah to study the Navajo rangeland, with a focus on the problem of soil erosion. McAtee was a seasoned biologist, having started his career thirty years earlier with the Bureau of Biological Survey in the Department of Agriculture. McAtee spent three days trekking over an unspecified portion of the reservation, and then sat down to compose a report. It appears he was none too impressed with the state of Navajo country:

> in three days' travel over the Reservation, I saw no quail, no meadow-larks, and only three mourning doves, ground-dwelling birds which should be common in the region. I saw no hawk, no burrowing owl, no coyote. . . . In fact, the region is largely devoid of terrestrial wild life.

"This," he concluded, "is not a normal case." Diné Bikéyah, in McAtee's estimation, compared unfavorably with Texan cattle country, where, according to his report, "not only the finest quality of cattle are produced by range feeding alone, but where the grass and other ground cover is not generally impaired."[1] This report helped hone an already-fulminating sense of urgency among agents of the Indian Service and the Department of the

Interior that the Navajo rangeland was desperately overgrazed by herds that ate the vegetation faster than it could grow, their hooves churning up the dry soil so that it blew in the wind and washed away with the rain.[2] The Navajos, from the federal point of view, were active participants in what amounted to the desertification of their land as they continued to increase their herds on their limited reservation land. The government's plan for solving the emerging "Navajo problem,"[3] as they called this simultaneously social and environmental issue of overgrazing, was a decade of forced sell-offs and mass slaughters of Diné sheep, goats, cows, and horses and an active program to assimilate Navajo land use. It was precisely this "Navajo problem" that McAtee was in Diné Bikéyah to observe and evaluate.

In narrating the cause of overgrazing in Navajo country as the combined result of social and environmental deficiencies of the Diné and of Diné Bikéyah, federal biologists were crafting a very particular kind of colonial story. In this story, land that had the potential to be rich in agricultural yield—even verdant, like McAtee's vision of Texan cattle country—with the proper kind of management, had instead been driven to utter ruin by a backward people who did not understand how to care for their land. This is a story, in short, of environmental decline "that blamed the indigenous peoples, especially herders" for destroying rangeland that could be "apparently highly fertile."[4] This declensionist environmental narrative, as Diana Davis argues in the case of French declensionist narratives in North Africa, has been used in multiple colonial contexts "to facilitate the appropriation of . . . resources, to transform subsistence production, and to effect social control" of a colonized people, which then facilitates "new laws and policies . . . to curtail and criminalize many of the traditional uses of the environment" by indigenous nations.[5] The notion that indigenous relationships to the land had driven it to ruin, in short, promoted colonial agendas of control, coercion, and assimilation. In the context of livestock reduction on Navajo land in the 1930s, this colonial declensionist narrative was compounded by the culture of conservationism in federal resource management, an efficiency-oriented approach to resources that was starkly juxtaposed against what was seen as an irrational Navajo land use that produced a landscape desperately in need of salvation. The Navajo problem, thus, was understood to be a problem of decline, from, as McAtee put it, "normal" rangeland to "a region devoid of terrestrial wild life" and much in need of rescue.

McAtee was brought in to consult on the Navajo problem because of his reputation as an influential member of the Biological Survey, having published papers on a wide spectrum of topics over the course of his career. Mac, as his friends and close colleagues called him, had full, almost jowly,

cheeks, heavy eyebrows, and a wide forehead, all of which added up to a very serious countenance. This serious countenance, however, hid what Mac called his "ribald" sense of humor—in evidence in 1945, when he quietly published *Nomina Abitera,* a study of the wide range of "vulgar" animal and plant names and "dirty" toponyms given to major landmarks in the United States.[6] The "ribald geographic terms" documented in *Nomina Abitera* range from "Mrs. Jackson's Hole" ("a particularly suggestive fissure in a smooth cliff face in Jackson's Hole just south of Yellowstone Park") and "Cunt Canyon" ("called Ladies' Canyon on the map") in Tahoe National Forest, to "Stiff Prick" mountain in Montana (which "suddenly became St. Patrick's Peak" whenever "a lady" asked its name) and "Colonel's Pecker Butte" in Arizona.[7] The list of terms also included a great many synonyms, deriving from at least four languages, for breasts. While many of these informal names are euphemized or changed on maps by what he calls "finicky auditors and observers," McAtee argued that "although [these] effete successors have done more or less to alter the record, those hardy enough to conquer the wilderness usually left upon it the impress of a rich vocabulary." The ubiquity and abidingness of these "dirty" monikers, in McAtee's estimation, reflected the "sense of humor that has helped pioneers, explorers, [and] soldiers . . . through many a struggle with the difficulties of life."[8]

McAtee's work in both Diné Bikéyah (the more formal of his labors) and in *Nomina Abitera* (the "dirty" and unpublicized product of his less formal research) exemplifies much about the relationship of the United States to its western lands in the first half of the twentieth century. McAtee began his almost fifty-year career as a federal biologist in 1904 with the Biological Survey in the Department of Agriculture, which later became the Fish and Wildlife Service of the Department of Interior. During this time, McAtee's career coincided with significant developments in resource management and the conservationist federal relationship to its western territories and states. Through his work as a federal biologist, when scientific resource management was becoming the modus operandi for the federal government, and his more private fascination with the "dirty words" of Western exploration, settlement, and soldiering, McAtee's career offers a node from which to consider the complexities of what feminist geographer Ann McClintock has called the colonial "lay of the land" as it played out in the settling of the West and its resources.[9] His work reflected the cleavage of two approaches to land that are generally considered binary opposites: the public—scientific, rational, and institutional—and the private—ribald, hypersexual, dirty, and obscene. The informal work of pioneers, explorers, and soldiers to take hold of the landscape by means of "interesting geographical appellations" (many if not most of which referred

to women's body parts) that reflect a "relish for the vulgar" is not so far afield, we might conclude, from the highly formalized work of biologists, conservationists, and cartographers to chart the land and list its metal, mineral, vegetable, and animal contents.

By holding together these formal and informal ways of mapping landscapes, the scientific and the dirty, McAtee's unfavorable impression of Navajo (versus Texan) rangelands emerges in a different light. The Texan rangeland, McAtee suggests, reflects what the biologist perceives as a more normative ecosystem, managed by normative ecological practices, complete with the flora and fauna federal biologists are trained to observe and record. The Navajo rangeland, in contrast, comes off as ecologically aberrant and unable to support the kinds of wildlife "which should be common in the region." These discourses, ostensibly about land and resources, can be seen as being very deeply contingent on the politics of race, gender, sexuality, and reproduction. The Navajo range in this period was most often represented as barren, a deeply gendered stand-in for "wasteland" that feminized the land in a way that foreclosed traditionally valued feminine traits, particularly reproduction. In a manner of speaking, the "barren" rangeland was the inverse of the fecund image of a verdant Mother Earth; whereas the former is a monstrously infertile landscape, the latter represents fertility, care, and nurturance of her human and animal children. Just as the "hardy" pioneers of McAtee's *Nomina* were able to "impress" upon the conquered wilderness "a rich vocabulary" that constructed the land as a sexual object and explorers as penetrators—rendering the land, as Andrea Smith points out, "rapable"—these ways of talking and writing about Diné Bikéyah as barren impressed themselves on the landscape over the period of U.S. exploration and examination of Navajo country through the intimacies and excesses of federal intervention.[10]

In this chapter, I explore stock reduction and soil conservation, looking to the ways in which declensionist federal discourses about the Diné and their land relied on formal and informal representations of the Diné and Diné Bikéyah as troubling to hegemonic notions of normative ecological practice. The formal program of stock reduction, in short, was accompanied by a less formal representational project that constructed the Diné as nonnormative. As critical race theorist Patricia Williams artfully puts it, to explore these informal and formal discourses of race, gender, and colonial power is to seek out "her shape and his hand," to look at otherwise hard-nosed politics and policies (his hand) and find "the shape described by her absence."[11]

The Navajo problem is an instructive case for understanding the role of nonhuman nature in the interplay of formal and informal discourses of difference. As noted by Val Plumwood in the epigraph to this chapter, by uniting the "four tectonic plates of liberation theory—those concerned with

the oppressions of gender, race, class, and nature," scholars might more fully understand how these multiple manifestations of oppression are mutually constituted.[12] Representations of the nonhuman world, in short, matter, whether they are grounded in material reality (what geographer Edward Soja calls perceived space), or "entirely ideational" (conceptionalized space) or some imbrication of the two.[13] The ways in which landscapes are imagined and represented are of course crucial to the construction of our "imagined communities."[14] This is perhaps never so true as in U.S. history, where the entire nation-building project of manifest destiny was built on the "frontier," an ideational and material staging ground for the "home" of the nation and development of the racial, sexual, gender, and political–economic orders that defined what it meant to be an American and what promises manifest destiny held for a nascent colonial power.[15] The frontier meant settlement, agricultural cultivation, rugged masculine individualism, and racial violence; it meant an articulation of specifically white American gender, sexual, and familial orders. It also required a very particular relationship of heteropatriarchal subjects to the land: an extractive, proprietary relationship that assimilated land itself into a capitalist political economy and required that the land in question be, we might say, properly reproductive.

Native peoples have long been excluded from this proprietary relationship to the land, largely under the justification that theirs was a "natural" rather than a "civil" right to land ownership, as famously argued by Massachusetts governor John Winthrop in 1629: "As for the Natives," Winthrop decreed, "they inclose noe land, neither do they have any settled habytation, nor any tame cattle to improve the land by, and soe have no other but a natural right to those countries."[16] This sentiment built on an already long-standing tradition in European colonial discourse that rationalized colonial domination of land and its resources on the grounds of "proper" economic land and resource use. In his *Second Treatise on Civil Government,* John Locke outlined a modern European relationship to land that illustrated the ideological platform from which Natives were excluded from land rights in settler colonialism:

> God gave the world to men in common; but it cannot be supposed he meant it to remain in common. . . . He gave it to the use of the industrious and rational, and labor was to be his title to it. . . . As much land as a man tills, plants, cultivates, and can use the product of, so much is his property. He by his labor does, as it were, inclose it from the common.

In the modern European social contract, proper (white heteropatriarchal) relationships to land were thus predicated on the exploitation of both labor and resources. This modern social contract, with its implications for

human–nature proprietary relationships, is inherently gendered: the labor that brings a man into the public sphere of political economy by virtue of his "industrious and rational" relationship to land is enabled by the private sphere labor of a feminized subject (a wife) in a heteropatriarchal household (again, her shape and his hand).[17] Gender and sexual roles and power relations, therefore, are built into the very foundations of the modern social contract—the same contract that denies indigenous peoples "civil rights" to property in the colonization of the Americas. This social contract and its implications for property ownership and ecological practice has direct relevance to the development of tribal rights and property in U.S. policy in the late nineteenth and early twentieth centuries. The General Allotment Act of 1887 (more colloquially known as the Dawes Act), for example, sought to assimilate tribes into these white heteropatriarchal relationships to land and resources through the process of allotting land to individual "heads of families" for agricultural development, with disastrous results for Native peoples.[18]

Colonization of indigenous nations has consistently entailed constructions of Native bodies, sexuality, gender norms, ecological practices, and family forms as aberrant or nonnormative and in need of "assimilation" or annihilation. In the early colonial period, constructions of Natives as having nonnormative "natural" rights to property (an implicitly gendered notion of property) were coupled with explicitly gendered ideas about the nonnormativity of Native bodies, relationships, and sexual practices.[19] While racism and racialization tend to take center stage in histories of colonization, Native feminists have done important work to highlight the importance of sexuality and gender, intersectional with race, in the exercise of colonial violence—from rape and other forms of sexual violence to discursive constructions of Native land as rapable, Native men as emasculated, and Native peoples in general as "wards" or children to the American national patriarch.[20] As Native studies and critical race scholars point out, "colonialism has always operated *through* gender."[21] Discursive constructions of Native women as "squaws," an epithet laden with sexual as well as racial meaning, was compounded by the cartographic repertoire of inscribing "squaw" on the landscape of the West (as evidenced by the litany of place-names that continue to use this epithet to mark the land. It is worth noting that while many of the "dirty" toponyms that McAtee lists in *Nomina Abitera* have been replaced with more acceptable names, those that use "squaw" have often remained the same.)[22] All of these iterations of colonial violence gesture to the ways in which sexuality and gender, in addition to race, class, and citizenship, figure prominently in Native experiences of colonization. Likewise, they suggest the ways in which the very

"discovery" and subsequent settlement of the North American landmass, with attendant penetrations into Native lands, were framed as matters of sexual conquest.[23] Environmental historians and ecofeminists have concurred on this point, noting that the "lay" of "virgin" land was "an ideological weapon in the service of the white European conquest of the Americas."[24]

Absent the critique of colonial power relations between white settlers and the land of the West, McAtee in compiling his *Nomina Abitera* might have agreed quite heartily with the notion that westward expansion offered the potential of a lay of feminine landmass. As the epigraph to *Nomina,* Mac provides a poem that might very well be his own composition (the poet and date of publication are identified simply as W. L. M., 1935). Titled "Cypripedia," the poem lovingly addresses the Western landscape as a thing of beauty, despite the "coarse names" given it by "plain folk"—names that did not reflect the fact that, as the poem put it, the land was "Fair as any flower to blow":

> You do suggest a maiden,
> A dryad kneeling nude,
> Startled, with blushes laden,
> When by her lover woo'd.

The object of the poem, the land of the West itself, is a fantasy—albeit a lovely one—quite distinct from the landscapes of Navajo country McAtee found so disappointing. What endures is the recognition that the representational qualities inhered in lands hold quite clear material implications for people and animals who occupy them. His perception of Diné Bikéyah—"not a normal case" of Western rangelands and as distinct from "A dryad kneeling nude" as the barren wasteland is from the fecund Mother Earth—exemplified how the larger process of stock reduction, and subsequent federal treatment of Navajos and their resources, ensued.

Scorched Earth

The stock reduction program was not the first time the federal government had decimated Navajo resources. By the time McAtee was comparing Navajo and Texas rangelands, the Diné had been busily reestablishing their herds, as well as their agricultural fields, for over six decades, fields and herds alike having been almost universally destroyed in the scorched earth campaigns of the 1860s. During that decade, the United States waged a war of domination over the Diné, attempting a military hegemony the Spanish and Mexicans had never achieved. The United States saw more success

than these colonial predecessors ever had, and it came primarily through the destruction of Diné resources. Forces led by Kit Carson waged a scorched earth campaign against peach trees and goats, horses and squash, largely starving out the Navajos who otherwise refused to leave their hogans, fields, herds, and grazing lands. The year 1864 was one of excessive violence against the Diné and their cultivated resources; all of the focus on attacking Diné food supplies that year was done for the stated purpose of coercing the Navajos to submit to U.S. authority and agree to be removed to Bosque Redondo. By 1867, nearly 8,000 Navajos—about half the total Navajo population—had undertaken the Long Walk to the Bosque. Whereas the intent of the scorched earth campaign was ostensibly to coerce the compliance of the Diné, much of the violence directed against Navajo resources seems to have been motivated by less clear-cut (we might say less formal) imperialist impulses, as evidenced, in part, by Captain John Thompson's wanton destruction of thousands of acres of Canyon de Chelly peach trees.

In contrast to their abundant resources in Diné Bikéyah, of both the hoofed and planted variety, the Diné found that the Bosque Redondo camp offered nothing but long years of frustration, sickness, and hunger. The soil proved too alkaline to support crops, the crops themselves infested with "army worms." The camp lacked adequate water sources and experienced intermittent flooding. Whereas many Navajo families owned a relative wealth of livestock in Diné Bikéyah prior to the Long Walk, the total census of domestic animals at Bosque Redondo in 1867 came out to a pitiful 550 horses, twenty mules, 940 sheep, and just over a thousand goats.[25] By comparison, in the previous decade, 70 percent of Diné families owned between fifty and several hundred head of sheep and goats.[26] The Diné and Mescalero Apache internees were forced to resort to surviving on rations, which were, in turn, insufficient in amount and notoriously plagued with insects. Hwéeldi, as the Diné called the camp, also had strongly gendered implications for the Diné; women were subject to sexual assault and gender-based violence, along with the starvation and disease rates experienced by all the internees.[27] Structural changes in Diné politics and economics likewise had a disproportionate impact on Navajo women. As Navajo women had historically been both property owners and respected political figures, the decimation of Navajo resources (including the livestock and crops owned by women), a government policy to radically reorganize Diné life into sedentary "pueblos," and an American insistence on recognizing the political leadership only of men, all went hand in hand to undermine the strong position of Navajo women in the tribe.

Whereas the stated reason for removing the Diné to Fort Sumner was their reputation for raiding nearby Nuevomexicano communities, the less

formal underlying reasons, like Carson's scorched earth campaign, revolved around resources. Commenting on the astronomical cost of keeping the Diné incarcerated at Hwéeldi, General Carleton rationalized, "when it is considered what a magnificent pastoral and mineral country they have surrendered to us—a country whose value can hardly be estimated—the mere pittance, in comparison, which must at once be given to support them, sinks into insignificance, as a price for their natural heritage." The Diné homeland, their "natural heritage," was assumed to be rich in minable resources, and politicians from the New Mexico and Arizona territories expected to profit significantly from mining once the Diné were removed.[28] During the period of their incarceration at Hwéeldi, however, the search for minable resources in Diné Bikéyah, with a heavy emphasis on gold, revealed no major prospects.

By early 1868, it was clear that Hwéeldi could not continue to house the Diné and Mescalero Apache who were surviving the camp's hellish conditions. Diné leaders had tirelessly negotiated with their captors to protest their incarceration, and local authorities were under pressure from their constituents because of the cost of keeping the camp open. General Sherman, who arrived at Hwéeldi in 1868 to negotiate the treaty that would close the camp, oversaw a roiling debate over the Navajos' fate.[29] Many still saw promise in the vast lands of Diné Bikéyah for prospecting mines, and thus advocated for marching the Navajos even farther east to Indian Territory, the area of present-day Oklahoma that already hosted the Five Civilized Tribes and several Plains Tribes that had likewise been removed from their homelands.[30] The Diné might well have had a very different story if they had not so persuasively negotiated against this option. It also helped that General Sherman "had convinced himself," on the basis of what others said, that the Navajo homeland was "utterly unfit for white civilization," despite the fact that just a handful of months earlier he had "doubt[ed] whether we can make them a location in their old boundaries . . . which will not, sooner or later, be interfered with by people from Colorado and New Mexico in search of treasure."[31] This waffling opinion of the worth of the arid Southwest was part of Sherman's general attitude toward the territories of New Mexico and Arizona: he was once reported to have quipped, "We had one war with Mexico to take Arizona, and we should have another to make her take it back."[32]

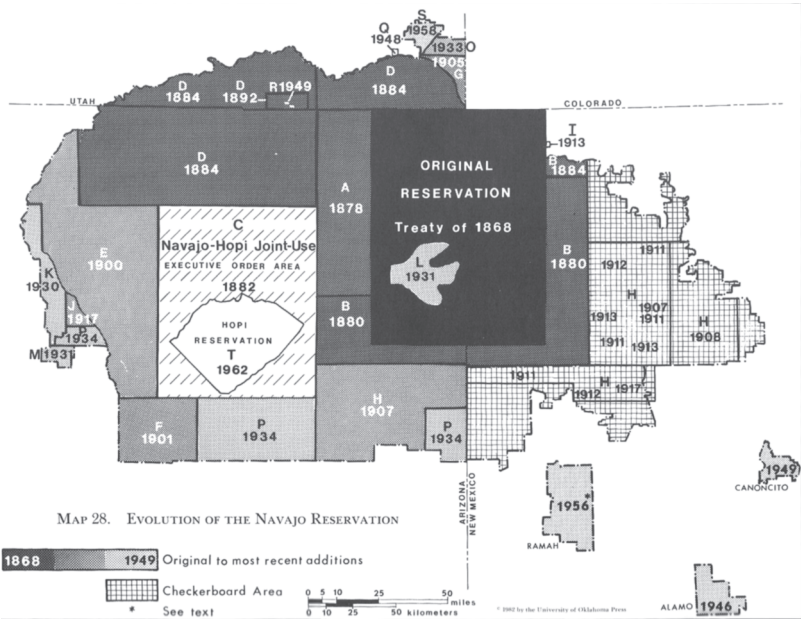
While Navajo land, as evidenced by hundreds of years of successful agriculture and herding, was certainly not the "waterless, worthless waste" Sherman reportedly imagined it to be, its potential productiveness for supporting the returning Diné was critically impaired by the contingencies of how the boundaries of the new reservation were drawn—as well as by

the scorched earth destruction of long-cultivated orchards, fields, and herds. The new reservation covered a "woefully inadequate" four million acres, grouping the pastoral Diné in one confined area too small to support their population, their herds, and their agricultural needs.[33] The size of the reservation was inadequate despite the impassioned advocacy of Diné leader Barboncito, who impressed upon Sherman that, once returned to their homeland, the Diné should be allowed to spread out across Diné Bikéyah: "it would not do," Barboncito argued, "to put [the Diné] all together as they are here [at Hwéeldi], if separated they would be more industrious." "I do not think it right," he added, "to confine us to a certain part, we want to have the privilege of going outside the [boundary] line to hunt and trade."[34]

The selection of the 1868 reservation was by no means arbitrary. On the contrary, it was chosen for two primary reasons: first, it reserved some of the most coveted, and productive, rangeland in the eastern reaches of Diné Bikéyah for white and Nuevomexicano herders; and second, it would ostensibly keep the Diné safely north of the tracks of the railroad. Railroad land grants had already been made, parceling major portions of the Navajos' southern lands and creating a distinctive checkerboard pattern of land ownership. Thus, "there is little doubt that General Sherman, outspoken advocate of transcontinental railroads, knew precisely on 'his beloved maps' " that the reservation lines were drawn to make room to the east and south for the railroad and its accompanying allotments of land. In his negotiations with Diné leaders, Sherman, whether purposely or not, exaggerated the amount of land the federal government was setting aside for the tribe. He told the Navajos that their reservation, "including the Canyon de Chelly, and part of the valley of the San Juan," was "about one hundred miles square," running "as far south as Canyon Bonito, and includes the Chusca Mountain."[35] Among other misleading elements of this description, the new reservation was a little more than half the "one hundred miles square" Sherman presented to the Diné. The land that was excluded from the reservation to make way for the railroad stretched from Tsoodził, the sacred mountain of the south, to present-day Gallup, New Mexico, and was "the best of the Navajos' traditional winter range."[36] Excluding it from the treaty area for the benefit of the railroad and non-Native ranchers would have profound implications for the Diné who would come to settle in these eastern reaches of the traditional Diné homeland (and, as I explore in chapters 5 and 6, upon the discovery of major uranium deposits in this area, the checkerboard parcels of federal-, private-, and Navajo-owned land would greatly impact subsequent uranium booms and their effects on local Diné).

Getting down to the labor of rebuilding the resource wealth of their families and land, the Diné paid little attention to what the federal government and the Territory of New Mexico considered their new reservation boundaries, either because they simply honored their own notions of territoriality over their would-be colonizers' or because Sherman told the signers of the 1868 treaty "that their people would be allowed to use any off-reservation areas not occupied by white settlers."[37] Of these, many returned to the good wintering lands to the east of the reservation and west of Tsoodził in the checkerboard area of New Mexico. From those reservation and off-reservation places, the Diné set about to reinhabit Diné Bikéyah, with herds and people alike; as Akinabh Burbank, a Navajo of the Red Streak Running Into the Water clan, remembered this time, the Navajos "scattered in different directions toward their old homes" and attempted to recover from the Long Walk.[38] The regrowth of their livestock herds was undertaken with the blessing and support of the 1868 treaty, which set aside money to purchase 14,000 sheep and 1,000 goats to distribute among the returning Diné.[39] Estimates of Navajo livestock between 1868 and 1890 show a remarkable increase in herd sizes. Though this growth was curtailed in the 1890s by a severe drought, in general this was remembered as a time when "peace and beauty came back to being" for the Diné, who "were enjoying the privilege of raising all the livestock they wanted."[40]

By the 1880s, more than half of all Diné were living outside of the reservation boundaries. In recognition of this, and in response to repeated calls for an expansion of the reservation by Navajos themselves, the federal government authorized a series of expansions, most enacted by executive order, which more accurately reflected Navajo land use than did the original treaty reservation (yet still failed to include any of the four sacred mountains). Expansions to the reservation happened relatively easily when New Mexico and Arizona were still territories of the United States, but came to a rather abrupt halt in the first decades of the twentieth century when, not coincidentally to the granting of New Mexico and Arizona statehood, pressure from non-Navajo stockmen began to increase dramatically in the reservation's eastern borderlands, pressure that only magnified when new drilling technologies allowed these stockmen to reach deep artesian wells in the lands just east of the reservation, making these lands "much more valuable to Anglo corporate herders and to potential homesteaders."[41] In fact, the early twentieth century saw a generally "increasing pressure," often violent, on the Diné and their herds in New Mexico.[42] By 1918, enlargements of the reservation had come to a halt.[43]



MAP 28. EVOLUTION OF THE NAVAJO RESERVATION

FIGURE 5. Successive additions were made to the reservation after the original reservation was created by treaty in 1868. Newer additions are lighter in color, while the area where landholdings were mixed among Navajo, private, state, and federal ownership is marked with a checkerboard. James Goodman, *The Navajo Atlas: Environments, Resources, People, and History of the Diné Bikeyah* (Norman: University of Oklahoma Press, 1982), 56.

The tendency of Navajos to live beyond their reservation borders created the persistent impression among federal agents that Navajos were constantly spilling over their designated land base, unable or unwilling to contain their own population in accordance with reservation boundaries. The federal reliance on maps and government-imposed boundaries rather than the Navajos' actual homeland visually indicated to federal observers that Navajo land use was too demanding. Maps as in Figure 5 created an impression that the government had to accommodate Navajos' inability to remain within their designated reservation, as opposed to the alternative view that the Navajos had to attempt to accommodate the government's irrational demands that they occupy only a fraction of their homeland. These perceptions of Navajo land-use patterns came to contextualize federal perceptions of the "Navajo problem" in the 1930s and into the early 1940s.

Sheep, Maps, and Power

In November 1941, E. R. Fryer, the general superintendent of the Navajo Service, submitted a report to John Collier, the commissioner of Indian affairs, that succinctly sums up the federal position on the "Navajo problem." The problem, Fryer wrote, "is notoriously one of severe land deterioration and economic deprivation," producing a clear "maladjustment" between Navajos and their land. The "underlying causes" of this "maladjustment," moreover, derived directly from "overpopulation of the Navajo country," which led to the "correlative evils of excess numbers and poor distribution of livestock, severe overgrazing, unregulated forest and woodland use, inadequate farming system, . . . and deterioration of social interrelationships, Indian leadership, economics, and health."[44] The Navajo problem, this nexus of "correlative evils" on the reservation having to do with not only social but also ecological and economic challenges, became the central concern of federal policy toward Navajos during the 1930s and the early 1940s. Many observers went so far as to predict dire consequences, including the extinction of the Navajo people, if the so-called Navajo problem was not addressed by aggressively reducing Diné livestock, curtailing human population growth, and educating the Diné about federal ideas of "good" resource conservationism. These tactics were undertaken in lieu of accommodation of the Navajos' need for a larger land base to support their growing population and livestock herds.

The first strike against soil erosion, and for years the only weapon wielded by the federal government against it, was to reduce livestock herds, which, as the primary economic resource of many Diné families, were economically as well as culturally indispensable—livestock are built into the very origin stories of the Diné, and thus central to their history and worldview.[45] The single-pronged strategy adopted by the federal government to solve the Navajo problem was to reduce Navajo livestock from about 1,270,000 sheep or "sheep equivalents" to the federally determined "carrying capacity" of the land, which constituted a reduction of a devastating 56 percent of Navajos' total livestock. This reduction often involved egregious waste, and notoriously violent tactics.[46] During one particularly overzealous goat removal, "the government shipped the animals away, had them butchered and processed, then sent back to the Navajos as canned goat"—an excessive waste, given that the Diné "used practically everything but the goat's bleat."[47]

Throughout the period of stock reduction, Commissioner Collier, Superintendent Fryer, and other Indian Service personnel seemed unable or unwilling to understand differences in Diné and white conceptions of stock ownership. With each enhancement of the reduction policy, the service

treated a flock as property, ignoring the extraeconomic roles of sheep, goats, cows, and horses in Navajo life. Moreover, women rather than male heads of household owned large portions of the stock herds; as Marsha Weisiger points out, Navajo women "controlled the means of their own production: livestock and land."[48] Because Navajo women owned many of the sheep and almost all of the goats, reduction severely curtailed Diné women's economic power and independence.[49] What was formally a stock reduction policy, in short, informally served to undercut Navajo gender egalitarianism. The government treated a flock as the property of the head of household (almost always male), rather than as collectively owned among a number of family members, including and especially women, extended family members, and children. Federal agents in charge of overseeing stock reduction, moreover, did not appear to recognize these gendered patterns in stock ownership, nor did they seem to appreciate that Navajos might derive more value from their stock than mere economic gain.

These kinds of elisions, and Diné attempts to rectify them in order to mitigate the violence of federal policies, emerged at the very outset of conversations about stock reduction. In a 1928 Tribal Council meeting in Leupp, Arizona, several years before large scale reduction was underway in Diné Bikéyah, the assistant commissioner on Indian affairs E. B. Meritt and the superintendent of the Santa Fe Indian School Chester Faris presented the Tribal Council with an early version of the stock reduction program.[50] This plan, they explained to the council, would require excess grazing fees for stock owners who had herds in excess of 1,000 head of sheep, goats, cows, and horses.[51] In the meeting, Meritt framed this proposal not only as a promotion of fairness and "justice" but also of economic and infrastructural development.[52] He argued that these efforts would "increase the quality of all [Navajo] sheep," a nod to the widespread opinion among non-Navajos that the Navajo breed of sheep, the churra, was "scrubby" and "degenerate" in contrast to the more marketable "fine blooded" American breed (the Rambouillet).[53] (In the 1930s, this concern about the churra would lead to a federal sheep-breeding program at the Fort Wingate Sheep Laboratory.[54]) The subsequent discussion about Meritt's proposal at the 1928 meeting illustrates the depth of white misunderstandings (deliberate or not) of Diné sheep ownership, gender egalitarianism, and family forms. These misunderstandings shaped the policy of the federal government for decades and exacerbated the unjustness of already unjust stock reduction policies. While Meritt continued to insist that each individual stock owner would be allowed 1,000 head of sheep, the Council members tried in vain to explain to him the more nuanced problem of multiple Navajo owners of one herd, including owners who were women and children. One exchange

in particular reveals the depth of this misunderstanding and how multiple attempts to explain Navajo family forms and ownership patterns fell on the deaf ears of the federal agent:

> LITTLE SILVERSMITH, SOUTHERN NAVAJO AGENCY: I would like to run a little history about myself. I have two thousand head of sheep, and I have seven children. My wife and I, there are two of us, and then there are my children, nine of us all together; and then besides that I have three grandchildren, makes us twelve in the family. My daughter, the oldest one, is twenty-eight years old.
> MR. MERITT: She would be entitled to one thousand sheep in her own name.
> LITTLE SILVERSMITH: If these children and my grandchildren were allotted these sheep, they would get less than two hundred each. On this ground I figured that these other sheep men are in the same fix as I am. When you divide the sheep among your family there is not one thousand for each of them.
> MR. KNEALE, SUPT. NORTHERN NAVAJO RESERVATION: Those sheep have marks of the whole family.
> LITTLE SILVERSMITH, SOUTHERN NAVAJO AGENCY: Each child has his or her own earmark. I think I have about three hundred, maybe a little less than three hundred.
> MR. MERITT: Then in that case you would not have to pay excess grazing fee.
> LITTLE SILVERSMITH: I am speaking for my tribe. I think they are in the same fix as I am. You see a bunch of sheep, they don't belong to this one man. Now with the number of sheep I have, I have to eat and feed my children.
> MR. MERITT: You would not be required to pay an excess grazing fee. . . . Each family, the husband and the wife and the minor children will be entitled to one thousand sheep without paying an excess grazing fee. If you have children who are grown, who are 21 years of age, and that child is living with you, that child would also be entitled to one thousand head of sheep. . . . Now that same rule would apply to every child above the age of twenty-one years, so you see that this proposed rule would apply to only the big sheep owners.[55]

In this exchange, Little Silversmith tries repeatedly and unsuccessfully to communicate to Meritt the issues that stock reduction would raise, emphasizing the fact that from a Navajo perspective a reduction policy in this proposed form was essentially meaningless, as no individual (male) "head of household" owned the entire herd—they simply "don't belong to this one man." This confusion over definitions of family and heads of household

was still going on more than ten years later. At a 1939 meeting between Tribal Council members and Superintendent Fryer, council member Roy Kinsel asked what Fryer meant by "family," commenting, "There are families that have sons-in-law and so on and we know they form a big family. Now you tell us that they can only retain ten head of horses per family." Fryer replied:

> Usually we name the head of the family. If they live together and share things and operate as a family it is considered a family. They may have a son-in-law who does not own any sheep but has two or three horses. He is a part of that family group if he lives with his father-in-law and shares income. [If the son-in-law is married and living apart] that constitutes a separate family unit.

Here Fryer echoes the earlier exchange between Little Silversmith and Meritt by emphasizing that what Diné considered standard family forms—large multigenerational groups with women being important property owners—were considered exceptional by U.S. policy. Fryer seems unaware, alarmingly so given his position as the superintendent of the Navajo Service, that the Diné are historically matrilineal people and that sons-in-law often lived with their wife's family after marriage.

As Weisiger points out, "the fact that women really mattered in Diné society . . . never fully penetrated the consciousness" of the Indian Service.[56] This evidence is compounded by the fact that Meritt in 1928, and Fryer in 1939, were asking that the proposal be approved by all-male Tribal Councils; women were simply not consulted by the federal agents nor were they regarded as important political or economic actors. The details of Council meetings reveal the extent to which the federal government refused to recognize the implications of its stock reduction policy and, in particular, the relationship of Navajos to their stock herds and gendered egalitarian patterns of stock ownership. In the 1930s, stock reduction became a matter of great personal, political, and economic crisis for the Navajos, who tried to resist the mass slaughter of their sheep, goats, horses, and cows and looked on in horror as their stock were rounded up, sold off, shot, and sometimes burned.[57] Throughout, these foundational misunderstandings on the part of the Indian Service—this violent mistranslation of stock ownership and Navajo relationships to stock—remained engraved in federal policy.

In particular, federal discourses reduced the despair of Navajo women, witnessing the violent destruction of their herds, to "her" domestic concerns; in 1943, Office of Indian Affairs field representative F. W. LaRouche explained to Commissioner Collier, "under present conditions she fears the

loss of sheep because she does not know that other food can be acquired. She thinks that by taking the sheep, we are taking the food out of the mouths of her children."[58] LaRouche couched these words in an argument for replacing the Navajos' livestock economy, reduced to a ghost of its former self by the 1940s, with wage work. Drawing direct comparisons to the ideals of white heteronormative gender relations in wage-based economies, in a sense seeing Navajo women through "a mirror that reflected [his] own notions of separate spheres" and gender norms,[59] LaRouche wrote that if Navajo men were to have wage work, "The wife could always buy food for herself and her family; she could always be sure some money would be available for future needs."[60] In further explanation of the angst of women during and after stock reduction, LaRouche blamed the presumed economic impotency of Navajo men, rather than acknowledging a Navajo gender egalitarian system of stock ownership, writing that Diné women "would rather keep their sheep because they do not believe they can depend on the earnings of their men, and experience seems to justify skepticism."[61]

If these elisions of Navajo gender roles, particularly regarding stock ownership and property, played a significant role in stock reduction policy, the larger project of solving the Navajo problem would likewise involve violent elisions of domesticity, family forms, and reproduction. Thus, in the eyes of federal conservationists, it was not just livestock but Navajo people as well who were overpopulating Navajo land. In the 1930s, long-held federal impressions of Navajo overpopulation of their "inadequate" land base were folded into the discourses of the Navajo problem. An increase in the size of the reservation to accommodate Navajos and their herds seemed a political impossibility, due in no small part to a noisy campaign by the non-Native stockmen who ran their herds in the area east of the reservation proper.[62]

Thus, discourse around the Navajo problem privileged the "problem" of population, framing the Navajo as irrationally hyperreproductive given the "barrenness" of the land base. In a report for the Phelps-Stokes Fund published in 1939, the Navajos' growth in population from 1868 to 1938 is described as "a phenomenal increase in seventy years despite the poverty of their arid land."[63] John Collier himself described the Navajo problem as resulting from an "increase of population to a point at which extraordinary effort is necessary to sustain living" combined with a "lack of knowledge on the part of many of the Navajos as to the seriousness of their situation."[64] In short, federal discourse about the Navajo problem concluded that "Most of today's difficulties" with the Diné "result from the fact that Navajos are outgrowing their empire. Population is increasing

faster than economic development of the resources of the tribe."[65] Concern over the population growth of the Diné prefigured larger tendencies in U.S. conservationist and environmentalist discourse to link the growth of populations of color to environmental decline.[66] This focus on the problem of population growth in the twentieth century is painfully ironic, given that population *decimation* in the previous four centuries wreaked havoc on Native nations throughout the Americas, Diné included.

In their widely cited 1947 monograph *The Navaho*, anthropologist Clyde Kluckhohn and Indian Service physician Dorothea Leighton concurred with this impression that the Navajo land, "vast, but arid and unfriendly," was overcrowded, given its paucity of "high-quality" soil. They wrote, in a section titled "THE LAND IS CROWDED":

> Navahos have long since swarmed beyond the boundaries of the original Reservation, which has been increased in area repeatedly. . . . The old southwestern saw, "Let's give the country back to the Indians," is no longer a pleasantry to many stockmen of the Navaho country. The People [the Diné] are taking the country back. Yet even this vast domain is not enough for The People.[67]

The use of rhetoric leaden with racial meaning, such as the imagery of Diné "swarming" the boundaries of the reservation, serve to animalize Navajos in general and their reproduction in particular. Kluckhohn and Leighton go on to hazard a hypothesis about why Navajo birth rates might be higher than the U.S. average: "Perhaps," they ventured, the Navajos' "varied origins, so heterogeneous from both biological and cultural sources, have resulted in an outstanding manifestation of that phenomenon known to biologists as 'hybrid vigor.' "[68] In this way, the racialization of the Navajo constructed their racial difference as deriving from both biology and culture, and drew on the popular belief among white anthropologists that the Diné are "cultural borrowers and late arrivals in the Southwest," descended from multiple other indigenous nations rather than a people unto themselves—a belief that is roundly contradicted by Diné history and epistemology.[69] In keeping with this racialization of the Diné as "hybrids," the race difference of Navajos, in Kluckhohn and Leighton's estimation, had reproductive implications: according to the fuzzy racial pseudoscience of the early twentieth century, "hybrid vigor" was one hypothetical outcome of racial miscegenation.

While the general impression was that Navajo population growth had overtaxed the arid land, the specifics of Navajo domestic life were presented in federal discourse as being likewise unfavorable. As part of SCS and Indian Service attempts to map out the contours of the Navajo problem,

sociologists and social workers were deployed to the reservation to collect data on Navajo social life, including family life and domestic practices.[70] Social worker Ruby Tomlinson painted a gloomy portrait of Diné families and homes: "No homes were found to be sanitary and about 28 per cent were rated as fair in appearance for Navajo hogans." The Navajos, she lamented, "still cling to the typical windowless, one room hogan constructed of poles and mud."[71] Tomlinson went on to link these domestic conditions to larger social problems of "illicit" sexuality and disease, noting, "Court records show that arrests over a period of two years were predominantly for social disorders" including "giving venereal disease" and "adultery and illicit cohabitation." "There probably would have been more arrests," she noted, "if there had been more adequate law and order personnel." Again linking social and ecological conditions as the underpinnings of the Navajo problem, she bleakly concluded:

> The study indicates widespread poverty and a high rate of illiteracy among the Navajos. The rangeland is over-grazed and rapidly eroding. Farmland is insufficient and there is a lack of water for much of the land that is farmed. At least 50 per cent of the families are burdened with extra dependents. Many of these families are large and poor. Homes are inadequate and unsanitary. The medicine man is still popular, diseases are widespread, and the death rate of children is high. Social problems are numerous and are on the increase.[72]

These kinds of damning domestic discourses were part of a larger national context of social and racial management through the private sphere, including far-reaching policies that sought to control domesticity and reproduction. To borrow Laura Briggs's assessment of this primacy of the domestic sphere, the "'inferiority'" of communities of color "is produced through knowledge about the bodies and behavior of . . . women."[73]

These policies of control through the domestic sphere, moreover, were qualitatively and thematically linked to the then-dominant brand of Progressive-era conservationism. As noted by Louis Warren, the twentieth century marked a time when "a consensus emerged, especially among the middle and upper classes, that both nature and society needed to be better managed."[74] Conservationism, with its emphasis on "good management" of resources, became institutionalized within the federal government as its primary framework for developing natural resources. The conservation movement was sparked in the first decade of the twentieth century by the work of Gifford Pinchot, the first chief forester of the U.S. Forest Service; conservationism grew in strength and capacity through the 1930s under the New Deal programs of President Franklin Delano Roosevelt.

Conservationism is often juxtaposed against the environmental preservationism promoted by Pinchot's contemporary, John Muir, who advocated the preservation of wilderness in what he presumed was its pure form: untouched by "man," including Natives, who, Muir argued, had "no right place in the wilderness."[75] "Wilderness," according to this view, is an imaginary state of nature "untouched by human culture," a discursive framework that forecloses the possibility of indigenous claims to territory and privileges the wilderness experiences of the "mythical 'first white men' " who encountered the virgin terrain of the wild New World.[76] This discourse materialized in policy when, as environmental historian William Cronon notes, Natives were removed by force from legally protected "wilderness" areas, such as Glacier National Park, as a direct result of preservationist-style environmentalism.[77] Pinchot's conservationism, in contrast, advocated vociferously for "the use of the earth for the good of man."[78] This "use of the earth" was manifested in subsequent conservationist policy through the application of new sciences, such as forestry and agronomy, for turning wilderness into something more resembling harvestable (albeit ideally sustainable) cropland. Conservationism was therefore seen as the culmination of scientific knowledge about ecology and land use, with important connections to the management of human populations. Moreover, with its emphasis on "seeing" landscapes and people "like a state," conservation became an important arbiter of good ecological citizenship.[79]

In this heady context of the rational management of resources through conservationism and populations through the domestic sphere, the Navajo reservation was marked as an ideal first test site for the practice of soil conservation, which in turn became a major part of federal land policy throughout the twentieth century. John Collier recounts in his memoir that the "near-impending doom" of the Navajo problem "launched . . . the soil conservation movement of the United States," which was "a movement to extend to every continent in the dawning realization that all mankind is facing the same crisis, growing from wastage of soil resource, that faced the Navajo tribe."[80] As a 1936 report from the U.S. Department of Agriculture explained, Navajo country was selected as "one of the original" Soil Conservation Service (SCS) sites "based on the fact that this area was outstanding in its need for proper land management" and "the Navajo tribe with a rapidly increasing population was dependent for its livelihood on the productivity" of land that was already "in an advanced stage of depletion."[81] What made the Navajo reservation even more attractive for these experiments in soil control was the nature of the colonial relationship between the Diné and the federal government; that is, in the view of the government, "the entire area was Federally controlled, which permitted the

establishment of a project through a working agreement between the Bureau of Indian Affairs and the Soil Conservation Service."[82] Historian Peter Iverson notes, "In the days of the Dust Bowl, federal employees looked to the checking of erosion in the Navajo area as a symbolic victory needed to impress the fruits of soil conservation upon the entire country."[83]

Making Maps

In a 1935 annual report of its work in Navajo country, the SCS outlined what had already been accomplished on the reservation through the Navajo Erosion Control Project, and what had yet to be done. Those projects crossed off the list included the drawing of maps from aerial photographs, engineering maps, soil maps ("drafted in detail from field surveys"), range survey maps, an aerial survey of "Navajo Country," and the selection of twelve demonstration areas—all of which "have been mapped with sufficient accuracy to permit range, soil, and engineering surveys."[84] The SCS had also "leveled, fertilized, constructed, equipped, and planted" a five-acre nursery at the Mexican Springs demonstration area. As this list of industrious activity on the reservation indicated, the SCS was deeply invested in mapping the reservation as a matter of course in its work to conserve Navajo rangeland. However, the Service did not stop there. Its list of needed "fact finding" went on to argue that the SCS would need to"learn the manners, traditions, and customs of the Navajo and the environmental factors affecting them, with special reference to their economic needs." Emphasis was placed on "their adaptability to improved methods of livestock management and new occupations."[85] What was being undertaken, in short, was a large-scale study of Navajo environmental life and history—ironically, by the same Service that in fact created "the environmental factors affecting" the Navajo at that time, as the SCS had become the face of the near-universally despised livestock reduction program devastating Navajo herds. In other words, as the SCS focused on mapping lands and resources, it was nearly equally intent on mapping Navajos themselves, seeking out "intensive studies" on everything from range use, to agriculture, to Diné uses of trading posts, to the "domestic economy of household groups," to education, and so on.[86]

The report noted that extensive surveys of the reservation as a whole were needed in seven different categories: range, erosion, soils, forests, agriculture, fauna, and vegetation. During the stock reduction period, a veritable flood of federal experts, ranging from ecologists, conservationists, agronomists, and cartographers, to social workers, anthropologists, and economists, descended on the reservation. Eighteen Soil Conservation Districts were

parceled out of the larger reservation to study the effects of scientific range development practices, deployed in the interest of "understand[ing] thoroughly the conservation problem on range and pasture lands" and producing "a complete natural resource inventory" of the reservation.[87] Under the close scrutiny of federal experts in the land sciences, the very soil of Diné Bikéyah seemed improperly unruly and problematically unreproductive—just as it did to Waldo McAtee in his visit to the reservation. Like McAtee, the SCS seemed to universally regard Diné Bikéyah as simply "not a normal case."

The process of mapping, charting, and inventorying was not limited to the land. Included in the SCS's mission was a goal to "learn the manners, traditions, and customs of the Navajo and the environmental factors affecting them, with special reference to their economic needs, and their adaptability to improved methods of livestock management."[88] By the end of 1935, it was clear that the SCS was operating under a quite ambitious mandate: assimilating the Navajos into a more "civilized" relationship with their land and its resources. Like the land, the Navajos themselves posed problems for the rational management of the reservation's soil. A 1935 report, for example, lamented the fact that white men were not brought in to do SCS work, which "would have immediately simplified the work on the Reservation"; however, the Service consoled itself that employing Navajos for its projects at least would begin the long process of the Navajos "adjusting themselves to standards of accuracy and precision which have no relation to the Navajo background."[89] Indeed, the SCS saw itself as facilitating a kind of benevolent assimilation into good conservationism—in other words, an assimilation into what the SCS considered good ecological citizenship.[90] Their project, as they saw it,

> should be the building in as many Navajos as possible, men, women, and children, and certainly in every man on the payroll, be he Navajo or white, a sympathetic understanding of the approach to the land use problem. . . . It is a question of building in these people a new point of view. To what degree it can be built in a large number of people is a question. A question that the SCS must attempt to answer.[91]

To build this new relationship with the land, this new "point of view," and an understanding of the gravity of soil erosion, would be the Soil Conservation Service's larger, quite ambitious goal.

This goal was met, in part, through the edifying practices of conservationist education, and although lip service is paid in the above quotation to the need to educate whites as well as Diné, it is quite clear that the "Navajo problem" remained a Navajo problem. A school for Diné employees

of the SCS was opened up at Fort Wingate in 1934 to provide training in "topographical mapping, handling and laying out of construction work, and in developing in selected students an understanding of the Navajo land problem in general."[92] In its educational efforts, however, the SCS did not ignore the many Diné who were not in their employ. The Service dabbled in a number of educational programs for the larger Navajo public, including one that enrolled twelfth graders in a unit called "How to Restore and Keep the Land in Condition to Support the Navajo People," in which the students were required to do fieldwork and make speeches about soil erosion and good conservation practices. The SCS took its message to day schools and other reservation centers with an interactive exhibit mounted on "a small truck . . . equipped with an outfit for showing 16mm moving pictures," which "by its very nature and completeness [could] reach all types of people with its graphic portrayal of erosion unchecked and under control."[93] This truck was even equipped for sound projection, to achieve maximum effectiveness with its audience. In this way, the SCS undertook to assimilate the Navajo public into the federal "point of view"—a point of view that stipulated, first and foremost, that the Navajos had seriously mismanaged their livestock, irrigation, and agriculture.

The SCS was not alone in identifying stock reduction as an assimilative project, and stock reduction, subsequently, became a recurring theme in Indian Service policy regarding the Navajos. In 1940, for example, the Educational Division of Indian Affairs released a series of children's books written and illustrated by Diné artists. The *Little Herder* series, as it was titled, was designed to encourage bilingual literacy among Diné children. Simultaneously, however, the series sought to provide to young Navajos "a foundation for understanding modern concepts of special concern to Collier, such as the need for livestock reduction."[94] Indeed, the fourth book in the series, *Little Herder in Spring,* directly addressed the debate around stock reduction, in the voice of a young Navajo boy. "For a long time," he says, "there have been meetings of many men for many days"; "In the morning when my father leaves for meeting he says to us, 'When I come here again then I will know if it is best to have many sheep or few sheep' and whether 'to use the land or let it sleep.' "[95] Here, stock reduction was framed as an issue of debate among *Navajos*, rather than an imposed federal policy. Moreover, white gender norms were folded into the narrative itself: while the father attends meetings of "many men," the hogan is referred to as "my mother's hogan," and illustrations make it clear that the domestic environment is a space of feminized motherhood. The book, therefore, in addition to encouraging a more friendly view toward stock reduction, subtly incorporates white gender roles.

In subsequent decades, social norms and soil continued to be conflated in conservation policy on Native land. In a 1950 memo to "All Soil and Moisture Conservation Employees," Evan L. Flory, then chief of the Bureau of Indian Affairs (BIA) Branch of Soil Conservation, wrote a call to action under the subject "*WANTED:* Zeal and fire that will not falter or tire":

> I cannot refrain from passing on to you the lift I got on my last field trip from an Indian farmer on a brushy, rocky, steep, small mountain farm. . . . His family had been raised and had left for homes of their own. During all this period he had struggled with the slopes, the rock, and the brush in producing meager crops for a precarious living. His pastures were weedy, brushy, and of low carrying capacity . . . and then, within the past two years, something happened. He was sparked by the zeal and enthusiasm of an understanding soil conservationist who has his hands in the earth. This Indian's eyes had a light in them that had never been there even as a youth because he was making a tired old farm live. He and the farm were being vitalized together.[96]

Here, Flory describes a pastoral utopia, brought about by the "zeal and fire" of committed federal soil conservationists. Notably, the politics of family life, and particularly the participation of women and children in a functional agricultural system, are absent. "Understanding soil conservationists" are the "something," the necessary catalyst, that brings the "struggling" Native out of the reproductive incapacity of his soil and his ineffective ecological practices into his new (individualist and ruggedly masculine) rural idyll. Thus, the modern promise of soil conservationism and agricultural science is one not merely of developing the land but of developing in individual men the ideology and practice of rationalizing their own landscapes. To exist in the conservation-oriented present, the Native would necessarily become "an understanding soil conservationist who has his hands in the earth."

Flory goes on to describe further the benefits of this process for both Natives and whites:

> The Indian lives closer to nature, understands more of her moods, and tries to accommodate his life and actions to her moods to a much greater extent than most other people. . . . Few realize that what he seeks in these chants and dances is to become a part of nature, rather than view it as something apart like most of the whites do. . . . Do we know the fundamental, scientific facts of plant and animal nutrition, plant physiology, and plant ecology? Are we close enough to the land ourselves, and are we endowed with the intelligence, human understanding, zeal, and fire to make our knowledge an effective tool in the

> hands of the tiller of the soil, to use his hands in harmony with nature?[97]

Here, the confluence of two kinds of cultivation, of "Indians" as Native agriculturalists and of whites who are more "in harmony with nature," exemplify the ideological underpinnings of Collier-era Indian and conservation policies. Collier himself, an avowed liberal, felt he stood in opposition to prior federal Indian policies of forced assimilation into white language and culture, but the policies during his tenure merely translated into new forms of the old assimilationist ideology. Given this, Flory concludes the memo with a reminder about the particular mission of soil conservationists:

> Remember, we are not succeeding in conservation until a folk knowledge, a behavior, or cultural pattern of conservation, is firmly fixed. When the Indians in your area practice conservation from habit, then they have attained full stature as farmers and citizens.[98]

Flory and the "liberal" assimilationist vein of conservation and Indian Service work, under the leadership of John Collier, differed strikingly from more conservative views of Indian policy. In a 1946 "Navajo Report," summarizing the past decade and a half of stock reduction and soil conservation efforts on the part of the federal government, Randolph C. Downes and Elizabeth Clark stake out the anti-Collier position of federal policymakers. They write:

> In the winter of 1931–32 an event took place on the Navajo Reservation which may be called Nature's effort to solve the Navajo problem. . . . There had been a very dry summer and the Navajo stock were in pretty bad shape. Then came a long, hard winter and hundreds of thousands of Navajo stock—as well as Navajo Indians—were faced with starvation. Perhaps this was Nature's way of helping to "solve" the Navajo problem. If the "natural" course of events had been allowed to proceed several hundred thousand Navajo sheep, goats and horses would have died and many thousands of Navajo Indians forced to migrate or makeshift in some desperate way. The effect of such a process would have been harsh but it would have made the Navajos themselves conscious of the realities of the "Navajo situation," i.e. of the overstocked and over-populated condition of their country.[99]

Unlike Flory's understanding of the role of "Nature" for Natives, for Downes and Clark, "Nature" is decidedly not on the side of the "Indians." For Flory, "Nature" is part and parcel of Indianness itself, and the white man's burden is to help the Native marry "his" intrinsic affinity with the natural world to white strategies for economic progress.

What is clear is that, from the point of view of federal actors, the failure of stock reduction and of the soil conservation project in general seemed destined to be blamed on the Navajos themselves and on Diné land, which would never respond to the range development plans laid out by the conservationists. Writing at the tail end of the stock reduction program, Downes and Clark call the Navajos "America's Minority Problem No. 1," and the Navajo problem, for them, was summed up as the fault of the land itself, which they described as "a barren wasteland" and "so desolate that a handful of white men could use it . . . only for scattered and part-time grazing."[100] The report marked an important transition in the federal approach to the Navajo problem, duly noting that the average family income on the reservation more than doubled from 1940 to 1944 as a direct result of the role of wartime wage work in the Navajo economy. At that point, federal stock reduction programs had finally achieved the desired reduction of livestock: in 1946, thirteen years after the program's official inception, the Navajo range was home to 449,000 sheep—110,000 fewer than the original reduction goal. Without herds to tend to, and recovering from the memory of livestock slaughters and brutal treatment by federal employees, many Navajos had been forced into war work off the reservation. Out-migration during World War II took between ten and fifteen thousand Diné away from the reservation.[101] When uranium was discovered on and near Navajo land, mining jobs were seen as good work to have by Navajos in large part because they could remain close to home. Downes and Clark recommended escalation of oil and mineral surveys on the reservation, based on the precarious premise that "the Navajos know now that they will get a square deal if oil and minerals are discovered by white men and leased to them." These "honestly administered" leases "and their benefits to the Navajos are relieving the distrust they used to feel when strange surveyors invaded their country."[102]

By the time Downes and Clark recommended the escalation of these oil and mineral surveys, uranium mines in the Carrizo Mountains and Monument Valley had already made their first shipments of ore to Atomic Energy Commission buying facilities. These kinds of intimacies, of non-Navajos with Navajo land and resources and of the Diné with "strange surveyors" intent on mapping Diné Bikéyah, shaped the excesses of both stock reduction and subsequent mining booms. Notions of Diné land as unfit for the pastoral utopia imagined by Flory and other SCS employees underscored long-standing impressions of Navajo country as wasteland, as a land materially and ideologically suited for extractive industrialism. At the same time, land that had long sustained the Diné and their sheep was marked with remnants of SCS mapping projects, delimiting, as

cultural geographers note, "the socially coded areas of human habitation and trespass that are bordered, policed, and defended" by federal incursions into Diné life, land, and resource use.[103] In subsequent decades, this would increasingly become a central part of how prospectors, mine operators, and millers, in addition to "strange surveyors," "invaded" Diné Bikéyah. By 1955, less than a decade after the uranium procurement program was formalized by the Atomic Energy Commission, the *Grants Beacon* reported that the Navajo reservation had finally been comprehensively mapped. Under the headline "Reservation Mapped," the brief news item declared:

> Uranium and oil combined to bring about publication by the US Geological Survey of the most detailed maps ever made of the western portions of the great Navajo Indian Reservation. The maps . . . have recently been released to the public. They were made in response to requests of uranium and oil hunters.[104]

The excesses of the uranium boom period had finally succeeded, it would seem, in making Diné Bikéyah, if not the Diné themselves, legible to the federal government, the uranium industry, and prospectors alike.

CHAPTER TWO

Prospecting for Magic Ore in America's New Frontier

gold? God? uranium?

—EDWARD ABBEY, *DESERT SOLITAIRE,* 1968

The light from the fireball rising through the oncoming morning of the New Mexico desert radiated the dawn of a new imperative in relations among men and nations.

—GLENN SEABORG, CHAIRMAN OF THE ATOMIC ENERGY COMMISSION, 1968

The Magic Ore

In 1955, twenty newspapers from towns across the Colorado Plateau—from Aspen, Colorado, to Grants, New Mexico—collaborated to produce an "Energy Edition," which appeared in each of their papers as a hefty, 100-plus page supplement. The special supplement, the editors collectively declared, "had but one purpose": "To bring to the attention of America the great potentials of the Colorado Plateau, the multitude of opportunities that here await the ambitious, the industrious, the stalwart and adventurous people of this great country."[1] In this edition, the Four Corners region is remapped from Navajo, Nuevomexicano, and Pueblo inhabited land deeply implicated in complex questions of sovereignty, land grants, and Native and Nuevomexicano life, to an "Energy storehouse" of the Colorado Plateau. Throughout the supplement, the land of the Plateau is translated into a new iteration of the settler colonial frontier: "Here on the Colorado Plateau," it declares,

> are thousands upon thousands of acres of unsettled land [where] the settler will find answers to his dreams and the opportunities that are

> not found elsewhere. And here too are found opportunities for industrial development beyond the wildest dreams of the idealist and the visionary.[2]

In the map that greeted readers on the opening pages of the supplement, all twenty of the contributing Colorado Plateau newspapers are shown in their respective towns and cities. They are mapped onto a Four Corners that is inverted: the northern states, Colorado and Utah, are at the bottom of the map, with New Mexico and Arizona cut off at the top. In this map as well as other images included in the Energy Edition, the boundaries of the Navajo Nation and the Pueblos are nowhere in evidence, creating a visual representation of a landscape turned over entirely to industrial development. The opening editorial accompanying this map reads,

> The amazing story of the Colorado Plateau is only beginning to unfold. There remains a vast treasure chest of raw materials and undeveloped natural resources waiting only for men with ambition, fortitude and vision to produce the magic key. Here in the great West lies opportunity, wealth, happiness for the individuals who conquer her vastness . . . and power for America.

The Energy Edition illustrated the ways in which the Plateau region, its resources, uranium prospectors, and the boom itself were constructed and understood during the early years of the boom period: the landscape is an "undeveloped" "treasure chest of raw materials," prospectors are "magic key"–bearing conquerors, and the uranium boom promises wealth, happiness, and, most important, "power for America." The language used in this energy edition, which called the boom-time Colorado Plateau "America's New Frontier" and uranium prospectors "settlers" and "adventurers," invoked deeply rooted tropes of nineteenth-century westward expansion, racial violence, colonial settlement, and capitalist industrialism, right down to the portrayal of the Colorado Plateau as empty land from which "settlers" can glean great wealth while promoting the nation's interests. As the *Grants Beacon* put it two years before the energy edition was released, "even more dramatic than the gold rush days is America's quest for uranium ore, now under way on the rugged Colorado Plateau."[3] The uranium itself, according to the energy edition, "means too much to the security of our nation to be permitted to lie undeveloped," and its "very vital flow" is a requisite feature of AEC policy.[4] Uranium was a "magic ore," "the wonder metal of the present." It was "fabulous," "glamorous," and "precious."[5] The Colorado Plateau, conversely, was constructed as an unsettled wasteland, yet one of surprising potential; it was a land of "desolate mesas" and

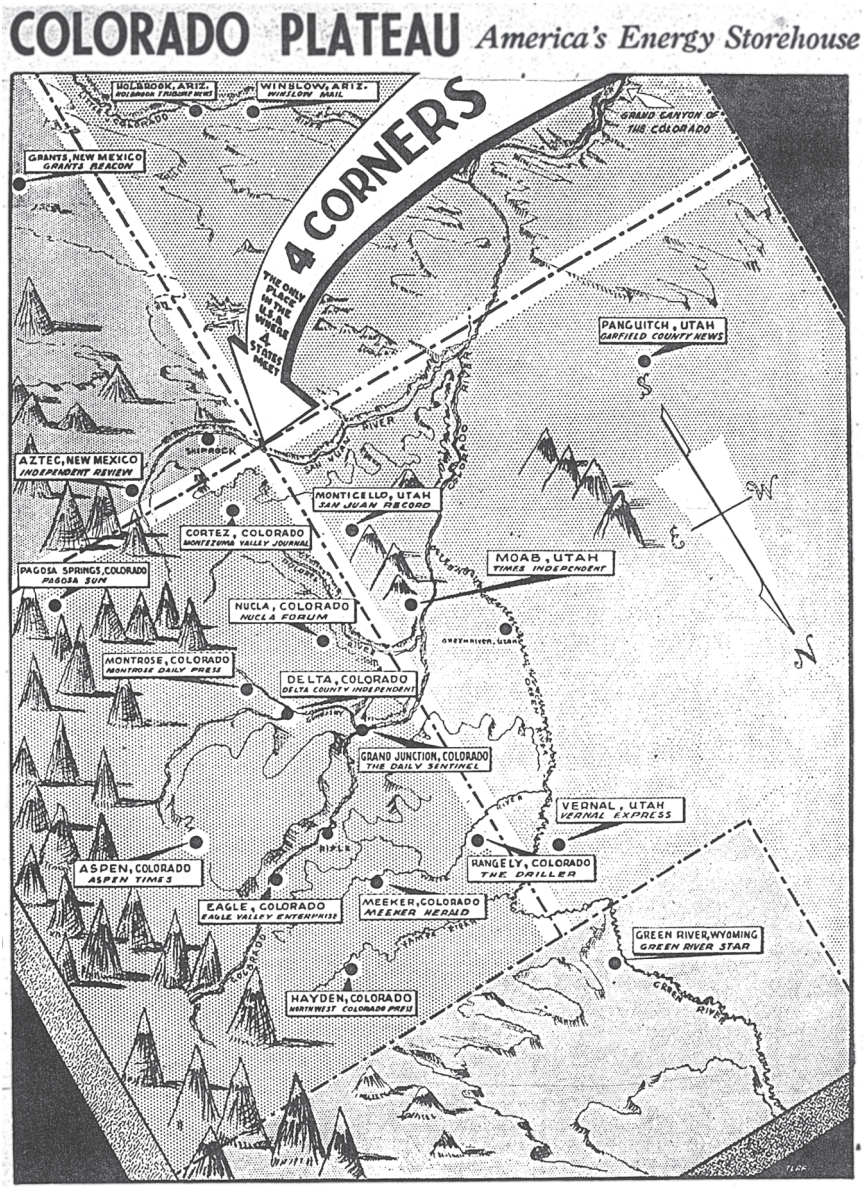


FIGURE 6. Each of the twenty newspapers that collaborated in the production of a 1955 Energy Edition supplement are shown here, roughly outlining the areas of major uranium boosterism in the mid-1950s. The map is inverted so that Colorado and Utah are at the bottom and New Mexico and Arizona are at the top. "Colorado Plateau: America's Energy Storehouse," *Grants Beacon* Special Energy Edition, February 10, 1955. Courtesy of the *Cibola Beacon*.

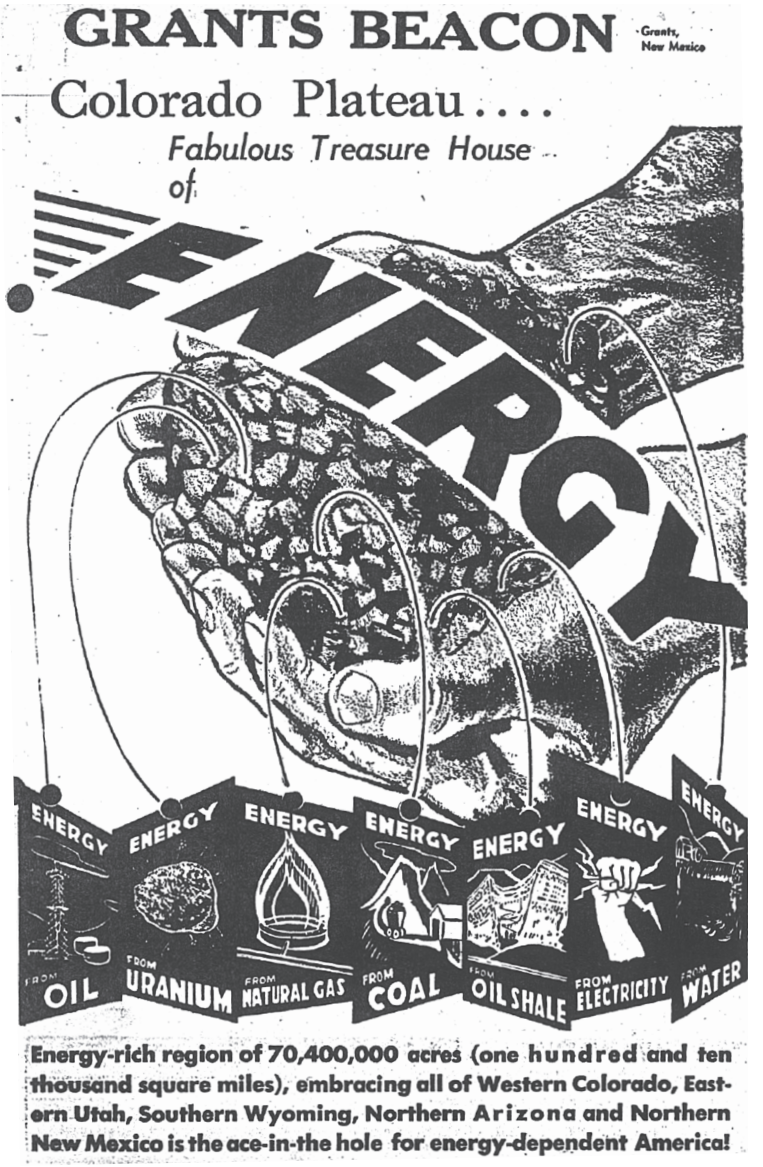


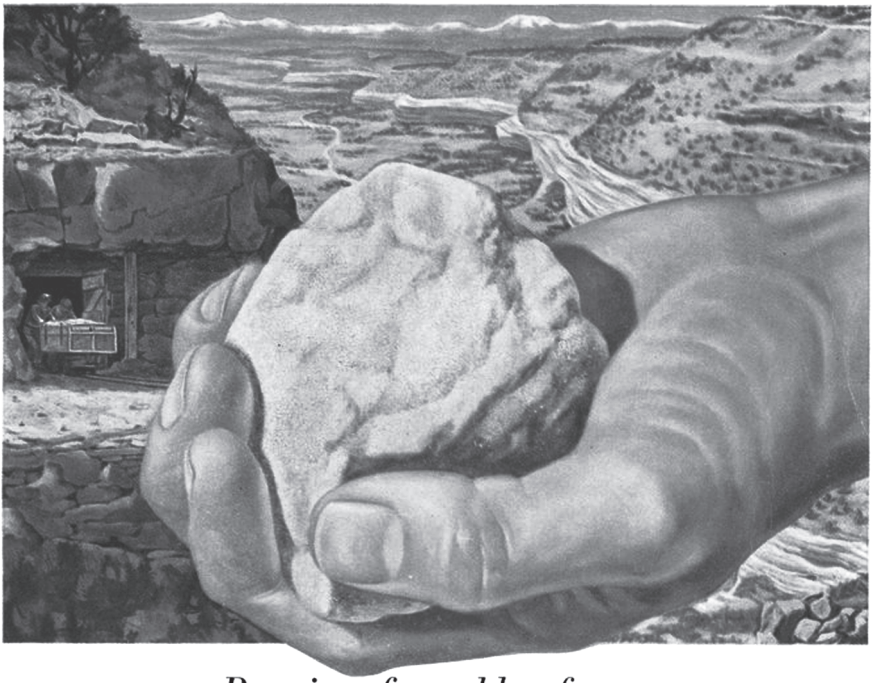
FIGURE 7. A wide range of energy industries—not only uranium but also oil, natural gas, coal, power plants, and water—were located on the Colorado Plateau in the 1950s. Here, both natural and human histories of the area are obviated in favor of the Plateau's identity as "the ace-in-the-hole for energy-dependent America!" *Grants Beacon* Special Energy Edition, February 10, 1955. Courtesy of the *Cibola Beacon*.

"rugged terrain" where "desert wastes [stretch] out for miles."[6] "Beneath this wasteland," the Energy Edition reported triumphantly, "are millions of tons" of energy resources that "lie under the scenic topsoil of America's vast energy storehouse."[7]

Simultaneously, Native life and presence in the Four Corners was mapped both into and subordinate to the uranium industry, as illustrated by an advertisement featured in the energy edition for the United States Vanadium Company, one of the many uranium companies operating on the Colorado Plateau. In the ad, an outsized hand clutches a chunk of uranium ore, symbolizing masculine control and power over both the ore and the surrounding landscape. In the caption for this image, uranium is given a fictionalized indigenous history: "Long ago," the accompanying text reads, "Indian braves made their war paint from the colorful sandstone of the Colorado Plateau. THEY USED URANIUM." Whereas uranium is thus made indigenous to the landscape, Natives are relegated to the space and time of a fictive primordial past.

This chapter explores the ways in which the uranium boom of 1950–1958 was contingent on both material and ideological penetrations into the Four Corners region, land that was both Diné Bikéyah and "America's energy storehouse." The uranium boom of 1950–1958 relied on an exercise of federal sovereignty that opened land to federal and industrial exploitation, often on a reduced budget because of the national security primacy of uranium. The prospector, in the eyes of the AEC and the national media, embodied American masculinity and engaged in a deeply American economic venture: to strike it rich in the virgin lands of "America's New Frontier." This noble vision of a white American archetype—the prospector—was compounded by the AEC's conflation of uranium with national defense and constructions of the Colorado Plateau as the last American frontier, a wasteland with surprising potential for mineral wealth. In the case of the Four Corners, the prospector represented more than a potential rags-to-riches success story: he was also a Cold Warrior protecting America's influence abroad by pursuing his own personal interests in the arid, wild country of the Southwest.

The promotion of prospecting for uranium on the Colorado Plateau was spurred by an AEC "call to arms" in early April 1948, when the commission offered more than twenty dollars per ton for Colorado Plateau uranium, a purchasing program that was run through the AEC's Grand Junction Operating Office (GJOO) in Grand Junction, Colorado.[8] From Grand Junction the AEC orchestrated the uranium boom via a number of strategies: manipulating land policy to promote maximum access for prospectors; liaising between prospectors, landowners, and bureaucrats; conducting



Promise of a golden future

Yellow uranium ore from the Colorado Plateau is helping to bring atomic wonders to you

Long ago, Indian braves made their war paint from the colorful sandstones of the Colorado Plateau.

THEY USED URANIUM—Their brilliant yellows came from carnotite, the important uranium-bearing mineral. Early in this century, this ore supplied radium for the famous scientists, Marie and Pierre Curie, and later vanadium for special alloys and steels.

Today, this Plateau—stretching over parts of Colorado, Utah, New Mexico, and Arizona—is our chief domestic source of uranium. Here, new communities thrive; jeeps and airplanes replace the burro; Geiger counters supplant the divining rod and miner's hunch.

From hundreds of mines that are often just small tunnels in the hills, carnotite is hauled to processing mills. After the vanadium is extracted, the uranium, concentrated in the form of "yellow-cake," is shipped to atomic energy plants.

A NEW ERA BECKONS—What does atomic energy promise for you? Already radioactive isotopes are working wonders in medicine, industry, and agriculture. In atomic energy, scientists also see a vision of unknown power—which someday may heat and light your home, and propel submarines, ships, and aircraft. The Indian's war paint is on the march again—toward a golden future.

UCC TAKES AN IMPORTANT PART—The people of Union Carbide locate, mine, and refine uranium ore. They also operate for the Government the huge atomic materials plants at Oak Ridge, Tenn., and Paducah, Ky., and the Oak Ridge National Laboratory, where radioisotopes are made.

FREE: *For an illustrated story of the fascinating uranium country of the Colorado Plateau, write for the booklet "Mesa Miracle." Ask for booklet B.*

UNION CARBIDE
AND CARBON CORPORATION
30 EAST 42ND STREET UCC NEW YORK 17, N. Y.

UCC's Trade-marked Products of Alloys, Carbons, Chemicals, Gases, and Plastics include

ELECTROMET Alloys and Metals • HAYNES STELLITE Alloys • EVEREADY Flashlights and Batteries • NATIONAL Carbons
ACHESON Electrodes • PYROFAX Gas • PRESTONE and TREK Anti-Freezes • PREST-O-LITE Acetylene
BAKELITE, KRENE, and VINYLITE Plastics • DYNEL TEXTILE FIBERS • LINDE Oxygen • SYNTHETIC ORGANIC CHEMICALS

FIGURE 8. This 1955 advertisement for Union Carbide features an outsized chunk of uranium ore in the foreground, against the background of northwestern New Mexico. Off to one side, miners exit a mineshaft. The text for the ad narrates uranium's imagined indigenous history: "Long ago," it reads, "Indian braves made their war paint from the colorful sandstones of the Colorado Plateau." "Promise of a golden future," Union Carbide and Carbon Corporation, *Grants Beacon* Special Energy Edition, February 10, 1955. Courtesy of the *Cibola Beacon*.

ground and aerial surveys for radioactive anomalies that might indicate uranium deposits; and engaging in public relations efforts to promote a uranium mining and prospecting boom. The AEC's booklet *Prospecting for Uranium* sold nearly 70,000 copies between 1948 and 1950, and during that time the commission's Division of Raw Materials office fielded more than 12,000 letters about uranium occurrences—this, notably, *before* sizable uranium deposits were actually confirmed on most parts of the Colorado Plateau. Within a few short years, as the *New York Times* observed wryly, "prospectors by the thousands [were] scouring the wild Colorado Plateau trying to decide what uranium ore looks like."[9] These hopefuls had arrived on the Plateau, prospecting booklets and Geiger counters in hand, with an eye to the $10,000 reward the AEC had offered anyone locating sizable uranium deposits. By 1955, the AEC had already adopted powerful tropes that situated uranium mining in a larger history of mining in the West, foregrounding the uranium prospector as the hero of "many stories of uranium discoveries," which "should have a place in the history of the romance of mining."[10]

The promotion of prospecting relied in no small way on abiding notions of mining as a romantic—deeply masculine and deeply American—adventure. As such, the AEC and the media drew on colorful comparisons between the uranium rush and mining booms of a century prior. In a speech delivered in New York in 1954, AEC mining engineer from GJOO Phillip Simmons declared, "the Colorado Plateau uranium province is in a mining boom rivaling the most colorful days of the early West" and predicted that the people involved would be well remembered for their role in developing the region:

> There is romance and color, riches and bitterness attached to uranium mining, and the people who are a part of this industry will someday be worthy of a storyteller's attention. So far no Mark Twain or Jack London has come forward to eulogize the searing summer heat, the tortuous roads, the freezing winters, or the tremendously rugged canyons and cliffs that characterize much of the Colorado Plateau. . . . Yet the uranium prospectors and miners can be justifiably proud, for in spite of these obstacles, by their efforts, they have explored and developed a vast mining province once considered worthless.[11]

Here, Simmons employed a heavy hand in insinuating the comparisons between uranium and gold. Later in the speech, he hit on a mild cautionary note, conceding that not everyone could expect to "strike it rich"—caution that was likely lost on his audience in the context of so much talk of "romance and color," particularly as Simmons then went on to tell anecdotes

of chance strikes by lucky prospectors. One of these stories of chance strikes involved a "phenomenally large ore body" discovered by a prospector who, "without previous mining or prospecting experience . . . spent eight long, hard, tremendously exhausting months walking rims," and eventually "chanced upon the exposure that make him wealthy practically overnight."[12] Simmons also recounted the story of Charlie Steen, perhaps the most famous subject of uranium rags-to-riches stories, who discovered the extensive Mi Vida deposit in Utah in 1952, after three years of hard searching. In his history of uranium mining, Raye Ringholz tells Steen's story with a nod toward AEC ambitions for promoting prospecting in pursuit of its own interests. Ringholz describes Steen as a "spindly young Texan with a pretty wife, a gaggle of kids and a nickel in his pocket" who "grabbed for the brass ring and caught it!" Of Steen's big strike he notes that "The AEC couldn't have scripted it better if they tried. . . . What made it even better was that Charlie's story let loose the hoped-for prospecting rush on the Colorado Plateau."[13] Having located the Mi Vida deposit, Steen became the first (and one of the few) "uraniumaires," and his story was circulated widely by both the AEC and national media outlets, which in turn encouraged more prospectors to head to the Colorado Plateau. By January 1953, the rush of uranium prospecting was under way in earnest, and Steen became a central character in a national story of mining prosperity.

The view of the prospector put forth by the AEC and picked up in national media—that he was motivated purely out of personal interest (and a hefty dose of patriotism)—was often more fiction than fact. The uranium boom was in large part born of federal efforts, not individual entrepreneurialism; most deposits were located by either the government, in the form of AEC and USGS prospectors, or by private companies that invested in prospecting because of the government's guaranteed buying program. In fact, as one historian observed, "the search for uranium has been the only government-induced, government-maintained, government-controlled mining boom in the nation's experience."[14] However, the rags-to-riches ideal of individual prospectors staking major uranium claims was a central rhetorical frame utilized by the AEC to "trigger a domestic uranium industry," and it produced a kind of national fervor for uranium.[15] In its promotion of uranium prospecting, the AEC seemed to unflinchingly believe in the power of the individual to be the most productive tool in locating uranium claims, despite the fact that, as Ringholz put it, "most uranium hunters . . . just followed the lead of the Manhattan Project and the AEC geologists," moving "over the canyon ridges of the backcountry like a blind man's fingers reading a relief map."[16] Many of the prospectors were admittedly amateurs,

mostly strangers to the land, and largely unfamiliar with the red tape of stake claiming and mine development.

In 1954, Sheldon Wimpfen, manager of GJOO, described the industry in terms that reflected the commission's view of the prospector, and of the uranium-hunting project as a whole: "Our collective picture of the uranium industry," he declared, "is one of a lusty youngster just reaching maturity, and as with man at a comparable age, the period of greatest opportunity lies just ahead."[17] In keeping with this view (and because a "lusty youngster" needed a father figure), "the Commission program is one of control . . . but more than that, one of guidance, encouragement and assistance."[18] "The opportunities," Wimpfen concluded, "are for the enterprising prospector who through skill, luck and work is able to discover new ore bodies." In subsequent years, the number of prospectors in the Four Corners area would only increase, particularly as the rags-to-riches stories of men like Charlie Steen were popularized. In contrast to Navajo and other Native prospectors, the prospector in AEC and media accounts was most often portrayed as a white outsider to the high, arid plateau and, quite frequently, a hobbyist rather than a geologist by profession. The hobbyist—the "weekend prospector"—was an important part of the larger prospector narrative; these anecdotes added flavor to AEC promotional materials and lectures, and eventually were picked up by national media. Stories of accidental strikes spurred a feature-length film, and even a children's board game called "Uranium Rush!" in which players moved a battery-powered miniature Geiger counter around a board, alighting on different geographic areas. If it lit up and buzzed at their "prospect," they won money from the government bank.[19]

By 1954, as one newspaper put it, "if you so much as pass through Southeastern Utah or Southwestern Colorado in a car you're sure to become tainted with the radiation that comes from uranium talk."[20] Weekend prospectors were tourists, businessmen, and even large game hunters who arrived in the area for deer season, carrying "a rifle in one hand, a Geiger counter in the other."[21] In Moab, a frequent first stop for new prospectors as they headed into uranium country, drug stores regularly sold out of Geiger counters and scintillators, which they sold used and new for $12.95 and up.[22] These cheap prices and general ubiquity of the radiation-detection equipment made the Geiger counter, in the early 1950s, "as much a household necessity as a toothbrush."[23] The notion of amateur prospecting reached absurd heights when, in April 1955, two Stanford graduates who were attempting to swim down the Colorado River wearing nothing but face masks, swim fins, woolen underwear, skin-tight rubber shirts, and life

jackets, made room for a scintillator in the bags of food they took tied to their waists with long rope. Their downriver adventure, it would seem, prioritized uranium prospecting as much as it did eating.[24] And in 1958, the image of the hobbyist prospector was permanently fixed in the cultural firmament with an episode of *I Love Lucy* in which Lucy prospected for uranium, Geiger counter in hand, while on vacation in Las Vegas—and hit a big strike.

For prospectors, whether hobbyist or full-time, the search for uranium could be a considerably complicated affair. The different land statuses throughout the Colorado Plateau reflected an intricate web of land rights and accessibility that needed to be negotiated before an area could be prospected or a claim staked. These issues of land status were sometimes mapped out in articles like one published in *Life Magazine* on May 23, 1955. On the "complex question" of "where you can prospect," the article advised:

> Much of the uranium terrain in the United States is public land, on which you can prospect freely. National parks and monuments, however, are off limits and from time to time the AEC has withdrawn areas of public land from entry by prospectors. On Indian reservations, permission to prospect must be obtained from the tribal council. On any private land anywhere, you must have the owner's permission to prospect or run the risk of finding uranium and being unable to mine it.[25]

Little weight was given in general to the need for "permission" from tribal councils, and it was unlikely that potential prospectors would know how to go about obtaining such permission anyway, as evidenced by the number of letters sent to public officials and bureaucrats ranging from senators to state mine officials to the AEC GJOO inquiring about claims staked on tribal land. The last claim in the article, that prospecting on private land would be a more risky endeavor and permission to prospect more difficult to obtain, bore out time and again. Such conflicts occurred frequently, beginning when a prospector trespassed on private land and filed a lease for a uranium claim only to have it be later turned over to the landowner—that is, if the prospector was not first shot at, which was another likely risk of prospecting on private land without permission. The prospectors followed the propagandist dream of instant fortune and found themselves contending with unexpected bureaucratic obstacles in addition to the problems inherent to determining land status.

The differences between types of land (public, private, "Indian," or withdrawn for prospecting by the AEC) and how those differences were presented to the public shaped the ways in which prospectors went about

looking for claims on the Colorado Plateau. So, too, did larger racial politics, of which most prospectors were perfectly well aware and tried to use to their advantage when they sought to stake claims on Native land. Many attempted to persuade state and federal officials to intervene on their behalf against tribes, as did one Albuquerque resident who, in 1954, sent a handwritten letter to Senator Dennis Chávez, announcing that he had found what he called a "strategic" ore but that it was on a reservation. Could the senator, he wondered, help him locate the proper paperwork to give him rights to the land where the ore was found?[26] He preferred, his letter indicated, not to interact with the tribe, and his request for the proper paperwork to privatize land holding the ore suggested that the tribe's ownership of both the land and its resources seemed to strike him as a very impermanent thing. In 1954, the "strategic" ore in question could only have been uranium. The assumption that preempting Native land rights was a mere matter of filling out the proper paperwork spoke volumes about the larger sense of access prospectors had when it came to Native land.

Potential prospectors were not only faced with the challenge of obtaining permission to claim their prospects. Just a few years into the uranium rush they were also confronted with the difficulties of finding *un*prospected lands—such was the ubiquity of prospectors across the Colorado Plateau. In a 1954 letter asking for advice on finding locations of uranium deposits in "the Northwestern New Mexico Mountains" (most certainly Diné or Pueblo country), two would-be prospectors acknowledged that finding unprospected land might be their biggest hurdle. They wrote, "frankly . . . we are not afraid of rugged country and are interested in prospecting where every Tom, Dick, and Harry has'nt [*sic*] been. We realize every Tom, Dick, and Harry has written you concerning this matter."[27] Other inquiries about uranium prospecting, however, revealed an almost willful ignorance of the challenges at hand. In a handwritten letter to the New Mexico Institute of Mines and Technology, one resident of Louisville, Kentucky, treated prospecting quite lightly. "Gentlemen," he wrote,

> I am coming to New Mexico for my vacation next month and I would like to do a little prospecting for uranium. I wonder if you could or would please send me information as to the most logical place to prospect? Would appreciate it very much. Thanks a million.[28]

The response to this letter is also telling. A geologist with the Institute responded brusquely: "Uranium minerals have been found in so many

areas of the state that it is difficult to specify particular areas favorable to prospecting."[29]

The AEC actively encouraged an influx of prospectors, novices or not. In a speech before the American Mining Congress, Jesse Johnson, the director of the AEC's Raw Materials Division noted, "the prospector, like the infantry-man, is not out-moded. We still need the prospector to find mineral deposits. The geologist's technical knowledge is no substitute for the optimism and persistence of the prospector, uninhibited by geological theories."[30] In fact, "geological theories" of where to find uranium were considered tentative at best, and the AEC largely encouraged prospectors to follow what it called the "uranium is where you find it" theory, privileging occurrence of known deposits, and the geology and geography of known deposits, over concrete geological evidence.[31] This led prospectors, by AEC encouragement and by word of mouth, directly to the Four Corners area, where Diné and Pueblo land and people were regarded as temporary obstacles to staking claims and developing mines.

Prospectors were needed as the boots on the ground in order to launch a new uranium industry. However, the prospector was more than a mere tool to serve the ends of industry and defense. As the Cold War was an ideological struggle as much as a material one, the prospector was an ideological penetration into the Southwest region as much as a material one. The prospector manned the frontlines of American empire in a region that had at times been viewed as unruly at best, the unsettling (and lingering) exception to Turner's frontier thesis and a space of slippage in the United States' sovereignty over its own landmass—as evidenced by the routine references to this high arid landscape as the nation's last "frontier." The Southwest was home to a unique history of racial and cultural difference as well as hotly contested politics of land claims and land ownership. In important ways, it remained a borderland, where U.S. empire was still being articulated a century after the Treaty of Guadalupe Hidalgo was signed. The United States' colonial relationship to Native peoples of the Southwest saw them as distinctly undesirable in the American national family, too different to be assimilable and thus a confounding "problem" in the consolidation of the U.S. nation-state in the twentieth century. That a mining boom provided a fresh opportunity to consolidate colonial sovereignty over an unruly landscape was not new—not for the United States nor for other settler colonial state. Occupation of the land by the hegemonic archetype of a citizen has long been a successful strategy for extending colonial ownership over a strange land. In this case, that archetype is the grizzled uranium prospector, armed with a Geiger counter, an enterprising young capitalist—and even perhaps a "spindly young Texan with a

pretty wife, a gaggle of kids and a nickel in his pocket who grabbed for a brass ring and caught it."

A Peculiar Sovereignty

The U.S. Department of Energy (DOE) has a photograph on file taken not long after the July 16, 1945, Trinity explosion in the southern New Mexico desert. The photograph shows a classic desert background: sandy stretches of windblown mesas, scattered here and there with brush, over a cracked and parched desert floor, indistinguishable, in black and white, from the green cracked glass of trinitite—radioactive chunks of shiny, melted sand left over from the awesome heat unleashed by the Trinity test. Almost blending in with this scene are pieces of metal debris, tortured into unrecognizable shapes, emerging ruinlike from the desert floor. The largest of these, a wrecked grid of metal bars, is all that remained of the tower from which "the Gadget," as Los Alamos scientists called the Trinity bomb, was dropped. In the foreground of the photograph, amid the debris, stands Robert Oppenheimer, wearing a dark suit over his thin frame. Next to him stands Leslie Groves, an Army Corps of Engineers officer and the military leader in charge of operations at Los Alamos. Oppenheimer's angular body stands in uneasy tension with the debris and the landscape around him, an artifact of undue urbanity in the middle of the atomic wasteland. Groves, round rather than angular, wears a sand-colored army uniform, representing the military side of the Manhattan Project collaboration between war and science. These two very different men aptly embodied the two sides of the Manhattan Project.[32] The photograph begs the question whether Oppenheimer, who once deplored what a "pity" it was that his "two great loves," physics and New Mexico's desert country, "can't be combined," saw this moment as the final, and most intimate, coupling of those two "great loves."[33] Here, Oppenheimer's scientific work transformed the ground itself into trinitite, the radioactive offspring of the marriage between physics and desert, a coupling that, as the photograph suggests, occurred through the conduit of Groves and the militarized federal resources he represented.

Even as physics and New Mexico are intimately combined in this photograph and the explosion it commemorated, culture and nature are in sharp contrast. This kind of contrast, though not always so visually sharp, is a key feature of wastelanding and one that is borne out of the history of constructing Navajo land as prime uranium prospecting and mining country: in uranium country during the early years of the uranium boom, the land was primarily understood through a racial, spatial, and temporal rubric that juxtaposed the seemingly primordial space of Navajo country with



FIGURE 9. Robert Oppenheimer (*left*) and Leslie Groves (*right*) stand at the center of the Trinity test site, behind the ruined remains of the tower from which the first atomic bomb was dropped. July 16, 1945. U.S. Department of Energy.

spectacularly futuristic atomic technology. In uranium mining, technology was most frequently imbricated through desert pastoralism, and by extension, atomic power was imbricated through the primordial space of the Southwest. This has occurred through a contrast between the "Indian" and the atomic—what Anne McClintock calls "anachronistic space" with the space on which futuristic technology is built.[34] The photograph commemorated an explosion that, as Joe Masco argues, was "much more than simply a new technology";[35] rather, it marked a new kind of *modernity*, in which Oppenheimer and his Project Y cohorts together "engendered new forms of consciousness, new means of being in the world distinct from those that came before."[36] The Trinity test marked a "moment of historical rupture and transformation," "the end of one kind of time, and the apotheosis of another, an *uncanny modernity* that continually exceeds the language of 'national security.' "[37] This process of rupture and apotheosis was not ungrounded. Quite to the contrary, the very nature of the New Mexico deserts and plateaus upon which nuclearism was built became part of how this "uncanny modernity" was narrated, represented, and understood.

The atomic program changed the ways in which the Southwest in general and Navajo country in particular were imagined, mapped, and engaged by the non-Native world. Future and past, metropole and colony, seemed to collide in the uranium landscape, producing new discourses of what this landscape might mean now, as articulated through what, following Masco, we might call atomic modernity—the notion that both war and peace would be produced precisely because of and through this futuristic new technology. One magazine sought to make order out of these seemingly disorderly juxtapositions of time and space: "Cowboys and Indians, cactus and arid desert . . . these are the most essential parts that to most people make a complete picture" of Arizona and New Mexico. "But today you must add many new parts . . . jet planes whining through the dry, hot air; uranium and vanadium mines going full tilt," all of which pointed to the fact that "The old West is changing." New Mexicans in particular, the article suggested, no longer "live in the past," for "How could they? The state's more recent history has in it the world's first atomic bomb explosion and almost daily missile experiments."[38] Atomic modernity had wrenched the "old West" into the future, along with its anachronistic "Cowboys and Indians, cactus and arid desert," those "most essential parts" of the mythological narrative of the American frontier past.

Even as this contrast between anachronistic past and technological future was inscribed on the land, through uranium mines, "almost daily missile experiments," and even the cracked and glassy trinitite spreading out

from Trinity's ground zero, discourse about desert country continued to deploy tropes of western expansion and settlement. That the uranium resources of the Colorado Plateau were open to uranium prospectors and the AEC, as proxies of the larger U.S. settler state, was made self-evident by the deeply colonial rhetoric of "penetrating" new "frontiers." This rhetoric implied, even required, an enduring theme of racial violence, even as it used clearly gendered and sexualized symbolism of penetration (think here of prospectors as bearers of "magic keys" in the Colorado Plateau, with which to "conquer her vastness"). The presumed access of these new uranium "frontier" lands by prospectors and miners, as well as by Manhattan Project atomic adventurists, turned on a sense of what Herbert S. Marks, a lawyer for the Tennessee Valley Authority, called the "peculiar sovereignty" of atomic modernity, a sovereignty "that could bring about the end, peacefully or violently, of all other sovereignties."[39]

In April 1951, when the Colorado Plateau uranium boom was well under way, Phillip Merritt, the assistant director of the AEC Raw Materials Division, delivered a speech to the American Association of Petroleum Geologists in which he exhorted the petroleum industry to assist in expanding the search for uranium. In Merritt's speech, the need for this peculiar sovereignty over uranium ore is couched in terms of the survival of the nation itself:

> Whether for war or for peace, the search for uranium is of the deepest importance to our national well-being. The expanded national defense program resulting from international tensions means that we must develop new and more abundant sources of uranium ore. Winston Churchill has said that the greatest single deterrent to Russian aggression against the West is our vast superiority in the field of atomic weapons. The Commission's exploration effort is designed to make sure that we maintain, and better, that superiority.[40]

The AEC, in general, concurred, noting that the search for uranium was of utmost importance to the nation as a whole, going so far as to conflate a domestic uranium supply with a virile national strength:

> Uranium 235 and plutonium are the fuels of atomic energy. The amount of these fissionable materials available is a *significant measure of the national wealth*. It determines how many atomic weapons the American people can build for defense and the number and the power of the atomic machines—nuclear reactors—they can operate for the application for the new energy to all departments of the national life. (emphasis added)[41]

While the AEC conflated uranium with national strength, the national media neatly integrated uranium into an imagined western past: "The Navajos and Utes who roamed the great Colorado Plateau several hundred years ago," wrote one journalist in a front-page, above-the-fold feature article about the uranium boom, "were the first to recognize the value of uranium, but in a manner wholly unrelated to atomic power. They decorated their bodies with brilliant red and yellow war paints."[42]

In contrast, AEC discourse often entirely skirted the issue of this being Indian country. In Merritt's 1951 speech, he described the region in a way that elided its Native denizens and legal status as tribal land: new "extremely important" uranium-bearing deposits, he noted, were known to "occur in a remote area of northern Arizona and eastern Utah" (most certainly Navajo country), where "new uranium deposits are continually being found as a result of increased prospecting activities."[43] While the land here is emptied of Native life and presence, it does assert a kind of antagonistic presence to uranium development: "Development," Merritt noted, "has been retarded by the difficult nature of the terrain and the lack of access roads, but prospecting and development should be greatly accelerated when the roads now planned in these areas are finished."[44] This echoed a speech given the previous year, in which Merritt outlined the need to meet, as quickly as possible, two central objectives: "To obtain a better understanding of the ultimate uranium possibilities of the Colorado Plateau; and . . . To develop ore-finding criteria and techniques, including geological, geophysical, and radiometric methods, which can be applied to the Colorado Plateau as a whole."[45] The Plateau's

> vast area is covered almost entirely by a thick, generally flat-lying, series of sedimentary rocks. Over most of the uranium-bearing portion of the Plateau, erosion has produced a youthful topography of the mesa and canyon type with relief exceeding 2,000 feet. Although formations as old as Pennsylvanian are exposed, most of the rocks, which consist almost exclusively of sandstones and shales, vary in age from Permian to Tertiary.[46]

However, "Because of the remoteness of these deposits from populated areas, prospecting has not been as intensive in these localities as in the more accessible regions of the Colorado Plateau."[47] These various descriptions of the Colorado Plateau consistently erased the presence of Native communities, and their long tenure on the land, in favor of a narrative that privileges the peculiar sovereignty of the United States over both the "vast area" and its geological histories. In describing what could very well have

been a uranium discovery made by a Navajo named Paddy Martinez in 1950, discussed in chapter 3, Merritt failed entirely to note the role played by Navajos in an area heavily populated by Diné and Pueblos (despite being outside of official reservation boundaries):

> In the fall of 1950 a uranium discovery in New Mexico further extended the known geologic limits of mineralization in the Colorado Plateau, and opened up a new stratigraphic horizon in which uranium is known to occur in important concentrations. The initial discovery was made in the Todlito limestone formation of Jurassic Age.[48]

Here, the space and time of Navajo country are remapped according to the needs and priorities of the AEC, further indigenizing uranium and ousting the Diné from their geography and history alike: the uranium derives from the "Jurassic Age," and its discovery reveals new "stratigraphic horizons" for the pursuit of a new atomic future. This kind of rhetoric likewise makes the "Jurassic Age" and other geological histories the property of the settler's peculiar sovereignty, brought under the rubric of settler colonial space and time by virtue of what Mel Chen calls the "sovereign fantasy": "the national or imperial project of absolute rule and authority" over land, history, and narrative.[49]

This particular kind of sovereign fantasy has been a long-lasting feature of the uranium landscape. Decades later, the New Mexico Mining Museum in Grants, New Mexico, printed a brochure that contextualized mining in the region both geographically and historically by inviting museum visitors to

> Follow the *arrival* of different cultures by examining the artifacts dating back as far as 700 AD. Get a glimpse of the daily lives of these *early settlers* in the craftsmanship and beauty displayed in their pottery, tools, basketry and weapons, frozen in time by the high desert air. (emphasis added)

Here, unspecified tribes ("different cultures") are "arrivals" and "early settlers," nevertheless "frozen in time" by no less a force than the desert itself. The brochure thus navigates an impressive discursive feat, constructing Natives as having arrived too late to exert sovereignty over—or, indeed, to be *indigenous to*—the region, yet simultaneously "frozen" in a fictive, anachronistic past. Natives are thus rendered both foreign and dead, and the United States' peculiar sovereignty over the land's resources remains an unspoken certitude. U.S. sovereignty is thus projected back in time to be the presumptive owner of the land and its resources. As Raymond Craib puts it in his analysis of state cartographic projects, "On the stage space [of settler colonialism], *only* the settler makes history"; the "complexity,

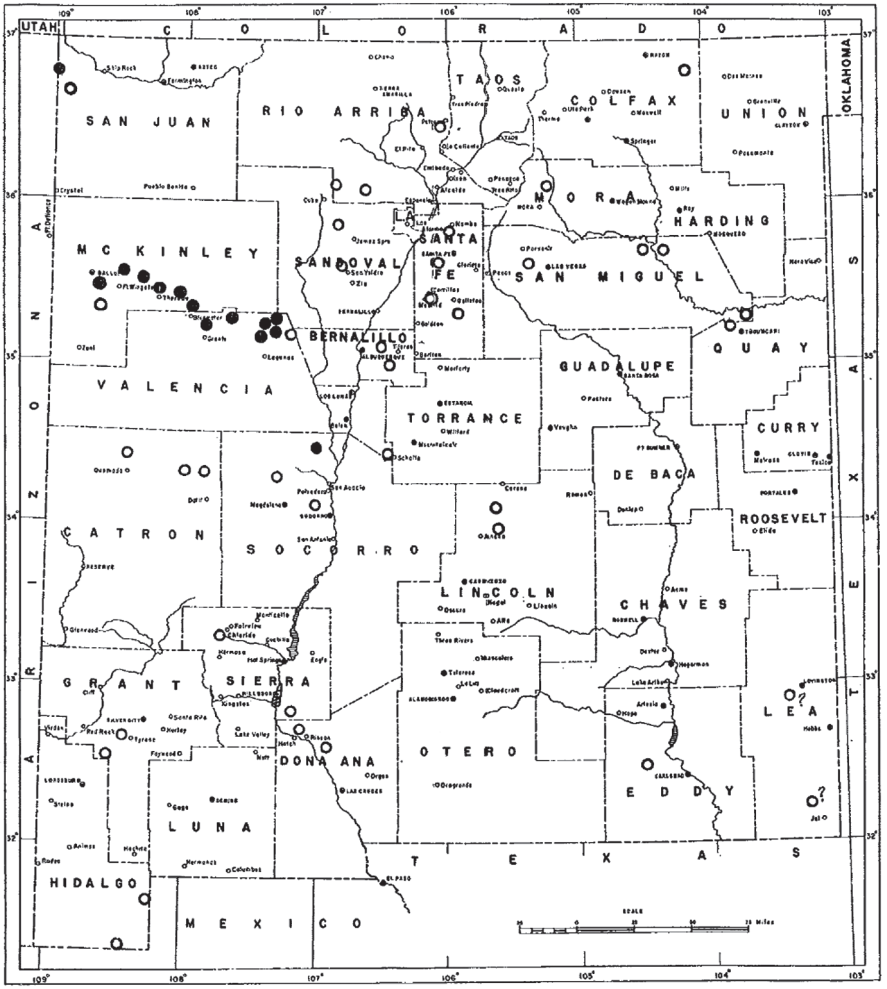


FIGURE 10. Working uranium mines in New Mexico are marked with black dots, whereas prospects are marked with open circles. Clusters of mines can be seen around the Grants uranium belt, in southern McKinley and northern Valencia Counties. "Occurrences of Uranium Ores in New Mexico," Circular 29, New Mexico Bureau of Mines and Mineral Resources, 1955. Courtesy of the New Mexico Bureau of Geology and Mineral Resources.

contingency, messiness, and irony" of history all are flattened and neutralized in the teleological quest for legitimacy, foundational coherence, and the naturalization of the social world."[50]

Maps of the uranium landscape likewise omitted the boundaries of sovereign tribal lands, deferring to markers that privileged state and federal points of interest as well as industrial ones. One map in particular, widely circulated in the mid-1950s, showed uranium mines and prospects in New Mexico but failed to show any reservation boundaries (see Figure 10). This map is doubly instructive: not only does it reflect the absence of tribal reservation lands, in preference for county lines (which, unlike tribal lands, had little bearing on whether claims could legally be staked), but it also reveals the plethora of prospects throughout the state that were never developed into working mines. The actual uranium-producing mine sites are clustered entirely around the northwestern corner of the state—Navajo country. To a large extent, this was because industry found it easier and more convenient to develop mines in areas where there was already a significant amount of uranium activity, a factor that somewhat confounded the AEC as it sought to provide incentive for industry to locate uranium claims in areas outside the Colorado Plateau. As Merritt conceded in 1950, "The carnotite ores of the Colorado Plateau represent our best immediate source of uranium, and consequently, this area has demanded a large share of our exploration attention."[51] However, the AEC continued a nationwide uranium search, an "all-important enterprise" that "has been designed specifically to develop ore-finding criteria and to discover ore in those areas where industry does not find it profitable to operate under present conditions."[52]

The myriad places outside of the Colorado Plateau where significant uranium deposits were discovered in the 1950s, including large swaths of Idaho, Montana, Florida, North Dakota, and California, never took hold with as much vigor as the booms of the Four Corners region. The AEC, in fact, produced thirty-four anomaly maps, mostly in Utah and New Mexico but including as wide-ranging geographies as Kern County, California, and the Black Hills National Forest, in a single year alone (1953).[53] The staid concentration of industry on the Colorado Plateau derived in part from following the second of what one U.S. Geological Survey (USGS) report called the "two approaches" to uranium prospecting:

> one the observational or, "uranium is where you find it" approach, the other the analytical or "uranium is where it ought to be" approach. It will be no surprise to economic geologists to learn that most of the producing uranium districts in the world were found through the "uranium is where you find it approach," as were also some of the recent discoveries in this country, such as the Grants, N. Mex district.[54]

That the Colorado Plateau came to satisfy the "uranium is where you find it" approach triggered a kind of sedimentation of the uranium industry in that region, one that followed a larger sedimentation of making the Southwest a home to new atomic technologies. The Colorado Plateau offered geographic proximity to the AEC's GJOO, to Los Alamos, to Alamogordo, to the Nevada Proving Grounds; as these atomic and uranium geographies developed, the environmental and human health problems associated with radiation in turn came to be mapped according to something we might call a rationale of "radiation is where it *ought* to be."

In September 1968, Glenn Seaborg, the chairman of the AEC, traveled to Grants, New Mexico, to get a firsthand look at the thriving extractive end of the nuclear cycle. In a well-publicized tour of Grants uranium belt mines and mills, Seaborg went underground to pose with uranium miners, donning a hard hat and gripping a shovel for newspaper cameras. That evening, Seaborg spoke at a "uranium appreciation dinner and reception" held in the Grants Anaconda Recreation Center (named for the Anaconda Copper Mining Company, a giant in New Mexico's uranium industry and the owner of the massive Jackpile mine at Laguna Pueblo), which was decorated for the event "with paintings by Grants area artists . . . depicting uranium mining or milling facilities or operations."[55] In front of a well-heeled audience of over 500 prominent Grants residents and the heads of twelve uranium companies—no dust-covered uranium miners here—Seaborg acknowledged New Mexico "as the birthplace of modern nuclear technology, the proving ground for atomic explosives and the nation's leading source of nuclear fuels."

But these atomic explosives and nuclear fuels, Seaborg apparently felt, did not quite speak to the larger importance of uranium and, by extension, New Mexico. Instead, he situated them in a rather grandiose context: New Mexico's uranium, he mused for his audience, "will help enable us to develop a manned colony on the moon" complete with nuclear-powered communications, light, heat, and cooling.[56] He "even envisioned a 'Lunar Hilton (hotel) from which tourists in a dome-covered cocktail lounge can have a spectacular view of the earth,' " a vision of a lunar colonial class that begs comparisons to the colonial bourgeoisie that was, in 1968, actively being ousted from their cocktail lounges by global anticolonial movements. Nodding to the energy, if not the labor, that would be needed to power such a bright new lunar colony, Seaborg stipulated that " 'Naturally, such a hotel would be sustained by energy generated from uranium.' " Naturally. Likewise, the very nature of deserts that had so confounded a settler environmental imagination that saw no use for Native-populated lands that are not agriculturally productive in a normative way could be transformed to suit the needs of this new colonial future: the desert would

become a "nuclear agro-industrial center" using nuclear power in "desert areas to support vast agricultural 'food factories.'"[57] Here, the connection between the anachronistic space of the Southwest and the futuristic technology of nuclearism, which made New Mexico denizens, as Masco points out, "time travelers of a very particular sort," granted white settlers the kind of spatial and temporal freedom (as well as freedom from racial justice and anticolonial movements) that only the imagined frontier of the moon could symbolize.[58] In short, the Colorado Plateau and its uranium reserves were both "America's New Frontier!" and the source of the raw material (the "magic ore") that could produce a spectacularly new—even lunar—settler colonial world.[59]

The Atomic Turn

The peculiar sovereignty of the atomic age flew in the face of the principle of what Al Geddicks calls *environmental self-determination,* which, according to Geddicks, includes political control of Native affairs by Native people, the right to the control and use of Native economic resources for environmental resource development, and the right to protect the environment and people from degradation.[60] Environmental self-determination, at its most basic level, would also stipulate that a Native nation has the right to decide to leave a resource in the ground. Although tribes have been able to stipulate royalty rates and issue leases for extractive industries, they are rarely able, in any real way, to ban extraction altogether. In the late twentieth century and early twenty-first, having suffered the consequences of massive energy resource extraction from the coal, oil, natural gas, and uranium industries for the benefit of non-Natives and the ensuing extremes of energy injustice on Native land across the United States, a number of Native nations have sought to change this by passing legislation that insists on environmental self-determination. In 1987, the first of several Indigenous Uranium Forum meetings, hosted by Navajo activists, was organized around the theme "leave it in the ground," an early push toward this kind of legislation for environmental self-determination.[61] The 2005 Diné Natural Resources Protection Act (DNRPA), which banned uranium mining in Navajo country, stood as a prime example of this trend. Even with this legislation, the areas just outside the Navajo Nation's borders—much of which the tribe still considers within Navajo country and therefore protected by DNRPA—remain a focus of uranium companies. As one *Navajo Times* reporter described the situation, "if you plot current uranium claims on a map of the Four Corners, they mass on the reservation's borders like troops waiting to charge."[62]

Tribes' struggle to exert even a modest amount of environmental self-determination in regard to mining runs against more than a century of Native lands being treated as open to settler incursions for mining purposes, both in law and practice. In general, U.S. mining policy has since its inception functioned to maximize private profits from public lands, particularly in the West, where "public" lands were often so designated immediately following tribal dispossession. The 1872 General Mining Act essentially codified common practices of claims-staking in the California gold rush: prospectors, under this act, could stake claims on any public land based on promising evidence of mineralization. Native reservation land was excluded from prospecting under the General Mining Act (except by approval from a tribe's federal trustee, which was hardly a mechanism for safeguarding the tribe's resources or best interests) until 1919, when Congress authorized unfettered access by prospectors to Native lands in Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Washington, and Wyoming.[63] This policy remained in place until 1938, when Congress passed the Tribal Minerals Leasing Act, granting tribal councils the authority to negotiate leases for mines on their land. The Tribal Minerals Leasing Act was intended to clarify the status of mineral leases on Indian lands and make mining law on reservations comply with the intent of the 1934 Reorganization Act (to give the tribes more control over decisions like the leasing of their land to mine developers). The 1938 act, like the Reorganization Act itself, largely failed to achieve its intended ends. In essence, it opened Indian trust lands to mineral leasing according to negotiations between miners and the BIA, rather than the tribes themselves. According to legal theorists Getches, Wilkinson, and Williamson Jr., tribes were limited to "playing a passive role as recipients of royalties under a lease negotiated between the Bureau of Indian Affairs and the mineral developers."[64] The peculiar sovereignty of the atomic age over Native land during the uranium booms was thus predicated on almost one hundred years of legal and political precedent before prospectors fanned out onto and near Diné land in search of their "uraniumaire" strikes. Finding uranium became an essential first step in the "paramount objective of assuring the common defense and security" of the nation, and the newly formed AEC was charged with the task of stockpiling uranium for weapons—and, later, energy—development.[65]

The Atomic Energy Act of 1946 established the AEC, declaring one of the commission's paramount concerns to be enacting "a program for Government control of the production, ownership, and use of fissionable material to assure the common defense and security, and to ensure the broadest possible exploitation of the field."[66] In the early years of the uranium boom,

as the federal government deployed prospectors out into the Colorado Plateau in search of uranium deposits, they relied on withdrawals from public lands for use by the AEC. Very quickly, however, this practice of AEC withdrawal became significantly less useful, as private prospectors would become "keenly interested in an area where AEC and USGS geologists focus[ed] their attention" in advance of withdrawal, and in the soon-to-be-withdrawn area, claims would be staked so rapidly that "by the time the withdrawal [was] effected, less than 50% of the area" remained in the public domain.[67] Essentially, the private prospectors beat the AEC to it: as noted by GJOO's Sheldon Wimpfen, "by the time we have moved on to complete the geological studies that are an essential preliminary to requesting a withdrawal in anticipation of a drilling program, much, if not most, of the land is already staked thereby negating the effect of the withdrawal."[68] By 1953, GJOO was hard at work to remedy this problem and ordered a staff member to research and report on the subject. However, "in his research he discovered so many conflicts in procedures, laws, and execution of the laws that the preparation of a staff paper was at that point not possible," evidencing the bureaucratic tangle of land law and policy that characterized the uranium boom—as well as the rapidity and ease with which mining claims in the public domain could be privatized under the 1872 General Mining Act.[69]

There were segments of land in the public domain, however, that were protected from AEC prospecting by the agencies responsible for them. Quite a lot of bureaucratic negotiation, for example, took place within the Department of the Interior (DOI) over the question of prospecting in national parks and monuments. Throughout the early 1950s, when the AEC search for uranium was in full swing, members of the GJOO negotiated with the National Park Service (NPS) over prospecting and mining policy on those protected parts of the public domain. The AEC often assumed unfettered access as a matter of course. In 1953, the NPS sent a memorandum to the AEC requesting thirty days' notice before they began prospecting on National Park land. Realizing this request had not been honored in at least one case, GJOO manager Wimpfen sent the following to the superintendent of the Petrified Forest National Monument:

> Through inadvertence, you were not given this [thirty-day] advanced notification and some of our geologists have been conducting exploratory work in the Monument for the past few weeks. If their presence there is not interfering with your programs, we request that you wave this notice requirement in this instance, and allow our men to continue their work in the Monument.[70]

In subsequent months, the AEC requested to do survey work in over twenty different national parks and monuments in four states, including the Grand Canyon National Park, Arches National Monument, and Mesa Verde National Monument. However, it seems that once the AEC did ask permission before engaging in prospecting work, the NPS was not necessarily eager to automatically defer to the commission's peculiar sovereignty: "this permission," one AEC report notes, "they were unwilling or unable to give us."[71] This may have been at least in part because the environmental damage incurred in even the exploratory phase of uranium mining flew in the face of the NPS's mission to protect areas of national, historical, and environmental significance. The exploratory phase of uranium prospecting, after all, did not just involve solitary prospectors bumping across the land in Jeeps, waiting for their Geiger counters to click; rather, exploration of prospects entails drilling boreholes every one to five miles to test the size and shape of a potential deposit, with holes of increasing size and frequency the more uranium was discovered, until "drill holes six inches in diameter and from 400–2,000 feet deep may be spaced as closely as 12½ feet apart."[72] These boreholes caused significant air and water pollution, as did the process of transporting heavy equipment to and from the drilling sites.[73] Whatever their reasoning, the NPS never took kindly to AEC requests for permission to begin this process on National Park and monument land. The two agencies reached such a deadlock that in 1955, the acting assistant director of the AEC Division of Raw Materials recommended "that the Commission forgo work in National Parks and Monuments" because "to search now for uranium on land under the jurisdiction of the Park Service is to look for ore unattainable without the aid of an Executive Order or perhaps some equally tedious process." Importantly, the letter concluded, "effort of field men could, I believe, be more profitably spent in areas of greater accessibility."[74] Throughout the 1950s, as the AEC negotiated with tribes across the West, Native lands increasingly constituted those "areas of greater accessibility."

The experience of the Laguna Pueblo with uranium prospecting makes this clear. On November 8, 1951, two employees of the Anaconda Copper Mining Company set out from the company's headquarters in a small Piper airplane. Woodrow House, the pilot, gripped a Geiger counter between his knees as he flew. Dale Terry occupied the passenger seat, serving as the flight's observer and recorder. As they flew over the Laguna Pueblo, just south of Mount Taylor, the Diné sacred mountain of the south, the Geiger counter wedged between House's knees suddenly began to click, indicating a radioactive anomaly on the ground below. The next day, Terry and House returned to the Pueblo by Jeep, bringing with them Anaconda's

manager of New Mexico operations, Jack Knaebel. Confirming that the ground beneath their feet registered anomalous radioactivity suggestive of a rich uranium deposit, Terry christened it for his boss: "Jack's Pile," a name that was later shortened to Jackpile.[75] The Jackpile mine would go on to become the world's largest open pit uranium mine, sprawling to nearly 3,000 acres of "manmade canyons" blasted into the earth, from which the company moved four hundred million tons of rock.[76] Anaconda ceased operations at Jackpile in 1982 without cleaning up the various kinds of radioactive waste left behind;[77] the Pueblo itself was forced to pay for and initiate a cleanup plan in the late 1980s.[78]

The method of the Jackpile deposit's discovery was not unique; planes and helicopters were often used to prospect by air, first by contractors for the AEC and by the USGS and later by private prospectors.[79] By the time of the Jackpile discovery, the USGS had flown 1,400 traverse miles in airborne surveys across the Colorado Plateau, and the AEC had contracted with several companies to conduct airborne reconnaissance of wide swaths of land in Utah, Colorado, Nevada, New Mexico, and Arizona. While surveys of the Grants region of northwest New Mexico returned no results in these early years of prospecting by air, similar missions in Monument Valley revealed significant new deposits and "previously unknown areas of . . . mineralization."[80] Within a year, airborne prospecting had become a central technique for identifying ore bodies across the West; in 1952, for example, a full 75 percent of the ore that came from Edgemont, South Dakota, was discovered via these airborne surveys.[81] This practice was attractive to federal and private prospectors alike in large part because it removed the myriad barriers to prospecting by foot or by Jeep: difficult and remote terrain, arid climate, and, less often acknowledged, the realities of traversing land where prospectors may or may not have been welcome. In northwestern New Mexico, these difficulties were compounded by "the nature and extent of private [land] holdings in the area—mining claims, railroad lands, and agricultural lands with and without mineral rights," which made it "difficult" for companies to conduct broad exploration programs on the ground.[82]

By 1955, prospectors and real estate developers were in touch with the AEC for permits to explore for uranium on the reservations of the Navajos, the Cañoncito Navajos, the Laguna Pueblo, the Jemez Pueblo, the Ute Mountain Utes, the Acoma Pueblo, the Zuni Pueblo, and the San Carlos Apaches. By the time these requests were made, the AEC had typically already conducted aerial surveys of the reservations and the AEC could respond to these requests quickly with maps of radioactive anomalies that might indicate uranium. In August 1955, the AEC reported having found "some promising mineralization" on the Jemez Indian Reservation. The

AEC and USGS reacted by "rushing [the] report and the accompanying maps" to the United Pueblos Agency. The agency's real property officer, Dewey Dismuke, in turn responded by requesting that the AEC advertise Jemez land for exclusive prospecting permits.[83] The AEC's district geologist, J. W. Gabelman, promptly responded to agree with Dismuke's request. Having settled the matter of opening Jemez land to prospecting, the two used the opportunity to plan a fishing trip.[84]

While the Navajo reservation was the first to be opened up to uranium prospecting and mining, the uranium industry and the AEC followed suit on a number of other reservations in a few short years. Each reservation was governed by its own set of rules about prospecting and claims staking, and these rules were of great interest to the AEC as it orchestrated the boom from its Grand Junction offices.[85] At least two tribes, the Southern Utes and the Ute Mountain Utes of Colorado, permitted no prospecting by either tribal members or outsiders on their land as of 1955. On April 7, 1955, in one such meeting, AEC representatives "carefully explained to the [Ute Mountain Tribal] Council the purpose and nature of the Commission's present airborne investigations on the . . . Reservation." The Ute Mountain Tribal Council responded by issuing a lease to the AEC to conduct "exploratory operations, inspections, and investigations on Ute Mountain Tribal Lands to determine the location, extent, content and mode of occurrence of uranium deposits." In the lease, the AEC agreed to submit any maps about tribal lands to the tribal council "within a reasonable time."[86] In their careful explanations about their investigations, the commission "made sure that the Council fully understood that the Commission was a government agency like the Bureau of Indian Affairs . . . and would not make any profit from any uranium discovered on the Reservation."[87] Tribal councils, familiar as they were with the BIA's manner of dealing with tribes, might not have found this logic to be particularly persuasive. However, as they each sought to make decisions about uranium prospecting on their land in the context of immense pressure, it seemed that the principles of environmental self-determination were mere illusion in the face of the peculiar sovereignty of the atomic age.

Navajo Problems

On October 14, 1949, the Navajo Tribal Council approved a resolution "to study and actively consider such changes in procedures as are necessary for positive results in securing greater development" of uranium mining on the reservation.[88] In doing so, the council sought primarily to bring economic development to the reservation to alleviate conditions of poverty

and unemployment in the wake of stock reduction and the employment boom (and bust) brought on by World War II. This was not the tribe's first foray into mining; more than two decades earlier, an oil boom helped spur economic development, albeit limited, on Navajo land.[89] With the encouragement of both industry and the federal government, in subsequent decades the council passed a series of resolutions pertaining to oil, coal, and uranium exploration. Navajo legislators routinely advocated for deals between the Navajos and industry to provide as much economic benefit to the tribe as possible.[90] Indeed, the fight to have some say in mining leases—as much environmental self-determination as possible—was as old as mining on the reservation itself.[91] The resolution of October 14, 1949, was very much in this spirit: it made clear the council's intention to use the government's desire for uranium to help bring jobs and income to the reservation.

If this was the lead-up to the resolution from the perspective of the Tribal Council, the perspective of the AEC was quite different. In 1951, the AEC summarized what it called its "relations [with] the Navajo Indian Tribe" as beginning with a meeting in the office of Alan G. Harper, superintendent of the Navajo Service, in November of 1949—just a few weeks after the passage of the Tribal Council resolution. In attendance were members of the AEC GJOO, agents from the USGS, and one representative from the Navajo Tribal Council. At the end of the meeting, the attendees signed off on an "Order . . . withdrawing certain Navajo tribal lands from further prospecting and development of vanadium and uranium minerals."[92] This, however, was not the beginning of AEC relations with the tribe, or at least with the tribe's BIA representative: in fact, Harper had been corresponding with the AEC since September of that year, when he wrote to the commission to inquire after "information concerning the uranium industry."[93] On September 13, he followed up with a visit to the AEC GJOO offices—a visit that required a nearly 800-mile round trip journey to Grand Junction from his office in Window Rock—to request in person "any assistance [GJOO] could give to the Navajo Tribe in the development of uranium resources on Tribal lands."[94] From the AEC point of view, the Tribal Council's resolution to explore options for developing a uranium industry on Navajo land was the result of Harper's repeated requests, and of the influence of "USGS representatives [who] were interested in obtaining permission to perform drilling and exploration work on the Reservation." According to the AEC, in short, its "relations [with] the Navajo Indian Tribe" were not so much relations with the Navajos as with the Navajo Service, and particularly Harper.

The Tribal Council, however, was not the passive victim of federal coercion. Because the Tribal Council's concerns revolved primarily around the desire to bring economic development to the reservation and alleviate poverty among the Diné, they repeatedly insisted that Navajos be employed first in mines and mills on Navajo land.[95] However, outside influence consistently undermined the council's advocacy of Navajo economic interests. In 1950, for example, as Navajo policy for developing uranium reserves was still being formed, Frank MacPherson of the AEC noted that the Navajo policy of requiring deposits to be leased and ore sold through the Tribal Council, and not through the white miner himself, "was discouraging the development of uranium ore deposits." Therefore, when attending an Advisory Committee meeting in August 1950, MacPherson

> suggested that they consider amending their license by authorizing issuance of the license to white men as well as Indians, or by amending the license to permit the Navajo who found uranium under such a license to either assign the license or enter into mining agreement with qualified people to develop the deposit.[96]

MacPherson also suggested to the Advisory Committee that they lift the "limit of 960 acres as the maximum amount of land which might be covered by a permit." It appears that MacPherson's arguments were persuasive; both suggestions were adopted by Tribal Council resolution within days of this meeting.[97]

In March of the following year, the AEC further suggested that the Navajo Tribal Council adopt a resolution that would "grant authority to the Commission and its contractors to perform such geological investigations and exploration for the discovery of uranium ores as the Commission might deem advisable, on any part of the Navajo Indian reservation for a period of three years."[98] Again, the Tribal Council passed the advised resolution on April 18, 1951, and the AEC was granted access to large swaths of Navajo land. In a similar vein, in a letter from M. C. Bucklin, area counsel to the BIA at Window Rock, to Paul Martin, a lawyer with the AEC, regarding a resolution passed by the Tribal Council to regulate uranium stockpiling on Navajo land, Bucklin notes, "These resolutions were, as I understand it, adopted at the suggestion of your Commission."[99] Consistently, policy enacted by the Tribal Council "at the suggestion" of the AEC facilitated the accelerated development of the uranium industry on Navajo land, opening the land up to prospectors, miners, and, eventually, mills for processing the ore and mill tailings piles for dumping the inevitable waste. All of this served to catalyze the development of the uranium

industry, but often degraded the Navajos' ability to benefit economically as a tribe. This history echoes the tribe's experience with oil mining, which revealed, according to Kathleen Chamberlain, "that although the BIA absolutely believed Navajos must learn white ways and assimilate, its agents prepared them to occupy only the bottom rung of mainstream society."[100] Just so, while the tribe was encouraged to open the reservation to uranium mining, the AEC encouraged policies that limited tribal profit even as uranium companies relegated Diné workers to the lowest paid and most dangerous positions in the mines and mills.

The AEC acknowledged its sway over tribal policy, noting in 1951, "We have, undoubtedly, had some influence on the establishment of regulations and procedures for the operation of uranium mineral lands" on the reservation.[101] However, the commission contended that it acted only "to give such assistance as would be to the benefit of the Navajo Indian Tribe"; its "position" was that "Navajo Tribal lands are privately owned lands" and the AEC only worked in an "advisory capacity" to the Bureau of Indian Affairs (BIA) and the Tribal Council.[102] Here, the influence of the AEC on tribal policy was acknowledged but also quickly downplayed. The insistence that Native lands were treated as "privately owned" sidestepped the fact that Native land was not actually privately owned but held in trust in the federal public domain. While the AEC politely took the "position" that Native land was privately held, nodding toward the post–Indian Reorganization Act preference for tribal self-determination in federal policy, the reality of federal control over Navajo land could not have been far from anyone's mind. Certainly, members of the Tribal Council were well aware of this legal and political reality.[103]

AEC encouragement of mining on Navajo land was consistently couched in terms of the best interest of both the Diné and the United States as a whole. AEC rhetoric argued that the ends of Navajo economic development and U.S. procurement of uranium were both served by easy and unfettered access of the uranium industry to Navajo land. When, in 1951, BIA commissioner Dillon Myer[104] proposed that Navajos receive between 10 and 20 percent royalties for leasing their lands to uranium mine developers, Jesse Johnson contested the need for this sliding scale with a rhetorical bob and weave that evidenced the federal priority to clear the way for the uranium industry, rather than to promote Navajo economic development: "We firmly believe," Johnson wrote, "that in order to provide for the maximum production of uranium and the maximum income to the Indians a more reasonable royalty scale should be adopted." He proposed, as a "more reasonable" royalty, "a flat rate of 10%" rather than Myer's sliding scale.[105] "We are pleased," Johnson wrote, "to have the

opportunity to comment on the proposed lease provisions because it is important that leasing arrangements be designed to stimulate prospecting, development, and mining of uranium." Johnson admitted that this position on royalties was "colored by our desire to increase domestic uranium production to the highest practicable levels," but he also argued that, "in accomplishing this objective through the establishment of reasonable royalty rates and elimination of restrictive provisions in mining leases, the net income to the tribe will also reach a maximum."[106] Furthermore, the AEC GJOO fully supported the leasing of these uranium-rich lands to "others than members of the tribe" because this would be an "essential step if financing and experience in mining are to be secured so that the mining of uranium can proceed expeditiously" and, lest we forget the altruistic bent of any good DOI project, so that uranium mining would "yield substantial income to the tribe." Thus, according to the AEC, the leasing of profitable lands to non-Navajo outsiders would actually *benefit* Navajos because the management of uranium mines would be left to (presumably) more rational economic actors who would have (realistically) more resources to draw from in terms of mine development and financing. As the language of Johnson's letter illustrates, the development of uranium mining at the lowest possible cost to the industry was consistently framed as a boon to the Navajos, a benevolent action that would maximize "new income to the tribe."

By the mid-1950s, uranium exploration and leasing was well underway on Diné land. Many mines were fully operational, ore was being rapidly extracted, and uranium companies were eagerly building mills to process the ore. One of the largest uranium companies in Diné Bikéyah was Kerr McGee Oil, a company based out of Oklahoma that had gotten its start in oil fields before branching out into other mining ventures. The Kerr McGee Shiprock mill was busily processing ore trucked in from mines in the Lukachukai mountains, Grants, and Gallup—within just a few years, this mill would be processing on average 300 tons of uranium ore per day; not long after that, it would become the site of major protest by Navajos over its attendant environmental and social problems. In 1955, Kerr McGee was involved in negotiations with the AEC to obtain rights to land near Shiprock for a tailings pile to house mill waste, a process that involved an impressive amount of correspondence between the company and the commission. While most of this correspondence concerned the mill and little else, one memo inadvertently revealed a crucial factor in the relationships between government, industry, and tribe: on the memo, someone sketched a stick figure Indian, complete with a headband and feathers. As if the subject of the sketch needed clarification, it bears the label, in tiny handwriting,

"the navajo." The way in which the sketch was done, a wry and condescending "inclusion" of Navajos in the process of leasing sites for tailings piles, stands as a powerful metaphor for how Navajo interests were "included" in these decision processes overall. The sketch illustrated the ways in which inscriptions of characters called "the navajo," in no way reflecting actual Diné people, their lives, or their values, consistently occupied the discourse of AEC, uranium industry, and BIA negotiations over uranium development. Whatever the truth on the ground—the contingencies of historical reality, the very real agency of individual Diné and the Navajo Tribal Council, who exercised careful diligence over federal forays into the real space of Diné land and the political space of Navajo sovereignty—Diné interests and agency were consistently undermined by the racism inherent to settler colonial power. Within the structure of power relations, the very idleness, the very nonauthorial and nonauthoritative nature of the sketch uncovers the larger quality of relations between the actors involved. Within colonial discourse, the Diné were always the headbanded, cartoonish "navajo."

The sketch can be seen as a foil for other utterances that likewise relegated Diné people and politics to the margins. This was illustrated again in a letter dated June 9, 1955, from the then vice president of Kerr McGee, M. F. Bolton, regarding an amendment to a mill lease that needed to be approved by the Tribal Council in Window Rock. Bolton wrote, of the Navajo Tribal Attorney Lawrence Davis,

> I have not attempted to push Mr. Davis too hard [on the lease matter] as he has been rather unhappy with me for having gone to Washington and secured approval of other matters which he feels apparently should have been sent through the Window Rock "red tape" and possibly delayed another year.
>
> It is my recommendation that Mr. Martin of the A.E.C. attempt to push this matter with Davis.[107]

What Bolton's candor revealed here was the everyday function of settler colonial power. Though the law was relatively clear in regard to who possessed jurisdiction over the reservation, and though the AEC and others took the "polite" position that Navajo land was privately held, the exercise of power was clear to everyone involved because of the affect, the repertoire, and the reality of colonial jurisdiction—a peculiar sovereignty—over Diné Bikéyah.

CHAPTER THREE

Cowboys and Indians in Navajo Country

> No more appropriate site for a great hidden hoard of matter that will unmake or make the world is imaginable. . . . For an Indian to make the uranium discovery among such circumstances gives just the right romantic touch.
>
> —*LOS ANGELES TIMES,* DECEMBER 11, 1950

> [The logic of genocide] holds that indigenous peoples must disappear. In fact, they must always be disappearing, in order to enable non-indigenous peoples' rightful claim to the land.
>
> —ANDREA SMITH, "HETEROPATRIARCHY AND THE THREE PILLARS OF WHITE SUPREMACY," 2012

> Invasion is a structure, not an event.
>
> —PATRICK WOLFE, "SETTLER COLONIALISM AND THE ELIMINATION OF THE NATIVE," 2006

Paddy

In mid-July 1950, on a red dirt horse trail that traversed a rocky formation known locally as Haystack Mountain, tiny puffs of dust kicked up behind a horse's hooves as it ambled lazily behind a tall man in a tan cowboy hat. The trail smoldered in the late afternoon sun. As the man walked, he puffed pensively on a cigarette, freshly rolled from a brand new tin of tobacco just purchased in the nearby town of Grants, New Mexico. His eyes scanned the rocky outcrop. He moved slowly, concentrating hard. At last, he spotted it—just where he thought it would be. He moved in to take a closer look, and his horse slowed to a lazy stop beside him, heaving a sigh in the

hot sun. Patricio Martinez, better known as Paddy, reached out to touch a yellowish streak on the outcrop, waiting a long moment with his hand resting there, feeling the sun's warmth seem to radiate out of the mountain itself. Then, using a chisel he pulled from his saddlebags, Paddy knocked loose a chunk of rock, smaller than his fist. It was streaked with bright yellow, the color of sunshine. He put the rock and his chisel into the saddlebag, wiped a streak of sweat from near the brim of his hat, and continued on along the dusty trail.[1]

Maybe it happened that way.

Then again, maybe not: the local Grants newspaper told the story of that afternoon in quite a different way, declaring, "Paddy Martinez, a Navajo Indian, was sitting on a ledge on Haystack Mountain in northern New Mexico. He reached back of him for the bottle of stuff it was illegal to sell Indians in 1950, and glanced around to see a yellow-colored rock near his bottle." The magazine *The Age,* however, reported that "Martinez was merely riding in for cigarettes when his keen eye fell on something his Indian memory for color told him was the same substance Government geologists had been trying to get the Navajo to take more interest in."[2]

Each of these accounts purport to tell the origin story of one of the most influential mining booms of the twentieth century: how Martinez discovered the richest uranium deposit in the country, the Grants uranium belt, which would eventually come to host more uranium mine and mill sites than any other uranium province in the United States. Versions of the story range widely, often describing the discovery, its implications, and Martinez himself in strikingly different ways. The ubiquitous presence of Martinez in explanations of the uranium boom's origins, and the inconsistency of how his story is told, suggest that his story organizes the uranium landscape in compelling ways for mainstream journalists and readers, providing a frame through which the complicated politics of the uranium industry could be understood and communicated. Since 1950, differing accounts of Paddy's discovery have served to construct knowledge about the uranium boom, the politics of land ownership and occupancy in the checkerboard region—land in northwestern New Mexico outside of the Navajo Nation borders, in which land ownership is divided between the federal government, the state of New Mexico, private and corporate ownership, and Native land allotments, so named because of the distinctive checkerboard pattern it makes on maps—and the relationship of the Navajos to the uranium industry.

The burgeoning uranium industry, spurred in part by discoveries like that of Paddy Martinez, was not the only change occurring in Navajo country in the years that followed World War II. The late 1940s and early

1950s, in fact, were transformative years both within the reservation and in the surrounding areas. Stock reduction had formally ended, leaving many families without herds for the first time since their return from Bosque Redondo and without the grazing permits necessary to build new herds.[3] Navajo veterans of World War II, including the heroic Code Talkers, who used Diné bizaad (the Navajo language) to transmit secret military messages with great success in the Pacific theater, had returned to the reservation to an absence of both sheep and wage work; as historians Garrick and Roberta Glenn Bailey note, "The tribe did not experience the full impact of stock reduction until workers and veterans returned" to the reservation.[4] One report noted glumly that in the postwar years, "there is no Indian tribe in the United States in as precarious a situation as the Navajo" and, echoing the not-too-far-gone rhetoric of the stock reduction days, that "the Navajo standard of living is what you would expect on such a barren wasteland."[5] The Navajo economy experienced a collapse in 1945.[6] The winter of 1948–1949 added to the general hardship, bringing blizzards of rare strength and size, accompanied by bitter freezes across Diné Bikéyah; in the northwestern stretches of the reservation, 1,500 families and their livestock were endangered by the storms. A BIA reconnaissance plane flying over Navajo Mountain observed that one of these families had dug the words "Help, Help" into the snow on the side of the mountain.[7] In the wake of this extreme winter, the Diné and their remaining herds experienced several years of drought. The rare jobs to be found were largely in the new coal and vanadium leases that cropped up on and near the reservation, which, by one estimation,

> have helped to lessen Navajo suspicion of the Government . . . so that hostility to [mineral] surveyors has given way to a tribal willingness to encourage the discovery of every possible resource that is of commercial value. This common-sense attitude is encouraging and promises well for Navajo cooperation in the event that vanadium should be discovered to have fissionable qualities susceptible of conversion into atomic energy. The Navajos have proven their loyalty to the American cause in our recent wars and can be counted on to support their adopted country in the coming atomic age.[8]

The *New York Times* concurred, noting that the Navajos' "dire economic straits" might very well be rectified by the "latest development[s] of the atomic era."[9]

There were other political economic changes in the works as well. In the northwestern reaches of Navajo country, a white trading post owner named Harry Goulding was hosting Hollywood filmmakers in the reservation's

spectacular Monument Valley: *My Darling Clementine, Fort Apache, She Wore a Yellow Ribbon, Rio Grande, Wagon Master,* and, most famous of all, *The Searchers,* were all filmed in the Valley from 1946 to 1956, contributing to its entrenchment in the cultural landscape of that quintessentially American genre, the western.[10] Filmmakers also staked out other Navajo country locations for their movies. Grants and Gallup, reservation border towns in the east, became a popular home base for film crews. Some Navajos (almost all men) could earn temporary wage work by donning feathered headbands and braided wigs—Hollywood's utilitarian gesture to the costumes of the Plains tribes—and acting out their own deaths en masse in the foreground of Diné Bikéyah's various spectacular backdrops, from Monument Valley's iconic geologic formations to the red and purple sandstone walls of the eastern reservation and its borderlands.[11]

When Paddy Martinez made his discovery in 1950, most filmgoers were unaware that the spectacular backdrops they saw in their favorite films were Navajo country, and most uranium hunters were focused on the industrious mines and mills in the western parts of the reservation, which had only recently been openly acknowledged for their role in providing uranium to the Manhattan Project. Major uranium deposits, as the AEC conceded in its 1949 annual report, had yet to be found in the continental United States. This can, perhaps, begin to explain why the story of Paddy Martinez became a kind of unquestioned staple of the larger history of uranium mining, an oft-repeated origin story for "the magic ore." Throughout the 1950s, new developments in and around Navajo country, from a rush of movies to a startling upswing in tourism, had strong material and ideological connections to the uranium booms. This chapter is organized around the powerful narratives that emerged to explain these and other changes wrought by the uranium industry's origins in and around Navajo country.

These uranium origin stories both draw on and reflect larger settler colonial notions of the role of "Indians" in national teleologies of progress in the 1950s and into the 1960s. At the same time Paddy Martinez was being celebrated as the discoverer of Grants uranium belt, other origin stories developed in tandem: that of Navajo country as something more than wasteland—as a point of origin for the nation itself, now opened for access by white tourists, newspaper readers, and moviegoers. Much more quietly, another origin story began to play out: that of a lung cancer epidemic as the very likely outcome of all this radioactive industriousness. In each of these moments in the history of uranium mining, the Diné were rendered spectacularly mundane, or perhaps mundane spectacle; they become the collective object of a larger narrative that was predicated, ultimately, on their death, whether that death was feigned (in the movies) or very, very

real. Through the story of Paddy Martinez, among other hegemonic narratives about the Diné, their land, and uranium, I explore how "Indianness" came to be narrativized as the thing through which the U.S. atomic modernity was constituted in the 1950s. Atomic modernity, signifying not only the defense of U.S.-style consumptive capitalism but also, more broadly, a brave new world of technological futurity, emerged on and through stories of Navajos and Navajo country, even as the real material effects of atomic modernity were constituted, quite materially, on Navajo bodies and land.

Accounts of Martinez's discovery are often more interesting in their difference than in their similarities. There is little agreement about how the discovery happened and what Martinez's intentions or agency may have been. Whereas he is sometimes reported to have been quite well informed about the federal government's desire for uranium ore, other stories reduce his role in the discovery to mere accident: he "stumbled" on the uranium, they report, and "put it near" a Geiger counter. The *Los Angeles Times,* like other newspapers and magazines, made a habit of reporting highly divergent, though impressively detailed, accounts. A 1950 article declared:

> He didn't make the uranium strike by accident. Last summer, while waiting for a bus, he saw two men, just arrived from Colorado, who carried some yellow rock. Moving just close enough to the strangers to hear what was said, he learned that the rocks were specimens of ordinary carnotite and that the government was offering $10,000 for the discovery of certain types of uranium ore.[12]

Two years later, the *Times* reported quite a different, and particularly unflattering, account of the discovery:

> It was the Indian's taste for wine which led to the huge uranium find. He had bought two half-gallon bottles of wine at a trading post the day of the uranium discovery and became drowsy because of the alcohol fumes as he headed back to Haystack Mountain. When he awoke at the mountain's base and rolled over, Martinez saw a yellow-green rock, which he identified as similar to uranium ore shown to him by a geology student at Grants. Martinez took as much of the ore as he could carry back to Grants and turned it in to geology experts.[13]

In 1976, the same paper described how "one day in 1950 a Navajo shepherd named Paddy Martinez, wandering through nearby Poison Canyon, picked up some peculiar yellow rocks and brought them into town."[14] In each successive rendition of Paddy's story, he was variously described as a cunning observer, a drunken buffoon, or a hapless wanderer—the only

consistency, in the end, is in the articles' agreement that Paddy Martinez could be credited with sparking the region's uranium boom.

The disagreement about the details of Martinez's find (and his character) was both widespread and enduring. While some versions of Martinez's story represent him as "stumbling" upon the ore in his "rambles" in the mountains, others reported that he overheard conversations about uranium and the government's promised monetary reward and deliberately set out to find the uranium ore.[15] These seemingly incommensurable versions of the story offer conflicting perspectives on Martinez himself; his uranium discovery is recounted as both "accidental"[16] and "no accident,"[17] the result of his propensity to drink liquor to excess or deriving from "his keen eye [and] Indian memory for color."[18] In finding the uranium ore, he was reaching for a "bottle of the stuff it was illegal to sell Indians in 1950,"[19] or perhaps "he was merely riding in for cigarettes."[20] Once he had the uranium in his possession, the story was again inconsistent: one article recounted, "a farmer helped him fill in forms for claims and lodge them properly," suggesting Martinez's incapacity to deal with paperwork (or perhaps that he was illiterate).[21] Other accounts reported that Martinez gave the ore to the Grants "mayor, and asked him to get it analyzed."[22] ("The mayor" here is probably a reference to either Carroll Gunderson or his son Raymond Gunderson, powerful and influential citizens of Grants to be sure, but neither one the mayor.[23]) Martinez himself was variously described in these and other articles as "a well-rounded man," "part Navajo and part Spanish," "a Navajo shepherd," a speaker of "good English," "a very smart man," an "elderly Indian," "unofficial chief among the large Indian colony," "the patriarch of all Navajos in the Grants area," "a Navajo subchief who still lives in a hogan," an "outdoorsman" with a "grizzled face," and "a dead shot with a rifle [and] also canny." He is credited, sometimes within the same article, with having fourteen, fifteen, or over twenty children.[24]

Paddy Martinez was not the first Navajo to discover profitable uranium deposits in Diné Bikéyah, although he was the most well known. Eight years earlier, and hundreds of miles to the west, a young man named Luke Yazzie brought rock samples to Harry Goulding, the Monument Valley trading post owner. Goulding then turned them over to the vice president of the Vanadium Corporation of America (VCA), Denny Viles.[25] Those rocks turned out to be so rich in uranium and vanadium that the mine at their source, Monument Valley No. 2, located near the Yazzie home in the uranium-rich Cane Valley portion of Monument Valley, "would buoy the fortunes of [VCA] for the next twenty years."[26] Luke Yazzie's story, while strikingly similar to Martinez's in many ways, was not widely circulated.[27]

Yazzie never had a park named after him (as Martinez eventually did), nor was he credited in national newspapers with having "made a discovery which could bring victory to the United States in the event of all-out atomic war."[28] Manhattan Project secrecy largely accounts for this; Yazzie's find occurred while the hunt for uranium was still a closely held secret—in 1942, the year of Yazzie's discovery, the Manhattan District Engineers had just commenced buying "uranium sludge" from vanadium mills in Colorado, without telling miners what they were buying or paying them for the radioactive material.[29] But this secrecy does not explain the general silence about another Navajo man who discovered a profitable ore deposit in the same year as Paddy Martinez: in 1950, Frank Nacheenbetah filed for a permit to mine uranium in the Lukachukai Mountains, turning over that permit to the Climax Uranium Company in 1951. Although Nacheenbetah was sometimes referred to in newspaper articles and AEC speeches (though almost never by name), his story never gained traction.[30]

Absent the reason of secrecy in Yazzie's case, Paddy Martinez's story took hold over those of other Diné discoverers such as Nacheenbetah for one primary reason: it was actively promoted by the Atchison, Topeka, and Santa Fe Railroad, which owned the land where Martinez found his uranium ore. In the months following Paddy's discovery, his radioactive rocks were no more than mere rumor both inside and outside of Grants—few heard about his find, and, despite nationwide buzz about uranium's profitability, no major newspapers picked up the story.[31] In early December, however, almost five months later, Fred Gurley, the president of the Santa Fe Railroad, visited Grants to tour the discovery site. The *Los Angeles Times* covered the trip, and by December 12 the town had "gone wild," most of its residents learning for the first time from the *Times* article that their town might be on the verge of a major mining boom.[32] Within two weeks, prospectors were "pouring into town" to search for promising mineralization on the railroad's land; the town's "two long-distance lines buzzed with calls" and "its 17 bars all proudly displayed ore samples."[33]

The apparent fiction of many of the various renditions of Martinez's story in subsequent years reflects more than just inconsistent journalism; it suggests the strength of the desire to narrate Navajo people (particularly Navajo men) in very distinct ways in relationship to the uranium industry and, more largely, to "civilization" itself. In these narratives, Martinez becomes a trope of an "Indian," occupying the liminal space of the uranium landscape and, by extension, industrial progress in the atomic age. The truth of his life is rendered subordinate to larger rhetorics that naturalize the uranium industry as an inevitable part of the "barren wasteland" of the Native-occupied Southwest. In different versions of his story he is as easily

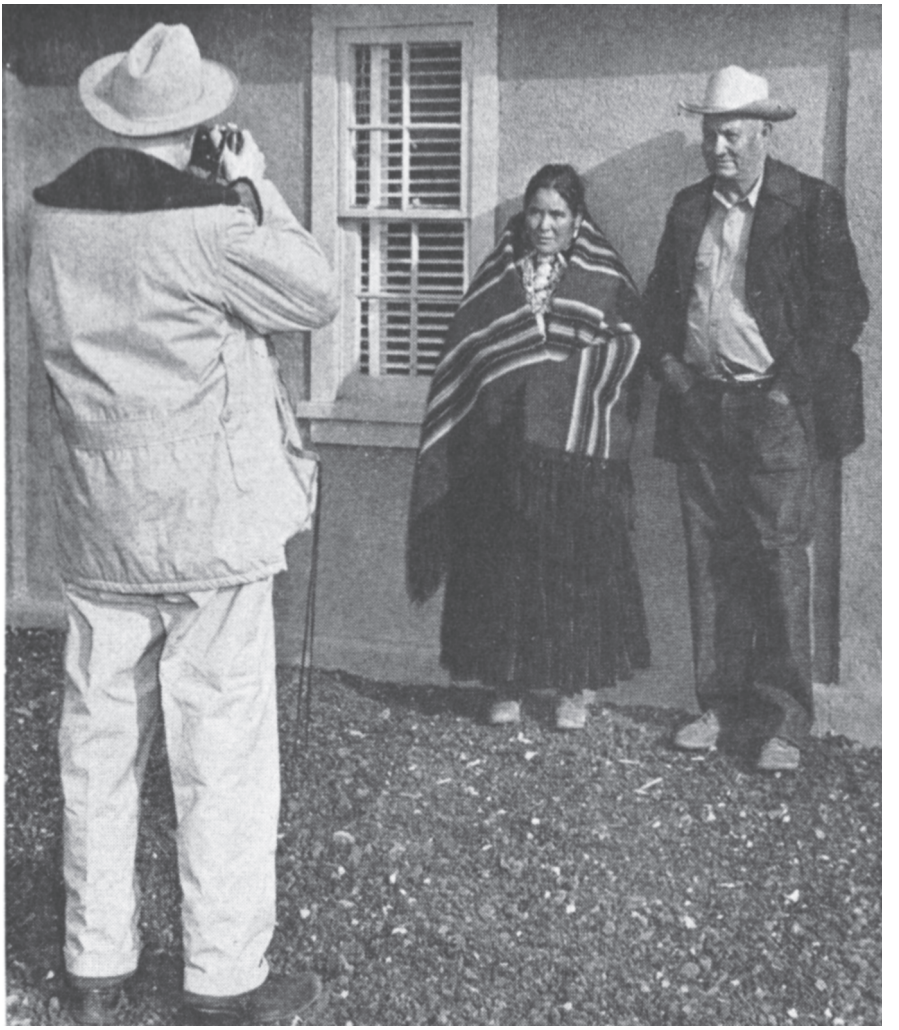


FIGURE 11. Paddy Martinez's uranium discovery occurred on land owned by the Santa Fe Railroad. In his subsequent inspection of the discovery site, Fred Gurley, president of the Santa Fe, "takes time out" to photograph Martinez with his wife, Mary. Wayne Winters, "Uranium Boom at Grants," *New Mexico Magazine* 29, no. 3 (March 1951). Courtesy of *New Mexico Magazine*.

presented as a drunken buffoon or as an "unofficial chief" and "patriarch" among Navajos; either way, Martinez's racialized identity and role in the discovery of uranium (whether intentional or not) maps the Navajo into, and simultaneously to one side of, the uranium industry in New Mexico. Thus, Navajos in general, through Martinez's story, become collectively constructed as the supporting cast to the uranium industry, the temporal and spatial background on which this industry was built and, subsequently, on which a modern militarized America is constituted (due, in no small measure, to conflations of a thriving uranium industry with national strength). This notion is illustrated most explicitly in the opening to the 1950 *Los Angeles Times* article: "A Navajo Indian, riding horseback through a pinon forest, has made a discovery which could bring victory to the United States in the event of all-out atomic war."[34] The primordial image of an "Indian" riding a horse "through a pinon forest" is juxtaposed harshly against the technological and political immediacy of atomic warfare and bomb technology. It signifies a radical compaction of the imagined future and the imagined past in a geography that is at once both primordial and space age. Through this juxtaposition, the story engages the complex temporality of the Southwest in the atomic era, a region constructed (like the frontier in general) as caught somewhere in the gears of history, inclined by its pastoral nature and Native inhabitants toward the past but providing the raw materials for the progressive industrialism of the future.

In the end, Paddy Martinez's story ushers the Diné into the uranium story and then straight back out again. Martinez himself rides horseback (or naps his way) into the uranium industry (described as though it always already would exist in the region) and then seems to melt away, leaving behind only his fictionalized story. In December 1950, *Time Magazine* offered a strikingly premature eulogy of Martinez's role in the uranium story:

> Paddy still yearned to get rich . . . but meantime, harried by friends who already want to borrow money from him, he scooped up his family, padlocked his hogans, leaving only the pigs, and headed for the hills. He left behind a crudely lettered cardboard sign: "Please don't take anything out of my place and live along (leave alone) my pig. . . . From Paddy Martinez."[35]

This account of Martinez's departure communicated a number of things, subtle and not so subtle, about Martinez and the legacy of his encounters with the uranium industry; being paid $250 a month by the Santa Fe Railroad, it would appear, had brought him more harm than good, as his friends "harried" him for money to an extent that he felt obliged to "head for the hills." This escape to the proverbial hills implied an ungrounded,

immaterial evaporation that did not reflect real life, particularly real life in the checkerboard—which hills? Owned by whom? This account likewise indicated that economic development of Native life, the "civilizing mission" itself, was an always already failed project. Natives in general, the story suggests, like Martinez's harrying "friends who already want to borrow money from him," have irrational relationships to modern forms of currency and commerce, those most civilized elements of civilized white life. In this vein, the assertion that Paddy could not "get rich" because of the demands of Navajo community life suggested that his departure better served his chances of upward mobility. The story thus inhered the themes of 1950s federal Indian policy regarding the reservation system: termination of the federal–Indian trust relationship and relocation of tribal members to cities, where they might be more successfully assimilated into the wage economy.[36] Both policies emphasized the desirability of American-style individuality and capitalist acquisitiveness, wherein one does not feel pressured to succumb to harrying friends or to the collective community life of which those friends are a part. In the echo chamber of hegemonic discourses about Natives and Indian policy, even Martinez's fictionalized story of discovering uranium translated into a parable for termination and relocation.

In 1992, Martinez was inducted into the Mining Hall of Fame, despite the fact that he was not a miner. The description of his story in the Hall of Fame reflects the ways in which Martinez was brought into the uranium story as Native enabler to the industry and "to mankind":

> This native New Mexican, a Navajo, made the initial discovery of uranium in the San Juan Basin, the most important uranium-producing area in the United States. . . . In an era when research is proving many peaceful uses of the atom, Patricio (Paddy) Martinez is respected and remembered for his contribution to mining and to mankind.[37]

Here, the Native claims to and occupancy of the area around Haystack is nullified in favor of a description of the region as "the most important uranium-producing area in the United States," effectively naturalizing the uranium industry as indigenous to this terrain. Martinez himself becomes the (presumably unwitting) midwife to the industry and, by extension, to "peaceful uses of the atom," "to mining and to mankind."

The Vanishing Race and Teleologies of Injustice

Four and a half decades before *Time Magazine* sent Paddy Martinez off into the hills and out of history, to be, as Andrea Smith puts it, "always disappearing," the photographer Edward Curtis published a photograph

of Navajo horsemen riding toward a distant horizon. The horsemen were, in Curtis's words, "passing into the darkness of an unknown future" and were thus considered an apt representation of the larger myth of how Native Americans were destined to disappear in the face of American westward expansion. Curtis famously titled the photo "Vanishing Race" and made it the opening piece of his now canonic series marking the turn of the twentieth century and correspondent "close" of the frontier. This photograph drew the Navajos, in dramatic fashion, into the larger national discourse abound Natives as dominated, defeated, and disappearing to make way for booming white settlement in the West; the "Vanishing Race," crystallized the grand colonial narrative of savagery vanishing in the advance of civilization, as well as nature yielding to culture. The narrative of Paddy Martinez can be seen as a latter day reiteration of this "vanishing race" discourse, representing the ways in which Natives have been constructed as providing the raw materials of white "civilization" (sometimes land, sometimes democracy, sometimes indigeneity itself) and then succumbing, tragically, to civilization's advance.[38]

Both of these narratives, that of the vanishing Indian and that of Paddy Martinez heading for the hills (having contributed so indispensably "to mining and to mankind"), inhere a kind of progressive teleology that is constituted on and through injustice: in both narratives, settler or industrial progress cannot help but produce unequal outcomes, vanishing Indians, and other (often toxic) waste by-products. This production of inequality, in both narratives, is a regrettable but necessary feature of moving toward the future. Paddy Martinez's story effectively crystallizes larger teleologies of injustice inscribed into narratives of both industrial and settler progress. Like the myth of the vanishing Indian, Paddy Martinez's story serves, in the end, to leave behind land that has been emptied of its original inhabitants, often, presumably, by their own will or incapacity to live coevally with civilization. Paddy, like Curtis's horsemen, headed for hills not only of his own volition but because he could not cope with the exigencies of modern, civilized, white life. Martinez's land is turned over, in the end, to the resource-extractive industrialism of a postfrontier America, a kind of final resolution of the declensionist narrative discussed in chapter 1 as a central component of livestock reduction. Martinez's land, in these teleological narratives, is transmogrified into the landscape on which the imagined community of the settler colonial state, here constituted by and through futuristic atomic technology, can be built. Origin stories, like Paddy's and like the "vanishing race," are narratives that set a teleology in motion: they seek to explain how we begin to progress, from here to there, as a nation or an industry. These particular origin stories set in motion a teleology that derives

from what Smith calls "the logic of genocide," which requires that Natives "must *always* be disappearing, in order to enable non-indigenous peoples' rightful claim to land"—or, in Martinez's case, to subsurface mining rights.[39]

I use the term *teleology* of injustice quite deliberately. Teleologies have long been ways in which a kind of "natural" progression—of society, history, knowledge, or even industrialism—is understood to occur. In teleologies of both settler colonialism and industrialism, injustice is a crucial feature of progress. The vanishing Indian myth is constituted on and through the loss of indigenous life and culture; in presuming that the colonial/white will always necessarily supplant the indigenous, these narratives excise any sense of contingency in settler history, any sense that things could have turned out differently (or, more provocatively, that things in fact did turn out differently than we fully understand from hegemonic narratives of "winning the west"[40]). As Ned Blackhawk insists, the "vanishing" of Native peoples—better described as the "violent deformations of Native communities"—was in fact "neither natural nor inevitable" and cannot be understood as such.[41] Rather than the natural or inevitable (teleological) outcome of civilization's progress, conquest was predicated on and through a spectacular amount of violence, the settler colonial state emerging from the indigenous body in pain such that "violence and American nationhood . . . progressed hand in hand."[42] Narratives that privilege teleological presumptions about settler colonial manifest destinies disregard the unnaturalness of conquest, and the violence it requires.

Narrative renderings of the teleologies of vanishing Indians and environmental injustices are structurally similar, arising from the same epistemological standpoint. Native studies scholars are all too familiar with the idea that Native communities are tragically acted upon, with no contingency for resisting the staid teleology of the injustice inhered in progress; environmental justice scholars are likewise familiar with the notion that communities can do little to resist the proliferation of toxic industrialism, on which capitalist progress has been built—the ill health of environmentally marginalized communities, in short, has become a necessary by-product of economic growth. Both kinds of teleology, the first toward settler civilization and the second toward industrial capitalism, rely on acted-upon communities with little or no agency in creating change and resisting power. Both are presumed to be always already dominated by the linear march of "progress"—settler in one case, industrial in the other. Both are mourned in the grand tradition of imperialist nostalgia, when people "mourn the passing of what they themselves have destroyed."[43] And, in studies of both kinds of injustice, it is too easy to presume that history will always (and here we insert the qualifier "unfortunately," like good nostalgic imperialists) decide in favor of progress.

Paddy Martinez's story links these related narratives of injustice. His story is inherently germane to both the myth of the vanishing Indian and the presumed helplessness of marginalized communities and pollutable landscapes in the way of toxic industrialism. In her excellent 2010 exposé of the uranium legacy on Navajo land, Judy Pasternak provides a single paragraph on Martinez that illustrates this point. She writes:

> [In 1950] a Navajo woman sent her husband out to buy some baking powder in the white border town of Grants, New Mexico. Willing, but craving a drink first, he stopped in at the bootlegger—alcohol was illegal in Navajo country—and as he continued on his way, swigging wine, he got sleepy. He stopped for a nap on a flat rock at the foot of the mountain known as Haystack, and when he woke, reached for the jug again. He found himself touching a shimmer of yellow in the rock. Wondering whether this was the *łeetso* [uranium, literally "yellow dirt"] that everyone was talking about, dreaming of the bounty that lay in his grasp, he used another rock to break off a sample, proceeded to Grants, and took his chips to the mayor. The mayor sent it on to the AEC for testing. The rock was hot. Here again was uranium where none had been known before.[44]

Just like that, Paddy Martinez reemerges—stumbling again—into the uranium story. He is not addressed by name, but it is Paddy nonetheless. The elements of his story (or at least some versions of his story) are all there, particularly the juxtaposition of the white and Navajo worlds in the border towns of Diné Bikéyah. This account draws from sources that, for sixty years, testify to these kinds of takes on who Paddy was and how he discovered uranium. No matter the details, the ultimate function of the Martinez narrative is left, after all these years, intact: Paddy, by some combination of luck and savvy, brings the uranium of the Navajo borderlands to the world. The story provides an important narrative structure through which the uranium industry and mining-based environmental injustices writ large have functioned. To wit: the Native brings the world to his home; the world, once there, cannot help, by its very nature, but to wreak havoc. It is unfortunate, yet inevitable, natural, teleological.

The fact, however, that Martinez's story has such an uneasy relationship with something we might call "truth" troubles these teleologies of injustice. All of the accounts of Paddy Martinez that I have explored thus far differ in important ways from one offered in 2004 by Melton Martinez, an organizer for the Eastern Agency Uranium Office in Thoreau, New Mexico. In an interview with the *Gallup Independent,* Melton Martinez tells Paddy's story in this way:

> Back in 1950 there were two trails that crossed near Haystack Butte, or "Red Mountain" as it's known in Navajo. Paddy Martinez used to take one of those trails to Brook's store to get groceries. Sometimes he'd follow other trails into Grants.
>
> It was on one such occasion at the Greyhound Bus Station in Grants that Paddy noticed some folks talking to people in the station, saying "Have you guys seen this type of rock around here anywhere?" . . . Then Paddy went back to his home in Haystack, NM, and found a similar rock.[45]

Paddy then "took that rock," Melton Martinez concludes, to "the only white person he could trust." Melton Martinez, in addition to being an organizer working on the problem of uranium mine and mill sites in the Church Rock area, is Paddy Martinez's grandson. His version of the story reflects a different kind of politics and perspective on Martinez and to the uranium industry. His description echoes many of the others on some points but also diverges in important ways: he calls Haystack by its Navajo, as well as white, toponym, gesturing to the multiple ways of naming and claiming this landscape; and he suggests that, rather than Paddy simply overhearing the talk of strangers, the strangers were actively engaging locals in a search for uranium. Perhaps most important, mainstream accounts relay that Martinez "put" the uranium "near a geiger counter," that he gave it to the "mayor" of Grants, or even that he was helped by a farmer to get it analyzed—all quite different from taking it to "the only white person he could trust." These seemingly subtle differences radically remap Paddy Martinez's story, as well as the politics of Native–white relations in the area, as does Melton Martinez's accounts of Navajo relationships to the uranium industry. Rather than presenting the Diné as passive enablers to the industry, who contribute, with their "Indian memor[ies] for color," to the progressive teleology of both industry and "mankind" before "head[ing] for the hills," Melton Martinez maps the relationship between Navajos and uranium as one steeped in the racial and spatial politics of a complex mid-twentieth-century landscape.

Moreover, while the hegemonic story of Paddy Martinez ends when it sets the teleology of uranium in motion, his grandson offers a more grounded, and sobering, narrative attuned to the urgent matters of environmental injustice associated with uranium mining:

> My mother died of kidney failure. My uncle died of kidney failure. My father got to the stage where his kidneys started to give up. His lungs were already giving up. Two of my sisters, they can't have babies. . . . We lived right there in Haystack. We've been living right by the mines all our lives.[46]

For the younger Martinez, the implications of the uranium industry on human health get inscribed on the bodies of his—and Paddy's—family. Clearly, Paddy Martinez's story extends long past the (possibly fictional and certainly fictionalized) moment when he "padlocked his hogans . . . and headed for the hills." The difference between these accounts and the larger narratives to which they connect is an epistemological one: the mainstream Paddy story inheres a teleology in which Native life is structurally foreclosed; his grandson's retelling of the narrative, on the other hand, shares no affinity with a teleology of injustice. It is, rather, a pointed statement about the *unnaturalness* of mines in Navajo life and land, in stark contrast to the notion that "No more appropriate site for a great hidden hoard of matter that will unmake or make the world is imaginable."[47]

A final account of Martinez's story likewise deconstructs the "naturalness" inhered in hegemonic, teleological renderings of the discovery and the uranium boom as a whole. Acoma poet Simon Ortiz retells the Paddy Martinez story in ways that offer powerful critiques of the dominant narrative of his discovery. In his poem "It Was That Indian," published in the collection *Fight Back: For the Sake of the People, for the Sake of the Land,* Ortiz explains how Martinez "was the one" who discovered uranium in New Mexico—or, at least, he wryly notes, "That's what they said." While Paddy's discovery and Paddy himself were suddenly part of a national news event, the town of Grants seemed to forget "for the time being" the context of racism and racial violence in the area, particularly against Native men. In light of Martinez's story, furthermore, Grants residents seemed to forget "that the city had a jail full of Indians" and a police force with a reputation for anti-Native violence. And while the city consented to name a park after Martinez, the notion of building a statue for him "was going too far for just an Indian." In the end, as "chemical poisons flow[ed] into the streams" from the uranium mills, and overcrowded boom towns saw increases in violence, substandard housing conditions, antiunion activities, and "uranium radiation causing cancer," the origins of the uranium story—the fact that "it was that Indian" who started it all in the first place—takes on a drastically different meaning. "It was Martinez," after all, who was responsible for the boom in the first place;

> it says so in this here brochure,
> he found that green stone over by Haystack . . .
> out behind his hogan;
> it was that Indian who started that boom.

Here, Ortiz offers a powerful counter-mapping of uranium country as well as Martinez's discovery, situating the uranium boom in a context of deeply fraught race relations in the borderlands of Diné Bikéyah and Pueblo land

and the larger history of colonization. He likewise points to the changing implications of the fact that "it was that Indian" once the toxic nature of uranium mining and milling became clear. This narrative of discovery, like that provided by Melton Martinez, is structurally distinct from the others: rather than reflecting a linear, tragically teleological narrative in which uranium is discovered and the Native disappears in deference to the settler, in both of these accounts Paddy Martinez continues to occupy the liminal space of uranium country. He remains in what is most assuredly a complex present, not yielding teleologically to, but rather existing in tension with, settler colonialism.

Cowboys and Indians in the "Trackless Desert"

While Paddy Martinez's story is the one most often told in narratives of uranium mining's origins, by the time he brought his yellow rocks to Grants, uranium mining had already been under way for almost eight years in Tsé bii'nidzisgai, Monument Valley, a spectacular landscape in the upper northwestern corner of the Navajo Nation, and in the East Reservation Lease mines in the Carrizo Mountains. In Monument Valley, crews from Vanadium Corporation of America (VCA) were busily tearing into ore veins at two separate mine sites, imaginatively named Monument Valley No. 1 and Monument Valley No. 2. Whereas the former had been held by VCA for a number of years as a vanadium mine, the latter mine site was prospected in 1942 specifically for uranium, although when it was offered for exploration leases in 1943, under the mantle of national security secrecy, the Office of Indian Affairs advertised it as a lease sale for carnotite and "related minerals." VCA was the only bidder, and the company promptly signed leases on both sites, promising to return the land "in as good condition as received" and "commit no waste on the land."[48] For every six pounds of vanadium mined, one pound of uranium was procured and processed for use in atomic experimentation, along with the ore still being shipped in from Belgian Congo.[49] At Monument Valley No. 2, almost 500 tons of vanadium ore were mined between 1943 and 1945, containing over 3,000 pounds of uranium, most of which was secreted away to Manhattan Project engineers and physicists.[50] Despite the impressive amount of both vanadium and uranium mined from these sites and sold to the federal government, in 1944 VCA informed the Indian Agency that it would be paid only agreed-upon royalties for "high-grade" uranium ore. The ore being blasted from the Monument Valley mines, the company asserted, did not fit that description. Of the total value of ore mined from just one part of Monument Valley in a little over three years, which

was listed at $54,619.48, the Navajo Nation was paid $5,011.66 in royalties.[51]

Prospecting and mining on the reservation continued apace through the late 1940s and early 1950s; at key moments in the development of nuclearism—as atomic technology was first unveiled through the apocalyptic violence of the bombs on Hiroshima and Nagasaki in 1945, as the atomic program was handed over to the civilian AEC in January 1947, and as the newly formed AEC "pursued a broad program of uranium exploration"—the VCA mines continued to increase output by leaps and bounds.[52] At the Monument Valley sites, what began as underground uranium mines were transformed by 1953 into open-pit operations.[53] The extreme environmental violence entailed in this change from underground to open pit paid off for the company: by the end of 1953, VCA's net sales reached an all-time high of $43.28 million, up from $16.45 million in 1944—in less than a decade, in other words, its uranium leases more than doubled the company's business.[54] The AEC doggedly pursued deposits throughout Navajo country, scheduling a series of exploratory drilling programs in 1951, all the while insisting that uranium could be the sought-after economic development that the Diné needed to recover from the devastations of stock reduction.[55]

As the traffic in uranium ore increased across the reservation, and the industry matured from prospecting to mining and milling, the lack of infrastructure on the reservation became a major dilemma. This dilemma was expressed nowhere quite so dramatically as in Mexican Hat, Utah, when, in 1952, a suspension bridge collapsed, dumping an entire uranium ore hauler into the San Juan River. For years, the bridge had been a sufficient conduit for cars and Navajo wagons but could not handle the sudden influx of ore-hauling trucks weighing in excess of four tons.[56] When final construction on a new bridge was completed in the spring of 1955, the AEC having paid for 90 percent of its construction costs, it served two purposes: enabling safe transport of materials to and from the Mexican Hat mill to mines in the western part of the reservation and, as one newspaper put it, opening up Monument Valley, "one of the nation's last true frontiers," to tourists.[57] Because Mexican Hat was largely considered the gateway point linking many Utah and Colorado towns to Monument Valley, developing its roads became a priority of federal and state funding in the early 1950s—in 1950, in fact, there were only four paved highways on the reservation, all of which "had been built to meet the needs of Anglo-American communities" and not Navajos.[58] By the middle of that decade, mileage of paved roads on the reservation had nearly doubled. The tourist traffic in this and other parts of Diné Bikéyah had increased so dramatically that the Navajo

Tribal Council passed a series of laws seeking to prevent tourists from damaging the environment and disrupting tribal life. These tourists came in the hundreds and then in the thousands, seeking out what newspapers and magazines routinely touted as the "last frontier" of the U.S. West.[59]

Materially, one thing connected the tourists and the mining companies to Navajo land throughout the 1950s: new roads. As reported by the *Los Angeles Times* in 1951, under the telling headline "Mining of Uranium to Aid Tourists," new roads built for the benefit of uranium companies would open up this "last frontier" "to cross-country tourists." Had it not been for the uranium rush, which inspired the U.S. Public Roads Administration to finance more than 220 miles of new roads by 1951 to make mining areas more accessible, tourists would be unable to access Natural Bridges National Monument, Hovenweep National Monument, and Monument Valley.[60] Additionally, changes in BIA policy meant that building these roads did not provide much-needed jobs to Navajos, as roadwork had in the past: prior to Glenn Emmons's 1953–1961 commissionership of the BIA, roadwork was managed and carried out entirely within the Bureau, which meant that the workforce on reservation roads was almost exclusively drawn from the tribe. Emmons, however, established a policy of contracting out road construction, with the result that "Indian employees who had worked in 'Roads' for years lost their jobs" as "the contractor usually brings his own crews, and has no need to hire local Indians." As a result, "money earned by the contractor and his crews in large part is spent away from the reservation, and contributes nothing to the local economy."[61]

Uranium provinces in the western states were provided funding for 1,253 miles of roads by the Department of Defense, part of a larger trend of road construction in what was then described as areas that "had once been barren wastelands, virtually impenetrable by man."[62] In and around the Navajo reservation, federal and state agencies had invested more than $6 million on access roads by 1954, with the AEC "recommending and justifying" these expenditures as a means of opening up "the greatest array of incentives" (including the Navajo Nation) "ever made available to the mining public."[63] By 1956, the influx of miners and tourists prompted the Navajo Tribal Council to hire a ranger to patrol Monument Valley, in an attempt to prevent outsiders from destroying scenic areas, wandering into sacred sites, and "pot hunting" for Navajo ceramics.[64] Reflecting these trends, the tourist business in Arizona saw 200 percent growth from 1947 to 1957, approximately the same period as VCA's miners were busily blasting uranium ore out of Monument Valley mesas.[65] In all, from the 1950s to 1961, nearly 300 miles of new paved highways and 360 miles of gravel roads were constructed across the reservation.[66] Throughout this boom in road

building, roads functioned as the concrete materialization of the mapping projects of previous decades; where maps brought new resources and landscapes under the gaze of the non-Native settler state and its industries, haulage roads and new bridges brought the non-Natives themselves.

Nor were roads the only new ways for tourists to access Navajo country. Despite the fact that "under the impetus of uranium and oil exploration and development, roads [were] sprouting everywhere," some tourists still found this burgeoning road system lacking.[67] Inspired by the AEC's practice of prospecting for uranium by plane, sightseeing companies began offering visitors chartered plane tours of the Four Corners. In a matter of a few months, twenty new airfields and landing strips appeared scattered throughout southeastern Utah and northeastern Arizona, and "uranium bush pilots" began leaving behind their scintillometers and bringing tourists along instead, for $18 to $35 a trip.[68] The federal government did its part, financing the construction of new airports and runways in previously hard-to-access uranium hot spots like Moab, Blanding, Mexican Hat, and Monument Valley.[69] These new roads, airfields, and landing strips made the reservation penetrable and opened up access to its natural resources—first, to uranium, oil, and coal and, second, to the beautiful landforms that make this part of the Southwest so distinctive.

Monument Valley, with its soaring red buttes, was an obvious draw. As tourists gazed in awe at its splendor and made odd comparisons to their more urban home landscapes (one journalist alarmingly described the valley as "a near-lifeless setting—like Manhattan would surely look after an atomic bath"[70]), the Monument Valley mines continued to yield hundreds of pounds of uranium ore. Indeed, "uranium pour[ed] out of the valley while tourists pour[ed] in,"[71] and government agencies struggled to accommodate both industries. By the mid-1960s, survey crews regularly trekked across Monument Valley, seeking a "logical road system" that could make accessible the "lost world" of Navajo country.[72] These new road systems were not limited to the northwestern parts of the reservation but rather followed the uranium industry to other major mining and milling centers. The year 1967 saw the completion of a massive federal engineering project to build a hundred new miles of road in the eastern reaches of Diné Bikéyah, linking Chama and Farmington in an area designated as "the capital of the 'Four Corners' gas, oil, and uranium region."[73] These roads, like their predecessors in Monument Valley, provided access to the Valley by uranium companies and tourists alike.[74]

Roads built for the uranium industry, however, did not meet the needs of local Diné. The Eastern Navajo Agency, for example, saw their need for roads as so great that they, via their BIA superintendent, requested the help

of New Mexico governor David Cargo in securing the funds for road construction projects. While the superintendent's letter on their behalf framed the need for roads in terms of making the area attractive for industry, the Navajo Tribal Council representative for the agency underscored the needs of Navajo people for roads, noting that the "meager" road system could hardly serve the area's 25,000 Diné.[75] The reticence of the government to build roads for Navajo needs, in contrast to its overabundant eagerness to build roads for industry needs, serves as a reminder that, as Philip Deloria points out, "In a society that had often claimed to link progress, not only with technology, but also with thrift," devoting automotive resources, from cars to roads, to Natives "was irrational waste . . . a little tragic, a little humorous, and all too revealing about an essential Indian inability."[76] No less an authority than Barry Goldwater had previously weighed in on the tragic, humorous, and revealing debate about Navajos and roads: anyone who could "sit down and discuss the [Navajo] problem in a rational manner," he averred in a 1947 letter to the Interior Department, would concede that "roads are not important" for Navajos.[77]

While uranium companies found the Navajos to be either a good source of cheap labor or a barrier to their unfettered access to uranium deposits, tourists found the Diné a romantic relic of an imagined colonial past. Correspondingly, whereas Diné workers in uranium mines and mills were mostly underpaid men, in tourism, they were women and children posing for tourist photographs. In Monument Valley, one young woman, Mary Holiday, developed a highly entrepreneurial business plan: with a baby strapped to her back in a cradleboard, she would "leap a Navajo pony and ride to a lonely promontory to pose" for tips from camera-wielding tourists; her silhouette against the wide valley sky must have perfectly suited the tourists' romantic notions of the "vanishing race." When her tips were collected, she returned to her loom to pose for additional photographs (and gratuities). Other families used the same system of multiple tips, posing in one part of the valley for a busload of tourists before hopping in a car, driving cross-country to greet the same bus and pose again in another part of the valley. In order to not break the nostalgic illusion that Monument Valley and its denizens belonged in a fictive past rather than a complex present, these families took care to hide the car "behind sand dunes" before reappearing to tourists.[78] Tourists, after all, were there in part to confirm in their colonial imaginaries the fiction of "Indians as technological primitives"—and a whole family of Diné packed into a car driving cross-country through Monument Valley buttes would have shattered that illusion.[79]

Lest we lose the connection between colonial violence and reservation tourism, one *Los Angeles Times* feature story declared, under the ominous headline "Open Season in Navajoland":

> The war cry of the white man rings forth these summer days as he jogs by Jeep across Navajoland in Monument Valley, firing at will upon any red man who walks, creeps, crawls or gallops off like Tonto in a TV western . . . [but] white man firum film 'stead of lead. And red man wearum grease paint in place of warpaint.[80]

The alternative Diné newspaper *Diné Baa-Hani* echoed this rhetoric just a few years later, commenting wryly, "The whiteman may not be shooting you anymore, but his goals are still the same."[81] The deeply violent colonial affect of reservation tourism, clearly, was a central part of its draw and set it apart from the other national parks and monuments of the Southwest. In 1960, the same year in which the Navajo Tribal Council formally created the Monument Valley Tribal Park in an attempt to exert some added tribal protection over the land, the *New York Times* admonished its readers that "anyone passing close to this region and *failing to invade it* is foolishly substituting mileage for scenic values" (emphasis added). This narrative of invasion, and the cowboys-and-Indians trope through which it is often articulated, reveals how, as Patrick Wolfe puts it, "invasion is a structure, not an event": invasion comes to be an organizing framework for how this land, its denizens, and U.S. relationships to it are expressed in both ideological and material ways. Whether the "white man" is firing "film" or "lead," the theme of violent invasion of Native land and life continues to structure the interaction between settler and Native.

Two kinds of invasion—of Geiger counters and cameras—were well underway in the eastern reaches of Diné Bikéyah as well as in Monument Valley. In 1964, as uranium mining in the nearby Grants uranium belt reached a crescendo, one of the many film crews shooting in Diné Bikéyah traveled to Gallup, New Mexico, to film *Hallelujah Trail,* starring Burt Lancaster and Lee Remick. The 300 members of the cast and crew set up filming twenty-five miles outside of Gallup, using the distinctive red sandstone walls of the Colorado Plateau as a backdrop. Despite the beauty of the area, it had been, by all accounts, a dreadful summer of filming, with an inordinate number of rainstorms interrupting the scheduled shots and a cast and crew that found Gallup to be extremely boring. Each rain-free morning, before shuttling hundreds of crew members out to the filming location, the director placed a casting call for extras over the radio; most days, more than a hundred "extra Indians," almost exclusively men, were



FIGURE 12. Two children watch a Kerr McGee crew core drill for ore samples. The children hold a mule by the reins and appear to be dressed up to play cowboy-and-Indian. Courtesy of the Western History Collections, University of Oklahoma Libraries, Kerr McGee 71.

needed. These extras, for less than $3 a day, donned braided wigs, exchanged jeans for buckskins, and packed into repurposed school buses to head out to the filming site. There, they shot scenes that were almost equally divided between displaying the Navajos' spectacular horsemanship and portraying them as degenerate drunks, "more thirsty than dangerous," who chugged champagne sloppily from the bottle while piloting careening stagecoaches through the desert.[82] This insistence on portraying the Diné as drunken buffoons was doubly offensive because the extras were largely drawn from Gallup, a reservation border town where local white-owned bars stayed in business by encouraging alcohol abuse among their primarily Native patrons, a business practice that both perpetuated and actualized stereotypes of Native alcoholism.[83] In the film, the landscape of Diné Bikéyah is ascribed to a fictive past and an oddly fictionalized place: the movie is meant to take place in Denver, Colorado, in the year 1867, although no one familiar with either Colorado or New Mexico would mistake the distinctive sagebrush and red sandstone that serves as the film's backdrop with

Denver's mountain-backed plains. As though to add to the geographic befuddlement, the Navajos are meant to be portraying Sioux, despite the fact that the Sioux tribal homeland is in the Dakotas and surrounding Plains states, and are led by a "chief" played by the blue-eyed Martin Landau in red face. The choice of 1867 Colorado as a setting for a film that is implicitly about settler politics and the racial violence of the Indian Wars is ominous if not downright alarming, as it brings with it echoes of the 1864 massacre at Sand Creek, one of the most notorious eruptions of anti-Native violence in U.S. history.[84] Deliberately or not, the film crew was asserting a very clear kind of origin story, and one that turned around territoriality and place making: first, that this landscape was theirs to use, and second, that the meaning of the land was most fittingly expressed through the cowboy-and-Indian narrative of nineteenth-century colonial settlement.

On one afternoon in the middle of that long, rainy summer of filming, the exhausted crew had a new problem with which to contend. Midway through shooting a scene littered with covered wagons and populated with actors in old-fashioned wardrobes (ten-gallon hats and petticoats for the whites; buckskin, war paint, and braided wigs for the Navajos and for the white actors in red face), a blue pickup truck suddenly roared directly into the middle of the shoot and came to a halt. The truck was occupied by a reportedly irate Navajo husband and wife, who shouted at anyone who would listen that the crew was trespassing on their land. The angry couple put the truck in park and refused to leave. The filmmakers, not wanting to lose another day of work and apparently unable or unwilling to sort out the couple's demand that they move to another location, made do by camouflaging the twentieth-century vehicle with a nineteenth-century one: they pulled a covered wagon in front of the truck, and resumed shooting. In the film, the pickup truck never makes an appearance. But the fact that it is there, behind any one of the scores of covered wagons, occupied by a Diné couple asserting their territoriality over the landscape, suggests a productive fissure in this film's origin story of the U.S. settler colonial nation-state, reflecting one of a myriad of ways in which the Diné were actively resisting the presence of film crews, tourists, and uranium hunters on their lands throughout the boom period.

This story reveals the ways in which, throughout the 1950s and 1960s, Navajo country was rendered accessible not just to uranium prospectors, miners, and millers but also, in seeming contrast to the explicit destructiveness of the uranium industry, by moviemakers, travelogue journalists, and tourists. This process of making Diné Bikéyah attractive to the larger U.S. public operated through a kind of inversion of the wasteland discourse: whereas the uranium industry's origin stories insist that the land is a secret

treasure trove of resources buried under an ugly, threatening, "trackless desert," the tourism and film industries celebrate its austere beauty, its arching blue skies and dramatic geological formations. Both, however, share a demand that the landscape itself be empty of the real, material lives of mid-twentieth-century Diné. These twinned origin stories remake the land, not just as public space (or, even, middle-class white space to be consumed by middle-class white moviegoers, tourists, and newspaper readers) but as space claimed by and for the settler colonial nation-state, to be transubstantiated into a "frontier" landscape upon which the imagined national community can be built. In crediting the uranium industry with first drawing the maps and then building the roads that make this land accessible to tourists and filmmakers, uranium mining becomes the unlikely catalyst allowing the wasteland to be reclaimed by the imagined community of the nation-state, part of its origin story in the context of the Cold War. The result: the nostalgic reclamation of the wasteland with no real reclamation—of mines, mills, or sovereignty itself. The blue pickup truck and its furious occupants represent what is missing between that ideological reclamation and its real, material, grounded corollary. Just as Paddy Martinez was hidden behind and within the narrative assembled around him, the occupants of the blue truck are obscured by covered wagons and the larger narrative of settling the imagined frontier. What lies hidden behind the nineteenth-century props and behind the narrative of "heading for the hills" is a powerful undercurrent of Native territoriality in this borderlands region of Diné Bikéyah.

Landscapes of Sacrifice

In July 1950, the same month that Paddy Martinez found the ore on Haystack Mountain that sparked such fervor for a uranium boom, the federal government sent the first researchers to the Colorado Plateau to conduct early studies on the health effects of uranium mines and mills. Over the course of two years from July 1950 to May 1952, the U.S. Public Health Service (PHS) studied fifty mines and eight mills for ambient radiation and examined 1,117 mine and mill employees for early evidence of radiation-induced disease. The final report, issued in 1952, was ominous. It noted that, while no outstanding epidemiological patterns of disease had yet emerged among uranium workers, this was "not entirely surprising" "since the majority of the workers has been exposed for a period less than three years."[85] In 1950, before major uranium booms could even be considered to be under way, miners were already showing signs of pulmonary fibrosis, a precursor to silicosis, at rates 6 percent higher than the control group among white miners and 13 percent higher among Native miners. For

millers, rates were 12 percent higher for whites and 20 percent for Natives. The range in these rates, coming from the fact that the PHS racially segregated its data, reflects both the lack of data for Native control groups and possibly the racial divisions of labor in the mines and mills, with Natives undertaking the most dangerous and least regulated jobs.[86] The results of the study of radioactive dust in mines and mills were even more alarming. The PHS found that in the fifty mines studied, the "concentration of . . . radioactive substances has been too high for safe operation over an extended period."[87] In the mills, radioactive dust in the air was a worrisome problem; not only was it being inhaled by mill workers, the PHS noted, but it "is also concentrated on the workers' clothes and thus increased the workers' total apparent radiation dose." This latter problem, however, was "deferred until other more acute problems have been solved."

These early admissions of health problems in the mines reveal that the recognition of danger and the expansion of unregulated mining and milling were simultaneous; they were coeval in the fraternity of bureaucracies that produced the uranium boom. While this coeval recognition and expansion are most strikingly illustrated by the fact that Martinez's discovery and the start of the first health studies occurred in the same month—July 1950—the simultaneity was an ongoing feature of the boom period. In 1952, for example, when the PHS released its findings about the problematic safety conditions in Colorado Plateau mines and mills, their report found enough evidence of major risk from radiation exposure to warrant significant precautions and safety regulations; however, none of their suggestions were taken up or even taken particularly seriously by mine operators.[88] The only steps taken by the AEC in the direction of mine safety was to begin experimenting with ways to ventilate the mines, although no direct action to *install* these ventilation systems occurred.[89] In the same year, the BIA approved regulations that would open up the Navajo reservation for full-scale uranium mining; VCA opened the largest mill to date in Uravan, Colorado; the AEC signed leases with the Ute Mountain Ute Tribe to conduct "exploratory operations, inspections, and investigations on Ute Mountain Tribal Lands to determine the location, extent, content and mode of occurrence of uranium deposits";[90] mining began at the Jackpile deposit on Laguna Pueblo land; and the *New York Times* published a front-page, above-the-fold feature article promoting uranium prospecting on Navajo land (the headline parsed no words, declaring "Navajo Lands Open for Uranium").[91] The Colorado Plateau, by that year, was home to 200 mines, which employed some 5,000 workers, and eight mills. Two more mills were under construction in Grants and Shiprock. By the following year, 1954, these new mills were joined by two more in Tuba City

and Mexican Hat,[92] even as evidence of potential health problems in the mines and mills was concrete enough to inspire the Congressional Joint Committee on Atomic Energy to make official inquiries into safety conditions for uranium employees—an inquiry that, nevertheless, did nothing to slacken the furious pace of mining and milling of uranium ore on the Colorado Plateau. Not coincidentally to this furious pace of industry expansion, the price for a pound of yellowcake hit a record high of $12.51 in 1955, and by 1963, 2.5 million tons of uranium ore had been dug, picked, and blasted from Navajo mines, netting remarkable profit to uranium companies.[93]

The nature of radiation's "slow violence"[94] meant that the epidemics of lung cancer and silicosis were still at least ten years away when the PHS began to examine workers on the Colorado Plateau—a fact of which the PHS was well aware.[95] The origin stories of those epidemics, however, were already taking shape, many of them hinging on wasteland discourses of both the desert and its denizens.[96] As Simon Ortiz lays out in his poem "It Was That Indian," a central component of the uranium origin story—from its booming days "in kodak color" to its bust days of "uranium radiation causing cancer"—was that it took place in Indian country and that "it was that Indian" "who started that area into a boom." Paddy Martinez's role as an enabler to the catastrophic industry and as a stand-in for the Navajo and Pueblo peoples of the Colorado Plateau comes to organize the story of uranium's turn from "magic" to toxic ore. The rugged high plateau country of the Southwest seemed to provide the appropriate landscape for experimentation with the terrifying new technology, under the premise that it was socially and ecologically worthless, and the "Indian" body simultaneously constituted another landscape being wastelanded. While the nonhuman world of the Colorado Plateau was quite clearly a landscape of national sacrifice for the greater good of nuclear bombs and, later, nuclear power, the bodies of the Plateau's human denizens were likewise rendered sacrifice zones. The decision by the PHS not to inform miners of the catastrophic health hazards involved in uranium mining and milling was made for a decidedly cynical reason: "for fear that many miners would quit and others would be difficult to secure because of fear of cancer," which "would seriously interrupt badly needed production of uranium."[97] The AEC was nervous about the reception the report would receive in the press, as the United States still needed to develop domestic sources of uranium. "Most of all," however, "the AEC was worried" that the report "might cause a general panic and a mass exodus from the mines."[98] As this rationalization suggests, the wastelanded body of the uranium miner was relegated to a subordinate status to the larger goals of nuclearism. It glossed over the reality that even as these miners and millers were not told about connections between

radiation and cancer, the government proceeded to gather data about them as test subjects, in anticipation of expected cancer outcomes.

Because of this simultaneous silence on the subject of radiation's health effects, and expansion of studies on those same effects, the PHS studies are perhaps most appropriately viewed as being directly in line with a larger history of atomic experimentation, which is predicated on the wastelanding of both animal and human bodies in the various fallout zones of the nuclear cycle. Throughout the history of nuclearism, the new and unwieldy nuclear technological frontier was marked by a thinly veiled and institutionalized curiosity about the effects of radiation on bodies, human and animal alike. What Joe Masco calls "nuclear trauma" inflicted on human and animal bodies was quite clearly "instrumentally and methodically pursued" "in an effort to test the fragility of human and animal bodies to nuclear radiation."[99]

While this experimentation has been most spectacularly remembered as part of the aboveground nuclear detonations from 1945 to 1963, in which thousands of animals experienced nearly 100 percent fatality rates as bomb test subjects (during the 1957 test series Operation Plumbbob, for example, well over a thousand pigs were used to test the biological effects of radiation; in Shot Priscilla during that series, seventy-eight pigs "were shaved [to simulate human skin], painted with various materials or covered in fabric, placed in elevated boxes, and then exposed to the nuclear blast," and 700 pigs were distributed in pens at "various distances" from the blast site[100]) and soldiers were marched directly into fallout zones as part of atomic war games, this culture of experimentation can be seen in other atomic geographies as well: Los Alamos, the Marshall Islands, the Japanese cities of Hiroshima and Nagasaki, labs across the country, and certainly the Colorado Plateau uranium districts. At Los Alamos and many prominent U.S. universities and hospitals, patients and test subjects were injected with plutonium, uranium, radium, and other radioactive elements to test their impacts on the human body; these plans were under way as early as 1944, when Manhattan Project officials, including, apparently, Oppenheimer, "made plans to inject polonium, plutonium, uranium, and possibly other radioactive elements into human beings." Eventually, these experiments were conducted all across the country, at university and army hospitals in California, Illinois, New York, and Tennessee.[101] The prestigious Massachusetts Institute of Technology conducted experiments in the 1940s and 1950s in which scientists "fed breakfast food containing minute amounts of radioactive iron and calcium to a number of students at . . . a Massachusetts institution for 'mentally retarded' children," an experiment that was repeated, again on children with intellectual disabilities, by Harvard researchers in 1961.[102] Most troublingly, the Japanese cities of Hiroshima and

Nagasaki were set aside as targets for atomic bombs, chosen over other targets in order to more effectively study the bombs' impact on people and city infrastructure alike; as noted by Manhattan Project physicist Norman Ramsey, Hiroshima and Nagasaki "were placed on a reserve about a year or more in advance" and "the air force and navy were forbidden to bomb those targets during the war so that they wouldn't be already overbombed."[103] After the bombings, scientists exhaustively studied the demolished cities, collecting samples and taking measurements of the blast's effect on human and animal bodies and the cities' infrastructure. The destruction was so utterly overwhelming that scientists had to use considerable "ingenuity" in reconstructing the events of the bombing; for example, as one reported, "We found shadows on the walls, and from the length of the shadow we could sight back and see how high the bomb was when it went off."[104]

Gesturing to the violent instrumentality of this kind of atomic experimentation, Masco calls these various human and animal test subjects "instrument-bodies," a term that reflects the ways in which nuclear wastelands, ecologies and bodies alike, are reduced to their usefulness as traumatized geographies. In each case, the rationale given for experimentation gestured to the need for research to help protect the public from external dangers. The dangers were from Japanese and, later, Soviet aggression: in the case of using pigs and other animals, the dangers were to soldiers in hypothetical atomic military scenarios; in the case of children with intellectual disabilities, the rationale for the study revolved around testing "a proposed counter-measure to nuclear fallout"—in other words, the children were used as stand-ins for the American public in a hypothetical nuclear attack; they were "children as mere means."[105] Likewise, in uranium mining, the bodily health of Native miners was exchanged for the national security needs of procuring uranium. This pattern of using instrument-bodies speaks to the ways in which certain bodies and landscapes come to bear the brunt of technological "progress," rendered pollutable for the greater good of the public, the military, or the maintenance of settler colonial hegemony. In other words, these instrument-bodies are wastelands, producing the privilege of protection for other, less pollutable people, animals, and geographies.

In subsequent decades, legal wrangling over responsibility for the health disasters incurred in uranium mining and milling made much of the fact that miners "were not recruited by the federal government to work in mines or to be placed in a particular mine atmosphere."[106] But in the case of the reservation, this is not entirely, or even mostly, true. To imply that work in the mines was a free choice for Navajos is to imply that Navajo miners

could "vote with their feet" and move to other on-reservation occupations (which were virtually nonexistent) or to other off-reservation occupations (which were a poor choice for a wide range of reasons, including connection to tribe, family, and homeland and virulent anti-Native racism in the wider United States). It also erases the entire history of colonial relations that produced the presence of uranium mining on Diné Bikéyah in the first place, including the pressure put on the Navajo Tribal Council and individual Diné by the AEC and BIA to accept the uranium industry's incursions on their homeland, to say nothing of government and industry silence about the problem of health in the mines. Although the workers were not recruited by the federal government in any formal way, the fact remains that labor in the reservation mines and mills was what environmental justice scholars and activists call a forced choice. In a larger sense, the miners were indeed coerced into mining and milling jobs by virtue of federal limitations of the Diné to a bounded reservation, usurpation of Diné resources on and near Diné Bikéyah, and the deliberate federal policy of livestock reduction that left Navajos with no economic options. Seeing their employment as a free versus forced choice, in short, is merely a matter of scales. This was not true to the same extent for white miners and millers in off-reservation uranium districts.

In this context, the PHS studies can be seen as part of a culture of nuclear experimentation enacted on a population coerced into extraordinarily dangerous labor conditions. This culture of experimentation is not lost on the Diné, including former miners; as noted by Timothy Hugh-Benally, head of the Office of Navajo Uranium Workers, Navajos "feel like they were a study project."[107] Placing uranium mining in this context runs directly counter to vanishing Indian myths that the Navajos provided the raw materials—uranium and labor—to enable this new futuristic technology and then "headed for the hills." Instead, Diné laborers in the mines and residents of uranium country stepped into atomic modernity in ways that rendered them unequal denizens of a complex present. Atomic modernity thus functioned to buttress, even deepen, colonial relations between the Diné and the federal government, reproducing inequalities that manifested (and continue to manifest) ideologically, politically, and materially. Radioactive experimentation on Native bodies in the mines requires, yet again, that Natives "always be disappearing" in the face of a highly structured invasion.

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. *Anti*nuclear 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

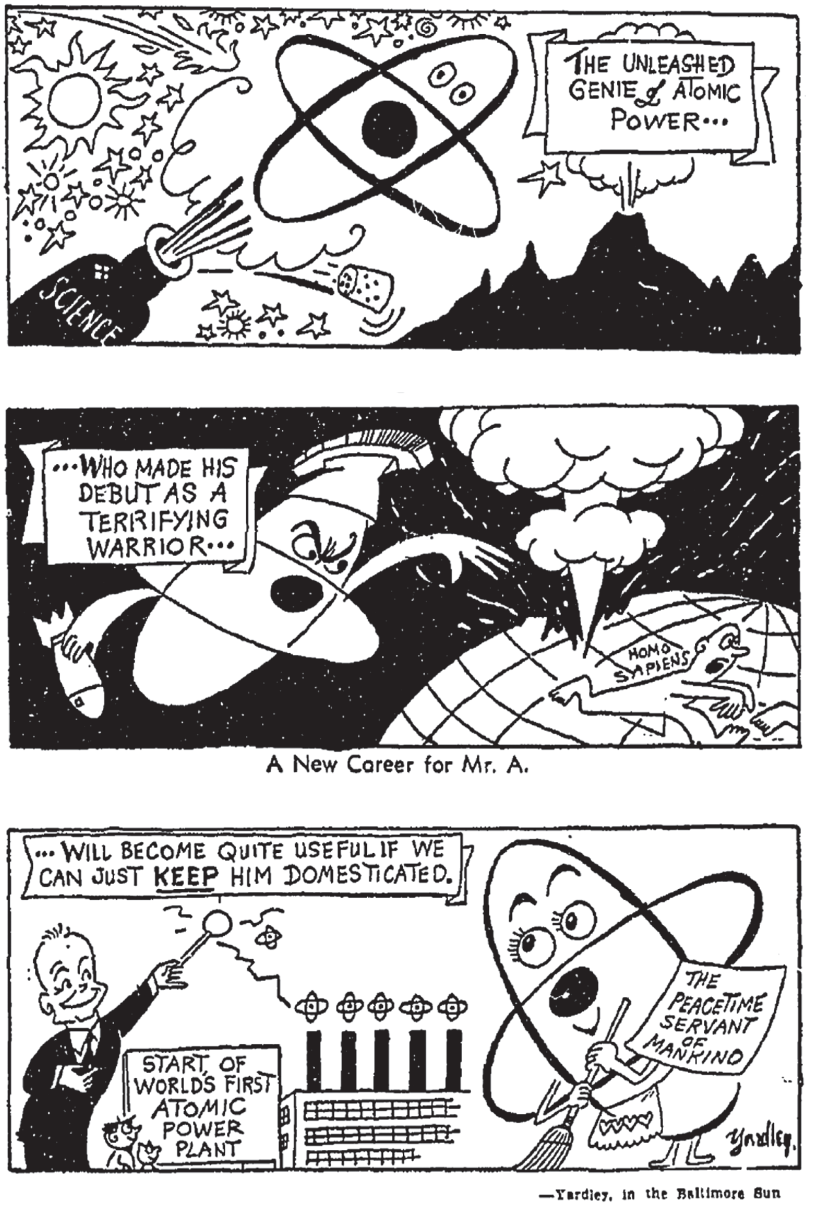


FIGURE 13. "Mr. A." provides an apt illustration of the changeable gender identities ascribed to nuclearism. Nuclearism's transition to energy production in the final panel is reflected by a corresponding feminization of the atom's gender. Richard Yardley, "A New Career for Mr. A.," *Baltimore Sun,* 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 "Diggarette 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 wageworker, 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.

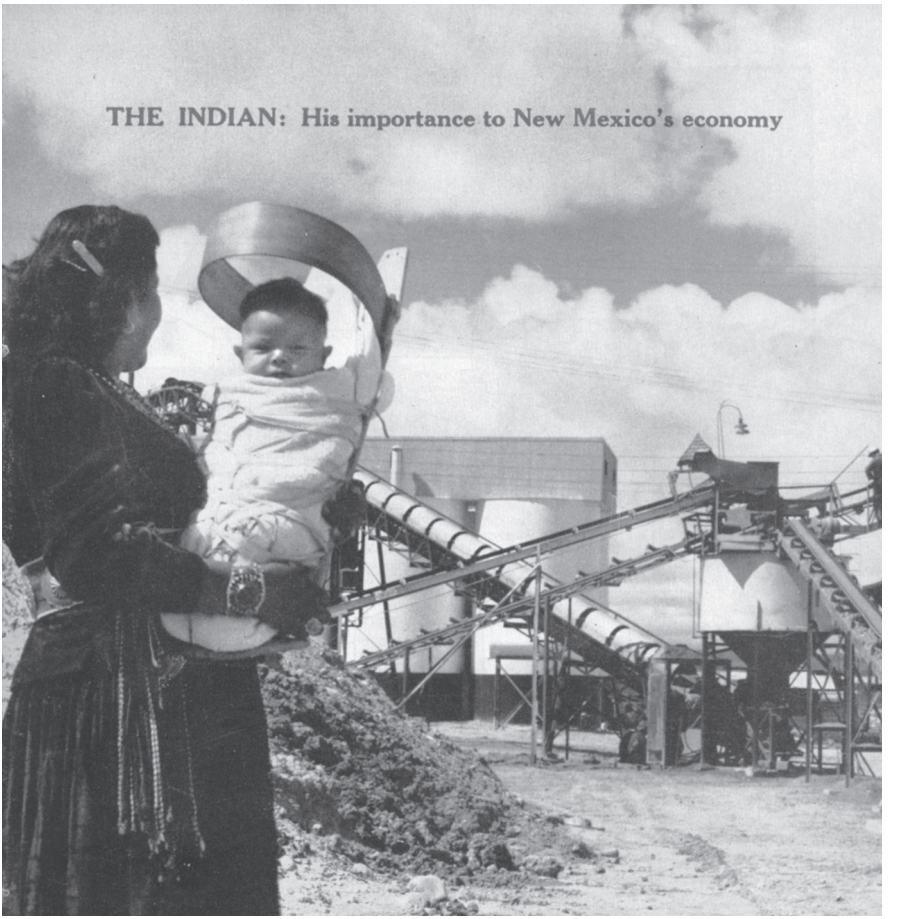


FIGURE 15. A Navajo woman holding an infant in a cradleboard stands in front of a Kerr McGee ore sampling station at Shiprock, New Mexico, where uranium ore was tested before being transported by conveyor belts to the mill. Albuquerque National Bank, "The Indian: His Importance to New Mexico's Economy," *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 inhered 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—shorthanded 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 wagework.[57] Diné land, "pretty poor stuff for grazing," had long been monstrously 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 *'asdzą́ą́* (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 'asdzą́ą́ 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 'asdzą́ą́ 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 *hózhǫ́* 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 birthrate 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 clef 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 the 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 Náhiiłna 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.

CHAPTER FIVE

Monsters and Mountains

Competing Geographies of Uranium

> The Laguna call it Tse Tina, the Navajos hold it as one of the four sacred mountains, and Gulf Oil calls it Mount Taylor, "the Project of the Century."
>
> —WINONA LADUKE, *AKWESASNE NOTES,* 1978

Yé'iitsoh: Desecration and Protest

The town of San Mateo, New Mexico, is nestled into a crook of Tsoodził's western foothills. At an elevation of over 7,300 feet, San Mateo's 160 residents live in modest and well-maintained country homes, clustered along curling roads lined with swaying cottonwood trees. Looking to the east from the center of town, the summit of Tsoodził—or Mount Taylor, the Diné sacred mountain of the south—is blocked from view by its own gentle upward slopes. Looking to the west, the view stretches for miles across the classic arid mesa landscape of northern New Mexico: dusty plateaus ranging in color from gray to yellow to pink, lightly blanketed with the light greens of sage and tall grasses. On the horizon, Haystack Mountain, where Paddy Martinez made his famous 1950 discovery, is just visible on clear days. Over everything hang the puffy, white, innumerable New Mexico clouds made famous by Georgia O'Keefe in her paintings of the skies over Abiquiu's Ghost Ranch. Stretched out to the west, between here and Haystack, lies the Ambrosia Lake uranium district, where, at one point, the landscape was pockmarked with uranium claims and exploratory drill holes, overrun with ore haulers, and lined with dirt haulage roads. Past Ambrosia Lake and Haystack Mountain, to the west and northwest sit the Navajo communities of Church Rock and Crownpoint, communities that have

born witness to the most intense mining and milling development, as well as the industry's most catastrophic environmental disasters, since the second wave of uranium activity began in the early 1960s. To the southeast, directly over Tsoodził's summit, sits Laguna Pueblo, the Jackpile mine, and the Anaconda's Bluewater mill. By 1977, this uranium district, spread out from the summit of Tsoodził to the east, south, west, and north, was providing more than 99 percent of New Mexico's total uranium production; in 1978, this land hosted thirty-five active mines and five mills.[1] As the liquor store off of Highway 605 from Grants proclaims with a mural painted five feet high on its outside wall, this is indeed "Uranium Country."

The western slope of Tsoodził provides a fitting vantage point from which to consider two competing geographies of northwestern New Mexico: the indigenous and the industrial. In this chapter, I explore both ways of mapping the area, reaching from Gallup in the west to Cabezon on the northern slopes of Tsoodził. This region is a borderland in two senses: it constitutes the highly contested eastern reaches of Navajo country, beyond the



FIGURE 16. Signs point the way to different mine sites in the Ambrosia Lake uranium district. Richard Kamp Beacon, "Special Report: Homestake's Legacy, Part 2," cibolabeacon.com, November 30, 2012. Original publication date unknown. Courtesy of the *Cibola Beacon*.

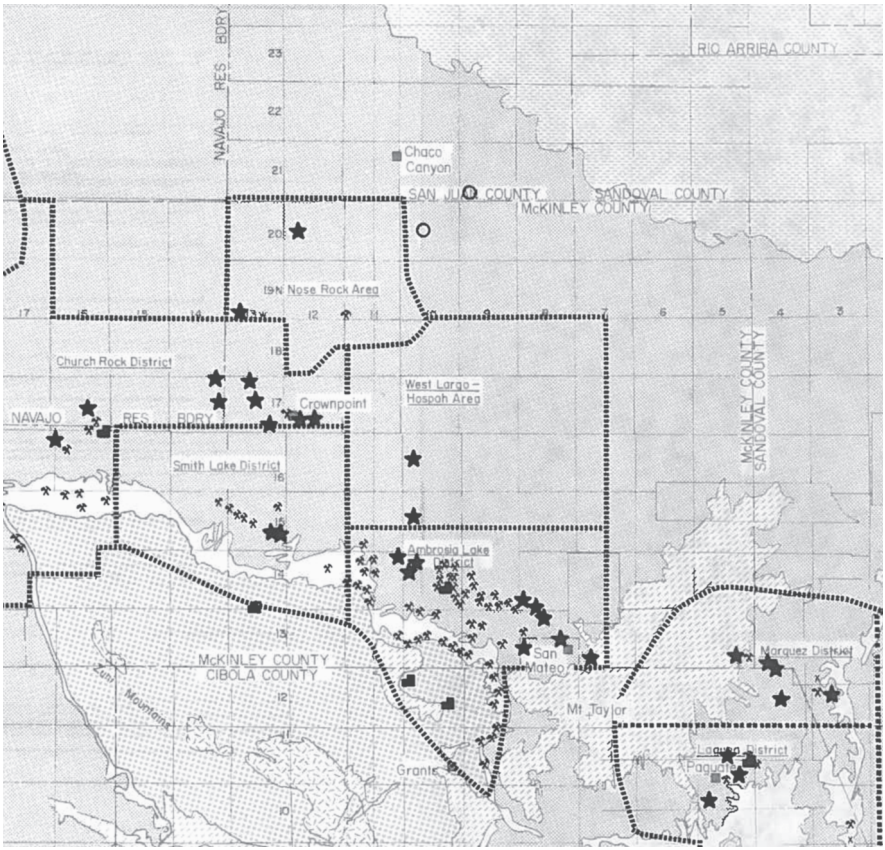


FIGURE 17. Tsoodził (Mount Taylor) sits just southeast of the country's most active uranium districts, particularly the Ambrosia Lake District not far from the mountain's eastern slope. Stars indicate recently discovered ore deposits, and the crossed ax and shovel indicate already existing mines or groups of mines. Bill Hatchell and Chris Wentz, "Uranium Resources and Technology: A Review of the New Mexico Uranium Industry," New Mexico Energy and Minerals Department, 1981.

boundaries of the official reservation but populated largely by Navajos nonetheless, and is thus the literal borderland between two nations; and it is a borderland, quite clearly, as a zone of interaction between peoples, cultures, and worldviews. Here, I explore how this zone of interaction has extended to shape how competing worldviews have sought to either protect the land and its people from the pollution of uranium mining and milling or to extend the uranium industry on the basis of notions of the region as

wasteland. The indigenous point of view sees the land as having inherent worth, deriving from hundreds of years of historical, religious, and geographical meaning; the industrial, articulated by U.S. and state courts as well as by federal agencies and industry representatives, sees it as always already pollutable—as wasteland. In wastelanding this eastern part of Diné Bikéyah, non-Navajos rendered pollutable Diné ways of seeing the land and its importance, effectively marginalizing Diné epistemologies about place and place-making. Diné resistance to uranium mining must therefore tackle both the environmental effects of wastelanding and the epistemological ones, advocating for the land's inherent worth both ecologically and culturally.

The industrial point of view on the landscape exerts its heavy-handed presence not far from the center of San Mateo: sitting at a slightly higher elevation from most of the homes, but not far from some of their fences, is the Gulf Mount Taylor uranium mine. The Bureau of Land Management (BLM) representative at the nearby visitors' center had it right when she told me, "just drive through San Mateo—you can't miss the mine. It's right in the middle of town." From my vantage point, the mine property is less in the town's middle than ringing its pate like a crown. This mine holds the dubious honor of being home to the world's two deepest uranium mine shafts, sunk more than 3,000 feet into the heart of Tsoodził. As such, the Gulf mine has become a focal point of four decades of struggle over the uranium industry, as have the mines and mills that surround the mountain in this part of New Mexico. This struggle has involved a range of strategies, from large-scale protest (the largest taking place in San Mateo itself), to complex articulations of Diné epistemology in U.S. courts, to unlikely alliances between Native nations, Nuevomexicano land grantees, and environmentalists. In the meantime, the industrial point of view on the land has resulted in both the discursive construction of the land as pollutable—as wasteland—and the reification of that wasteland discourse through some of the most acute cases of radioactive contamination in the history of nuclearism. The view from San Mateo, New Mexico, down the western slope of Tsoodził toward Haystack Mountain and the Ambrosia Lake mining district, brings together these themes of desecration and protest, pollution and protection.

Years before uranium prospectors arrived to stake out claims in northwestern New Mexico, and decades before this region came to supply the overwhelming majority of New Mexico's uranium production, its denizens bore witness to the opening shots, quite literally, of the atomic age. Early in the morning of July 16, 1945, a San Mateo sheepherder named Severo Gutierrez was up before dawn with his herd of sheep on Tsoodził's

northern slope. Even in July, the predawn air was crisp, and Gutierrez warded off the cold with a kettle of hot coffee. As he sipped his coffee, just before the sun crested the eastern horizon, the cloudless morning suddenly "lit up . . . like the good Lord had lit a giant flame."[2] Almost as quickly, the flash was gone. Three hundred miles to the south as the crow flies, Robert Oppenheimer was removing glass goggles from his thin face on the edge of the Trinity test site and considering his now-famous epigraph to the world's first atomic detonation: "Now I am become Death, the destroyer of worlds."[3] What Gutierrez witnessed that early July morning was the detonation of Oppenheimer's "Gadget" near Alamogordo, New Mexico. The fireball that lit up the early morning New Mexico sky was indeed a kind of dawn: "the dawn of the atomic age," as one local historian named Abe Peña put it, signaling that "the tranquil life of the shepherd was ending."[4] Clearly, uranium mining and milling were not the only way in which the borderlands of Diné Bikéyah came to experience the nuclear cycle. Quite to the contrary, the Diné and their neighbors bore witness to multiple incarnations of nuclearism, from the world's first atomic blast to the successive test shots of nuclear bombs conducted throughout the Cold War arms race.

Less than a decade later, after the unveiling of Oppenheimer's Gadget and well into the period of atomic testing on the sacred land of the Western Shoshone at the Nevada Proving Ground (now the Nevada Test Site), residents of northwestern New Mexico bore witness to yet another hallmark of nuclearism. On Sunday, April 19, 1953, in the midst of a throbbing uranium boom, the hundreds of Grants residents who owned Geiger counters "thought they had struck uranium deposits never dreamed of when . . . their Geiger counters went wild every place they touched them."[5] Alarmingly, Grants residents "even got results when they put them near each others person."[6] The culprit for Grants's sudden ambient radiation was a twenty-three-kiloton bomb, twice as large as the bomb that destroyed Hiroshima, that was dropped from a 300-foot aluminum tower on Yucca Flat in the Nevada Proving Ground. Codenamed Badger, this was the sixth of the eleven bombs tested in the Operation Upshot-Knothole series on the Nevada Proving Ground before dawn on April 18, 1953.[7] The weather recorded on the morning of the Badger test shot seems to have predicted that radiation would blow directly toward this part of New Mexico; weather notes on the ground at the test site indicate surface winds from the north and northwest at nine knots. At 10,000 and 40,000 feet, however, where the majority of the radioactive cloud would be concentrated, these winds were much stronger: seventeen knots and sixty-eight knots, respectively.[8] The *Grants Beacon,* having noted the sudden radioactivity of town residents, assured its readers that the health risks of the radiation were

negligible. The incident was ignored entirely by the national press. The headline that reported the story in the *Beacon,* tellingly, blamed the instruments rather than the AEC: "Geiger Counters Act Haywire," it read, giving the general impression that the radiation resulted from the collective spontaneous failure of the counters rather than the calculated failure of any kind of regulatory oversight of nuclear adventurism at the Nevada Proving Ground.

Almost exactly one month after Grants's Geiger counters went "haywire," a second, and much more notorious, test shot took place that again linked mushroom clouds, shifting winds, and small towns: Test Shot Harry, detonated at dawn on May 18, 1953. Several thousand yards from the drop site, 900 servicemen hunkered in trenches awaiting the blast, and more than two dozen sheep were corralled even closer to the tower—soldiers and sheep both waiting to register the effects of the bomb in their tissues, hair, and skin. Shifting winds carried the cloud of radiation directly over the town of St. George, Utah, a primarily Mormon community that would become the most notorious of what are called nuclear "downwinder" sites.[9] Within hours of the bomb, St. George residents reported a range of downwinder symptoms: "headaches, fever, thirst, dizziness, loss of appetite, general malaise, nausea, diarrhea, vomiting, hair loss, discoloration of fingernails, hemorrhaging, and burns."[10] In the path of the radioactive cloud, grazing herds of deer, horses, and cattle were almost immediately "speckled with burn marks."[11] Despite these troubling health and environmental problems, all evidence of acute radiation exposure and indicators that more radiation-related problems were bound to emerge in humans and nonhumans alike, officials waited less than eight hours to give St. George residents "the all clear" to resume their normal activities. The decision to normalize what was obviously not a normal situation was made, in part, because, as one official put it, "the natives are getting restless."[12] Little, if anything, was done to track the effects of the fallout on Navajo and Ute residents of northern Arizona and southwestern Utah (to say nothing of warning them of radiation risks).

Atomic adventurism was not limited to the Trinity test and the Nevada Proving Ground, and its effects in New Mexico were not limited to wafting clouds of radioactive debris. In the 1960s, northwestern New Mexico played host to yet another experiment with the powers of atomic weaponry. On December 10, 1967, a long anticipated plan came to fruition when the Bureau of Mines, the DOI, the University of California's Lawrence Radiation Laboratory, and El Paso Natural Gas Company collaborated with the AEC to test out what can only be called an experiment in nuclear fracking:

using a nuclear bomb to open up underground natural gas reserves. This constituted what was proudly declared "the world's first test of an underground explosion for private industry" and a hallmark of the AEC's Operation Plowshare.[13] Project Gasbuggy, as it was called, involved the detonation of a ten-kiloton nuclear bomb 4,000 feet underground at "a blast heat of 400 million degrees, 10 times the heat of the sun's heart."[14] Visitors were bussed in from Albuquerque to witness the almost $5 million test, which produced, in one reporter's words, "a violent foot massage" that elsewhere rattled windows, cracked walls, and "knocked out the long distance telephone system."[15] The explosion occurred only fifteen miles from the town of Dulce, New Mexico, on the Jicarilla Apache reservation, and fifty miles east of the Navajo reservation border town of Farmington. An AEC map of the test site shows its proximity to Jicarilla land, as well as its proximity to New Mexico's uranium districts in San Juan and McKinley Counties (see Figure 18).[16] Using the now familiar trope of nuclearism-as-economic-development, the *Albuquerque Tribune* described how Gasbuggy could be a benefit to local tribes: under the heading "Space Age First Helps First Americans," the *Tribune* argues: "The first use of atomic power to help industry may increase oil and gas income for members of the Jicarillo [*sic*] Apache Tribe."[17]

This area of northwestern New Mexico, in short, was in many ways as intimately acquainted with the aftereffects of the nuclear cycle as it was with nuclearism's front end: the uranium mine. From the moment when the blast at the Trinity test site lit up the sky around Tsoodził, to when witnesses of the Gasbuggy shot felt the ground shake in the "violent foot massage" that marked the underground detonation, this part of New Mexico could be mapped into the larger history and geography of the "radioactive West," entire swaths of the United States united by being the site of—or downwind of—nuclear test shots. The Trinity test shot lit up a landscape of layered meanings, many of them constitutive of the very lifeways and epistemologies of Diné and Pueblo peoples, as well as Nuevomexicano land grant communities. Beginning that morning, July 16, 1945, the "atomic age" would indeed radically alter the already complex cultural, political, and physical geography of this area surrounding Tsoodził and the town of San Mateo on the mountain's western slope. If sheepherding as a way of life on the mountain was not quite ending, as Peña predicted, it was indeed in for a significant transformation as the "atomic age" unfolded.

For the Diné, this part of New Mexico, with Tsoodził at its center, is steeped in religious, geographical, and historical meaning. Tsoodził is the sacred mountain of the south, central to how the Navajos map out Diné

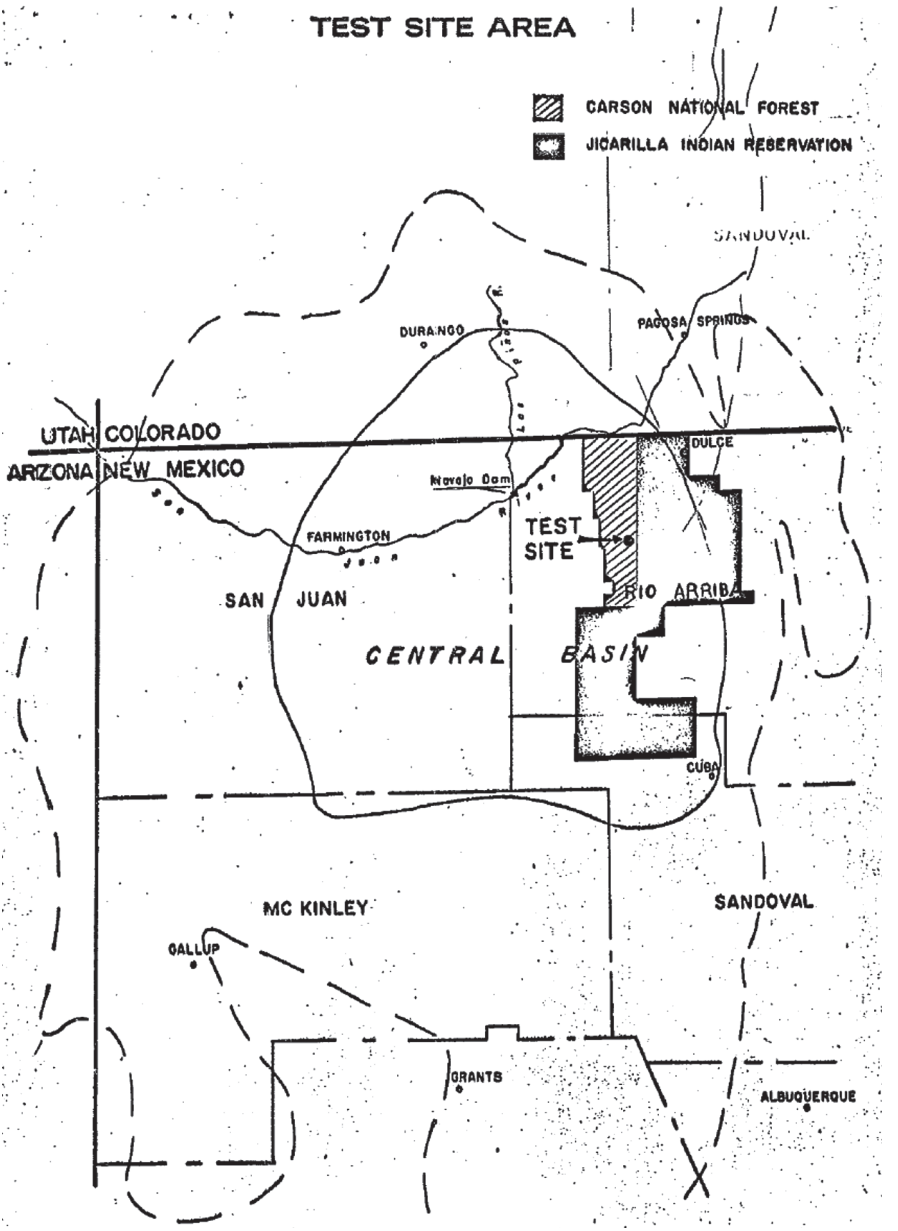


FIGURE 18. The Gasbuggy Test used an atomic bomb to break up underground natural gas deposits. The test occurred on December 10, 1967, just west of the Jicarilla Apache reservation in the Carson National Forest, and fifty miles east of the Navajo reservation. Though touted as a success, the natural gas released by the test was too radioactive to be used. "Project Gasbuggy Preliminary Fact Sheet," U.S. AEC Nevada Operations Office, box 52, folder 1008, Governor David F. Cargo Papers, NMSRCA, Santa Fe, N.M.

Bikéyah and orient themselves as a land-based people. The mountain plays a central role in Navajos' sense of how they came to live and thrive between the four sacred mountains, serving as the landscape for the victory of two gods, often called the Hero Twins, named Naayéé' Neezghání (Monster Slayer) and Tó Bájíschíní (Born for Water), who made Diné Bikéyah a place where Navajos could live and thrive. Naayéé' Neezghání and Tó Bájíschíní were the sons of two of the Navajos' most important gods, Asdzą́ą́ Nádleehé (Changing Woman) and Yoołgai Asdzą́ą́ (White Shell Woman), and their story is among the most frequently told about the Diné, Diné Bikéyah, and the importance of the four sacred mountains.

After the Navajos emerged into the fifth world, escaping from floods in the fourth world below, and after Áłtsé hastiin, First Man, and Áłtsé asdzą́ą́, First Woman, used material from four mountains in the fourth world to re-create the four sacred mountains that mark Diné Bikéyah today, they found Diné Bikéyah to be populated with Naayéé', vicious monsters that killed all but a few of the people. Together, these Naayéé' made Diné Bikéyah an almost impossible land in which to survive. Going against their mothers' wishes, Naayéé' Neezghání and Tó Bájíschíní set out to kill the Naayéé' using weapons given to them by Tsóhanoai (the God of the Sun) and Na'ashjé'íí Asdzą́ą́ (Spider Woman). Once they had these weapons, the Twins traveled first to the western slopes of Tsoodził, near where the town of San Mateo is today, to confront the "tallest and most fierce of the Naayéé'": the monster Yé'iitsoh, who made his home on Tsoodził.[18] As they descended from the home of the Sun to the summit of Tsoodził, the brothers

> soon heard thunderous footsteps, and beheld the head of *Yé'iitsoh,* peering over a high hill in the east; it was withdrawn in a moment. Soon after, the monster raised his head and chest over a hill in the south, and remained in sight a little longer than when he was in the east. Later he displayed his body to the waist over a hill in the west.[19]

The Twins overtook Yé'iitsoh in a fierce battle, finally defeating him and casting his head far to the north, where it fell on Tsoodził's northern slopes and became what is now fittingly called Cabezon Peak (*cabezon* is Spanish for "big head"). The monster's blood flowed from his body down Tsoodził's southern slopes, drying to form what is called Yé'iitsoh Bidił, or "monster's blood." On U.S. maps, Yé'iitsoh Bidił is called El Malpais National Monument, marking it as both *mal país,* or badlands, and simultaneously as federal, not Diné, land.

In San Mateo, on the western slope of Tsoodził, the dun-colored headframe at the Mount Taylor mine site sticks out from the tops of the pines and piñons, serving as a latter-day Yé'iitsoh displaying himself "over a hill

in the west." The mine's presence on the mountain's western slope invokes apt comparisons between the struggle against uranium mining and the monsters of Diné history. Others have concurred that there are parallels to be made between uranium mining and the story of Yé'iitsoh: "The Navajo people," Esther Yazzie-Lewis and Jim Zion write, "see uranium and materials for atomic power as a monster." A literal translation of the word for monster, Naayéé', bolsters this connection; *Naayéé'* can most accurately be translated as "that which gets in the way of a successful life."[20] In this sense, Yé'iitsoh and his fellow Naayéé' can be seen as things that disrupt *hózhǫ́,* or balance, for the Diné. As Yazzie-Lewis and Zion point out, the name for "uranium" in Navajo, *łeetso,* or yellow dirt, "carries a powerful connotation. . . . We think *leetso* sounds like a reptile, like a monster."[21] Commenting on the similarities between "łeetso" and "Yé'iitsoh" (sometimes spelled "Yeetso"), they go on:

> the first monster the Twins slew was *Yeetso*—"Big Monster." He was the biggest and the worst of the monsters, and he roamed Mount Taylor, where the world's largest underground uranium mine would be built. . . . There is no question that uranium is a powerful being—that it stands in the way of a successful life and therefore is a monster.[22]

As the story of the Hero Twins' victory over Yé'iitsoh illustrates, Tsoodził is a central feature of the Diné cultural and historical landscape. In fact, Tsoodził is one of the four sacred mountains given the Diné by Áłtsé hastiin (First Man) and Áłtsé asdzą́ą́ (First Woman) to mark Diné Bikéyah. These four mountains occupy a crucial part of Diné history, culture, economy, and relationships to the environment. Diné elder George Blueeyes provides a compelling explanation of the importance of the four mountains. The mountains, he points out, "were placed here" for the Diné and constitute their home.

> These mountains and the land between them
> Are the only things that keep us strong.
> From them, and because of them we prosper.
> It is because of them that we eat plants and good meat.[23]

Blueeyes goes on to point out that any possessions of value the Diné have—from livestock to turquoise and silver—derive from the prayers that are made with bundles of soil, *dah nídiilyéél,* from the sacred mountains. The mountains, then, are both where "the prayers begin" and the source of the nonhuman things the Diné value most. Implicit in this description of the role of the mountains is an argument for their significance in Diné ontology, history, geography, even politics and economics. Diné notions of the things

that constitute a "good life" are derived directly from the geography of Diné Bikéyah: "these mountains and the land between them" give Diné livestock, wealth, and knowledge of the prayers that maintain hózhǫ́.

Tsoodził is the turquoise mountain of the south and the home of Dootl'izhii nayoo'ali ashkii (the Boy Who Is Bringing Back Turquoise) and Naadaa'la'I nayoo'ali at'eed (the Girl Who Is Bringing Back Many Ears of Corn). In the Navajo tradition of demarcating the gender of different kinds of rain—a crucial undertaking in a landscape where both quantity and quality of rain have deep and often life-sustaining significance—Tsoodził is marked with "female" rain, *níłtsą́ bi'áád,* which is characterized as rain showers that fall gently, distinct from the "violent torrential downpour[s]" of "male" rain known as *níłtsą́ biką'*.[24] Adding to this gendering, the mountain is often characterized as female because of its geographic significance: in Navajo geography, landforms in the west and south are generally characterized as female.[25] The history of Tsoodził's formation offers powerful evidence of the role and importance of the mountain in Diné epistemology and history. In creating this mountain of the south, First Man, First Woman, Black Body, and Blue Body together

> fastened [the mountain] to the earth with a great stone knife, thrust through from top to bottom. They adorned it with turquoise, with dark mist, she-rain [níłtsá bi'áád], and all different kinds of wild animals. On its summit they placed a dish of turquoise; in this they put two eggs of the Bluebird, which they covered with sacred buckskin (there are many bluebirds on [Tsoodził] now), and over all they spread a covering of blue sky. The Boy who Carries One Turquoise [Dootl'izhii nayoo'ali ashkii] and the Girl who Carries One Grain of Corn [Naadaa'la'I nayoo'ali at'eed] were put into the mountain to dwell.[26]

Another story of the mountain's history and significance directly personifies Tsoodził as feminine, telling how, after being dressed in blue, Tsoodził "went crazy and cut off her dress of turquoise and did strange things with her hair."[27] This story gestures not just to Tsoodził's femininity, but the understanding that the mountain has its own agency in relation to the human and spiritual worlds, that, in fact, "the mountain itself holds knowledge and life."[28]

In many ways, Tsoodził is both constitutive and symbolic of life; the landscape of the mountain and its surrounding terrain is simultaneously embodied in literal and figurative ways, pointing to an epistemological relationship to the mountain that inheres it with religious, historical, physical, and ecological (that is, systemic) value. It is not cut off from its surrounding terrain or from its history but rather is mapped as a deeply relational

place: in the history of Tsoodził, the very material, ecological components of "she-rain," bluebirds, and blue sky are held together with the godly, the cultural, the geographical, and the historical. In the story of the Hero Twins' defeat of Yé'iitsoh, the landscape is likewise mapped as both literally and figuratively embodied; Yé'iitsoh's head and blood provide material evidence of the Diné's struggle to survive in the early history of Diné Bikéyah, and Yé'iitsoh's figurative presence reminds the Navajo of the struggle to maintain hózhǫ́ against the kinds of Naayéé' that can get in the way of a successful life. The mountain's crucial ecological role in Diné Bikéyah is well served by its esteem in Diné worldviews; because Tsoodził holds a significant amount of the area's snowpack, and is thus a major resource for water reserves in an arid climate, it likewise supports "abundant game, deer, mountain lions, and eagles that are important culturally and for preserving healthy gene pools," making it as important a natural resource as a cultural one.[29]

On U.S. maps, of course, the mountain is not Tsoodził at all but Mount Taylor, named thus in the aftermath of the U.S. invasion of Mexico's northern territory, which ended in the 1848 annexation of the lands that now make up all of the United States' southwestern states. In 1849, following the end of the war and the signing of the Treaty of Guadalupe Hidalgo, Lieutenant James H. Simpson named Tsoodził "Mount Taylor" in honor of President Zachary Taylor. Taylor, in addition to being a veteran of the U.S. war against Mexico, has the dubious distinction of being the last U.S. president to own slaves while in office, making him a formidable colonial namesake for this sacred Diné landmark. Compare the story of the formation of Tsoodził with Simpson's explanation for his choice of the mountain's American toponym:

> This peak, I have, in honor of the President of the United States, called *Mount Taylor*. Erecting itself high above the plain below, an object of vision at remote distance, standing within the domain which has been so recently the theater of [Taylor's] sagacity and prowess, it exists, not inappropriately, an ever-enduring monument to his patriotism and integrity.[30]

This description, laden as it is with the gendered language of U.S. exploration and conquest, full of erect, monumental mountains that stand as important "object[s] of vision," marked the mountain in honor of not just Taylor, in all his sagacity and prowess, patriotism and integrity, but also in honor of the war itself and the qualities of Americanness it presumably inhered in the landscape. Furthermore, marking the mountain "Mount Taylor," in Simpson's estimation, projected some of Zachary Taylor's

distinctive masculine qualities beyond the mountain onto the "domain" or "theater" of the war itself, the New Mexico Territory, a domain that, at the time, was considerably unruly in the eyes of the federal government and in need of settlement, economic development, and racial reordering before being admitted into the Union.[31] These different ways of naming the mountain, both Tsoodził and Mount Taylor, are meaning making practices that reveal the range of competing histories of this landscape—competing histories, moreover, that have played a crucial role in how struggles over uranium mining unfolded.

Pig River

Mount Taylor was not the only landmark that made an impression on Lieutenant James Simpson in his 1849 expedition through the United States' newly acquired territory. Passing through the shadow of Tsoodił between its northern slopes and Cabezon, the rocky relic of Yé'iitsoh's head, Simpson crossed a muddy stream that cut twenty to thirty feet into the earth and spanned over a hundred feet from bank to bank. The banks were so steep that Simpson's company was required to stop and cut them down in order to permit passage of their artillery.[32] One of the men in his company remembered the river as "a miserably dirty . . . little stream of brackish water lined with high cut soil banks." Simpson himself described it as having "a greenish, sickening color" with water "brackish to the taste." This was not the first time that newcomers to the area reacted with disgust to this river; Spanish settlers gave the river its name, the Río Puerco, because of their impression that "its waters," as Fray Francisco Dominguez put it in 1776, "are as dirty as the gutters of the streets." This apparently enduring understanding of the river as dirty is thus built into the name itself, as the Spanish often reserved "puerco" (pig or pork) as a toponym for sites they found to be unclean or otherwise distasteful. As one reference book on Spanish geographical terms succinctly puts it, using the Río Puerco as a case in point: "PUERCO—dirty. Río Puerco, dirty river."[33] Clearly, the Río Puerco has long been conceptualized by outsiders as polluted—as waste, interpreted quite literally by Dominguez as equivalent to the wastewater of city gutters. Other newcomers to the area have described it as not only "miserably dirty" but also "sickening" and "thick with mud."[34]

These unfavorable opinions of the Puerco derived in part from the fact that this river, while constituting 28 percent of the contributing basin of the Upper Rio Grande, moves a remarkable 45 percent of the Upper Rio Grande's sediment but only 16 percent of its water, a stark enough ratio to make it a distinctly muddy body of water.[35] Its muddiness in 1849,

however, was probably also the result of significant changes wrought on the river's watershed in the last century of New Mexico settlement by non-Natives, making it even more choked with sediment than it might have been otherwise. While Navajo herds in the eastern reaches of Diné Bikéyah had long relied on the Puerco and its western tributaries for water, Diné pastoralism kept their overall ecological impact on the Puerco's watershed relatively light. Non-Native settlers, however, dramatically changed the river and its role in the region's watershed and ability to support people, livestock, and other flora and fauna: by 1750, Spanish settlers began adding thousands of sheep to range on and near the banks of the Puerco. The riverbed was eventually "corduroyed" with large logs so that settlers could use it as a thoroughfare for carriages, and dams and diversions were installed on the river for irrigation. These factors combined to cause nearby wells to run dry and significantly affected downstream water resources, used almost exclusively by the Diné and Pueblos.[36] By the early twentieth century, six towns in the Río Puerco valley had been abandoned, largely because of changes in the river's ability to support communities and their growing herds.[37] As this history suggests, the changes wrought on and near the Río Puerco can be seen as yet another example of the materialization of larger discursive constructions of this river as waste, despite its very clear importance to settlers, tribes, and the nonhuman environment of northwestern New Mexico.

Farther to the west, a small ephemeral stream running off the southern portion of the Colorado Plateau took on the same name, Río Puerco, perhaps because it was thought to be part of the larger Río Puerco's watershed. The smaller Puerco had no perennial flow but filled with water during annual snowmelt and throughout the year during rainstorms. In an area that receives less than fifteen inches of precipitation annually, this stream played a key role in local water use for the Navajo residents of the Church Rock area, despite settler demarcations of it, like its larger namesake, as "dirty." The reification of the two rivers as waste occurred never so clearly as in the uranium rush of the 1960s and the 1970s, precisely in the geography of the rivers' watersheds: between the two Puerco rivers sat the majority of the Grants uranium belt mines and mills.[38]

As mining in the area developed, a relatively extreme change was wrought on the smaller, western Río Puerco: it changed from being a transitory stream, running only during periods of snowmelt or exceptionally heavy rains, to a perennial one, flowing year-round from the Church Rock area southwest into Arizona. The water that sustained this year-round flow in a previously ephemeral riverbed came entirely from the uranium mines and mills—they had changed, through industrial water use, the very hydrology

of the region. Mines in the Church Rock district had to penetrate an important regional aquifer and thus spent considerable time, money, and labor dewatering the mines before any ore could be produced. By the early 1980s, Church Rock mines were dewatered at an awesome rate of 5,000 gallons of water *per minute*. The water pumped out of mines was then used in the mining and milling process, contaminating it with a range of heavy metals and carcinogens—including barium, manganese, molybdenum, lead, and selenium—in addition to radium. It was partially decontaminated by being passed through a number of ponds, where some of the heavy metals could settle, before being discharged into the Río Puerco, a process that was ineffective for cleaning the water of its radioactivity and much of its chemical contamination. From 1968, when the Río Puerco became a perennial stream, to the mid-1970s, there was no regulation of water quality downstream from the mines. New Mexico Environmental Improvement Division (EID) reports indicated that the river "contains levels of radioactivity and certain toxic metals that approach or exceed standards or guidelines designed to protect the health of people, livestock and agricultural crops," which were its primary uses by Diné residents of the Church Rock area.[39] The contamination of the river was compounded by the fact that the clay and silt of the river's watershed "attract contaminants such as metals or radionuclides" and thus added toxic materials from the surrounding environment, itself polluted by nearby mines, to the river's water in the form of sediment. For these reasons, New Mexico EID experts doubted that any "improvement in effluent quality would render the river totally suitable for livestock."[40]

But this was merely one of the many water-related environmental problems that would impact the Puerco as a result of uranium activity. In 1968, the United Nuclear Corporation (UNC) located a new underground uranium mine just northeast of the Navajo community of Church Rock, joining what was rapidly becoming one of the most important mining districts in the Grants uranium belt. By the mid-1970s, UNC had obtained approval from the New Mexico EID to open a mill near the Church Rock mine. UNC, like other mining companies, sought to keep the mill site as close as possible to the mine in order to mitigate the labor-intensive (and expensive) process of milling uranium ore into yellowcake. The Church Rock mill was designed to produce more than two million pounds of yellowcake per year, enough to fuel five nuclear power plants.[41] The leftover waste material—half liquid, half solid tailings sludge, highly acidic as well as radioactive—would be dumped into three lined lagoons and barricaded by a fifty- to seventy-five-foot-high earthen dam.[42] By 1977, the dam, the only barrier between several million gallons of radioactive liquid tailings

and a tributary of the Río Puerco, had begun to crack. The crack was hurriedly repaired "in a bandaid operation"[43] despite the fact that, by all accounts (including those of UNC employees and state and federal agencies), the dam was built on unstable ground—"partly on bedrock and partly on sand and gravel"[44]—and would very likely crack again or, worse, fail entirely.

At six o'clock in the morning on July 16, 1979, a UNC employee reported just such a catastrophic dam failure. Earlier that morning, the mill tailings pond had burst through its barriers to spew 1,100 tons of radioactive tailings waste, ushered along by a "muddy slurry" of 95 million gallons of polluted effluent into the Río Puerco.[45] Below the cracked dam walls, a radioactive "flash flood" moved mill water and waste downstream. Members of the roughly 350 Diné families living downstream from the mill witnessed a rush of water charging down the Río Puerco's banks.[46] The flood left behind "stagnant ponds" "the color of iced tea" on the Puerco's banks, as well as patches of radioactive material that look like "yellow ant hills."[47] That day, the water of the Puerco, northwestern New Mexico's own Pig River, registered radiation levels over 6,000 times higher than normal levels. Larry King, a Navajo resident of Church Rock who worked for UNC and later became central to struggles over uranium issues on the Navajo Nation, later remembered "the foul odor and yellowish color" of the flood water. More troubling, he remembered "an elderly woman" who "was burned on her feet from the acid and the fluid when she waded in the stream while herding her sheep."[48] At the time of the spill, the mill was just two years old, making it the newest mill facility in New Mexico and, alarmingly, the one considered most "state of the art" in terms of protecting the surrounding environment by preventing spills of exactly this kind.[49] UNC shut off the discharge of effluent and waste to the ponds, but the damage was already done. The flood of radioactive water and waste material "backed up sewers, affected 2 nearby aquifers, left pools along the river" in the vicinity of Church Rock and Gallup, and transported radioactive water and sediment roughly eighty miles downstream, well into eastern Arizona.[50] News of the spill was broadcast over the radio in Gallup, roughly fifteen miles south of the mill site, and Navajo-speaking UNC employees were asked to spread warnings to Navajo-speaking Church Rock residents. Within hours of discovering the dam break (no one knew exactly when during the night or morning it had occurred), UNC set its employees to bulldozing earth in front of the break, seeking to stem any more outflow from the tailings ponds.

It is difficult to overstate the enormity of the Río Puerco spill. On the scale of nuclear disasters, this 1979 spill ranks well above Three Mile

Island and is outstripped *only* by the Chernobyl disaster of 1986 and the meltdown at the Fukushima Daiichi nuclear power plant in 2011.[51] New Mexico's Southwest Research and Information Center (SRIC) called the spill "the uranium industry's 'Three Mile' incident," a designation that is, if anything, an understatement given that the Río Puerco spill released significantly more radiation, and covered a dramatically larger area, than the infamous power plant partial meltdown. Despite the fact that the size and scope of this spill make it easily the largest radioactive accident in U.S. history, it went largely unreported outside of New Mexico, in a "muted" response that was "particularly striking" given its size and extent.[52] A search for news articles published in U.S. newspapers and news magazines in the months after the Río Puerco spill yields only eleven articles, only two of which are over one hundred words in length, and the first of which did not appear until five days after the spill occurred. Indeed, the spill simply "did not command the immediate attention" of the national media.[53] The *New York Times,* despite giving relatively ample coverage of the spill compared with other major newspapers, misidentified the river entirely, calling it the "Perky" rather than the Puerco.[54] This is a startling contrast to the cacophony of concern over the smaller Three Mile Island event. When the Río Puerco spill *was* covered in the national press, articles were quick to note that the contaminated area was "remote" and "sparsely populated." As the *Washington Post* reported, the spill was indeed "the worst spill of radioactive wastes in US history" but that it "occurred in a desert region that is sparsely populated for the most part, and health officials in both states believe it presents no immediate health hazard," an elision both of the population of the Church Rock area, sparse or not, and of the dramatic health hazards that were incurred for that population and the surrounding environment. The Diné, it is clear, were outside of the imagined "public" that state and federal officials were charged with protecting.

More than a month passed before the EPA announced that UNC was guilty of "discharging uranium mill process water into the river without a permit," boilerplate bureaucratic language that severely underplays the extent of the damage as well as the significance of the spill.[55] In the same month, New Mexico officials, unhappy with the pace of UNC's cleanup, sent a written order to the company to speed up the process.[56] The EPA's decision to issue the violation order against UNC merited an article of fewer than 150 words on page sixteen of the *Wall Street Journal,* a fair indication of the general marginalization of the spill even during a time when the environmental health threats of radiation were of concern to many Americans. The EPA gave UNC an additional month to assemble a report on its actions to prevent future "discharges" and was, as of August 1979,

still "trying to determine whether the company should be fined" for causing the worst radiation release in U.S. and, at the time, world history.[57]

UNC's efforts to mitigate the impact of the spill on the local Diné population revealed how little the company understood, or cared to understand, rural Navajo life. Within weeks (rather than hours or days), signs were posted every half-mile on the river's banks, providing warnings in English, Spanish, and Navajo that the river was unsafe for human and animal use. Many Diné residents of the area, however, did not read English or Navajo. Moreover, their livestock were unlikely to check posted signs before drinking from the river—as one New Mexico EID employee wryly noted, "You can't tell a cow, 'Don't drink that water anymore, it's not good for you.' Cows don't read press releases."[58] Of more urgent concern was the need to keep small children away from the contaminated water, a challenge with which the trilingual signs offered little to no help. Additionally, residents of Church Rock and Gallup were told not to eat or sell their livestock, many families' only source of food and income, as well as being a crucial component of Navajo cultural and family life. Residents were told not to use their wells for water but to buy water instead, a gross misunderstanding of water use in a subsistence-based, agricultural rural life, as well as of the difficulty of obtaining sufficient water for whole families and their animals in a rural community. People who had jobs in town stayed home to try to help keep their livestock and children away from the river.[59] At a congressional subcommittee hearing on the spill in October 1979, the vice president and chief operating officer of UNC summed up the company's level of concern about both the danger of the spill and the risks posed to the surrounding community: "If a person fell into our tailings pond," he averred, "the water would not taste good and his eyes would smart, but his health would not be endangered." The risk of a spill, moreover, was "like many things you undertake" in business: "they have a risk and we undertook this."[60]

Cleanup efforts at the spill site were middling at best. UNC primarily employed mill workers in the cleanup effort, a workforce that consisted of fewer than 200 people clearing out the contaminated soil "with buckets and shovels because a bulldozer cannot get into the arroyos."[61] UNC's bulldozers, it would seem, were too unwieldy to navigate the landscape around the spill site, just as its corporate culture was too unwieldy to understand and respond to the needs of Diné families. At the congressional subcommittee hearing on the spill and its aftermath, Paul Robinson of SRIC noted that there were "more United Nuclear employees in this room" "than there were cleaning up the spill for its first month."[62] SRIC's analysis concluded that the radioactive liquid probably seeped as deep as thirty feet into the

soil; sufficient cleanup would surely require a larger workforce with more resources at their disposal than 200 workers armed with buckets and shovels. Meanwhile, even though the mill was closed, the UNC mines continued to operate, stockpiling ore in anticipation of the mill's reopening. Even as the "stagnant ponds with high readings of radioactivity" on the Puerco's banks seeped back into the ground or evaporated to leave behind radioactive sediment in the riverbed laced with heavy metals, UNC was praised by the state of New Mexico for its "cooperative attitude," praise it apparently earned by supplying drinking water to nine nearby families whose water supplies were now, probably permanently, radioactive.[63]

Barely three-and-a-half months after the spill, UNC obtained permission from both the federal and state governments to resume milling at Church Rock. While UNC publicly (and cynically) insisted that the mill should be allowed to reopen because delay "will force us to reduce our workforce substantially, resulting in severe hardship to the local community,"[64] the true reason probably stemmed more from the fact that early October earnings reports showed significant losses due to the mill closure.[65] Indeed, it is difficult to imagine that reductions to the mill workforce would cause "severe hardship to the local community" in comparison to the release of tens of millions of gallons of radioactive effluent into the water system of a highly land-based Native community. In November 1979, the Nuclear Regulatory Commission (NRC) granted its approval for UNC to resume full milling capacity at Church Rock. Because the lined ponds that had caused the spill were still unusable, the NRC allowed the company to instead discharge its liquid radioactive waste into the unlined ponds, "a process that led to widespread groundwater contamination."[66] In the same month, early reports from monitoring wells "indicated that local groundwater [was] becoming massively contaminated." The Santa Fe–based organization Women for Survival noted that "For local residents the crisis will not go away, it will only get worse as the contamination spreads. Meanwhile, the mill has been allowed to go back into operation."[67]

In 1982, UNC, apparently no longer concerned with the "severe hardship" the mill's closure would inflict on the local community, declared the temporary shutdown of the mill. It never reopened. Less than a year passed before the shuttered mill was added to the EPA's National Priorities List, a list of the country's most polluted sites prioritized for cleanup under the federal Superfund program. As of 2014, according to the EPA, "After almost 20 years of active Site remediation and passive remediation . . . cleanup goals are still unattained."[68] The National Priorities List, given this history, is a deeply ironic designation for a site that had been so clearly wastelanded, so clearly relegated to national sacrifice rather than national

priority. This designation, in a sense, functioned as a bookend to the centuries-old settler habit of seeing the Puerco as a "dirty" river: while the river was in no real sense "dirty" throughout most of its history, neither was it in 1982—or in years since—a clear "national priority."

Normal Background Radiation? Hózhǫ́ in the Uranium Wasteland

The wastelanding involved in the Río Puerco spill took other forms as well. In the aftermath of the spill, five residents of the Church Rock area were taken to Los Alamos Scientific Laboratories to undergo testing for exposure to radiation from the Puerco's waters. Four of the five test subjects were children, either because children were particularly difficult to keep away from the polluted river or because children generally register the effects of toxins in the environment more acutely than do adults. The Los Alamos tests, however, reportedly showed "only normal background radioactivity," a result that was repeated regularly by journalists as well as state and federal officials as proof that there was no cause for concern at Church Rock.[69] Throughout the boom period and in the larger nuclear program, this notion of "normal background radioactivity" was regularly used to normalize radiation fears and provide a kind of "linguistic detoxification" of nuclear technology.[70] The organization Women for Survival argued in 1980 that the linguistic detoxification in this case was quite deliberate: the Los Alamos test subjects, they asserted, "were tested for the wrong thing—for gamma radiation [instead of alpha radiation], which is not the problem."[71] In this case, and in similar cases throughout northern New Mexico, the normalization of radiation through repeated references to "normal background radiation" has been used to discursively render the test subjects themselves or the land they occupy as always already radioactive. Noting that "What now constitutes the 'background' field for all studies of radiation effects is a mix of naturally occurring and industrial effects," Joe Masco argues that "the very idea of a background radiation standard is to establish a norm, a new definition of the 'natural' in which the past effects of the nuclear complex are embedded as a fundamental aspect of the ecosystem" and the bodies that occupy nuclear geographies.[72] In this context, the normalization of radiation becomes a technology of wastelanding, of rendering pollutable that which is already constructed as polluted (or "normally" radioactive).

In September 1979, the New Mexico District Court issued a decision on a case that turned on precisely this kind of normalization of wastelands as already polluted. The case, *Peshlakai v. Duncan,* was originally brought on June 19, 1979, by the organization Friends of the Earth and seventy-two

members of the Navajo tribe living in the Grants uranium belt, against the Department of Energy and several other federal agencies.[73] The plaintiffs sought to halt uranium mining and milling activities in northwestern New Mexico, focusing specifically on an in situ leach (ISL) mine planned by Mobil Oil Corporation at Crownpoint, New Mexico, because of a lack of appropriate environmental impact statements (EIS). Between 1973 and 1977, Mobil drilled 124 exploration holes on land owned by a Navajo woman named Sarah McCray. The lease that allowed this exploration and development, McCray claimed, "was improperly approved by BIA and . . . Mobil violated the terms of the lease," prompting her to challenge the lease "because," as she stated, "I never consented to the uranium exploration."[74] The plaintiffs in *Peshlakai v. Duncan* argued that Mobil's mining operations violated the National Environmental Protection Act (NEPA), which calls for impact statements for any actions that will significantly affect the environment. No such impact statement was prepared for Mobil's ISL project on McCray's land, nor had any of the other uranium mines in the area first assessed their potential environmental impact. This, in short, would serve as a kind of test case with broad implications for mining and milling activities across the Four Corners region; if the court found that Mobil needed to halt its operations to complete an EIS, it would mean that most, if not all, uranium producers in the area would likewise need to cease their operations until they prepared full investigations of potential environmental impact.

In arguing that an EIS should have been required, the plaintiffs asserted that the ISL project could negatively impact the environment in a number of ways: contaminating ground and surface water, releasing radon gas, and destroying surface land for the construction of roads and drill sites. The court, in its final decision, rebutted each of these potential environmental impacts in ways that drew on logic that presumed that the area was already polluted—in short, it was wasteland. On the plaintiffs' argument that water from the underground ISL site might contaminate the nearby aquifer, the judge noted, "more fluid is constantly pumped out of the system than is injected into it," a reference to the extensive dewatering entailed in mining this site. Additionally, the judge argued, the aquifer in question already contained uranium at "five times the maximum safe limits," implying that the presence of this level of background radiation precluded regulatory protection of the aquifer. On the threat of radon gas from the mine site, "the radiation threat, too, is realistically non-existent," according to the court; furthermore, "ambient radiation" and "normal background levels" make this concern, in the judge's opinion, moot. On whether the industrial development of a rural area for a major mine site would adversely

impact the land—by tearing up surface soil with test holes and bulldozer treads, damaging or destroying range grasses and foliage, producing noise and light pollution that would be potentially harmful to animal life, and so on—the judge countered that "all surface areas affected . . . could be reclaimed to a condition *at least as good* as that existing prior to the start of operations" (emphasis added). In each of these arguments, the court's logic normalizes the idea that this landscape, whether its aquifers, air, or surface areas, is already wasteland and therefore pollutable. The plaintiffs, the judge derided, "have made only a feeble effort to show otherwise."[75]

Perhaps most explicitly invoking themes of wastelanding and the presumed inevitability of resource extraction on Diné land (and, by extension, the presumable futility of fighting against it), the judge argued, "plaintiffs fail to acknowledge that the impacts they complain about are *far less significant than would land use impacts resulting from conventional, underground uranium mining*" (emphasis added). Here, the court decision implied that ISL mining was the best the Diné could expect; the *absence* of uranium mining, in the court's estimation, was so unfeasible as to not even merit consideration. In the end, the judge found that

> northwestern New Mexico is and for a substantial period of time has been a heavily-mined coal and uranium region, there is nothing about the in situ project that is so substantially significant that the law must be deemed to mandate that . . . its operation must be enjoined.

In framing the landscape of northwestern New Mexico as a "coal and uranium region," the judge handily erased entire histories of land use as well as geographical and ecological importance outside of extractive industrialism. Noting that this had been so "for a substantial period of time" truncated the region's (quite long and rich) history to its two-and-a-half decades as a mining province. Again invoking a wasteland argument that implied the inevitability of uranium mining, he noted that ISL "mining would seem to be far preferable to underground mining . . . for it would eliminate much of the dangerous and backbreaking labor in the earth." By this logic, mining was inevitable, and the judge viewed ISL mining as a preferable alternative to underground mining, for reasons involving both environmental health and labor. That the Diné plaintiffs objected to the presumed inevitability of uranium extraction, presenting points of view on the land and what it could be used for that conflicted with the court's understanding of it as a uranium province and nothing else, added up to a "feeble effort" that could not hold up in court.

The land, however, was not the only subject of wastelanding discourse in this case. The plaintiffs also made a case that uranium mining and

milling activities, starting with Mobil's ISL project, should be stopped because of their impact on Navajo culture, religion, and socioeconomic status. The judge's tone as he dismissed these arguments was again derisive, utilizing race-coded language that constructed the Diné as grounding their case in an irrational belief system:

> Plaintiffs next argue that yellowcake production in the area will "wreak havoc" with the culture and religion of the Navajo Indians residing there. Thus, it is said, the Navajos believe that man should maintain proper harmony with the natural world; that mining in the area would destroy places where Navajos pray and the plants they use to heal the sick; and that plants themselves, in Navajo religious belief, having living spirits. . . . [But] the relatively small area involved in the in situ project would have only a minimal impact on Navajo culture in general in any event. However, whether as applied to the in situ project, or on a broader basis, plaintiffs' contentions are unpersuasive.

Here, what the judge calls "the plaintiffs' contentions" are actually expressions of hózhǫ́ provided in a juridical context as a means of trying to communicate the larger stakes of environmental destruction for Navajos' ability to survive as Navajos. (Furthermore, the reference to "the relatively small area involved in the in situ project" ignores the fact that this case would set an important precedent for a wide range of other uranium operations and had the capacity to impact large ecological systems through pollution of the aquifer.) The plaintiffs faced the challenge of translating a complex Diné ontology in a way that satisfied Western juridical language and frameworks; the conflict was one of translation—not just of *language* but also of *worldview*. The translation, however, was steeped in clear power relations, expressed through the efficient dismissal of the plaintiffs' "contentions" about "maintain[ing] proper harmony with the natural world": this proper harmony emerged out of a "belief" system, whereas the court quite clearly saw the industry's point of view as a *knowledge* system.

The power relations in the courtroom thus drew on larger patriarchal and racial structures of power that situated the court as a paternalistic white father to the irrational, childlike, and subjective "Indian" plaintiffs. On whether Sarah McCray had a valid protest against BIA leasing her land, the judge was dismissive: "The Administrative Law Judge found her not to be a credible witness, and this Court, which heard her testify, concurs in that assessment." The judge called the plaintiffs "unreasonable" and their case "minor and speculative." Implying that the Diné plaintiffs had no larger sense of what was in their own economic best interest, he

proclaimed, "The blunt fact is that the economic and social impacts appear to be overwhelmingly favorable, both in terms of creating jobs for an underdeveloped area and for a people badly in need of economic assistance." He noted that Navajo employment might go from 196 workers to 3,000 by 1990, taking into account neither the boom-and-bust nature of mining or the fact that the plaintiffs, themselves residents of the development area, were aware of these promised jobs and sued to stop the industry anyway. Characterizing the plaintiffs in language he might also reserve for a small child, he claimed:

> The short of the matter is that while plaintiffs have catalogued and described possible environmental impacts *at great length, in vivid detail, and with considerable imagination and ingenuity,* in the final analysis these impacts amount to very little. (emphasis added)

Underscoring the power-laden premise that this case turned on belief versus knowledge, the plaintiffs' objections to the uranium mine (vividly imagined, in the judge's estimation) apparently could not stand up to what the judge called the Interior Department's "hard look" at the case. The DOI, as this reference to its "hard look" implied, approached the case rationally and objectively, as opposed to the highly subjective, vividly imagined beliefs of the plaintiffs. The "unreasonable" delay caused by the plaintiffs, moreover, had in the eyes of the court caused *Mobil* to suffer substantially, with an estimated $22 million in exploration and development of the site hanging in the balance.

The judge went on to note that the site contained no "surface indications of an historic or prehistoric nature," thus contradicting Diné arguments that the land was sacred. This kind of reliance on "surface indications of an historic or prehistoric nature" is frequently used to reduce Native claims to territory to those that can be "objectively" authenticated by the white settler standards of historical or archeological precedent—something the settler can see and feel (beyond the speaking, protesting Native people before them *telling* them, in no uncertain terms, that the land is sacred). Perhaps no other example more fully displays the problem of seeking justice in a case where the ultimate markers of what "justice" means lie in seemingly incommensurable worldviews. Simply put, the juridical model of power, wherein Navajos are required to provide legal persuasion of what it means to have hózhǫ́, or to consider the land to be sacred, reveals the competing ideologies involved in the case, as well as the ways in which the Diné are time and again asked to make way for settler colonialism, while the settler courts make no room for them. The court's opinion, far from

being objective, was steeped in a worldview that saw resource extraction, and its attendant environmental destruction, as inevitable and likewise viewed the landscape as always already pollutable.

Ultimately, the case seemed to come down to a now quite familiar national sacrifice rhetoric, and played out in a way that perpetuated larger patterns of energy injustice: "the possibility that a significant portion of the nation's power plants may be shut down for lack of fuel," the judge noted, "must obviously be accorded substantial weight on any balancing of relative injuries" to the Diné. Here, mining was treated once again as an inevitability, and the Navajos' loss of sacred land, of subsistence lifeways, of their own health and the health of future generations was collectively rendered insubstantial—"relative injuries"—when compared against a potential hike in energy costs for the rest of non-Native America. This kind of logic illustrated how, as Patrick Wolfe reminds us, indigenous peoples in a settler colonial context are marked by their dispensability: "settler colonization is at base a winner-take-all project whose dominant feature is not exploitation but replacement."[76] On the balance of relative injuries, according to the court in this case, Diné loss of land, water, culture, and health simply did not provide "substantial weight" against the energy industry and the nation-state that it both supplied and represented.

As a final paternalistic parting shot, the judge summed up the case in this way:

> Notwithstanding the length and detail of plaintiffs' arguments, when all is said and done, the conclusion that emerges is not that actions in violation of NEPA have been taken . . . but that the plaintiffs would prefer it if the production of uranium were stopped.

Their "preference," clearly, was again an unsubstantial ground on which to halt uranium mining on their land. In this case, and in so many others in which environmental justice is balanced on the precarious point of territoriality and juridical notions of justice, the law revealed itself to be deeply vested in national mythologies of *terra nullius,* of constructing the land as having always been uninhabited (or unimportantly inhabited) in anticipation of white settlement. When the law requires that Diné present hózhǫ́ to the court in ways that fit juridical precedent, and when the law becomes the arbiter of what constitutes sacred space (on the absence or presence of "surface indications of an historic or prehistoric nature"), hegemonic racial narratives of *terra nullius* are very much at work. In these legal discourses, the land is imagined to be always already white, and the indigenous (the hózhǫ́, or the "sacred") is understood as exceptional, as foreign

to the law—or, even more troublingly, as mere "preference" on the part of the Diné.

Desecration and Protest

As the 1970s drew to a close, uranium mining and milling across Diné Bikéyah reached a crescendo: mines in the Monument Valley and Lukachukai districts continued to churn out ore, and the Grants uranium belt was considered the most important uranium district in the country. Kerr McGee, with help from its mines near Red Rock, Church Rock, and in the Grants area, boosted its profits from $2.1 billion in 1978 to $2.9 billion in 1979, earning $11,496,375 from mines on Navajo land (for which the tribe earned $733,930).[77] The problems with the industry were also everywhere in evidence. Two hundred of the 3,500 miners in the original PHS study were dead by 1977, and by 1978 Red Valley alone lost twenty-five miners to lung cancer.[78] In response to both the escalation of uranium mining and escalation of health problems and deaths, Navajos and their allies in the late 1970s were engaging the problem of uranium mining on multiple fronts and through multiple strategies. Their activism ranged from lawsuits directed against uranium companies and the federal government, to direct action at uranium sites, to large-scale protest, to pulling up stakes that marked out drilling sites.

In 1979 and 1980, in addition to *Peshlakai v. Duncan* and Fannie Begay Yazzie's case against Foote Mineral, former miners and the widows of miners were preparing a massive case involving 125 plaintiffs against Kerr McGee, VCA, Foote Mineral, AMAX Incorporated, and Climax Uranium Company (*Begay v. Kerr McGee*).[79] In 1980, Navajos filed suit against UNC in Navajo Tribal Court; UNC responded by successfully suing them in turn, arguing that the tribal court had no jurisdiction over the company (*UNC v. Benally*).[80] Within a few short years, in *Begay v. United States,* some 200 Diné plaintiffs filed a lawsuit against the federal government with the help of Stewart Udall, a former Arizona congressman and secretary of the interior and a major advocate for the Diné.[81] When the courts ruled against the plaintiffs in *Begay v. United States,* finding that the government was not liable for miner illnesses and deaths, Navajos redirected their efforts from the juridical realm to the legislative: in 1982, at a congressional hearing considering awarding compensation for downwinders, a group of Navajos insisted that their testimony be heard and their claims included in any compensatory legislation. Their efforts eventually culminated in the Radiation Exposure Compensation Act (RECA).[82] Meanwhile, the Red Rock chapter of the Navajo Nation passed a resolution seeking compensation

for miner deaths (to which the chairman of the Arizona Industrial Commission, which regulated workman's compensation for the mines, reportedly opined: "[compensation] is not welfare, lots of things can cause cancer. Indians have high rates of cancer anyway, don't they?").[83] Red Valley residents formed the Red Valley Committee to more aggressively pursue compensation. Near Shiprock, the CNL mobilized against a massive uranium exploration lease that would allow Exxon to seek out uranium deposits on nearly 400,000 acres of Diné land.[84] In 1980, the AIEC and the Mount Taylor Alliance worked together to sponsor a protest against uranium mines near Dalton Pass, New Mexico.

In the midst of this organizing, Diné activists developed wide-ranging alliances that reflected the national and global political landscape to which their struggle was connected: with Chicanos and Nuevomexicanos engaged in land grant struggles, with nearby Pueblos, with the continent-wide Red Power movement, and with global decolonization movements.[85] Like other tribes fighting the incursions of nuclearism on their land, the Diné also forged strong connections with the antinuclear movement, arguably among the strongest environmentalist platforms of the late 1970s. Diné articulations of justice ranged from closely fought court cases to demands for full global decolonization, in keeping with the insistence of Red Power activists that Native peoples were internal colonies of the United States and thus had much in common with the Third World Liberation movements.[86] At the same time, individuals took everyday action to attempt to put a halt to uranium companies' persistent incursions; as Edith Hood recalled in a 2007 congressional hearing before the Committee on Oversight and Government Reform (more commonly known as the Waxman hearing), when the "exploratory drilling people" arrived on her family's land, "I remember Grandma running to stop them from making roads into the wooded areas. The stakes she drove into the ground did not keep them out. No one ever told her what was happening."[87] Navajos' work against the uranium industry, in short, was multiscalar—appropriate to the multiscalarity and complexity of the problem they faced. While activists regularly framed their work as part of global decolonization efforts, they were also unwilling to disengage from very urgent struggles over compensation for individuals and families. This flexibility reflects the reality that, as Native Studies theorist Taiake Alfred puts it, "Abstaining from politics is like turning your back on a beast when it is angry and intent on ripping your guts out."[88]

Tsoodził, and the town of San Mateo, provided a site of struggle that reflected the whole multiscalar range of this work. Early in the morning of April 28, 1979, three months before the catastrophic Río Puerco spill, 500 Native, Chicano, and white activists from across the country gathered

in San Mateo on Tsoodził's western slope, where the Gulf mine sat dangerously close to town, its twin mine shafts penetrating the mountain's aquifers thousands of feet below the surface. The activists remained there for three days to "protest the desecration of their sacred lands by uranium companies, in particular, the Gulf Oil Company."[89] Over the course of those three days, the activists engaged in educational seminars about uranium mining, heard speeches by those affected—including miners and the widows of miners who had already succumbed to radiation-related diseases—and developed political action plans designed to prevent the impending implementation of mining plans on the mountain. The protest drew participants from across the country and featured well-known antinuclear activists as well as well-known activists from the Red Power movement. A group of Navajos and their allies from Big Mountain arrived on foot, having walked more than 200 miles across Diné Bikéyah as a way to draw connections between coal and uranium mining.

Featuring speakers from AIM and organizers closely linked to other national Native rights organizations, this three-day protest at San Mateo clearly fit within the larger history of late 1970s Red Power activism. It also, however, can be situated firmly in the late 1970s context of antinuclear activism, as it drew antinuclear protestors, featured a keynote talk by the Australian academic Helen Caldicott, and took place on a nationwide day of protest at nuclear facilities across the country. Alliances between Red Power and antinuclearism were certainly not unheard of in the 1970s, particularly given the disproportionate impact of nuclear industries on Native lands across the United States. However, the protest was perhaps unique in that it brought together Red Power and antinuclearism with a third prominent social movement: the ongoing Nuevomexicano land grant struggle, which had reached a fever pitch in the late 1960s under the leadership of Reies Lopez Tijerina and La Alianza Federal de Mercedes. The land grant struggle was a major component of the larger Chicano movement, and still permeated New Mexico politics in the late 1970s. The multiple claims to land on Tsoodził—from the Diné, the Pueblos, land grant communities, the federal government, uranium workers, and uranium companies—meant that this protest was perhaps uniquely positioned to draw from these various complex, multipronged political frameworks.[90] The few national reporters covering the protest largely missed these connections to Red Power and land grants. Distracted as they were by the protest's "cheerful" atmosphere and performances from famous musicians such as Bonnie Raitt and Jackson Brown, these outside observers were not overly attentive to what the protesters themselves saw as their primary goal: "to physically and spiritually protest Gulf's desecration of the mountain."[91]

Concern over mining activities on Tsoodził did not originate in 1979. To the contrary, the protest was developed over years of work to prohibit continued mining and uranium exploration on and near the mountain. Organized opposition to the uranium industry on Tsoodził had been under way since at least 1976, when Navajos protested mine development on the mountain in a New Mexico Legislative Energy Committee hearing in Grants. Two years later, in 1978, Navajo and Pueblo members of the AIEC traveled to Kentucky to attend the No Nuclear Strategy Conference, part of a nationwide antinuclear day of action. The 1979 protest in San Mateo, however, took place just as Gulf Mineral Resources was primed to restart development of uranium claims on the mountain, after several years of inactivity in the mountain's two 3,000-plus-feet-deep mine shafts. By 1970, Gulf Mineral Resources had patented more than 120 acres of Forest Service land on Mount Taylor.[92] Although it was well known throughout the 1950s and 1960s that Mount Taylor hosted significant uranium deposits—by one estimate the mountain held one-third of all known deposits in northwestern New Mexico—the considerable depth at which those deposits were located underground made mining on the mountain seem economically unfeasible. However, after a slump in the uranium market following the end of the AEC's guaranteed buying program, uranium prices soared again in the late 1960s and early 1970s; suddenly, the development of deep underground mine shafts on Mount Taylor became not just possible but potentially quite profitable, a result of the transition from the U.S. government as the exclusive purchaser of uranium to uranium markets being opened up to private companies for energy development. By the late 1960s, New Mexico was the largest producer of uranium in the United States, and the majority of uranium activity in the state was taking place in the eastern borderlands of the Navajo reservation—land that the Diné had always mapped as a crucial part of Diné Bikéyah, as well as being an enduring part of Laguna, Acoma, and Zuni Pueblo life, and home for more than a century to Nuevomexicano land grant communities. By the end of the 1970s, Gulf was primed to restart development of uranium claims on the mountain, after several years of inactivity in the mountain's two 3,000-plus-feet-deep mine shafts.

Thus, the protest came at a particularly crucial moment for the environmental protection of the mountain and nearby communities alike. The protest emerged out of a context of concern over the extreme environmental destruction entailed in uranium mining in general and the underground mining employed on Mount Taylor by Gulf in particular. Underground uranium mining involves environmental devastation as significant, if not more significant, than the open-pit mining employed elsewhere in uranium landscape (such as, most famously, the open-pit Jackpile mine at Laguna).

Like open-pit mining, underground mining requires massive aboveground facilities and the attendant denuding of the aboveground space for haulage roads, production facilities, tailings piles, and exploratory areas. Unlike open pits, underground mines also require extensive drill holes and production shafts blasted hundreds, sometimes thousands, of feet into the ground for ore removal. Perhaps the most far-reaching environmental impact of underground mining, however, is on water use and water quality. Underground uranium deposits, such as those patented on Mount Taylor by Gulf Mineral Resources, usually penetrate crucial aquifers, meaning that the mine shafts face the constant problem of being inundated with water. This water, in turn, must be pumped out in order for mining to continue, a process that can critically impair both the quality and quantity of aquifer water.[93] In 1980, the Mount Taylor mine was being dewatered at a rate of 8,500 gallons per minute, an unsustainably high rate in most ecosystems, and a catastrophic one in this high arid terrain. In 1980, Gulf planned to store contaminated liquid waste from the mine in a 500-acre tailings pond; the tailings would "be kept under water during the operation of the mine and then covered with six feet of earth."[94] As the mine's manager conceded, however, "We don't know if this technology will protect the environment for 1,000 years; nobody does."[95]

The presence of Gulf and other uranium companies on and around Mount Taylor further complicated the already complex history of claims to the land of the mountain. While the mountain and its guardian peaks have deep religious, cultural, and historical significance for at least five Native nations of the Southwest, Nuevomexicano land grant communities also claim large swaths of land on and around the mountain. By the 1970s, much of this land grant land had already been divested from Nuevomexicanos and passed into the control of first the National Forest Service and then to mining companies through patents under the 1872 General Mining Act. In the 1960s, when uranium deposits on Mount Taylor were known of but not seen as profitable for development, mining companies purchased permits to prospect and mine on land grant land, in addition to their (already considerable) patents in the surrounding Cibola National Forest. The area surrounding Tsoodził was already under significant development: in the 1970s alone, Bokum Resources built a new mine and mill in the Juan Tafoya Tract of the Cebolleta land grant; Kerr McGee opened a new underground mine ten miles south of Marquez, with an 830-foot mine shaft that had to be dewatered at a rate of 500 gallons per minute; and Union Carbide pockmarked a 9,000-acre lease near Placitas with 400 exploration holes and a 250-foot mine shaft, in which the corporation dewatered the

aquifer at a rate of half a gallon per minute. Other mining and milling activities and exploration leases were under way in the area by Anaconda, Sohio Western Mining, Pioneer Metals Corporation, Gulf, Getty Oil, and Exxon.[96] In all, sixteen different companies owned and operated thirty-one mines and three mills in the Grants uranium belt by 1976, with two additional mills already under construction.

These companies often offered contracts to Nuevomexicano residents that gave them a meager 8–10 percent royalty rates, equal to what was often offered on Native land but much lower than market value. Additionally, most of these land grantees were told that in all likelihood the contracts would never actually be used for uranium mining or exploration. One Nuevomexicano resident, Horacio Marquez, described the power imbalance between Nuevomexicano community members and Gulf and the sense of injustice that attended Gulf's exploration activities on the land grant: "Gulf," he said, "knows more about my land than I do. The company never tells us what they are doing underground or if they will be mining under my land." Clearly, the stakes of mining in this part of New Mexico did not just involve environmental health, but also the less tangible conflict over ways of knowing and claiming the land. In this economy of knowledge, Gulf's "expert" status delegitimized that of the people who were of and from the mountain. "The mountain land," Marquez concluded, "was stolen from us by the government and now the Forest Service is giving it away to Gulf. There is no justice for poor people even in the United States."[97]

Thus, the collaborative nature of the 1979 protest in San Mateo reflected multiple claims to the land and multiple political frameworks to protect it from destructive mining practices. In recent years, as I discuss in chapter 6, these multiple claims to Mount Taylor have clashed, revealing the urgent politics (always contentious and sometimes violent) of land and territoriality in New Mexico. In the 1970s, the politics of Nuevomexicano land claims were seen as congruent, rather than conflicting, with Native calls to protect the mountain; the AIEC received "direct support" from Chicano activists working on land grant struggles, and the legacy of land grant dispossession figured prominently in this collaboration between Chicanos and Natives.[98] "The Chicanos who hold the land grant at San Mateo," according to Winona LaDuke, "say they were paid pennies for the land" and thus were deeply invested in the action alongside Native activists.[99] Despite the efforts of activists to protect Tsoodził, Gulf continued to profit from its mines and mills in New Mexico. In December 1980, the New Mexico Environmental Improvement Division approved a Gulf

mill that would produce over 4,000 tons of uranium a day. The company, in fact, "ended the difficult decade of the Seventies with record earnings and the strongest financial position in [its] history."[100] From 1978 to 1979, even as activists were rallying on the mountain's slopes, Gulf's earnings increased by over $535 million.[101]

In this context, activists faced an ongoing struggle over how to articulate claims to land that was both toxic and home. Counter-mapping, or marking out indigenous claims over territory and resources, has been a crucial strategy in this part of New Mexico precisely because much of the land in question is outside the official boundaries of Diné and Pueblo nations.[102] Activists have had to assert their claims to the landscape of Tsoodził, emphasizing that the mountain constitutes a sacred terrain—a designation that can mean very different things to different tribes but usually has a narrow articulation by non-Natives. In general, the "authenticity" of a claim that a landscape is sacred is frequently measured (often in non-Native courts by non-Native arbiters, as it was in *Peshlakai v. Duncan*) by precolonial land use, a rubric that forecloses claims to other kinds of spaces—relocated, off reservation, urban, multitribal, and so on—that might be just as valuable to contemporary Native people.[103] It also tends to reflect tribal territoriality only at the moment of colonial encounter, freezing peoples to those places they inhabited when their lands were first demarcated by white soldiers and settlers. For the Diné, this has meant that non-Natives rarely recognize the eastern portion of Diné Bikéyah, including the landscape of Tsoodził, as Navajo country, despite the centrality of Tsoodził to Diné history and epistemology, due in part to the fact that colonial incursions had long been reshaping Diné land occupancy, pushing them west and away from this part of Diné Bikéyah, well before the U.S. acquisition of the Southwest.[104]

Maps—more prolineal geographies—provided cartographic representations of how conflicting spatial imaginaries, indigenous and industrial, were held together by anti-uranium social movements. Whereas industry maps of the area almost universally ignored the presence of Native peoples and land claims, Diné and Pueblo activists created maps that reflected the lived reality of their communities, where uranium edged up to and penetrated homelands, bodies, and lives in complex ways. In maps such as Figure 19, published by the *Gallup Independent* in 1979, uranium and coal mines are marked alongside and overlapping the natural and human exigencies of the region. These kinds of counter-maps directly refuted the uranium industry's insistence that this landscape of extraction, this wasteland, has no indigenous history. In this map, rivers run through the uranium landscape, and highly radioactive and toxic uranium waste sites are marked

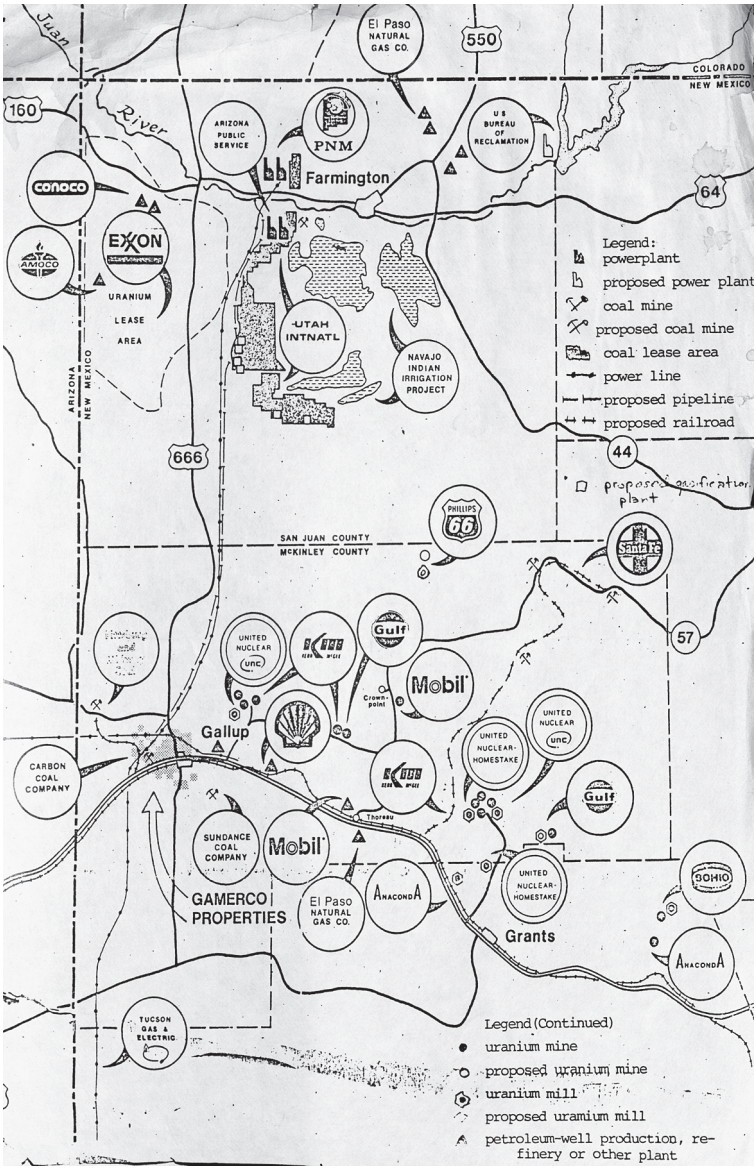


FIGURE 19. In the 1970s, northwest New Mexico hosted a high concentration of energy industry mines, leases, and mills. Coal and natural gas mines, oil leases, power plants, and a major uranium lease area are clustered between Farmington and Shiprock; uranium mines and mills crowd the area surrounding Gallup, Church Rock, and Grants. *The Gallup Independent,* November 7, 1979. Courtesy of the *Gallup Independent*.

alongside the pipelines that delivered cheap energy off the reservation. These kinds of activist counter-maps not only recognized the complex nature of life in the uranium landscape but also charted possible futures, providing a powerful illustration of the complex present in which activists struggled for sovereignty, decolonization, and environmental justice against an industry that insisted on viewing this sacred terrain as mere wasteland.

CHAPTER SIX

The Big Hurt

Boom and Bust on Contested Ground

> To articulate what is past does not mean to recognize "how it really was." It means to take control of a memory, as it flashes in a moment of danger.
>
> —WALTER BENJAMIN, "ON THE CONCEPT OF HISTORY," 1940

Ya'at'eeh, Mine Country

In the eastern borderlands of the Navajo Nation, in the area encompassing the towns of Grants, Milan, and Prewitt, as well as Tsoodził and the Cibola National Forest, two country music stations compete for listeners on the FM dial. On 94.5 KYAT, the twangy final chords of Trace Adkins's most recent hit give way to the rich voice of a deejay who cheerily calls out "Ya'at'eeh, Diné!" to greet his listeners. The deejays, callers, and many of the advertisers on KYAT exclusively communicate to the station's listeners in Diné bizaad, the Navajo language.[1] KYAT reaches listeners all across Diné Bikéyah and can be heard as far away as Albuquerque. This Navajo country music station exemplifies, among other things, the extent to which the Diné have retained their language, a factor that has historically set the Navajo apart from a number of Native tribes, bands, and nations colonized by the United States. The station is also part of a strong (and growing[2]) role of Diné bizaad media, which has figured significantly into Diné community development and political activism on and around the Navajo Nation.[3] Three Navajo language AM stations broadcast news and commentary in Diné bizaad, although none have the reach and megawatt power of KYAT.

Turn the dial just a bit, and you might hear the same song playing on another local station—but it will fade out to a jarringly different tagline.

KMIN, or as it is better known, K-Mine, greets its listeners with a cheerful "Welcome to Mine Country! K-Mine 96.7." K-Mine began broadcasting popular music out of the town of Grants, New Mexico, just at the southern base of Tsoodził, in 1962. The first song heard by Grants residents on this new station was Toni Fischer's 1959 hit "The Big Hurt," in which Fischer croons "Oh, each time you go / I try to pretend / It's over at last / This time the big hurt will end." The denizens of Grants and surrounding areas who heard the syncopating opening chords of the song and listened to Fischer's closing refrain of "the big hurt, the big hurt, the big hurt" would have been closely connected, in one way or another, to the massive uranium boom that had been under way for a decade in and around their community. That boom, taking place in the Grants uranium belt, the mining region named for their town, had already redefined life in this part of northern New Mexico. Throughout the subsequent uranium booms and busts in this region, Grants's close association with the industry has continued to shape it in often troubling ways. In recent years, as uranium companies have sought to reopen mines in the area, one of the most frequently aired commercials on K-Mine is one for a respite care company located in downtown Grants. Calling out, "Attention former uranium miners," the commercial lists the home health care services the company offers to clients with chronic illnesses before signing off "Your local home health heroes are proud to send someone to watch over you!" Welcome to mine country, indeed. The upbeat nature of this ad does little to cover up the grim reality that it conveys: uranium mining has left a scarred legacy behind in this town of 9,000 people.

Together, KYAT and KMIN shape the aural landscape of the region, marking it as both Diné Bikéyah and "mine country." While playing nearly identical sets of music, the two stations indicate the depth of the competing meanings ascribed to the landscape of this part of northern New Mexico. In this chapter, I explore this landscape of competing meanings, situating successive uranium boom and bust periods in the area's long history of multiple claims to the land. This part of northern New Mexico has long played host to competing meanings ascribed to it by the Diné, by Nuevomexicano land grantees, by the Laguna and Acoma Pueblos, by relatively recent American settlement of towns like Grants, and by the federal government. While Mount Taylor and its surrounding area are deeply significant to the Diné and home to Pueblo tribes, this area is also claimed by Nuevomexicanos, descendants of Spanish and Mexican settlers who came to this part of what was first New Spain, then Mexico, and formed communities with land grants given by the Spanish crown and Mexican government. In the late nineteenth century, U.S. expansion into its newly

acquired southwestern territory led to the formation of several settlements clustered around the railroad, and the twentieth century saw these communities multiply and grow, finding a sense of community identity in successive commercial ventures—Grants, for example, boasted itself the carrot capital of the world before the uranium booms. The conflicting land claims made by Native tribes, Spanish and Mexican land grants, and white communities have been a central feature of the land politics in the Southwest region as a whole, multiply colonized as it has been by Spain, Mexico, and the United States.[4] In this part of New Mexico, they come to a head around the politics and legacy of uranium mining. The question, in short, is how this can be both Diné Bikéyah and mine country, too, and how debates over the booms and busts of the uranium industry are negotiated in the context of those multiple claims. These questions, more often than not, boil down to how memories of the land and its history are articulated, not always to reflect "how it really was," in Benjamin's words in the epigraph to this chapter, but in ways that attempt to "take control of a memory" of the land in the successive moments of danger—danger, in this case, brought on by uranium's booms and busts.

Toni Fischer's "The Big Hurt," makes a fitting anthem for these successive moments of danger, the booms and busts of uranium mining in the Grants uranium belt. Indeed, in the first decade of the uranium boom in this region and in subsequent years, the cycles of boom and bust have created a material dependence on the mining industry, reflected powerfully in the region's built environment and the politics alike. In Grants, the built environment reinforces the area's ongoing and oft-troubled relationship to mining. Billboards along I-40 advertise one of the most important landmarks in this part of mine country: the New Mexico Mining Museum, Grants's most popular tourist attraction. At the museum, visitors can "experience" uranium mining in a simulated underground uranium mineshaft, and they can look at a chunk of uranium ore "just like the rock found by Paddy Martinez," as declared by the display sign. Standing on the steps of the New Mexico Mining Museum, you can look to the south and see the offices of the *Cibola Beacon* (formerly the *Grants Beacon*), the local newspaper that sixty years ago popularized the nickname "Uranium Capital of the World" and so energetically promoted the Grants uranium belt prospecting boom. Sharing a parking lot with the *Beacon* is a tiny restaurant that, from 1956 until 2007, housed the Uranium Café, which specialized in "yellowcakes" (instead of pancakes) for breakfast and "uranium burgers" for lunch. K-Mine broadcasts from a building on the north side of town, just around the corner from Kerr-McGee Park, christened for the uranium company that owned and operated a number of mines and mills in and

around the Grants uranium belt—including the Shiprock mill that closed in 1968, leaving behind some of the largest and most dangerous tailings piles and subsequent environmental health problems in uranium country. Half a mile to the south, Paddy Martinez Park reminds Grants residents and visitors of Martinez's role in spurring the original uranium boom. Just a few miles northwest of Grants, on Highway 605 on the way to San Mateo, a large mural on the wall of a liquor store declares "Jay's Liquors Welcomes you to Uranium Country," marking the access point to the Ambrosia Lake district of Grants uranium belt, where, not so long ago, the land was so pockmarked with uranium mine sites, "it looked like if the Geiger counter clicked, they staked a claim."[5] The land grant communities on the slopes of Mount Taylor likewise identify uranium mining as a central source of economic development, many of them taking a changed position from their predecessors in the 1970s. By 2012, Uranium Resources Incorporated (URI), through its subsidiary Hydro Resources Incorporated (HRI), had acquired almost 11,000 acres of Cebolleta and Juan Tafoya land grant lands, and some heirs to those grants have fought to allow state and federal permitting of URI mines to proceed despite objections from tribes and environmentalists.[6]

The social, economic, and environmental costs of boom and bust industries have been well documented by scholars, and what has been termed the Gillette syndrome—the range of ill effects that often accompany energy industry mining booms in rural communities—is in conspicuous evidence in this part of New Mexico.[7] Boom time economies, with rapid influxes of new wealth and new people alike, are associated with increases in a range of social problems: domestic violence, alcoholism, mental health issues, and violent crime tend to rise, while the temporary nature of mining jobs creates economic insecurity despite the influx of new money. The arrival of economically motivated newcomers likewise strains community cohesion, a problem compounded by lagging infrastructure development to accommodate the booming population. The pressure that boomtowns put on housing and other community infrastructure tends to disproportionately impact women's lives, as women are disproportionately responsible for the care of children and elderly family members. Boomtown economies have other gendered impacts as well; women in these towns experience increased rates of domestic violence and sexual assault and decreased access to needed social services.[8] Women rarely benefit directly from boomtown economic growth but take significant economic hits during inevitable bust periods.[9] In uranium boomtowns, the spectacle of the "uraniumaire" provided an unrealistic goal to motivate community newcomers and longtime residents alike. The concentration of wealth at the top—to mining company

executives, upper and middle company managers, and landowners (often the very people who were already in economically powerful positions)—created starkly stratified class lines, flying in the face of the meritocratic rhetoric that tended to characterize these uranium booms. Uranium indeed provided successive waves of "big hurt," even as it brought communities limited economic growth and a sense of identity; to be sure, in Grants, the big hurt was (and is) in constant tension with its identification as the "uranium capital of the world."

Grants is by every measure a boom and bust town. When news of Paddy Martinez's 1950 discovery was publicized by the Santa Fe Railroad, in the public relations campaign that instigated Grants's uranium rush, a mini boom was under way almost immediately, with "local restaurants display[ing] chunks of rock laced with yellow"[10] and reports that local hotels were rapidly overrun.[11] One PHS report described the resulting boom with an appropriately atomic choice of words, saying that Martinez's discovery "caused the industry to mushroom in this area."[12] In the words of Wayne E. Winters, the editor of the *Grants Beacon* in 1950, "the town's gone wild!"[13] From 1950 to 1957, the population of Grants increased fivefold, from 2,000 to over 10,000; meanwhile, the population of nearby San Juan County grew by 180 percent in the same period, reaching 50,000 in 1957.[14] In 1960, however, when the AEC ore buying program ended, "almost overnight, nearly a fourth of [Grants's] population moved away."[15] By 1967, the pendulum swung toward another boom period, inspired by the promise of nuclear power in lieu of nuclear weapons. Within a decade, sixteen companies owned thirty-one mines and three mills in the Grants area, with two more mills under construction. Collectively, these mines and mills employed over 3,000 workers—at least 700 more workers than there were residents of Grants in 1950. The population of Grants was now over 12,000, and the town was experiencing "wrenching growth pains," including what the *Los Angeles Times* called a prevalence of "undesireables" in and around town.[16]

This boom period remained relatively stable, creating an almost entirely uranium-dependent community well into the early 1980s. In April 1979, while activists were rallying against the Mount Taylor mines just north of Grants in San Mateo, over half of Grants residents crowded the town's streets to watch and participate in what they dubbed an "Energy Day parade," essentially a counterprotest organized to draw attention to Grants's stark political (and racial) differences from the Mount Taylor antinuclear, Red Power, and land grant activists. The Energy Day parade was organized by the Energy Association Taxpayers, more commonly known by the appropriately consumptive acronym EAT. Members of EAT and other Grants residents expressed their pronuclear politics in a range of ways, many of them

crystallized in creative slogans displayed on parade signs: "Three Mile Island Was Sabotaged," "Uranium for Our Children," and, demonstrating another family-based framework for pronuclear politics (as well as an implicit critique of the organization Friends of the Earth, which was closely involved in *Peshlakai v. Duncan*), "These kids are the REAL friends of the earth, they believe in clean safe nuclear energy and they are growing up in Grants, N.M., the uranium capital of the world." At a postparade barbeque lunch in the high school gym, Republican senator Harrison Schmitt declared his intention to draft legislation "that will exempt uranium mining and milling from national and regional environmental impact statements." Around the gym, energy companies erected "high tech" displays lauding the merits of nuclear power, which put the event in "stark contrast" to the "cheerfully homemade and informal air" of the San Mateo protest.[17] Some of the rhetoric from EAT laid bare the clear racial tensions implicit in the debate over uranium mining in this part of New Mexico; one EAT member told the press that the San Mateo rally was well attended because the protesters were "all on welfare" and were using "our taxpayer dollars to demonstrate against our future."[18] This kind of rhetoric did not go unnoticed by those rallying at the Gulf mine in San Mateo; Roberta Blacko, who traveled across the Navajo Nation to attend the rally from her home near Black Mesa, observed: "It seems like we're not human to them. . . . They treat us like lizards on the ground."[19]

Ultimately, as this and more recent pronuclear politics in Grants suggest, uranium mining is and has long been imbricated in the social landscape of this contested ground, into its politics and peoples, its conflicts and bodies. Like so many other debates over the forced choice of environmentalism or jobs, these community struggles over meaning (mine country or Diné Bikéyah) and materiality (environmental and human health costs of uranium mining versus income) are deeply vested in different ways of mapping the landscape and ascribing it meaning. Political struggles over mapping the land, and disagreement over to whom it "belongs," ultimately carry with them histories of colonial violence, environmental racism, and community life. Together, these histories construct the material and discursive terrain of debates over justice in this multiply colonized land. Navajo and Pueblo activists and their allies have sought to break the boom and bust cycle of "the big hurt"; at the same time, they work to map the landscape (quite literally, as we will see) as part of a contiguous indigenous history, working against other settler histories of the mountain and its surrounding terrain.

"It's Our Mountain Too"

Debates over the role of the uranium industry on and around Tsoodził came to a head yet again on June 14, 2008, when 800 people gathered, again in the Grants high school gymnasium, for a public comment meeting of the New Mexico Cultural Property Review Board. The meeting was held to discuss the recent decision of the board to grant an emergency listing of a new state Traditional Cultural Property (TCP): 400,000 acres of Mount Taylor itself, roughly 700 square miles of land that encompassed some of the most uranium-rich geology in the continental United States. The designation of the entire mountain as TCP came at the behest of representatives from five tribes, the Navajos, Hopis, Zunis, Laguna, and Acoma, all of which consider the mountain "important to [their] survival . . . physically and culturally"—a centrality of land to life that is more often shorthanded as "sacred."[20] The TCP listing would give the mountain some protection from renewed uranium interests; a result of collaboration among the five tribes, the cultural property listing would require uranium companies, as well as other development projects, to consult with the Cultural Property Review Board before expanding their operations on the mountain. Whereas the tribes approached this as an important opportunity to underscore their connections to the mountain and its importance to Native life, culture, history, and geography, uranium companies and their supporters saw the TCP listing as a direct attack on potentially very profitable mining ventures.

In the packed gymnasium, there was "an eerie sense of cowboys and Indians facing off" as the board heard impassioned debate on many sides of the issue from multiple stakeholders, ranging from ranchers, to industry representatives, to land grant heirs.[21] Meeting attendees carried hand-lettered signs that declared, "Mount Taylor Is Public Land, Not Reservation" and distributed green bumper stickers that read "It's Our Mountain Too."[22] Some members of the audience repeatedly interrupted, shouted down, and booed tribal speakers as they explained the need for the TCP. As described by the governor of Zuni Pueblo, Norman Cooeyate, the meeting pitted the "pro-uranium people" against "all the people who were against uranium on the other side—and that included a lot of . . . brown faces."[23] The TCP listing, it seemed, had brought to the surface roiling debates about the meaning of the mountain and the role of the uranium industry in community life—as well as very shallowly buried racial tensions. In the midst of the contentious atmosphere surrounding the listing, the Cultural Property Review Board passed the TCP as a temporary emergency measure and scheduled a final vote on its permanent listing for the following year. On

June 5, 2009, in a still-controversial decision and after much more public debate, the board passed the permanent listing, ensuring that further development on the parts of the mountain outlined as TCP would be subject to consultation with the review board. The final listing in 2009 created a TCP area of 344,729 acres, including the mountain itself, the mountain's boundary markers, lakes, shrines, pilgrimage trails, blessing places, archeological sites, ceremonial sites, and grazing areas. This total acreage does not include almost 90,000 acres of privately owned land on the mountain that is classified as "noncontributing" land to the TCP for the reason that land that has already been fenced off has ceased to be of religious, social, or cultural significance to the tribes. The end result of this work is a map outlining the parts of the mountain included as TCP. This map excludes the "noncontributing" private landholdings but includes National Forest and Bureau of Land Management land, as well as the lands of the Cebolleta, Fernandez, and Juan Tafoya land grants.

Between June 9 and June 18, 2009, in the weeks after the cultural property listing was made permanent, at least seven Native men were attacked and badly beaten in and around Grants, New Mexico, in a series of hate crimes that echoed the racial violence in Farmington a generation prior. Of the attackers, only one was arrested, and an anonymous phone call to the Grants Police Department reported that he had "boast[ed] of 'beating up the men because the Native Americans had got Mount Taylor and now they owned him.' "[24] The victims were "barraged by rocks, struck with bats and gashed with knives and brass knuckles."[25] As reported by John Redhouse, a longtime activist against uranium mining and self-described "veteran of the bordertown wars in Gallup and Farmington in the early 1970s," the hate crimes resulted from "an escalation of anti-Indian sentiment" over the Mount Taylor debate "that have now likely manifested in the recent rash of Indian-targeted assaults in the Uranium Capital of the World."[26]

This kind of racial violence constituted the extreme end of conflict resulting from the debate over Mount Taylor's listing as a cultural property. Protest signs like those declaring, "Mount Taylor is public land, not reservation" drew strongly racialized lines around what "public" land meant (as if to underscore the racial issues at hand, the word "reservation" was written in bright red ink, while the rest was written in black). Advocates for the mining industry flooded public hearings on the issue, evidencing deep division among residents of the area about the meaning of the mountain and to whom it "belonged." This conflict over the TCP listing, particularly in Grants, emerged out of an immediate context of economic depression and a deeper context of land dispossession, economic underdevelopment, and racial antagonism. Grants itself had a median household income of

just over $30,000 in the year 2000, $4,000 less than the average for the state of New Mexico and more than $12,000 less than the national average. Almost 20 percent of families in Grants lived under the poverty line, compared with 9 percent nationwide. These factors plus high unemployment rates have meant that in the forced choice of what environmental justice scholars call "environment-for-jobs" or "environmental blackmail," wherein a community is forced to choose between environmental quality and economic subsistence, many Grants residents come down on the side of jobs. Editorials in the *Beacon,* as well as public commentary and debate around the TCP listing, demonstrated the growing consternation among some Grants residents at what they see as Native attempts to block their employment opportunities, as well as a larger return to Grants's former "Uranium Capital" glory.

In 2004, when prices for uranium rose above $20 a pound for the first time since the late 1980s, uranium companies began seeking permits to reopen their New Mexico mines and mills, with a particular focus on Grants uranium belt. This rise in the valuation of uranium came in the wake of Vice President Richard Cheney's 2001 energy task force, which decreed that nuclear power would be central to the Bush administration's national energy policy.[27] The uranium industry recognized the problem of joblessness in Grants and incorporated it directly into its appeals to state and federal regulators for new mining permits in the Navajo Nation's eastern borderlands. They did so with aggressive public relations campaigns that emphasized jobs development in this economically depressed region. In late October 2007, the year uranium prices reached a record high of $139 per pound, top executives from Neutron Energy and URI held a meeting with the New Mexico Radioactive and Hazardous Waste Committee largely directed toward increasing public support for ISL mining and traditional mining projects in and around Grants. In direct acknowledgment of local anxiety around jobs and economic development, the chief executive officer of HRI said his company, which sought renewal of its leases to mine uranium near the Navajo community of Crownpoint, New Mexico, would bring upwards of 3,000 jobs, noting that "this isn't flipping McDonald's hamburgers. This is working in the uranium industry, whether you're mining, milling, hauling it, drilling for it, whatever."[28] In a similar fashion, the vice president of Neutron Energy appealed even more directly to the nostalgia in Grants for the uranium boom days. "New Mexico is where we place our emphasis," he argued, "and it's not just because of the uranium in the ground, it's because of the real corps of highly skilled workers who are here, who worked in uranium in the past, and whose sons and daughters are now ready to go to work for us."[29] And, in deference to Grants's

boomtown history, the manager of the Mount Taylor mine for Rio Grande Resources chimed in on the side of a return to a boomtown economy: "everyone is paying attention to the Native Americans and the environment," he said, "but where is Joe Public, that working man who comes in his car with his family from Arizona or Texas and asks, 'Are there any jobs here?' No, there's no jobs now. But we hope there will be."[30]

Beyond this basic environment-for-jobs forced choice, however, the ways in which the conflict was framed by New Mexican community members who advocated for bringing mining back to their region—that "Mount Taylor Is Public Land, Not Reservation," and "It's Our Mountain Too"—point to the more complicated politics of race, space, and land ownership looming over the TCP issue. So, too, does the racial violence of the hate crimes committed in Grants over the listing. Much of this kind of framing emerged from the fact that the land of Mount Taylor is largely composed of a combination of state, BLM, and private landholdings, and the TCP listing was misunderstood (and misrepresented) as a Native takeover of both public and private property. In fact, the listing provides only for *consultation* with the Cultural Property Review Board, and includes protection only for certain nonprivately held parts of the mountain. Those that are privately held, the TCP notes, are already removed from Native access, and therefore from Native religious practices.

This concession to remove noncontributing properties from the TCP's protection, however, did nothing to slacken vehement protest at the Cultural Property Review Board hearings and vociferous public debate about whether the listing constituted a "land grab" orchestrated by the five contributing tribes. One opposing group circulated a newsletter, titled "TCP . . . What is it? Why should I care?" that declared,

> Permits for drilling test holes on PRIVATE LAND (but deemed "near" the TCP) have been held up for months by state agencies. . . . I think you get the picture. We're already seeing that government agencies won't say "No" to the tribes. If a million acres of Mt. Taylor becomes a TCP because a "special" group of citizens claims it is sacred, what would stop them from seeking more TCPs on other big chunks of land in NM? That's right! Nothing. Using the TCP as a weapon against the rest of us, the tribes and their environmentalist friends will have way too much control over what is allowed on public lands.[31]

While the perceived threat to private and public land was by far the largest concern among opponents to the listing, as reflected by this newsletter, objections were also couched in terms of perceived threats to religious freedoms—rhetoric that, like the rest of the TCP debate, was often a thinly

veiled stand-in for race. Postings on Internet forums about the listing argued that it would give "too much power to a specific religious group (tribes) at the expense of the rest of us,"[32] and "we cannot afford to be silent about this action and the infringements . . . it makes on our rights to own property, practice freedom of religion, and the seperation [*sic*] of church and state laws."[33] Special interest groups, including various hunting and fishing organizations, the New Mexico Off Highway Vehicle Alliance, and other motorsport groups, argued that the listing would restrict access to public domain land for recreational purposes. The energy industry lobby group Citizens' Alliance for Responsible Energy (CARE[34]) chimed in, arguing that the listing was a direct attack on "free market principles," "private property rights," and "energy freedom" by "those . . . who think America should be more socialist."[35]

CARE was headed by Marita Noon, a spokesperson for the energy industry who inserted herself quite vocally into the debate over the TCP. Noon, who one writer described as "an ebullient woman with fluffy blonde hair," and "a popular speaker and the author of 19 books on Christianity and relationships . . . including *The Praying Wives Club*," often framed arguments against the TCP along explicitly racial lines.[36] She called the listing the result of a "wave of political correctness"[37] that posited Native land rights as more important than other non-Native rights and interests. Noon described the TCP as "a sneak attack, sadly perpetrated largely by Native Americans against white men."[38] Asked about the 2008 meeting that resulted in the emergency TCP listing, Noon noted that, while industry representatives had not had time to prepare arguments against the listing,

> you had Native Americans—I may sound racist, but I don't mean to be—but they are not the people who are naturally public speakers; they don't have a lot of experience at putting their thoughts together and articulating them. But they stood up with prepared, written-out statements.[39]

Other arguments used similarly racially charged rhetoric. One website, New Mexicans Together for Mount Taylor, grossly exaggerated the potential impact of the listing, arguing that it had "the potential power to require Native American precedence in all state permitting consideration, no matter how small or large, no matter if public land or your own land, from mining to personal wood cutting."[40] Many of these objections cited fears that the tribes would use the TCP designation to put casinos on Mount Taylor, seize land and property from non-Natives, and use the listing for corrupt financial gain, none of which were grounded in the reality of the

listing itself but rather derived from thinly veiled, and sometimes unveiled, racial logic and racism.

Local residents responded to the listing in myriad ways. One resident, in response to an article in the *Cibola Beacon,* conflated concerns about economic development, casinos, private property rights, and racial conflict between Natives and non-Natives: "I would never build a casino in front of my church or shrine. How is it right to claim someone else's private land in a equal rights country. The tribe's defiantly DO NOT share there private land with anybody, in most cases not even there own people."[41] Here, the commenter directly connects the lack of industry in Grants—noting that "if it wasn't for the mines this town would be a ghost town"—to the presumed privileged of tribes to not only build casinos "in front of [their] church or shrine" if they so choose but also to "claim someone else's private land in a equal rights country." In making this connection, the TCP listing is implicated with continuing economic depression in Grants. On a more alarmist note, the commenter continues: "for the citizens of Grants/Milan who support this, will you when they claim right to your house and property? It is coming next!"[42]

In response to this posting, another commenter concurred:

> Excellent comment about building a Casino at the base of their so called "Shrine[.]" It is all about the quick dollar, if it wasn't crops would have been planted, shame, shame on the tribes gaming practices. Unfortunately the more money they make they will go after more land, my best advice for people of the community. "Buy a motor home, so when your land is taken away, at least you can drive your home to the casino RV park and pay cheap rent."[43]

As these comments illustrate, consternation around the Mount Taylor issue arose out of a context of deep mistrust between Natives and non-Natives, fueled by racist presumptions about tribal corruption and greed, as well as fears of the erosion of non-Native property rights.

While the stakes for major industrial and political actors were in the potential restrictions of uranium mining and other development projects, which the listing could potentially impact, this evidence suggests that the politics that resounded with non-Native community members resided in imagined threats to property rights and individual (non-Native) property, recreation, and religious freedoms, often coded in ways that implicitly or explicitly hinge on race. In New Mexico, the legacy of massive divestment of land from Nuevomexicano land grantees and Natives alike for the benefit of state, private, and federal landholdings has created a deep defensiveness of land and property rights, resulting in what Jake Kosek describes

as "communit[ies] united not so much by their ties to the land and shared practices of production but by their shared memories of loss and longing for the land."[44] In Grants, these kinds of land politics are complicated by the fact that "if it wasn't for mines this town would be a ghost town." Indeed, the uranium industry and, later, the prison industry have shaped the town of Grants more than the politics of land grants. Outside of Grants, however, in the Cebolleta and Juan Tafoya land grants to the east and southwest of Mount Taylor, respectively, land grant politics continue to be deeply resonant in the debate about the TCP listing and who "owns" Mount Taylor. As reported in the *Gallup Independent,* land grant heirs attended TCP hearings to demand "why Native American culture was dictating what [they] could do with [their] land." One speaker at the Cultural Property Review Board hearing in 2008 "pointed out that his family had been on the land for generations and the traditional cultural property regulations only consider Native American religious and cultural values."[45] A member of the Cebolleta land grant agreed, arguing that state officials were prioritizing Native rights above those of other communities.[46] In this way, the political terrain of the Mount Taylor issue expanded to involve not just protection of a limited landscape against uranium mining but also the colonial legacy of land claims in New Mexico. The larger conflict over the TCP listing gestured to a history of competing land claims in this part of New Mexico, where Tsoodził has long been the focal point of contradicting claims to the land.

Dancing Los Comanches

The rancorous debate surrounding the TCP listing was clearly about more than a forced choice between jobs and the environment. The underlying tension in the June 2008 hearing and the subsequent conflict and violence in and around Grants originated from a history of multiple claims to, and multiple meanings invested in, the land itself. The histories of claims to the land of this part of northern New Mexico are inextricably tied to the histories of the multiply colonized Southwest. This landscape in particular, relatively small in scope, is a central meaning-making place for the Diné, the Hopi, the Laguna, Acoma, and Zuni Pueblos, and several Nuevomexicano land grant communities. This is the southern portion of Dinétah, the "heart" of the Navajos' historical homeland; it is the site of centuries-old Pueblo villages; and it is home to long-standing land grants issued by the Spanish government.[47] The historical context for these multiple claims to the land, emerging from larger colonial forces, stemming first from Spain, then Mexico, and then the United States, have combined to push the Diné west,

away from Mount Taylor despite its importance to Diné history, geography, and religion, and formalize Spanish and Mexican settler claims to the mountain and its surrounding terrain. It is this history that produces the conflicting, and rancorous, debates over who has a rightful claim to the land on and around Tsoodził.

The Spanish land grant system was a means, particularly in the northern territories far from the Spanish seat of power in Mexico City, by which the Spanish sought to maintain control over lands populated by multiple Native nations—particularly the Pueblos and Diné in northern New Mexico, who allied in 1680 to execute the Pueblo Revolt, the only successful ouster of Spanish colonial rule in the Americas, which removed the Spanish from this area for more than a decade. After Spain's "reconquest" of the region in 1692 and in subsequent Spanish settlement of northern New Spain, memories of the 1680 Pueblo Revolt were forefront in the Spanish colonial psyche. The 1692 "reconquest," led by Diego de Vargas, was followed closely by a strong investment in the land grant system, wherein individuals and communities were given large grants of land to farm or raise livestock. This land grant system was continued by the Mexican government and became a centerpiece of the development of Nuevomexicano identity and community life over the course of the eighteenth, nineteenth, and twentieth centuries.

The area surrounding Mount Taylor was no exception. The first land grant in this area was conveyed in 1767 from the governor of New Mexico to Bartolomé Fernández in thanks for his service in the reconquest. The Fernández grant encompassed 21,176 acres on the northern slopes of Mount Taylor—prime Navajo grazing land.[48] In February 1768, Fernández was instructed by the governor to take a man named Santiago Durán y Chaves to the western slope of Tsoodził, where Durán y Chaves would claim a land grant of some 17,000 acres. This grant would come to be known as Los Ojos de San Mateo and was given to Durán y Chavez in part so he could graze his "80 mares, 40 mules, 1,000 sheep, and some other livestock belonging to his mother."[49] The dates of the grants—the Fernández grant in 1767 and the San Mateo grant in 1768—make them among the earliest in this part of New Mexico, earning them a certain amount of bragging rights among the inheritors of the grants.[50] They were not, however, the first of Spain's attempts to exert its colonial presence in the eastern reaches of Diné Bikéyah. Spain had long been interested in developing settlements outside of the Rio Grande villages and had built two wildly unsuccessful missions on Tsoodził's slopes in order to "displace the uncivilized customs of the wild barbarians of the desert mountains."[51] These missions, built in 1750, lasted less than a year before the Navajos themselves forced the Spanish

out of this part of Navajo country.[52] The two grants issued in the 1760s were fresh attempts to plant a Spanish presence in the area. However, neither grant was settled until almost a century later, in no small part because both had been made on lands that were well within Diné Bikéyah.

Spanish settlements on the north and south sides of Tsoodził were home to several dozen families in the 1760s, and their presence was enabled by "Reciprocal needs . . . and pastoral exchange" with nearby Navajos.[53] After a decade and a half of "some degree of mutualism" between the Diné and the land grantees, by 1776, "the Navajos had expelled Spanish settlers from the Mount Taylor region."[54] More than sixty years before either of these early grants were permanently resettled, a third grant was formed on the eastern slopes of Tsoodził, somewhat farther removed from the Diné who returned seasonally to the mountain to graze their herds. The Cebolleta grant, as it was known, was formed in 1800 and was made, rather than to an individual, to a community of thirty people. The grant, as noted by San Mateo denizen Abe Peña, "is one of the few that has remained in the hands of the people, heirs of the original grantees, in New Mexico."[55] Neither the Fernández nor the San Mateo land grants were resettled until nearly a century after they were made; and, in the end, they were settled by members of the Cebolleta grant, who eventually founded a village at San Mateo in 1862. The land had passed through multiple colonial powers in the interim: from Spain to Mexico in 1821 and then to the United States in 1848. As a result, the grant perhaps predictably wound up in the courts for the better part of four decades, finally being settled by the New Mexico Supreme Court, which ruled in favor of the petitioning grantee, Román Baca, and the grant was confirmed in 1898.

Both the timing of settlement of San Mateo and the long period between the issuance of the grant and its settlement resulted from Diné land claims and presence in the area, sometimes periodic due to seasonal pastoralism, as well as to larger shifts in Navajo relationships to colonial powers. Peña explains that the hundred-year wait to settle the grants was due to the "remoteness of both grants from the more settled Río Grande Valley and out of respect and fear [of] the Navajos."[56] In fact, the grants in this area were reported to have been "in possession" of the original grantees, who "occupied and held the said tract of land, *except when interrupted by the wars with the Navajo Indians,* continuously thereafter" (emphasis added).[57] In fact, the presence and prosperity of Cebolleta settlers was contingent not only on the presence and disposition of the Diné on Tsoodził but also on ties between the grantees and the nearby Pueblos. As one historian notes, "Cebolleta's existence was precarious for many years. The Grantees turned to their neighbors at Laguna Pueblo for assistance during Navajo

raids, even as the Cebolletans and the Pueblo disagreed over the boundary between them."[58] Thus, Navajo tenure on and claims to this land continued to be active and acknowledged, even as Spanish and Mexican settlers formed and built their own communities on the slopes of Tsoodził.

Pressure on the Diné and their landholdings, of course, were responding to larger forces during this time period than Cebolleta settler desires to occupy the 17,000-acre San Mateo land grant. Beginning almost as soon as U.S. forces entered Santa Fe in 1846, "conquest" of the Diné became a central, driving goal of American policy in the Southwest. In that year, Stephen Watts Kearny sent liaisons to demand that the Diné return stolen property and issued a request that local communities around Navajo land "form war parties, to march into the country of their enemies, the Navajoes."[59] In 1849, the well-known and celebrated Diné leader Narbona was attacked and killed (in what is now called, in honor of his life and legacy, Narbona Pass), along with at least seven other Diné, by a contingent of U.S. forces led by Colonel John Macrae Washington. The military established an unwelcome presence in Diné Bikéyah by building and occupying Fort Defiance in September 1851. Pressure on the Diné continued to mount in this vein, largely under the racial logic that the Navajos constituted a "hostile" and "savage" threat to U.S. control of the New Mexico Territory (as opposed, it would seem, to the Pueblos, who lived in relatively small, long-standing villages rather than migrating seasonally).

The Diné, in turn, responded to this new colonial presence by engaging in multiple strategies: they continued their raiding, a weapon they had wielded for many years in part as retaliation for Spanish and Mexican colonists' own slave raids against Navajos; they negotiated treaties with the new colonizers, seven in all during the period from 1846 to 1868; and they sought to reason with the Americans, as when Diné leader Zarcillos Largos, pointing out the Americans' illogical turn on the Navajos, declaimed

> Americans! You have a strange cause of war against the Navajos. We have waged war against the New Mexicans for several years. . . . We have just cause for all of this. You have lately commenced a war against the same people [and] you have . . . conquered them, the very thing we have been attempting to do for so many years. You now turn on us for attempting to do what you have done yourselves.[60]

Finally, in 1860, the Diné launched an attack against Fort Defiance, nearly succeeding at what would have been "an extraordinary triumph" over U.S. military presence on their land.[61] Setting the context for the attack, an exhibit at the Navajo Nation Museum in Window Rock explains that a "crisis was unfolding as the Americans claimed prime pasturage . . . sought

throughways across Navajo country on their way to California, and generated excitement among speculators with reports about rich minerals in Navajo territory."[62] By 1862, the year that San Mateo was finally permanently resettled, U.S. pressure on the Diné had ramped up significantly, particularly in the southeastern reaches of Diné Bikéyah in the area surrounding Tsoodził. Two separate treaties, neither ratified by the U.S. Senate and therefore never legally binding, stipulated that the Navajos adhere to a strict eastern boundary, a requirement that would have had the (probably) unintended consequence of making the Cebolleta grantees feel more secure in settling their grants in and around Tsoodził.

It would seem that, in the context of all this colonial force pushing Navajos west into present-day Arizona, by the early 1860s sufficient pressure had been put on the Diné to make settlement of the Mount Taylor grants feasible. It was due to the Americans' insistent military action against the Diné that the San Mateo grant, unoccupied by Nuevomexicanos since 1768, could finally be settled almost a century after it had been made by the Spanish. By the time Cebolleta settlers began to build a village at San Mateo in 1862, the beginnings of scorched earth campaigns against the Navajos were under way, and the first plans for a massive removal of the Diné to a reservation were being circulated among U.S. military personnel in the region.[63] The villagers at San Mateo commenced building homes and chapels, growing their herds, and planting crops on Mount Taylor's pastured slopes.

Rich cultural traditions from their long history as New Mexicans flourished in the newly settled grant community. One tradition in particular thrived in this part of New Mexico: the Christmastime dance of Los Comanches, what historian James Brooks calls a "conquest romance" that "summons and silences a past rich in social possibility and burdened with malign realities."[64] In the dance, children and adults alike don feathered war bonnets and act out a tale in which "the Christ Child" is "kidnapped . . . from his crib and taken by Comanche Indians to their distant lands."[65] Community members act out a range of roles, including the Comanche chief, called the Capitán and his daughter, La Cautiva, who, as her name suggests, is taken captive during the pageant. Others serve as dancers or drummers. Playing Comanches, the community members visit seven houses, asking at each in turn whether the Christ child is inside; finding him in the seventh house (represented by a doll at an altar), they sing a series of four songs and are permitted to enter to see the child and offer dances for the host family. "Don't be frightened gentlemen," they sing, "because we come here dancing; it is a vow that we made, and now we are fulfilling it."[66] Upon entry to the house to see the Christ child, the "Comanches" steal the doll and flee, at which point they are set upon by the rest of the community

members and a fierce mock battle ensues. La Cautiva is captured, the Comanches are defeated, and both La Cautiva and the Christ child are taken through the community to visit homes and bring with them the "curative powers" that both are believed to possess.[67]

This dance evolved from a Nuevomexicano collective memory of New Mexico settlement: that of the Comanches "coming out of the Great Plains of Kansas, Oklahoma, Texas, and eastern New Mexico, raid[ing] the Hispanic villages, kidnapping . . . children . . . and taking them to serve as warriors or as servants to augment their declining tribal numbers."[68] The Los Comanches dancers of San Mateo thus engaged in a repertoire of colonial memory making. Often donning Navajo blankets, and Navajo-style velveteen blouses and long skirts for the women, and dancing on the slopes of the Diné sacred mountain of the south, they act out the fears of their ancestors, who had occupied the already claimed and inhabited land of northern New Spain. By channeling "los comanches," these land grantees did more than channel their own ancestors' anxiety of attacks by Plains tribes. In some sense, they were simultaneously "summoning and silencing" successive histories of violence in this multiply colonized Southwest.[69] The dance of Los Comanches thus provides a fitting prism through which to view the violence and fractious conflict over multiple claims to the land of northern New Mexico—and conflict over the TCP listing of 2009 in particular. Not "just" about uranium mining, or even about jobs, the TCP came to represent the history of "longing for" a multiply colonized terrain, about competing and echoing histories of violence, as well as about histories of the complex personhood of community life. As Brooks puts it, in this contested terrain of Tsoodził and surrounding valleys—borderlands of the Navajo Nation, the Spanish and Mexican empires, and U.S. conquest and settlement—"diverse social traditions of honor and shame, of violence, kinship and community met, merged, and regenerated," producing "an intricate web of intercultural animosity and affection that lingers today."[70]

By the early twentieth century, Mount Taylor was, in many ways, cut off from Diné access, despite the fact that the mountain remained central to Diné understandings and articulations of their life and history in Diné Bikéyah. The Cebolleta, San Mateo, and Fernández land grants occupied the eastern, western, and northern slopes of the mountains, respectively, taking up much of Tsoodził's valuable pasturage. To the south were the Laguna and Acoma Pueblos. The rest of the mountain was claimed by an entirely different power and thus ascribed yet a new meaning: on March 2, 1909, over 670,000 acres of land belonging to the Navajo and Zuni reservations were subsumed under the authority of the U.S. Forest Service as the new Zuni National Forest.

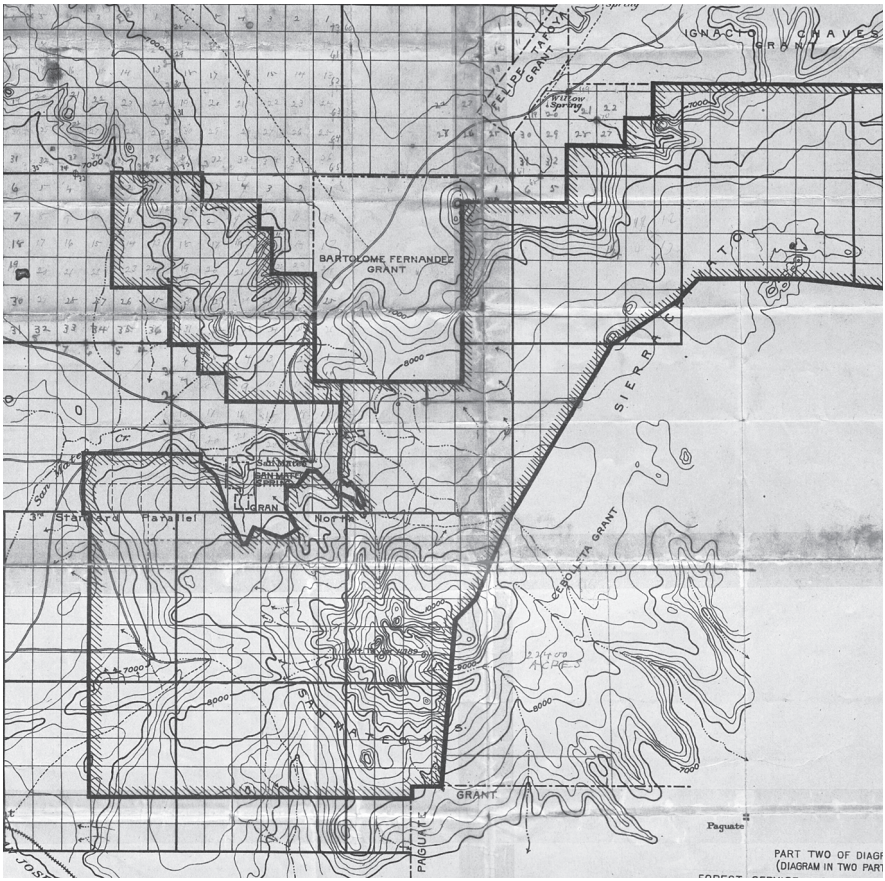


FIGURE 20. Tsoodził (Mount Taylor) has long been the site of competing land claims. In this 1910 map, the Zuni National Forest boundaries overlap with a number of land grants: the Ignacio Chavez Grant, the Felipe Tafoya Grant, the Cebolleta Grant, the San Mateo Grant, the Paguate Grant, and the Bartolomé Fernández Grant. Outside of the area shown here, the map also indicates the parts of the National Forest that "included" "part of [the] Navaho Indian Reservation," and "part of [the] Zuni Indian Reservation." "Zuni National Forest, Arizona and New Mexico," Forest Service, U.S. Department of Agriculture, 1910.

The 1910 Forest Service map gestures to competing land claims in what was then the Zuni National Forest: the map indicates where the national forest boundary runs through "part of Navaho Indian Reservation," as well as "part of Zuni Indian Reservation." It also shows the Paguate, Cebolleta, Ignacio Chavez, Felipe Tafoya, and Bartolomé Fernández land grants. The

Forest Service map, and the history of dispossession it represents, gestures to the ways in which Mount Taylor's surrounding landscape was excluded from Diné and Pueblo land tenure through legacies of conquest: layered practices of juridical, ideological, and material colonization of the terrain. These legacies of conquest included successive waves of settlement in the Río Puerco valley and the slopes of the mountain itself and compounded ownership of the federal, state, county, and town governments and various private interests, most notably the Santa Fe Railroad. Multiple federal, state, municipal, and corporate interests overlap on the mountain, preempting tribal sovereignties and jurisdictional authorities. Equally important were the ways in which the Diné and the Pueblos were racialized in often oppositional ways: the Diné were shunted to the west of the mountain through the militant discourse of Navajo "savagery"; Pueblo claims to the mountain were foreclosed by the enduring colonial mythology that Pueblos stayed put in their villages, cut off from and not dependent on contiguous landscapes.[71] Both kinds of racial rationale inhere qualitative scalar judgments of indigenous place making and movement. The Diné were judged savage precisely because they use and move through *too much* land; the Pueblos were judged to use quite little and are therefore placed on the positive side of the good Indian/bad Indian colonial binary.[72] These layered histories of land claims, land dispossession, and racial violence create the context for contemporary struggles over what constitutes "traditional cultural property" and what kinds of meaning a mountain can, and does, embody.

Maps of Meaning

In immediate reaction to the 2009 permanent listing, the most effective form of protest to stop the TCP did not take the form of rallies outside the hearings, or of commentary on newspaper articles, or even of hate crimes committed against Native men in Grants. It took the form, rather, of refusal by the owners of noncontributing properties to submit maps of their landholdings to the Cultural Property Review Board so that a definitive map of the protected area could be produced. During the June 2009 final hearings, in an "innovative step" designed to calm some of the tensions surrounding the listing, the review board asked private property holders on the mountain to "come forward within the next two weeks with a notarized legal description of their land," which would then be used to produce a map of the TCP that excluded those private landholdings from the cultural property.[73] Landholders refused for some time to comply with these requests. By ignoring requests from the Cultural Property Review Board

for these surveys and land descriptions, the landholders expressed their noncompliance with the board's decision that the mountain (or at least parts of it) be mapped as indigenous traditional cultural property. In the aftermath of the TCP listing, moreover, mining companies continued to assert their intention to restart mining operations on and around Mount Taylor. Additionally, members of the New Mexico State Land Office as well as some of the affected Nuevomexicano land grantees have vigorously pursued legal challenges to the listing on "administrative grounds" as well as constitutional grounds—the listing, they argued, privileged Native religions and therefore violated the separation of church and state. In early 2014, these legal challenges to the TCP were finally brought to the state Supreme Court, which decided in favor of the tribes and ruled to maintain the mountain as a New Mexico cultural property.[74] Predictably, the ruling did little to quell the ire about the issue in northwestern New Mexico.

One of the companies that has challenged the TCP listing and its attendant protections for the mountain is Rio Grande Resources, which purchased the San Mateo Mount Taylor mines in 1991 from Gulf-Chevron. Rio Grande Resources, a subsidiary of the defense and energy contractor General Atomics (which also operates uranium mines in Australia), was, as of 2014, still evaluating the mine for potential ISL development. Its interest in reopening operations on Mount Taylor derived from the resurgence of the market for uranium ore since 2003 (from 2003 to 2007, uranium prices surged from $20 per pound to a record $139 per pound[75]). The company's website describes Mount Taylor in ways that naturalize the uranium industry's presence on the mountain, meriting comparison with other ways of mapping Mount Taylor because of the ways in which it situates both the mountain and the uranium industry in the space and time of New Mexico:

> The Mt. Taylor uranium mine is located in northwestern New Mexico about 60 miles (100 km) west of Albuquerque. . . . Uranium mineralization in the Mt. Taylor deposit occurs within the Westwater Canyon sandstone of the Jurassic age Morrison Formation and is similar in form to trend-type deposits in the Ambrosia Lake uranium district. The deposit occurs at 3,000 feet (900 m) below the surface. Coffinite is the primary uranium mineral. Ore grades range from 0.15% to over 2.0% U3O8, and averaged 0.5% U3O8 during the production period. The Mt. Taylor mine contains an in-place resource of over 100 million pounds U3O8 (38,500 mtU). Presently, the deposit is being evaluated for development as an in situ leach operation.[76]

This description illustrates the stark differences between industrial and indigenous perspectives on the mountain and its role in human life. The language used by the company, like language used in industrial geology as a whole, describes landscapes in terms of relationships between mineral deposits (for example, "similar in form to . . . deposits in the Ambrosia Lake uranium district"), geologic time ("the Jurassic age Morrison Formation"), and potential yield in profitable minerals ("over 100 million pounds U308"). This kind of discursive framing maps the uranium industry *into* the very geography and history of the mountain; just so, the industry inserts itself into the past of the region as well as its future. Tellingly, no mention is made by Rio Grande Resources of the Mount Taylor TCP listing, although the Rio Grande Resources Mount Taylor mine site is partially within the TCP boundaries. This kind of mapping, steeped as it is in the seeming objectivity of scientific discourse and geologic time, is afforded more power than "other" (particularly Native or Nuevomexicano) maps of the mountain that premise its immediate relevance to the culture, religion, or economy of local populations, as reflected by the statement by Nuevomexicano land grantee Horacio Marquez, that "Gulf knows more about my land than I do."[77]

In the process of getting the TCP listing passed, the five contributing tribes had to counter-map in ways that situated the mountain in the eyes of state and federal law as a major site of indigenous cultural, religious, and historical importance. In the application for the TCP listing, the different names associated with the mountain by each of the five tribes were given considerable weight. As the application explained, the Acoma call the mountain "Kaweshtima," the Laguna Pueblo "knows this landscape as Tsibina (variously spelled Tsipina or Tse-pi'na," the Zuni term it "Dewankwin Kyaba:chu Yalanne," the Hopi call it "Tsiipiya," and the Diné "identify the landform as Tsoodził."[78] In the process of this counter-mapping of the mountain, the nominating tribes focused not just on the importance of these different indigenous toponyms but also on the *meaning* of "land," "property," and "landscape" within the apparatus of state and federal protection policy. The application, then, did not necessarily define the mountain as "property" of the Navajo and Pueblo peoples. Rather, it defined the TCP area on the mountain as "an *historical text* for each Nominating Tribe" (emphasis added), "communicating much about where the people come from, how they came to be who they are today, and what their continuing obligations are to the natural and cultural environment of their homelands."[79] This notion that the mountain functions as a "historical text" emphasized that there is knowledge inhered in the geography of the land itself and that the historical integrity of the mountain resides in its role in recording (and constructing) tribal life and past much the way westerners presume that books and archives record (and construct) theirs.

These struggles over mapping Mount Taylor and its meaning can be seen as part of an intensely political, and intensely urgent, process of articulating how Native territoriality and land claims can be deployed and asserted at the turn of the twenty-first century. The TCP listing, like the protests on Mount Taylor three decades prior, sought to extend a kind of plural sovereignty over the land, made up of multiple claims to the mountain that do not necessarily compete for primacy. As the TCP application noted in its concluding statement,

> The Mount Taylor Cultural Landscape is the intersection of so many different community landscapes, and the Mountain does so many different things—economically, socially, and ideationally—for so many different people from culturally diverse backgrounds. These factors make Mt. Taylor one of New Mexico's truly exceptional landscapes. Although there is no consensus on what Mt. Taylor is, what the Mountain does for people, and what this landscape should become, all stakeholders intrinsically know that Mt. Taylor . . . warrants an emotional response even when there exists only a perception that one community's interests might somehow supersede another's.[80]

In this way, the five contributing tribes acknowledged the multiple claims to the land of the mountain (as well as the vociferous debate in New Mexico over the listing) but went on to argue that the TCP would not elide or contradict these multiple claims. Instead, they argued, the reality that "there is no consensus on what Mt. Taylor is, what the Mountain does for people" is what makes the mountain "exceptional" and in need of protection. The statement continued with this final comment on the issue of multiple claims: the "often rancorous debate" about the listing, they argued, "speaks volumes of the significance of the Mountain among New Mexico's communities." Given that importance to multiple communities, the listing, in the view of the five contributing tribes, "protects the Mountain and each of the communities in turn by ensuring that no one community's interests will automatically take precedence over the others as humans shape the future of the Mountain."[81]

Ultimately, the debates over who can claim Mount Taylor—and how those claims get made—revolve around assertions of territoriality in a landscape where territory has long been a central site of conflict. Territoriality and land claims are central to political projects that struggle for Native sovereignty, environmental justice, and, ultimately, decolonization; after all, it is territory, whether of the body, the psyche, the cells, or the mountain, that has undergone the wastelanding that makes racial and environmental violence possible. In this case, turning Mount Taylor into uranium country has hinged on more than a century of colonial forces that moved the Diné

out of their eastern lands and formalized Spanish, then Mexican, then U.S. claims to the territory of the mountain by virtue of successive kinds of codification (land grants to settlers, railroad grants, the formation of National Forest lands, leases by mining companies, and so on). If territory is settler colonialism's "one irreducible element," then decolonization cannot help but be territorial.[82]

This work toward recognizing noncontiguous places as sacred to tribes can be seen as an extension of territoriality and very urgently needed protection to landscapes under threat from extractive industrialism. Much of the debate and discussion of the TCP listing turned on whether tribal claims to the mountain were "authentic," as understood by multiple kinds of stakeholders (the State of New Mexico as well as private landholders, uranium companies, and land grant heirs). This demand for authenticity to precede and prescribe tribal claims to land is a persistent problem for protecting all kinds of places and landscapes. This problem posits that the only valid claims Natives can make under the rubric of sovereign territoriality are claims that are based on federally recognized geographic boundaries, demonstrated to be "sacred" or authentically indigenous according to religious or historical criteria—"religious" and "historical" most often defined by whites. Claims of colonized peoples to sacred spaces (whether urban or rural, "traditional" or new) that are nevertheless under attack by toxic industrialism, gentrification, military adventurism, and so on are simply more legible when they can be called "traditional" under the racial rubric of "primitive" indigenous territorialism. As Mishuana Goeman sums up this problem,

> While conceptions of Native identity are legislated differently depending on governing nation-states, tribal government systems, histories, and cultural differences, they share spatialized tendencies, identity, social relations, and politics [that] are often conceived, represented, and determined as geographically and historically situated and bound to a particular community. This grounding, even while considered abject space by the settler state, is of utmost importance to the imaginative geographies that create the material consequences of everyday existence for Native people, even while the historical onslaught of legislation continues to rip that grounding out from under Native people.[83]

The ways in which the five contributing tribes have framed their claims to Tsoodził recognize the complex politics of land claims in this part of New Mexico but also recognize the complex politics of territorial land claims in movements aimed toward decolonization.

The very fact that this is contested ground, and that anti-uranium activists and tribes are making politically salient claims to the land, makes it a

crucial site for analysis of what "justice" means in environmental justice struggles. In the hegemonic cultural logic of the settler state, Native peoples and their lands are meant to be shrinking, to be disappearing before the advances of the U.S. settler empire. Instead, we can look to the places where Native sovereignty—and, importantly, territoriality—is *growing*. Thus, struggles of communities to uproot environmentally destructive industrialism, like the use of the TCP to protect Mount Taylor, situates environmentalism as a bottom-up concern (as opposed to the top-down models of what Giovanna DiChiro calls "ecoliberal" environmentalism) but also because it takes a crucial second step: toward undoing settler colonialism by redrawing maps of colonized terrain.

CONCLUSION

Zombie Mines

> The horror of our day has arisen from the intrinsic dynamics of our own history; it cannot be described as exceptional.
>
> —THEODOR ADORNO, "PROGRESS OR REGRESSION?" 1964

> A toxin threatens, but it also beckons. It is not necessarily alive, yet it enlivens morbidity and fear of death.
>
> —MEL CHEN, "TOXIC ANIMACIES, INANIMATE AFFECTIONS," 2011

In 1946, the U.S. Congress established the Indian Claims Commission to hear and litigate land claims made by Natives and settle those claims with monetary compensation for land lost as a result of the Dawes Act and other land-dispossessing U.S. policies. A major part of the work in Claims Commission cases involved gathering maps of Native land and reservations and deciding which maps would be considered valid for use in court in order to referee conflicting land claims. Figure 21 shows a map that was produced for the Claims Commission "delineating the boundaries of Navajo Country . . . as described in various documents."[1]

The map reveals the deeply contested, chaotic, and frenetic nature of U.S. attempts to map "Navajo Country" into a clearly bounded geographic space. In many ways, this map unwinds the hegemonic logic, used successfully by the uranium industry, that "Navajo Country" is something limited to contemporary reservation borders and that anything "outside" those official borders has never been mapped as Native land. The map shows multiple boundary lines, many of which are unconnected or otherwise irrational to modern notions of what political boundaries should look like. It shows the attempt, and failure, of the settler colonial state to corral

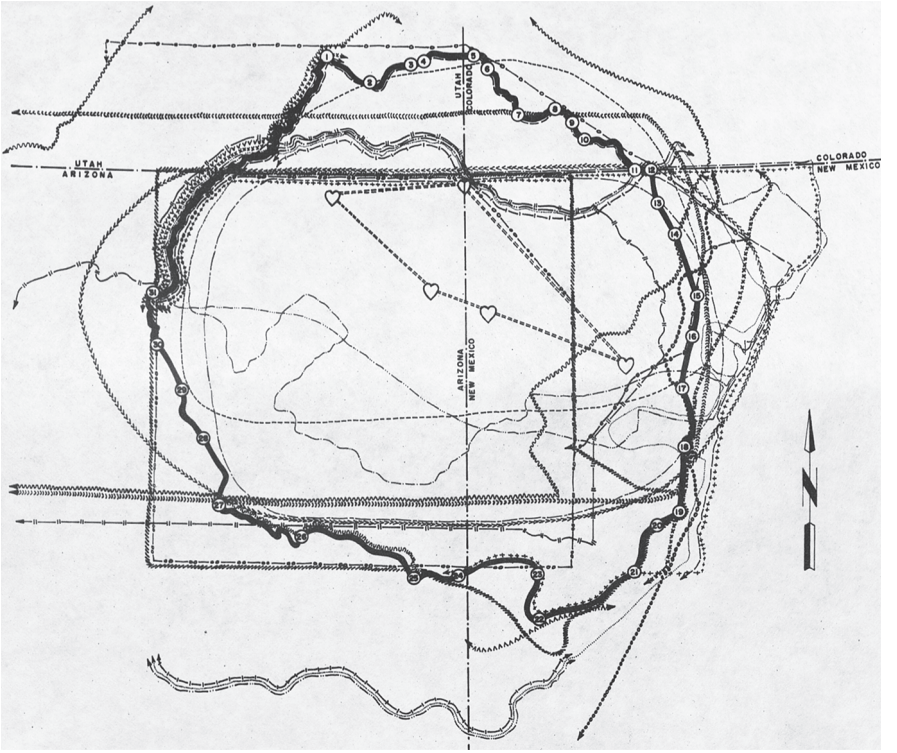


FIGURE 21. This map shows the range of different interpretations of "Navajo Country" since the mid-nineteenth century. Only one set of boundaries, the one marked with hearts, is attributed to a Navajo (this, the map's legend explains, marks Barboncito's description of "'the heart of Navajo country'" and represents Dinétah). The rest of the boundaries are those indicated in the reports of non-Navajo explorers, cartographers, and military expeditions. "Composite Map Delineating Boundaries of the Navajo Country as Described in Various Documents," Frontispiece, U.S. Indian Claims Commission, "Proposed Findings of Fact in Behalf of the Navajo Tribe on Indians in Area of the Overall Navajo Claim. Volume I, findings 1–12." *The Navajo Tribe of Indians v. The United States of America,* Docket 229, 1964.

Navajo life, land, and bodies into something orderly and, at least on paper, well managed. The map is left in the archives as evidence of that failure, attesting to the complexities of the colonial project, admitted here even by the colonial regime of knowledge production itself. I conclude with this map as a way of segueing from the content of the book to questions of contemporary struggles over the uranium industry and larger questions

about wastelands and environmental justice. Environmental justice has the potential to offer new ways of mapping *beyond* the black-and-white signifiers of political borders and the lines drawn on maps. As struggles over uranium mining in Navajo country have shown, representations of landscapes have been central to how these struggles have played out.

Over the course of the seven decades since Manhattan Project engineers first turned to Diné Bikéyah for its uranium, Navajos have been diligent in attempts to curtail the impacts of the industry and its legacy on Diné land and life. Since the 1960s, Diné activists have formed and participated in some of the most influential environmental justice organizations in the country and in the world, and they have seen considerable success. In 1990, after years of struggle, former miners and uranium widows, along with their allies, succeeded in getting Congress to pass the Radiation Exposure Compensation Act (RECA), which provided some relief for victims and their families.[2] Dozens of different lawsuits have been filed by or on behalf of Navajo uranium miners and their families. From the early 1980s on, Diné activists hosted a series of meetings of the Indigenous Uranium Forum, which drew together indigenous peoples from uranium mining districts all over the world.[3] In 1992, Diné representatives joined indigenous people from all over the world to travel to Salzburg, Austria, for the World Uranium Hearing, which culminated in a collectively produced set of recommendations for solving the problems of uranium pollution on Native land around the world:

> No more exploitation of lands and people by uranium mining, nuclear-power generation, nuclear testing, and radioactive waste dumping.
>
> Clean up and restore all homelands.
>
> End the secrecy and fully disclose all information about nuclear industry and its dangers.
>
> Provide full and fair compensation for damage to peoples, families, and communities; cultures and economies; homelands, water, air, and all living things.
>
> Provide independent and objective monitoring of human health and well-being of all living things affected by the nuclear chain.[4]

Navajos have produced and been featured in award-winning documentaries that have encouraged non-Navajos to become invested in the struggle against uranium mining. The Diné College runs an education program invested in training young scholars to document and understand the legacies of the uranium industry. In the face of the new uranium boom of the early 2000s, Mitchell and Rita Capitan and other Diné residents of Crownpoint

and Church Rock formed the Eastern Navajo Diné Against Uranium Mining (ENDAUM) to protest renewed applications for mining licenses by URI and HRI. They succeeded, and ENDAUM subsequently became the primary organization coalescing anti-uranium politics in the early 2000s. Without their work, mining would almost certainly have been quickly underway in Crownpoint and Church Rock, communities that already had borne more than their share of the ill effects of uranium mining and milling.[5] In 2005, with the support of ENDAUM and their allies, then president of the Navajo Nation Council Joe Shirley signed into law the Diné Natural Resources Protection Act (DNRPA), which placed a moratorium on uranium mining in Navajo country, legislation that the tribe has used to contest new uranium projects in its eastern borderlands as well as within its official borders. Navajos have, in short, been working this issue on multiple fronts, a necessary practice in this very urgent struggle for land and life.

Despite these efforts, uranium companies continue to seek permits and open mines in the Native Southwest. In 2000, in response to a Bush administration change in energy policy that put renewed emphasis on nuclear power, prices for uranium ore began to rise, culminating in record-high prices in 2007. Some companies (such as those owning permits on Tsoodził) planned to conduct open-pit and underground mining very similar to the ruinous operations of the past. Other companies turned their focus to ISL mining, a process of pumping an acidic solution into the rock layer and then back out again in a liquid that carries the uranium ore as leachate. While ISL mining was originally developed as a cost-cutting process, less expensive than either open-pit or underground mining, companies presented it to the government and to the public as being less dangerous for the environment and virtually benign for workers. Environmentalists are quick to note, however, that this ISL process carries with it the threat of radioactive solution and leachate escaping the mine pumps and seeping into the soil and groundwater. The uranium that is recovered from the leachate, moreover, is sent to mills to be processed in the same way as any other ore, with the same implications for environmental contamination and worker health and the same limitations on safe disposal of radioactive waste. The combined effects of the new uranium boom and the DNRPA moratorium on uranium mining in Navajo country have resulted in uranium operations now clustering just outside the Navajo Nation borders, "mass[ing] on the reservation's borders like troops waiting to charge."[6] The conditions of uranium mining elsewhere in the Southwest are similarly ominous. Although during the Obama administration the political and economic climate has been lately unfavorable to continued mining, mines and mills clustered around Diné, Pueblo, Apache, and Havasupai lands sit waiting to reopen, as soon as there is a shift in the political winds.

Activists have chosen a provocative nickname for these operations: they call them "zombie mines,"[7] echoing the moniker, "zombie bombs," given to nuclear weapons that are decommissioned but not destroyed. The notion that the uranium industry could be seen as zombie-like—as *undead*—provides a compelling metaphor that suggests connections to larger systems of the threat and promise of environmental and social ruin in an increasingly toxic world. This supernatural metaphor for social injustice is not the first of its kind; social analysis is rife with metaphors of the supernatural, the science fiction, and the magical. Karl Marx himself famously described capital as "dead labour, that vampire-like, only lives by sucking living labour, and lives the more, the more labour it sucks."[8] Others have articulated powerful metaphors of Western colonialism as cannibal, feeding on human bodies to perpetuate itself—a comparison only strengthened by the fact that European travelers found the specter of the Native cannibal to be a terrifying (if almost entirely fictional) threat in the New World.[9] Uruguayan poet Eduardo Galeano described colonial consumption as an anti-alchemical kind of magic: rather than turning lead into gold, for Native peoples under colonization "gold changes to scrap metal and food into poison."[10] Avery Gordon provides particularly compelling evidence that the social world is haunted by "ghosts," the legacies of its own violence that manifest in ideological and material kinds of ways.[11] Drawing on Donna Haraway's notion of the cyborg—a cybernetic hybrid of organism and machine that lives at the intersections of that nature/culture binary—Julie Sze argues that our body burdens of chemicals, heavy metals, and plastic residue makes each of us "technologically polluted" bodies, cyborgs of a very particular sort.[12] Together, these metaphors suggest that environmental and social ruin have turned the planet into a visceral kind of haunted house, a closed ecosystem haunted by cyborgs, ghosts, cannibals, zombies, and the dead.[13] Environmental ruin, in short, becomes one of the "horrors" intrinsic to western history that Adorno cautions us to be keen to in this chapter's epigraph. Toxins in particular haunt our lives and bodies in ways that both threaten and beckon morbidity and death; they are supernaturally transhistorical and transboundary. Through environmental racism and wastelanding, they come to inhere social meaning, being marked with racial, gender, and sexual otherness. Whereas many environmental justice activists and scholars have used the metaphor of a boomerang to explain how toxic threats become, in one way or another, universal, a better metaphor might be a haunted house:[14] DDT persists in environments where it has long since been banned, persistent organic pollutants traverse global political boundaries to collect in places where they have never been used, and heavy metal residues pass into human fetuses even as they gestate.[15]

If the world is a (toxic) haunted house, uranium-as-zombie fits right in. As ore, as yellowcake, as tailings, as mushroom cloud, as depleted uranium ammunition, or as high-level radioactive waste, uranium—once it is removed from the earth—is matter of trembling and mobile deadliness. It is supernaturally impossible to dispose of safely, as demonstrated by the unending debate over how to "safely" store nuclear waste from power plants and weapons programs.[16] At the front end of the nuclear cycle, uranium's use in violence against lands and people is seemingly mythic: it is destined to travel remarkable distances and be put to remarkably troubling uses. It is gouged from the land by miners destined to suffer lung cancer, while radioactive legacies are passed on to their families. The waste from its processing is left to idle in tailings ponds and piles, "undead" in a sense until it is destabilized, spilled, or eroded. Uranium yellowcake is then transformed into humanity's most awesome and terrible weapons, nearly a thousand of which were tested on the sacred, treaty-guaranteed lands of the Western Shoshone people and the Pacific Island atolls of the Marshallese.[17] It was sent overseas to bomb Japanese civilians, not once but twice, killing upwards of 200,000 people in a matter of months and tens of thousands more in subsequent decades. The waste from weapons production, depleted uranium, has been turned to yet more military purposes, deployed against yet more nations of color and left to irradiate the desert lands of Iraq and Afghanistan.[18] The uranium that has not been militarized is destined for power plants, to service the energy-ravenous needs of non-Navajos in what can easily be seen as unthinking, irrational (zombie-like) consumption. In each of these phases of the nuclear cycle, targeted geographies are quite clearly wastelanded; as Joni Seager points out, wastelanding discourses were particularly in evidence during the wars against Iraq and Afghanistan, in which "The designation of [Iraqi] land as 'wasteland' " was clearly "tinged with racist presumptions and . . . carries with it colonial overtone."[19]

Moreover, while uranium is among the most common elements on earth (it is, quite literally, ubiquitous in most geographies, although not always in minable form or quantity), if left in the ground, it is also almost entirely benign to human health and to the environment.[20] Left in the ground, it is part of an ecological hózhǫ́. When released, it becomes Naayéé', "that which gets in the way of a successful life"[21]—in short, a monster and a latter-day incarnation of the Naayéé' that were defeated by the Hero Twins, Naayéé' Neezghání and Tó Bájíschíní, to make Diné Bikéyah safe for the Diné. As Leslie Marmon Silko so heartbreakingly put it in her novel *Ceremony,* uranium is a monster complicit with the very end of the world: "in these hills / they will find the rocks, / rocks with veins of green and yellow and black. /

They will lay the final pattern with these rocks / they will lay it across the world / and explode everything."[22]

The "zombie mines" that have garnered the most attention from activists in recent years are located on the rim of the Grand Canyon, just adjacent to Havasupai tribal lands and overlapping sacred Havasupai places. The mines have been zombified, caught somewhere between alive and dead, by a conflict between the National Forest Service, which issued mining permits, and the Obama administration, which has sought to keep those operations closed. More than almost any other example, the fact that struggles over uranium mining are taking place in the Grand Canyon indicates the flexibility and mobility of the "wasteland" as a signifier for pollutable places. There is perhaps no landscape more closely associated with the American West; the Canyon is so revered, so Grand, that it often becomes a stand-in or an icon of American exceptionalism. Its symbolism is powerful, but, as evidenced by the zombie mines primed to begin mining on its scenic rim, the wasteland is more powerful. Clearly, lines drawn around protected places—even places as ostensibly well protected as the Grand Canyon—are as much in flux as the "boundaries" of Navajo country as depicted in the Claims Commission map.

Wastelands, conversely, are (representationally but not empirically) hermetically sealed as place-bound containers of waste and contamination. Like tailings ponds, where state-of-the-art technologies purport to hold radioactive waste in place against awesome odds, the discursive technologies of race and class purport to hold highly dangerous waste in wastelands. They purport to keep the very real, material by-products of the treadmill of production contained against spillage by lining the wasteland's borders with discourses of difference. This runs counter to the environmental realities of waste and pollution: toxins follow ecological systems, rather than political or social boundaries. Seeking to map the proliferation of radioactive materials would yield maps significantly more frenetic than the Claims Commission map, revealing the ways in which radioactive geographies are more ubiquitous than the U.S. popular imagination would like to believe.

We are indeed haunted by the ghosts, zombies, and monsters inherent to these apocalyptic technologies, and they do not stay put—they radiate out from polluted geographies in ways that insist on drawing new maps of toxicity. In Navajo country, a team of researchers, including a number of local community members, formed in 2003 to undertake just this kind of mapping project. The Church Rock Uranium Monitoring Project, or CRUMP, has been hard at work mapping the radioactive fallout from legacy mines in the Church Rock area, finding high levels of uranium in soil

near Red Water Pond and a number of wells used by locals for their livestock.[23] In all, none of the seventeen unregulated water sources tested by CRUMP were safe for human consumption, and many were not even suitable for livestock.[24] CRUMP team members used vehicle-mounted and hand-held radiation monitors to track ambient radiation levels, finding that the problem of radiation was, of course, not spatially fixed; it traversed the boundaries of mine and mill properties, private land, reservation land, and home sites. Producing these maps has been a crucial step in addressing what Esther Yazzie-Lewis and Jim Zion call the long process of "slaying the monster": "How do you slay or weaken a monster?" they ask.[25] "First . . . you must gain knowledge of its destructive force. . . . Knowledge of it is the key to knowing how to weaken or destroy it"; second, you must also "know its fellow monsters": war and energy industries "built on disrespect for both other humans and the environment."[26]

Yazzie-Lewis and Zion make two final suggestions for slaying the monster: "use appropriate weapons" and "have a plan."[27] Practices of countermapping—of mapping uranium country as Diné Bikéyah, Mount Taylor as Tsoodził, "America's vast energy storehouse" as sacred terrain, and "disappearing" Natives as contemporary political actors with complex personhood—all function as powerfully appropriate weapons in this struggle. Just as wastelanding is predicated on mapping terrain as pollutable, these new ways of mapping the movement of toxins, as well as moves toward decolonizing cartographies of Native lands, suggest that territoriality, sovereignty, and ecology might work together to give us new maps of how to achieve environmental justice *and* decolonization in a toxic world. As human skin is the permeable, breathing, living boundary that regulates our relationships with what is not us, so are the boundaries between peoples, and between ecological systems, permeable, silted, breathing, and relational. This is perhaps never so true as in the uranium country of the Native Southwest, where borders between nations, between land grants, and between federal and state agencies are decidedly complex. This perspective on "boundaries" makes the drawing of maps, and the articulation of environmental politics in a modern world, likewise deeply complex. In the case of uranium mining, wherein the stakes of these questions about responsibility, sovereignty, and environmental justice are of life-and-death significance, this requires unmapping the wasteland and decolonizing the hold colonial cartographies maintain on Native terrain, rendering it, from one boom to the next, sacrificial land.

ACKNOWLEDGMENTS

Writing a book is more alchemy than science; it takes seemingly endless resources and a focused methodology to be sure, but also hefty doses of both magic and faith. Thanks to a community of teachers and friends, this book survived the long transformation from idea, to dissertation, to finished project. It came to be in this final form solely due to the support I have been blessed with along the way.

My first thanks must go to the many people who spend their days doing heroic work to promote environmental justice for communities impacted by uranium mining and milling, particularly those who took time out of that work to talk with me and answer my emails. In particular, I thank Chris Shuey and Paul Robinson of the Southwest Research and Information Center (SRIC), Michael Jensen of Amigos Bravos, and Perry Charley of the Diné College Uranium Education Program. I often felt that asking these very busy people to take time out of their day to discuss the problems of uranium mining with a researcher, particularly one focused on uranium's past rather than its cacophonous present, was an unnecessary drag on their work. The fact that they did so anyway is something for which I am endlessly grateful. My hope is that the book is of some service to those folks who work every day to engage the very urgent struggles over uranium mining with groups like the Eastern Navajo Diné Against Uranium Mining (ENDAUM), the Multicultural Alliance for a Safe Environment (MASE), and SRIC.

The problem of uranium mining, with its devastating impacts on people and planet, deserves a chorus of research, and several excellent books have already tackled this history and its attendant environmental injustices. My work would not have been possible without theirs. Doug Brugge has been at the forefront of research on uranium mining for decades and

a fierce advocate for environmental justice on Diné land. I am particularly indebted to his work with Timothy Benally and Esther Yazzie-Lewis in *The Navajo People and Uranium Mining,* the best source available for Diné accounts of their experiences in the mines and mills and subsequent struggles for compensation. Peter Eichstaedt provides an excellent investigation of the uranium industry's history on Navajo land in *If You Poison Us: Uranium and Native Americans*. Judy Pasternak's *Yellow Dirt: A Poisoned Land and the Betrayal of the Navajos* is both a boundlessly helpful resource and passionately argued indictment of the environmental and human harm resulting from the uranium industry. My research, moreover, would not be possible without the brilliant work of scholars who have explored Diné history and politics in deeply transformative ways, in particular Jennifer Nez Denetdale, Peter Iverson, Marsha Weisiger, and Klara Kelley.

The archival research for the early stages of this project was funded by the excellent New Mexico Office of the State Historian Research Fellows Program; many thanks go to that program and to Dennis Trujillo and Estevan Rael-Galvez, who acted as mentors during that time. Over many years of visiting New Mexico archives, I have developed a deep respect and gratitude for the good folks of the New Mexico State Records Center and Archives in Santa Fe and the Center for Southwest Research and Special Collections at the University of New Mexico in Albuquerque, especially Beth Silbergleit, Christopher Geherin, Nancy Brown-Martinez, Samuel Sisneros, and Gail Packard. I am deeply grateful for the support and assistance of the staff of the Maps and Geological Information Center (appropriately nicknamed MAGIC) at the University of New Mexico; the New Mexico Bureau of Geology, especially Maureen Wilks and Gina D'Ambrosio; the New Mexico Energy and Minerals Department, with special thanks to Mark Smith; the National Archives in Denver, Colorado; and the Albuquerque Museum Photoarchives, particularly Glenn Fye. Thanks also to Jacquelyn Reese and the Western History Collections at the University of Oklahoma Libraries; Donald Jaramillo at the *Cibola Beacon*; Barry Heifner at the *Gallup Independent*; and Edith Dillman at *New Mexico Magazine*.

This work began as a doctoral dissertation in the ethnic studies department at the University of California, San Diego (UCSD). My experiences at UCSD, the knowledge and skills I gained there, are all part of the fabric of the book. Thanks in particular to Natalia Molina, Adria Imada, Kirstie Dorr, Sara Clarke-Kaplan, Nayan Shah, K. Wayne Yang, Denise da Silva, Gabriel Mendes, Maile Arvin, Ma Vang, Angela Morrill, Michael Lujan Bevacqua, Maria Teresa Cesena, Kit Myers, Long Bui, Angela Kong, Thea Quiray Tagle, Cathi Kozen, Thuy Vo Dang, Theresa Cenidoza Suarez, Julietta Hua, Jose Fuste, Theofanis Verinakis, Yolanda Escamilla, Alanna Aiko Moore, and, with fond memories, Bill Runk. As a doctoral candidate, I was

lucky to be able to attend the Transnational Feminism and Justice Dissertation Writing Workshop in 2009, led by Gina Dent and Roshanak Keshti. I thank them, my co-participants, and the workshop's funders for what was truly an indispensable intellectual experience. And while I owe thanks to every single student who has set foot in one of my classrooms over the years, for I truly learned something from each one, there is a special place in my heart and in this book for the students of my Indigenous Social Movements class at UCSD in the spring quarter of 2011. We made each other smarter, and I will never forget our many heady conversations or my students' remarkable, and remarkably passionate, research.

My doctoral committee undertook heroic work on my behalf, and this book is in no small way the product of their labor as well as my own. Lisa Yoneyama gave me the confidence, through her tough questions and unwavering faith in my ability to answer them, to see the project through from dissertation to book. Yen Le Espiritu offered unmatched insight into the early research and writing stages, and taught me critical thinking skills I still use every day. David Naguib Pellow, with his keen eye and encyclopedic knowledge, has a hand in this work in more than just the obvious ways; his scholarship is a crucial contribution to any study of environmental injustice, this one in particular. When I am casting about for inspiration, it is often David's voice in my head that gets me going again. Lisa Sun-Hee Park has been my mentor, teacher, editor, and friend for more years than I can count, and I am indebted to her for lending me her sharp analytic eye and brilliant insights into research. As a mentor for this project, she posed compelling questions and challenged me to think both more clearly and more deeply in ways that made the dissertation, and then the book, shine. Ross Frank, my dissertation chair, brought to this project his unsurpassable intellectual rigor; any ability I have to be a nuanced thinker and writer has been magnified a thousand-fold by his mentorship.

The year I spent as a visiting assistant professor of history at the University of California, Davis, a position funded by the Mellon Environments and Societies research initiative, allowed this project to evolve from dissertation to book. My thanks to the Mellon Foundation for recognizing the crucial need to fund scholars doing work in themes related to Environments and Societies, and to the initiative's advisory board for the insight to make the program so richly interdisciplinary—and for seeing enough potential in my work to award me the position. I was lucky to be hosted by the history department at UC Davis; in addition to wonderful colleagues, the department provided teaching experiences that greatly enriched this project. Special thanks go to the department's chair during my stay at UC Davis, David Biale. To the colleagues and friends who made my stay at Davis both enjoyable and productive, I thank you all for making me, and thus

this book, smarter: Ari Kelman, Mike Ziser, Hsuan Hsu, John Hall, Jonathan London, Tom Beamish, Cecilia Tsu, Sasha Abramsky, Bella Merlin, Mary E. Mendoza, Jacob Lee, Cory Knudten, and Elizabeth Grennan-Browning. Lorena Oropeza was there at the very beginning of this research and has been a constant reminder of what it means to write well and, more important, with purpose. It is difficult to underscore how much I have gained personally and intellectually from those I call my Davis family: Laura Grindstaff, Ryken Grattet, and their daughter, Chella, opened their home to me, turning a challenging phase of my career into a blessing, and I cannot thank them enough for their kindness, generosity, and many excellent meals. Every wandering academic should have such a home away from home.

My gratitude especially goes to my two mentors at UC Davis, without whose support and unerring scholarly guidance I would be rudderless: Louis Warren and Julie Sze, two very different kinds of scholars whose work represents the best in the two fields this book seeks to bring together, environmental history and American studies. Louis taught me to write with depth and rigor, all while keeping a close eye on narrative. His scholarship is a model to aspire to, and the writing in this book owes much to the example he sets. I thank him for his advocacy, his intellect, and his guidance. Julie, through her mentorship on this project and for her abiding commitment to environmental justice, gave me the energy to continue working and kept me focused on the urgency of the case. Her work is nothing short of field changing, and I have benefited enormously from both her close attention to my research and her friendship.

A special thanks goes to those who gave their valuable time to read drafts of these chapters over the years, particularly to Ari Kelman, who provided insight that turned out to be nothing short of brilliant. I thank him for his time and work to make this a better book. Sarah Jaquette Ray applied her exceptional wisdom to the manuscript, and her advice and contributions were exceedingly helpful in the final writing stages, as was her support for my work. Diana Davis lent me her sharp intellect and excellent advice on these chapters, providing crucial insight. Mary E. Mendoza took the time to read multiple drafts and provide vital feedback, and was also kind enough to accompany me on a highly productive research trip to Monument Valley—I thank her for her effort and for many hours of good conversation. Rebecca Kinney, Melanie Armstrong, and Angela Morrill all provided feedback that shaped this final work for the better. Special thanks to Nerissa Irizarry, who came through brilliantly in a pinch.

When I arrived at Loyola Marymount University (LMU) in 2012, I could hardly have expected to find colleagues who supported and encouraged me as much as mine have. Without the mentorship of a team of good colleagues

and excellent scholars, this book would not have come to fruition; for this, special thanks to Stella Oh, Tracy Tiemeier, Carla Bittel, Nicholas Rosenthal, and Deena Gonzales. I could not have completed the book without the support and advice of Eliza Rodriguez Y. Gibson, Marne Campbell, Brian Treanor, Andrew Dilts, Sina Kramer, Linh Hua, Jade Sasser, Annamaria Muraco, Mona Seymour, Andrew Devereux, and Kevin McDonald. Special thanks to Elizabeth Faulkner for all her work to make our work easier. Research in the final stages of this project was aided by my smart and energetic research assistants, Adrienne Oliveri and Megan Unger, and I thank LMU's Rains Research Assistant Program for providing this essential service to faculty.

Without the support of the LMU Bellarmine College of Liberal Arts (BCLA) through the College Fellowship, I would not have been able to take the time to finish this book. The BCLA First Book Subvention was likewise indispensable. Thus, I owe deep gratitude to the BCLA dean's office for making both of these funding opportunities available to me, especially to Dean Paul Zeleza, Interim Dean Michael O'Sullivan, Dean Robin Crabtree, and Associate Dean Michael Horan. Thanks also to the selection committee for the College Fellowship and to the women's studies department for allowing me to step away from teaching while I completed the book.

Many people outside my home departments and institutions have been likewise indispensable to this work. I extend special appreciation to Jake Kosek, Nancy Unger, Richard Orsi, David Correia, Bruce Gjeltema, Amy Brandzel, Paul Hirt, Jeffrey Banister, Mark Harris, Tracy Perkins, Karen Leong, and all the good folks of the Western History Association's Committee on Race in the American West. My gratitude goes to Winona LaDuke, both for her tireless research, activism, and writing on behalf of environmental justice on Native land and for several excellent conversations about my research and about her experiences working against uranium mining in New Mexico. Klara Kelley, whose scholarship on Navajo sacred places was already a crucial resource, was kind enough to spend time with me as I completed my research. Joni Adamson and Kimberly Ruffin included an early version of chapter 1 in their edited collection *American Studies, Ecocriticism, and Citizenship: Thinking and Acting in the Local and Global Commons* (New York: Routledge, 2013) and in doing so gave me invaluable wisdom on my writing and research. Joni has been a steadfast advocate for my work and provided crucial feedback at many points over the years. I thank Marsha Weisiger for her unmatched research on Navajo environmental history and for answering my countless questions as the project developed from dissertation to book. Valerie Kuletz can be seen in this book in more ways than one: her pioneering research on nuclearism in the

Southwest transformed my thinking as a doctoral student, and her feedback on my research as I wrote this book again transformed how I think about the scope and implications of uranium mining.

My humble gratitude goes to Jason Weidemann, my editor at the University of Minnesota Press, his assistant Danielle Kasprzak, and Richard Morrison, as well as the Press's staff and faculty board, for seeing potential in this work—and for always having a deft hand in steering it (and me) in the right direction. The book was immeasurably improved by the comments of two readers, who approached the project with care and a keen attention to detail. I thank them for setting aside the time and energy to make this a better book.

As with any major undertaking, this book could not have happened without the love and support of my family. My thanks to Maria Teresa Marante and Juan Carlos Marante for their love, their laughter, and the thousands of cups of Cuban coffee they've whipped up for me over the years; to Patrick Ensor for his help in getting me to New Mexico in research emergencies (I've learned that there are such things); and to all my extended family and my family of friends.

No book is big enough to contain all my love and thanks for Joy Browne, Wyatt Voyles, and Jamie Voyles-Ensor. You raised me to write this book and do so much more, and I am proud to be one of you.

Finally, to Juan Carlos and Camilo Luka Marante, the two hombres who make my world go around: this book is as much the product of your love as it is of my effort. You are my miracles. Thank you.

Camilo, my love, this one is for you.

NOTES

Preface

1. Throughout the book, I alternate between "Diné" and "Navajo," as do many scholars of Diné history. Jennifer Nez Denetdale, *Reclaiming Diné History: The Legacies of Navajo Chief Manuelito and Juanita* (Tucson: University of Arizona Press, 2007), 10.

2. From a Spanish mispronunciation of the Navajo word Tséyi', or "inside/within the rock." Canyon de Chelly was made a national monument in 1931 to protect archeological interests in the ancient Pueblo ruins.

3. The ancient Puebloans, who lived in the canyon until about the fourteenth century, are most often called "Anasazi." Contrary to popular belief in the United States, these ancient Puebloans did not "disappear" from the areas where we now find their ruins. Rather, they are the ancestors of contemporary Pueblo tribes and other tribal peoples who abandoned their cliff dwellings, sometimes quite suddenly, in large part because of changing environmental conditions. William deBuys, *A Great Aridness: Climate Change and the Future of the American Southwest* (New York: Oxford University Press, 2011), 66–72.

4. Stephen C. Jett, "The Destruction of Navajo Orchards in 1864: Captain John Thompson's Report," *Arizona and the West* 16, no. 4 (1974): 365–78. Broderick H. Johnson, ed., "Betty Shorthair," in *Navajo Stories of the Long Walk Period* (Tsaile, Ariz.: Navajo Community College Press, 1973), 109–14.

5. One historian called this "the systematic eradication of the field crops and orchards which was the heartland of the de Chelly agricultural region, of Navajo country. By laying waste the peach trees, Thompson largely eliminated an agricultural staple which played a critical role in the diet and trade relations of the area's Navajos." Jett, "Navajo Orchards," 371.

6. Peter Iverson, *Diné: A History of the Navajos* (Albuquerque: University of New Mexico Press, 2002), 56.

7. John L. Kessell, "General Sherman and the Navajo Treaty of 1868: A Basic and Expedient Misunderstanding," *Western Historical Quarterly* 12, no. 3 (1981): 261.

8. Sylvia Hood Washington also uses "environmental justice history" as a way of characterizing her study of pre-1982 environmental justice struggles in Chicago. *Packing Them In: An Archeology of Environmental Racism in Chicago, 1865–1954* (Lanham, Md.: Lexington Books, 2005), 11–12.

9. Dził Ná'oodiłii (Huerfano Peak) and Ch'óol'į'í (Gobernador Knob) are often added to the list of these four sacred mountains. Navajo wedding baskets, for example, usually represent all six mountains, as do many designs for woven blankets and silver work. The Navajo Council seal likewise represents all six mountains. Robert S. McPherson, *Sacred Land, Sacred View: Navajo Perceptions of the Four Corners Region* (Provo, Utah: Charles Redd Center for Western Studies, 1992), 19.

10. I use "Diné Bikéyah" or "Navajo country" to denote the Navajos' historical homeland, marked by the four sacred mountains. This is a slightly different area than that encompassed by the Navajo Nation, formerly called the Navajo reservation. Although I use the term "reservation" when it is historically appropriate, the term is no longer used formally to describe the lands of sovereign Native nations. The Navajo Tribal Council formally adopted the name "Navajo Nation" rather than "reservation" to denote its land base in 1969. Peter Iverson, *The Navajo Nation* (Albuquerque, N.M.: University of New Mexico Press, 1981), xxiv.

11. McPherson, *Sacred Land, Sacred View,* 15.

12. Marsha Weisiger, *Dreaming of Sheep in Navajo Country* (Seattle: University of Washington Press, 2011), 337.

13. For a remarkable explication of the ways in which land-based life inform indigenous place-making, see Keith Basso, *Wisdom Sits in Places: Landscape and Language Among the Western Apache* (Albuquerque: University of New Mexico Press, 1996). See also Leslie Marmon Silko, "Interior and Exterior Landscapes: The Pueblo Migration Stories," and "The People and the Land ARE Inseparable," in *Yellow Woman and a Beauty of the Spirit* (New York: Simon and Schuster, 2013), 25–47, 85–91. For discussion of the role of specific landscapes in Diné origin stories, see Denetdale, *Reclaiming Diné History,* 162–65.

14. Stephen C. Jett, "An Introduction to Navajo Sacred Places," *Journal of Cultural Geography* 13, no. 1 (1992): 29–39. As Jett notes elsewhere, Canyon de Chelly peaches were an "agricultural staple which played a critical role in the diet and trade relations of the area's Navajos." Jett, "Navajo Orchards," 371.

15. Ibid.

16. Benavides incorrectly assumed the Diné to be one of the Apache tribes. "Apache" is itself a misnomer, thought to derive from a Tewa word for "enemy" and commonly used to refer to six peoples of southern Arizona and New Mexico: the Western Apache, Chiricahua, Mescalero, Jicarilla, Lipan, and Plains Apache.

17. Dorothy Louise Keur, "Big Bead Mesa: An Archaeological Study of Navaho Acculturation, 1745–1812," *Memoirs of the Society for American Archaeology* no. 1 (1941): 4.

18. Clyde Kluckhohn and Dorothea Leighton, *The Navaho* (Garden City, N.Y.: Doubleday, 1947), 51.

19. Ned Blackhawk, *Violence over the Land: Indians and Empires in the Early American West* (Cambridge, Mass.: Harvard University Press, 2009), 4.

20. Frank McNitt, *Navaho Expedition: Journal of a Military Reconnaissance from Santa Fe, New Mexico to the Navaho Country Made in 1849* (Norman: University of Oklahoma Press, 2003), 34.

21. Denetdale, *Reclaiming Diné History,* 55.

22. Klara Bonsack Kelley, *Navajo Land Use* (Orlando, Fl.: Academic Press, 1986), 16; Ronald H. Towner, "The Navajo Depopulation of Dinétah," *Journal of Anthropological Research* 64, no. 4 (2008): 511–27.

23. Thomas W. Dunlay, *Kit Carson and the Indians* (Lincoln: University of Nebraska Press, 2000), 254. This slave market was part of a larger New Mexican slave economy, in which the Navajos participated; as James Brooks points out in his extensive history of New Mexico commerce in the nineteenth century, "Whereas New Mexicans seized more than one thousand Navajos over the course of the nineteenth century . . . Navajos reciprocated in much smaller numbers, probably fewer than one hundred." James F. Brooks, *Captives and Cousins: Slavery, Kinship, and Community in the Southwest Borderlands* (Chapel Hill: University of North Carolina Press, 2002), 241–42.

24. Dunlay, *Kit Carson and the Indians,* 201–3.

25. Kessell, "General Sherman and the Navajo Treaty of 1868," 269.

26. Ibid., 257.

27. Kathleen P. Chamberlain, *Under Sacred Ground: A History of Navajo Oil, 1922–1982* (Albuquerque: University of New Mexico Press, 2000).

28. Jerry Kammer, *The Second Long Walk* (Albuquerque: University of New Mexico Press, 1987).

29. Philip Reno, *Mother Earth, Father Sky, and Economic Development: Navajo Resources and Their Use* (Albuquerque: University of New Mexico Press, 1981), 136–37.

30. Doug Brugge, Jamie L. Delemos, and Cat Bui, "The Sequoyah Corporation Fuels Release and the Church Rock Spill: Unpublicized Nuclear Releases in American Indian Communities," *American Journal of Public Health* 97, no. 9 (2007): 1595–6000.

31. The Navajo Tribal Council was renamed the Navajo Nation Council in 1989. David E. Wilkins, *The Navajo Political Experience* (Lanham, Md.: Rowman & Littlefield, 2003).

32. John W. Sherry, *Land, Wind, and Hard Words: A Story of Navajo Activism* (Albuquerque: University of New Mexico Press, 2002), vii–ix.

Introduction

1. Richard Bishop Moore and Karl Ludwig Kithil, *A Preliminary Report on Uranium, Radium, and Vanadium* (Washington, D.C.: Government Printing Office, 1913), 57.

2. Other accounts of the Ford Company's discovery of vanadium's uses differ from this one, which Henry Ford recounted in his memoir *My Life and Work*. Christopher W. Wells, "The Road to the Model T: Culture, Road Conditions, and Innovation at the Dawn of the American Motor Age," *Technology and Culture* 48, no. 3 (2007): 518.

3. Donna Strahan, "Uranium in Glass, Glazes and Enamels: History, Identification and Handling," *Studies in Conservation* 46, no. 3 (2001): 181.

4. Moore and Kithil, *A Preliminary Report on Uranium, Radium, and Vanadium,* 58.

5. Duncan A. Holaday, Wilfred D. David, and Henry N. Doyle, *Interim Report of a Health Study of the Uranium Mines and Mills,* Federal Security Agency, U.S. Public Health Service, Division of Occupational Health, and the Colorado State Department of Public Health (May 1952). Export was a frequent fate for uranium ore prior to its use in atomic programs. In the early decades of the twentieth century, uranium deposits were "rapidly depleted for foreign exploitation." Moore and Kithil, *A Preliminary Report on Uranium, Radium, and Vanadium,* 8.

6. In 1942, the Vanadium Corporation of America (VCA) won a bid for leasing these mines to publicly mine vanadium and secretly recover uranium. Virginia T. McLemore and William L. Chenoweth, *Uranium Resources in New Mexico* (Socorro: New Mexico Bureau of Mines and Mineral Resources, 1989).

7. Judy Pasternak, *Yellow Dirt: An American Story of a Poisoned Land and a People Betrayed* (New York: Simon and Schuster, 2010), 30.

8. Holger Albrethsen Jr. and Frank E. McGinley, "Summary History of Domestic Uranium Procurement under U.S. Atomic Energy Commission Contracts, Final Report," Prepared for the U.S. Department of Energy, September 1982.

9. Ibid.

10. Ibid. Between 1943 and 1945, an estimated 44,000 pounds of uranium was secretly recovered from VCA East Reservation Lease mines for Manhattan Project engineers. Virginia T. McLemore, "Uranium Resources in New Mexico," Society for Mining and Exploration Annual Meeting (February 25–28, 2007), 1. Mines in Monument Valley, in the northwestern reaches of Diné land, provided an additional 489 tons of ore containing almost 14,000 pounds of vanadium and "some 3,271 pounds U308, much of which was recovered by the U.S. Army Corps of Engineers for the Manhattan Project." C. Clair Gregg, Charles S. Evensen, and William L. Chenoweth, *Maps of the Underground Workings, Monument No. 2 Mine, Apache County, Arizona* (Tucson, Ariz.: Arizona Geological Survey, 1989).

11. McLemore, "Uranium Resources in New Mexico," 1.

12. C. Clair Gregg, Charles S. Evensen, and William L. Chenoweth, *Maps of the Underground Workings, Monument No. 2 Mine, Apache County, Arizona* (Arizona Geological Survey, 1989).

13. AEC, "Fifth Semiannual Report to Congress," submitted January 31, 1949 (Washington, D.C.: U.S. Government Printing Office, 1949), 1.

14. Ibid.

15. Ibid.

16. Statement of Stephen Etsitty, "The Health and Environmental Impacts of Uranium Contamination in the Navajo Nation," Hearing before the Committee on Oversight and Government Reform (Washington, D.C.: U.S. Government Printing Office, 2008), 30–31.

17. U.S. EPA, "Addressing Uranium Contamination on the Navajo Nation: Contaminated Water Sources," www.epa.gov/region9/superfund/navajo-nation.html.

18. Pasternak, *Yellow Dirt,* 123–25.

19. U.S. EPA, "Addressing Uranium Contamination on the Navajo Nation: Contaminated Structures," www.epa.gov/region9/superfund/navajo-nation.html.

20. Letter from Katie Sweeny, Associate General Counsel to the National Mining Association, to David Albright, Groundwater Office Manager, U.S. Environmental Protection Agency, January 31, 2006, accessed at http://www.epa.gov/region09/index.html.

21. Holaday, David, and Doyle, *Interim Report,* 3.

22. Georgius Agricola (née Georg Bauer) wrote in 1556 of untimely deaths of miners in the Erz Mountains in *De Re Metallica,* which was later translated into English by none other than Herbert Hoover and his wife Lou Henry Hoover in 1912. Peter H. Eichstaedt, *If You Poison Us: Uranium and Native Americans* (Santa Fe, N.M.: Red Crane Books, 1994), 6–9. Holaday, David, and Doyle, *Interim Report.*

23. Eichstaedt, *If You Poison Us*, 8.

24. Brugge, Benally, Yazzie-Lewis, *Navajo People,* 33.

25. C. G. Salsbury, "Cancer Immunity in the Navajo," *Arizona Medicine* 13, no. 8 (1956): 309.

26. Leon S. Gottlieb and L. A. Husen, "Lung Cancer among Navajo Uranium Miners," *CHEST Journal* 81, no. 4 (1982): 451.

27. K. B. Mulloy, D. S. James, K. Mohs, and M. Kornfeld, "Lung Cancer in a Nonsmoking Underground Uranium Miner," *Environmental Health Perspectives* 109, no. 3 (2001); Doug Brugge and Virginia Buchner, "Health Effects of Uranium: New Research Findings," *Reviews on Environmental Health* 26, no. 4 (2011): 231–49; Doug Brugge, Jamie L. deLemos, and Beth Oldmixon, "Exposure Pathways and Health Effects Associated with Chemical and Radiological Toxicity of Natural Uranium: A Review," *Reviews on Environmental Health* 20, no. 3 (2005): 177–94; Chris Shuey, Jamie L. deLemos, and C. George, "Uranium Mining and Community Exposures on the Navajo Nation," Presentation at American Public Health Association Annual Meeting, Washington, D.C., November 3–7, 2007.

28. Lora Mangum Shields, W. H. Wiese, B. J. Skipper, B. Charley, and L. Banally, "Navajo Birth Outcomes in the Shiprock Uranium Mining Area," *Health Physics* 63, no. 5 (1992): 542–51; John F. Rosen and Paul Mushak, "Metal and Radiation-Induced Toxic Neuropathy (TN) in Two Navajo Sisters," *Pediatric Research* 45 (1999): 346.

29. Diane M. Stearns, Monica Yazzie, Andrew S. Bradley, Virginia H. Coryell, Jake T. Shelley, Adam Ashby, Craig S. Asplund, and R. Clark Lantz, "Uranyl Acetate Induces hprt Mutations and Uranium–DNA Adducts in Chinese Hamster Ovary EM9 Cells," *Mutagenesis* 20, no. 6 (2005): 417–23.

30. Lora Mangum Shields, W. H. Wiese, B. J. Skipper, B. Charley, and L. Banally, "Navajo Birth Outcomes in the Shiprock Uranium Mining Area," *Health Physics* 63, no. 5 (1992): 542–51.

31. Rob Nixon, *Slow Violence* (Cambridge, Mass.: Harvard University Press, 2011), 2.

32. U.S. EPA, "Addressing Uranium Contamination on the Navajo Nation: Abandoned Uranium Mines," www.epa.gov/region9/superfund/navajo-nation.html.

33. Statement of Doug Brugge, "The Health and Environmental Impacts of Uranium Contamination in the Navajo Nation," Hearing before the Committee on Oversight and Government Reform (Washington, D.C.: U.S. Government Printing Office, 2008), 39.

34. The phrase came into circulation in the 1980s among activists, academics, and policymakers when a number of egregious cases of communities of color being targeted for environmental contaminants came to the forefront of national conversations over racial justice. The classic study of environmental racism, *Toxic Wastes and Race,* was originally published in 1987. United Church of Christ Commission for Racial Justice, *Toxic Wastes and Race in the United States: A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites* (New York: United Church of Christ, 1987). The study was updated two decades later by Robert D. Bullard, Paul Mohai, Robin Saha, and Beverly Wright: "Toxic Wastes and Race at Twenty: Why Race Still Matters after All of These Years," *Environmental Law* 38 (2008): 371.

35. Robert Doyle Bullard, ed., *Confronting Environmental Racism: Voices from the Grassroots* (Cambridge, Mass.: South End Press, 1993); Julie Sze, *Noxious New York: The Racial Politics of Urban Health and Environmental Justice* (Cambridge, Mass.: MIT Press, 2007); Luke W. Cole and Sheila R. Foster, *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement* (New York: New York University Press, 2001).

36. David N. Pellow, *Resisting Global Toxics: Transnational Movements for Environmental Justice* (Cambridge, Mass.: MIT Press, 2007).

37. Rachel Stein, *New Perspectives on Environmental Justice: Gender, Sexuality, and Activism* (New Brunswick, N.J.: Rutgers University Press, 2004), 1–8.

38. Winona LaDuke, quoting Katsi Cook, *All Our Relations: Native Struggles for Land and Life* (Cambridge, Mass.: South End Press, 1999), 18.

39. Eichstaedt, *If You Poison Us*, 100–101; Brugge, Benally, Yazzie-Lewis, *Navajo People,* xvii–xviii, 71–73.

40. Washington (*Packing Them In*) provides an exception to this trend, arguing: "environmental racism existed more than two hundred years before the phrase was coined and the phenomenon recognized in the early 1980s" (vii). The tendency of environmental historians to overlook the environmental experiences of marginalized people constitutes what she terms an "environmental veil." Sylvia Hood Washington, *Packing Them In: An Archeology of Environmental Racism in Chicago, 1865–1954* (Lanham, Md.: Lexington Books, 2005), 7.

41. Zoltan Grossman, quoted by Robin Lanette Turner and Diana Pei Wu, "Environmental Justice and Environmental Racism: An Annotated Bibliography with General Overview, Focusing on the US Literature, 1996–2002," Institute of International Studies, University of California, Berkeley (August 2002), 2.

42. Deborah Bird Rose, *Hidden Histories: Black Stories from Victoria River Downs, Humbert River, and Wave Hill Stations* (Canberra: Aboriginal Studies Press, 1991), 46. Patrick Wolfe, "Settler Colonialism and the Elimination of the Native," *Journal of Genocide Research* 8, no. 4 (2006): 388.

43. For more on the forest resources of Narbona Pass and the debates over logging these resources, see Sherry, *Land, Wind, and Hard Words,* 24–26.

44. Ibid.; deBuys, *A Great Aridness,* 41–42.

45. Gillian Rose, *Feminism and Geography* (Cambridge: Polity Press, 1993), 89.

46. "Energy—Power for America's Progress," *Grants Beacon,* Special Energy Edition, February 19, 1955.

47. Andrea Smith, "Heteropatriarchy and the Three Pillars of White Supremacy: Rethinking Women of Color Organizing," in *Color of Violence: The Incite! Anthology* (Cambridge, Mass.: South End Press, 2006) 68.

48. She defines "deterritoriality" as "the loss of commitment by nation-states . . . to particular lands or regions"; as such, it is "a particularly dramatic form of disembodiment." Valerie Kuletz, *The Tainted Desert: Environmental Ruin in the American West* (New York: Routledge, 1998), 6.

49. Kenneth A. Gould, David N. Pellow, and Allan Schnaiberg, "Interrogating the Treadmill of Production: Everything You Wanted to Know about the Treadmill but Were Afraid to Ask," *Organization & Environment* 17, no. 3 (2004): 296–316.

50. Luke W. Cole and Sheila R. Foster, *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement* (New York: New York University Press, 2001), 10–12.

51. Lisa Sun-Hee Park and David Naguib Pellow explore the relationality of environmental privilege and environmental racism in *Slums of Aspen: Immigrants versus the Environment in America's Eden* (New York: New York University Press, 2011), 1–7. Likewise, Julie Sze explores how the "benefits and burdens" of the energy industry "tend to be stratified unequally by race or class" in *Noxious New York,* 150.

52. As Tom Goldtooth has noted, "America's energy policy, which is the cornerstone of its industrial policy, is based upon indigenous resources, and we are

paying a heavy price." See "Indigenous Nations: Summary of Sovereignty and Its Implications for Environmental Protection," in *Environmental Justice: Issues, Policies, and Solutions,* ed. Roger Bezdek (Washington, D.C.: Island Press, 995), 143.

53. More than half of Navajos and Hopis, in fact, do not have electricity in their homes, despite the fact that a highly disproportionate amount of electricity in southwestern cities come from coal mines on Navajo and Hopi lands.

54. Nicole Horseherder, quoted by Sean Patrick Reily, "Gathering Clouds," *Los Angeles Times,* June 6, 2004.

55. Blackhawk, *Violence over the Land,* 3–10.

56. Kuletz, *Tainted Desert,* 13–14.

57. Pellow, *Resisting Global Toxics,* 179–82; Al Gedicks, *The New Resource Wars: Native and Environmental Struggles Against Multinational Corporations* (Montreal, QC: Black Rose Books, 1994), 2–4; Al Gedicks, *Resources Rebels: Native Challenges to Mining and Oil Corporations* (Cambridge, Mass.: South End Press, 2001), 67–78.

58. Gedicks, *New Resource Wars,* 18.

59. Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge* (Garden City, N.Y.: Doubleday, 1966).

60. Environmental protection has likewise been deeply vested in the politics of race, from the conflation of national parks with white masculinity, to the dispossession of tribes from "wilderness" areas, or even to the contemporary pseudo-environmentalist reclamation of border areas (such as the Organ Pipe Cactus National Monument) from the environmental "threat" of border crossers. Jake Kosek, "Purity and Pollution: Racial Degradation and Environmental Anxieties," in *Liberation Ecologies: Environment, Development, and Social Movements,* ed. Michael Peet and Richard Watts (New York: Routledge, 2004), 115–52; Mark David Spence, *Dispossessing the Wilderness: Indian Removal and the Making of the National Parks* (New York: Oxford University Press, 1999); Sarah Jaquette Ray, "Endangering the Desert: Immigration, the Environment, and Security in the Arizona–Mexico Borderland," *Interdisciplinary Studies in Literature and Environment* 17, no. 4 (2010): 709–34; Devon Peña, "Tierra y Vida: Chicano Environmental Justice Struggles in the Southwest," in *The Quest for Environmental Justice: Human Rights and the Politics of Pollution,* ed. Robert Bullard (San Francisco: Sierra Club, 2005), 188–208.

61. Allan Pred, *Even in Sweden: Racisms, Racialized Spaces, and the Popular Geographical Imagination* (Berkeley: University of California Press, 2000), 98–99.

62. My thanks to Sean Paul Begay for his undergraduate thesis at the University of California, San Diego, "Uranium Mining: Navajo Land Degradation, Health Effects and Cultural Genocide," which explored the ways in which uranium mining and milling destroyed Navajo ability to maintain cultural and religious practices.

63. Adrienne Rich, *Later Poems: Selected and New, 1971–2012* (New York: Norton, 2013), 15.

64. I borrow "imagined intimacy" from Adria Imada, *Aloha America: Hula Circuits through the U.S. Empire* (Durham, N.C.: Duke University Press 2012), 11.

65. Michael A. Amundson, *Yellowcake Towns: Uranium Mining Communities in the American West* (Boulder: University Press of Colorado, 2002).

66. Ibid.; Raye Ringholz, *Uranium Frenzy: Boom and Bust on the Colorado Plateau* (Albuquerque: University of New Mexico Press, 1989), 17.

67. See, for example, *U.S. v. Bhagat Singh Thind,* 1923, in which the U.S. Supreme Court found that Thind, an Indian Sikh, could not be naturalized as a U.S. citizen under the 1790 Naturalization Act because that Act limited naturalization to "free white persons." Other groups, such as Romanians, were allowed to naturalize despite the fact that their inclusion in the category of "white" was by no means settled. Matthew Frye Jacobson, *Whiteness of a Different Color* (Cambridge, Mass.: Harvard University Press, 1998), 235–36.

68. David G. Gutiérrez, *Walls and Mirrors: Mexican Americans, Mexican Immigrants, and the Politics of Ethnicity* (Berkeley: University of California Press, 1995), 6.

69. The notion of gender as a social construct, articulated most famously by Simone de Beauvoir in 1949 ("one is not born, but rather one becomes a woman") has long been established in feminist scholarship. Scholars like Judith Butler likewise argue against the notion of sex, and particularly the male/female sex binary, as "prediscursive." Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity* (New York: Routledge, 1990), 112.

70. For more on theorizing intersecting oppressions as a "web," see Val Plumwood, "Ecosocial Feminism as a General Theory of Oppression," *Key Concepts In Critical Theory: Ecology,* ed. Carolyn Merchant (Atlantic Highlands, N.J.: Humanities Press, 1994), 230–31.

71. Kuletz, *Tainted Desert,* 13–14.

72. William Cronon, "The Trouble with Wilderness: Or, Getting Back to the Wrong Nature," *Environmental History* 1, no. 1 (1996): 7–28.

73. Patricia Nelson Limerick, *Desert Passages: Encounters with the American Deserts* (Albuquerque: University of New Mexico Press, 1985), 5.

74. Ibid., 29.

75. Ibid., 37.

76. This is a phrase borrowed from Gloria Steinem's classic essay "If Men Could Menstruate," *Ms. Magazine,* October 1978.

77. Stephen J. Pyne, *How the Canyon Became Grand: A Short History* (New York: Penguin, 1999), 101.

78. Richard Slotkin, *Gunfighter Nation: The Myth of the Frontier in Twentieth-Century America* (Norman: University of Oklahoma Press, 1992), 286–312.

79. Ibid., 385.

80. Joyce Muench, "Happy Cly," *Westways* 53 (July 1961): 14–15.

81. Marsha Weisiger, "Happy Cly and the Unhappy History of Uranium Mining on the Navajo Reservation," *Environmental History* 17, no. 1 (2012): 148.

82. Ibid.

83. Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14, no. 3 (1988): 575–99. Nancy Lee Peluso, "Whose Woods Are These? Counter-Mapping Forest Territories in Kalimantan, Indonesia," *Antipode* 27, no. 4 (1995): 383.

84. James Ryan, quoted by James Duncan, Nuala C. Johnson, and Richard H. Schein, *A Companion to Cultural Geography* (Chichester: Wiley, 2008), 474.

85. Diana Taylor, *The Archive and the Repertoire: Performing Cultural Memory in the Americas* (Durham, N.C.: Duke University Press, 2003).

86. As noted by Henri Lefebvre, "Space is produced . . . if there is a productive process, then we are dealing with *history,*" *The Production of Space,* trans. Donald Nicholson-Smith (Cambridge, Mass.: Blackwell, 1991), 46. Michel Foucault made his now famous argument "on geography" that "to talk in terms of space, to trace the forms of implantation, delimitation and demarcation of objects, the modes of tabulation, the organization of domains meant the throwing into relief of processes—historical ones, needless to say—of power." See "Questions on Geography," in *Space, Knowledge and Power: Foucault and Geography,* ed. Jeremy W. Crampton and Stuart Elden (Aldershot: Ashgate, 2007): 173–84.

87. Ann Laura Stoler, "Colonial Archive and the Arts of Governance," *Archival Science* 2 (2002), 93.

88. "The Uranium Boom," *Time,* October 13, 1952.

89. Ibid.

90. For discussion of the spatial politics of the public/private binary, see Liz Bondi and Joyce Davidson, "Troubling the Place of Gender," in *Handbook of Cultural Geography,* ed. Kay Anderson, Mona Domosh, Steve Pile, and Nigel Thrift (London: Sage, 2002), 325–43.

91. Nancy C. Unger, *Beyond Nature's Housekeepers: American Women in Environmental History* (New York: Oxford University Press, 2012), 203.

92. "Counter-mapping" is most often used to describe mapping projects used by indigenous activists as a means of resisting incursions from colonial governments, largely for resources and/or territory. Peluso, "Whose Woods Are These?" 384. Denis Wood, *Re-Thinking the Power of Maps* (New York: Guilford Press, 2010), 111–12.

93. Klara B. Kelley and Francis Harris, *Navajo Sacred Places* (Bloomington: Indiana University Press, 2005), 83.

94. Hogan is sometimes spelled *hooghan.* I use the former spelling throughout the book. In general, spelling of Diné words is not always consistent across texts; in this book, I choose spelling based on what is most common across the literature, giving preference to spelling that is preferred by Diné authors.

95. Melvin Oliver and Thomas Shapiro, *Black Wealth, White Wealth* (New York: Routledge, 1995), 5; Laura Pulido, "Rethinking Environmental Racism: White Privilege and Urban Development in Southern California," *Annals of the Association of American Geographers* 90, no. 1 (2000): 16.

96. George Lipsitz, "The Racialization of Space and the Spatialization of Race: Theorizing the Hidden Architecture of Landscape," *Landscape Journal* 26, no. 1 (2007): 10–23; Sherene Razack, *Race, Space, and the Law: Unmapping a White Settler Society* (Toronto: Between the Lines, 2002).

97. As Val Plumwood points out, "racism, colonialism, and sexism have drawn their conceptual strength from casting sexual, racial, and ethnic difference as closer to the animal," and the othered body comes to be "a sphere of inferiority, as a lesser form of humanity lacking the full measure of rationality or culture." *Feminism and the Mastery of Nature* (New York: Routledge, 1993), 4.

98. Complex personhood means, "at the very least," "conferring the respect on others that comes from presuming that life and people's lives are simultaneously straightforward and full of enormously subtle meaning." Avery Gordon, *Ghostly Matters: Haunting and the Sociological Imagination* (Minneapolis, Minn.: University of Minnesota Press, 1997), 5.

99. Both environmental sociology and political science have given us frameworks for understanding how environmental degradation is and has been constitutive to modernity. Pellow, *Resisting Global Toxics,* 18–26. In a similar fashion, environmental historian Carolyn Merchant explores how the domination of nature and the domination of women were linked in the development of modern European political and economic thought and practice. Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (New York: Harper Collins, 1990). Critical race theorists have likewise shown how race and racial inequality are fundamental, not exceptional, components of modern economies and nation-states. Native studies scholars concur, noting in particular how the racialization of indigenous peoples has undergirded the production of colonial modernity, including the usurpation of land and resources. Sherene Razack, Malinda Smith, and Sunera Thobani, eds., *States of Race: Critical Race Feminism for the 21st Century* (Toronto: Between the Lines, 2010), 1–9.

100. Greta Gaard, "Toward a Queer Ecofeminism," *Hypatia* 12, no. 1 (1997): 114–37.

101. Philip Deloria, *Playing Indian* (New Haven, Conn.: Yale University Press, 1998).

102. Wolfe, "Settler Colonialism and the Elimination of the Native," 388.

103. Eve Tuck calls the juridical model of justice a theory of change that operates by "testifying to damage so that persecutors will be forced to be accountable." See "Suspending Damage: A Letter to Communities," *Harvard Educational Review* 79, no. 3 (2009): 414.

104. Smith, *Native Americans and the Christian Right: The Gendered Politics of Unlikely Alliances* (Durham, N.C.: Duke University Press, 2008), 256.

105. Pellow, *Resisting Global Toxics,* 17, emphasis in original.

106. Karen Warren, "Some Ecofeminist Worries about a Distributive Model," *Environmental Ethics* 21 (1999): 154, emphasis in original.

107. Smith, *Native Americans and the Christian Right,* 256.

108. Ulrich Beck, *Risk Society: Towards a New Modernity,* vol. 17. (New York: Sage, 1992).

109. This "cheapening" through race can be seen in a wide range of instances: factory operators seeking out "young, foreign, and female" workers because of their presumably submissive characteristics; below-market wages for undocumented workers through their status as "impossible subjects"; the importation of Filipino laborers to work in large-scale agriculture in the U.S. Southwest as a practice of "imported colonialism"; and so on. David N. Pellow and Lisa Sun-Hee Park, *The Silicon Valley of Dreams: Environmental Injustice, Immigrant Workers, and the High-Tech Global Economy* (New York: New York University Press, 2002); Mae M. Ngai, *Impossible Subjects: Illegal Aliens and the Making of Modern America* (Princeton, N.J.: Princeton University Press, 2004).

110. Smith, *Native Americans and the Christian Right,* 256.

111. I borrow this phrasing, and in part the line of thinking, from conversations around reparations for slavery; the demand for reparations is at heart a demand for the United States to bankrupt and "unsettle" itself and its land.

112. Pellow, *Resisting Global Toxics,* 126.

113. As Yen Le Espiritu might put it, it is constituted on their "differential inclusion" into the nation-state: included but only for the purpose of being marginalized or subordinated. *Home Bound: Filipino American Lives across Cultures, Communities, and Countries* (Berkeley: University of California Press, 2003), 47.

114. Charles Mills, "Black Trash," in *Faces of Environmental Racism: Confronting Issues of Global Justice,* ed. Laura Westra and Bill E. Lawson (Lanham, Md.: Rowman & Littlefield, 2001), 73–94.

1. Empty Except for Indians

1. W. L. McAtee, "Report on Inspection of Navajo Erosion Control Project," June 4–6, 1934, box 7, folder 4, U.S. SCS Region Eight Records, Center for Southwest Research (CSWR), University Libraries, University of New Mexico (UNM).

2. The Indian Service was renamed the Bureau of Indian Affairs (BIA) in 1947.

3. The language of the "Navajo problem" was tied directly to progressive-era discourse about the "Indian problem," which late nineteenth-century reformers took up as a call to address widespread poverty on reservations. This concern was popularized among whites by Elwell Otis's 1878 book, *Indian Question,* and Helen Hunt Jackson's 1881 *A Century of Dishonor.* Donald L. Fixico, *Indian Resilience and Rebuilding: Indigenous Nations in the Modern American West* (Tucson: University of Arizona Press, 2013), 5.

4. Diana K. Davis, *Resurrecting the Granary of Rome: Environmental History and French Colonial Expansion in North Africa* (Athens: Ohio University Press, 2007), 2.

5. Ibid, 2, 6.

6. Waldo Lee McAtee, *Nomina Abitera* (Chicago: Privately printed, 1945), 1.

7. Ibid., 3, 4.

8. Ibid., 1.

9. Anne McClintock, *Imperial Leather: Race, Gender and Sexuality in the Colonial Contest* (New York: Routledge, 1995). McClintock's use of the phrase "lay of the land" to characterize colonial expansion is borrowed from Annette Kolodny's *The Lay of the Land: Metaphor As Experience and History In American Life and Letters* (Chapel Hill: University of North Carolina Press, 1984).

10. Andrea Smith, *Conquest: Sexual Violence and American Indian Genocide* (Cambridge, Mass.: South End, 2005).

11. Patricia Williams, *The Alchemy of Race and Rights* (Cambridge, Mass.: Harvard University Press, 1991), 19.

12. Val Plumwood, *Feminism and the Mastery of Nature* (New York: Routledge, 1993).

13. Edward Soja, *Thirdspace: Journeys to Los Angeles and Other Real and Imagined Places* (Malden, Mass.: Blackwell, 1996), 79.

14. Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (New York: Verso, 2006).

15. Frederick Jackson Turner, *The Significance of the Frontier in American History* (New York: Holt, Rinehart and Winston, 1962). "Conquest" of the west, as Patricia Limerick put it, "basically involved . . . the evolution of land from matter to property" and "the application of labor and capital to make property productive." Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York: Norton, 1987), 27.

16. Robert Charles Winthrop, *Life and Letters of John Winthrop* (Ann Arbor: University of Michigan, 1869), 312.

17. Carole Pateman, *The Sexual Contract* (Redwood City, Calif.: Stanford University Press, 1988), 1–18.

18. General Allotment Act, Section 2, February 8, 1887, quoted by Francis Paul Prucha, *Documents of United States Indian Policy* (Lincoln: University of Nebraska Press, 2000), 170–73.

19. Richard C. Trexler, *Sex and Conquest: Gendered Violence, Political Order, and the European Conquest of the Americas* (Ithaca, N.Y.: Cornell University Press, 1995), 1–2.

20. Smith, *Conquest.* Andrea Smith and J. Kēhaulani Kauanui, eds., "Native Feminisms Engage American Studies," *American Quarterly* 60, no. 2 (June 2008). Qwo-Li Driskill, Chris Finley, Brian Joseph Gilley, and Scott Lauria Morgensen, eds., *Queer Indigenous Studies: Critical Interventions in Theory, Politics, and Literature* (Tucson: University of Arizona Press, 2011).

21. Razack, Smith, and Thobani, eds., *States of Race,* 2.

22. Richard King, "De/Scribing Squ*w: Indigenous Women and Imperial Idioms in the United States," *American Indian Culture and Research Journal* 27, no. 2 (2003): 1–16.

23. McClintock, *Imperial Leather.*

24. Leo Marx, "The Idea of Nature in America," *Daedalus* 137, no. 2 (2008): 19.

25. Berard Haile, *Tales of an Endishodi: Father Berard Haile and the Navajos, 1900–1961,* trans. and ed. Murray Bodo (Albuquerque: University of New Mexico Press, 1998), 164.

26. Lawrence David Weiss, *The Development of Capitalism in the Navajo Nation: A Political-Economic History* (Minneapolis, Minn.: Marxist Educational Press, 1984), 31.

27. Jennifer Nez Denetdale, "Chairmen, Presidents, and Princesses: The Navajo Nation, Gender, and the Politics of Tradition," *Wicazo Sa Review* 21, no. 1 (2006): 12.

28. Kessell, "General Sherman and the Navajo Treaty of 1868," 255.

29. The 1868 U.S.–Navajo Treaty would be one of the last treaties to be signed between the United States and Native nations during the nineteenth-century treaty period. Peter Iverson, ed. *"For Our Navajo People": Diné Letters, Speeches & Petitions, 1900–1960* (Albuquerque: University of New Mexico Press, 2002), 3.

30. Edmund J. Danziger Jr., "The Steck-Carleton Controversy in Civil War New Mexico," *Southwestern Historical Quarterly* 74, no. 2 (Oct. 1970): 198.

31. Kessell, "General Sherman and the Navajo Treaty of 1868," 257.

32. Dan L. Thrapp, *The Conquest of Apacheria* (Norman: University of Oklahoma Press, 1967), xii.

33. The Navajo population in 1868 has been estimated as being from 9,000 to 15,000. Robert S. McPherson, *The Northern Navajo Frontier 1860–1990: Expansion Through Adversity* (Albuquerque: University of New Mexico Press, 1988), 1.

34. Kessell, "General Sherman," 262.

35. Haile, *Tales,* 164.

36. Ibid., 265.

37. Garrick Alan Bailey and Roberta Glenn Bailey, *A History of the Navajos* (Santa Fe, N.M.: School of American Research Press, 1986), 26.

38. Johnson, *Navajo Stories,* 133.

39. Haile, *Tales,* 164.

40. Bailey and Bailey, *History of the Navajos,* 42, 5. "Eli Gorman," Johnson, *Navajo Stories,* 209.

41. Weiss, *Development of Capitalism,* 93, 95.

42. Iverson, ed., "*For Our Navajo People,*" 3. This pressure on the Diné included killing their sheep, threatening their families, and purchasing whole herds outright. The effects on Navajo herds in northwestern New Mexico were likewise dramatic: by 1938, only a quarter of the 160,000 sheep grazing in this part of the state were owned by Navajos. Weiss, *Development of Capitalism,* 93, 95.

43. Lawrence C. Kelly, *The Navajo Indians and Federal Indian Policy, 1900–1935* (Tucson: University of Arizona Press, 1968), 37.

44. Superintendent E. R. Fryer to John Collier, November 17, 1941, box 10, folder 5. William Zimmerman Jr. Papers, CSWR, University Libraries, UNM.

45. Weisiger, *Dreaming of Sheep,* 75–78.

46. Ruth Roessel and Broderick Johnson, *Navajo Livestock Reduction: A National Disgrace* (Chinle, Ariz.: Navajo Community College Press, 1979).

47. Will Evans, *Along Navajo Trails: Recollections of a Trader, 1898–1948,* ed. Susan Woods and Robert McPherson (Logan: Utah State University Press, 2005), 107.

48. Marsha Weisiger, "Gendered Injustice: Navajo Livestock Reduction in the New Deal Era," *Western Historical Quarterly* 35 (2007): 442.

49. Weisiger, *Dreaming of Sheep,* 80.

50. "Navajo Tribal Council Meeting Minutes, Leupp, AZ, November 1928," box 4, folder 28, Robert W. Young Papers, CSWR, University Libraries, UNM.

51. Goats and sheep counted for one head of stock; each cow or horse counted for four or five heads.

52. While in this speech Meritt repeatedly struck a populist chord, arguing for stock reduction especially for owners of big herds so that the smaller owners could have "justice," he was careful to praise these big herd owners as "shrewd business men," "leaders," and "good examples." No doubt this vacillation was partly due to the presence of the influential Chee Dodge, the biggest of big herd owners, with whom Meritt was disagreeing about the stock reduction policy.

53. Weisiger, *Dreaming of Sheep,* 192–94. The Navajo churra, as Weisiger explains, was in reality much better adapted to Navajo uses of sheep as well as to environmental conditions on the reservation; the Rambouillet "could not keep up with the long-legged, fast walking churras and goats, and Diné women found the fine, short-stapled wool, which was both greasy and kinky, unsuitable for spinning and hand-weaving." Ibid., 193.

54. Ibid., 193.

55. "Navajo Tribal Council Meeting Minutes—Leupp, AZ, November 1928," box 4, folder 28, p. 46, Robert W. Young Papers, CSWR, University Libraries, UNM.

56. Weisiger, *Dreaming of Sheep,* 441.

57. For Navajo accounts of this period, including Diné resistance to reduction, see Ruth Roessel and Broderick Johnson, *Navajo Livestock Reduction: A National Disgrace* (Chinle, Ariz.: Navajo Community College Press, 1979).

58. F. W. LaRouche, letter to John Collier, January 13, 1943, box 10, folder 11, William Zimmerman Jr. Papers, CSWR, University Libraries, UNM.

59. Weisiger, *Dreaming of Sheep,* 86.

60. F. W. LaRouche, letter to John Collier, January 13, 1943.

61. Ibid.

62. These stockmen helped defeat the Navajo–New Mexico Boundary Bill, which would have added critically needed acreage to the eastern portion of the reservation.

63. Thomas Jesse Jones, *The Navajo Indian Problem: An Inquiry Sponsored by the Phelps-Stokes Fund* (New York: The Phelps-Stokes Fund, 1939), vii.

64. Floyd Pollock, *A Navajo Confrontation and Crisis* (Tsaile, Ariz.: Navajo Community College Press, 1984), 61.

65. Orval Ricketts and John McPhee, "The Navajo Indians in a Changing World," 1941, box 2, folder 18, Robert W. Young Papers, CSWR, University Libraries, UNM.

66. Park and Pellow, *Slums of Aspen.*

67. Clyde Kluckhohn and Dorothea Leighton, *The Navaho* (Garden City, N.Y.: Doubleday, 1947).

68. Ibid., 52.

69. Denetdale, *Reclaiming Diné History,* 7, 18.

70. This part of the project was described in one Soil Conservation Service report, under the heading "Fact Finding," as the need for "a study of human groups and institutions through their functions and interrelationships," including studies of the "Domestic economy of household groups—housing, diet, clothing as a basis for intelligent handling of these basic problems affecting human welfare." Soil Conservation Service, "Annual report for the year ending June 30, 1935," box 7, folder 16, U.S. SCS Region Eight Records, CSWR, University Libraries, UNM.

71. Ruby Tomlinson, "A Study of the Social and Economic Status of One Hundred Navajo Families," Window Rock, Ariz.: Navajo Service, February 1944, box 10, folder 5. William Zimmerman, Jr. Papers, CSWR, University Libraries, UNM.

72. Ibid.

73. Laura Briggs, *Reproducing Empire: Race, Sex, Science and U.S. Imperialism in Puerto Rico* (Berkeley: University of California Press, 2002), 9.

74. Louis Warren, *American Environmental History,* vol. 12 (Malden, Mass.: Wiley-Blackwell, 2003), 180.

75. Jake Kosek, *Understories: The Political Life of Forests in Northern New Mexico* (Durham, N.C.: Duke University Press, 2006), 156.

76. Joni Adamson, *American Indian Literature, Environmental Justice, and Ecocriticism: The Middle Place* (Tucson: University of Arizona Press, 2001), 55.

77. William Cronon, "The Trouble with Wilderness: Or, Getting Back to the Wrong Nature," *Environmental History* 1, no. 1 (January 1996): 15.

78. Gifford Pinchot, *Breaking New Ground* (New York: Harcourt, Brace, 1947), 322.

79. Scott, *Seeing Like A State,* 1–3.

80. John Collier, *From Every Zenith: A Memoir* (Denver: Sage Books, 1963), 251.

81. Soil Conservation Service, "Annual report for the year ending June 30, 1936," box 7, folder 56. U.S. SCS Region Eight Records, CSWR, University Libraries, UNM.

82. Ibid.

83. Iverson, *The Navajo Nation,* 27.

84. U.S. Soil Conservation Service, "Annual report for the year ending June 30, 1935," box 7, folder 16. U.S. SCS Region Eight Records, CSWR, University Libraries, UNM.

85. Ibid.

86. Ibid.

87. Soil Conservation Service, "US SCS Report, 1938," box 12, folder 60, U.S. SCS Region Eight Records, CSWR, University Libraries, UNM.

88. "Annual report for the year ending June 30, 1935," box 7, folder 16, U.S. SCS Region Eight Records, CSWR, University Libraries, UNM.

89. Ibid.

90. Adamson and Ruffin, eds., *American Studies, Ecocriticism, and Citizenship,* 1–16.

91. "Annual report for the year ending June 30, 1935," box 7, folder 16, U.S. SCS Region Eight Records, CSWR, University Libraries, UNM.

92. Ibid.

93. Ibid.

94. Rebecca Benes, *Native American Picture Books of Change: The Art of Historic Children's Editions* (Santa Fe, N.M.: Museum of New Mexico Press, 2004), 66.

95. Ibid., 68.

96. Evan L. Flory, "Memo to All Soil and Moisture Conservation Employees," box 2, folder 1, William Zimmerman Jr. Papers, CSWR, University Libraries, UNM.

97. Ibid.

98. Ibid.

99. Randolph C. Downes and Elizabeth Clark, "Navajo Report," 1946, box 2, folder 19, Robert W. Young Papers, CSWR, University Libraries, UNM.

100. Ibid.

101. Weiss, *The Development of Capitalism,* 122.

102. Randolph C. Downes and Elizabeth Clark, "Navajo Report," 1946, box 2, folder 19, Robert W. Young Papers, CSWR, University Libraries, UNM.

103. Tracey Banivanua-Mar and Penelope Edmonds, eds., *Making Settler Colonial Space: Perspectives on Race, Place and Identity* (New York: Palgrave Macmillan, 2010), 2.

104. "Reservation Mapped," *Grants Beacon,* Special Energy Edition, February 19, 1955.

2. Prospecting for Magic Ore in America's New Frontier

1. *Grants Beacon,* Special Energy Edition, February 19, 1955.
2. Ibid.
3. "Lofty Quest for Uranium," *Grants Beacon,* August 13, 1953.
4. *Grants Beacon,* Special Energy Edition.

5. Ibid.

6. Ibid.

7. "Energy—Power for America's Progress," *Grants Beacon,* Special Energy Edition, February 19, 1955.

8. Pasternak, *Yellow Dirt,* 30.

9. Marshall Sprague, "Up in the Rockies: Civilization Engulfing the Wide Open Spaces and Culture Is Running Amok," *New York Times,* May 8, 1955.

10. Jesse Johnson, AEC, February 20, 1956, "The Romance of Uranium," February 20, 1956, National Archives, Rocky Mountain Region (NARMR), 434-99-195, box 1.

11. "Finding and Mining Uranium," speech given by Phillip Simmons, Mining Engineer for the AEC GJOO, in February 1954, to the "Annual Meeting AIME," NARMR, 434-99-195, "Speeches."

12. Ibid.

13. Ringholz, *Uranium Frenzy,* 67.

14. Herbert Lang, "Uranium Mining and the AEC: The Birth Pang of a New Industry," *Business History Review* 36, no. 3 (Autumn 1962): 325.

15. Ibid.

16. Ringholz, *Uranium Frenzy,* 32.

17. U.S. AEC Address by Sheldon Wimpfen, Manager, GJOO, at the Meeting of the Colorado Mining Association, Denver, January 29, 1954, "The Present and Future of Domestic Uranium Production," NARMR, 434-99-198, "Speeches."

18. Ibid.

19. Robert R. Johnson, *Romancing the Atom: Nuclear Infatuation from the Radium Girls to Fukushima* (Santa Barbara, Calif.: Praeger, 2013), 24.

20. John B. Hungerford, "Uranium Fever," *Los Angeles Times,* November 25, 1954.

21. Ibid.

22. Ibid.

23. Ibid.

24. "Two Men Try 290-Mile Swim in Colorado River," *Los Angeles Times,* April 11, 1955.

25. "History's Greatest Metal Hunt," *Life Magazine,* May 23, 1955.

26. Letter from George Duran to Dennis Chávez, August 31, 1954, box 136, folder 15, Dennis Chávez Papers, Center for Southwest Research (CSWR), University Libraries, University of New Mexico (UNM).

27. Hollis Prine and Leslie Earwood, "two students at the University," correspondence to Mr. Eugene Callaghan, Bureau of Mines and Mineral Resources, New Mexico School of Mines, Socorro, N.M., February 8, 1954, Lucien A. File Research Files, New Mexico State Records Center and Archive (NMSRCA), Santa Fe, N.M., box 6, folder 195.

28. Letter dated May 6, 1955, New Mexico Institute of Mining and Technology Records, NMSRCA, Santa Fe, N.M., box 11.

29. Ibid.

30. Jesse Johnson speech to the American Mining Congress, August 30, 1950, NARMR 434-99-195, box 1.

31. McKelvey, "Search for Uranium."

32. As Mark Fiege neatly summarizes their contrasts: "Oppenheimer was the romantic, mystical aesthete, the lover of sublime natural beauty; Groves was the quintessential utilitarian, a commander of bulldozers in an agency devoted to moving earth and harnessing rivers. Yet there they were . . . working together." *The Republic of Nature: An Environmental History of the United States* (Seattle: University of Washington Press, 2012), 290.

33. Ibid., 288.

34. McClintock, *Imperial Leather,* 41.

35. Joseph Masco, *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico* (Princeton, N.J.: Princeton University Press, 2006), 1.

36. "Project Y" was the code name for the bomb construction project headquartered at Los Alamos. Local residents of northern New Mexico, who heard the strange explosions on Pajarito Plateau and watched the scientists travel in and out but never explain their presence, reportedly nicknamed it "Project Why?"

37. Masco, *Nuclear Borderlands,* 1, emphasis in original.

38. "Arizona and New Mexico—The Old Southwest with a New Look," *Changing Times,* November 1958.

39. "The Manhattan District bore no relation to the industrial or social life of our country; it was a separate state, with its own airplanes and its own factories and its thousands of secrets. It had a peculiar sovereignty, one that could bring about the end, peacefully or violently, of all other sovereignties." Quoted by Richard Rhodes, *Making of the Atomic Bomb* (New York: Simon and Schuster, 2012), 277.

40. Phillip Merritt, Assistant Director AEC Division of Raw Materials, speech to the American Association of Petroleum Geologists, "Uranium and the Petroleum Industry," April 26, 1951, box 8, folder 53, Anthony J. Albert Papers, NMSRCA, Santa Fe, N.M.

41. AEC, "Fifth Semiannual Report to Congress," submitted January 31, 1949, U.S. Government Printing Office, 1949, 1.

42. "Biggest U.S. Uranium Refining Mill Opens Today on the Colorado Plateau," *New York Times,* October 2, 1952.

43. Phillip Merritt, "Uranium and the Petroleum Industry," American Association of Petroleum Geologists, April 26, 1951, box 8, folder 53, Anthony J. Albert Papers, NMSRCA, Santa Fe, N.M.

44. Ibid.

45. Phillip Merritt, U.S. AEC, speech to the Annual General Meeting of the Canadian Institute of Mining and Metallurgy, Toronto, Ontario, April 18, 1950, box 8, folder 53, Anthony J. Albert Papers, NMSRCA, Santa Fe, N.M.

46. Ibid.

47. Ibid.

48. Merritt, "Uranium and the Petroleum Industry."

49. Mel Y. Chen, "Racialized Toxins and Sovereign Fantasies," *Discourse* 29, no. 2 (2007): 367.

50. Raymond B. Craib, *Cartographic Mexico: A History of State Fixations and Fugitive Landscapes* (Durham, N.C.: Duke University Press, 2004), 5.

51. Merritt, U.S. AEC, speech to the Annual General Meeting of the Canadian Institute of Mining and Metallurgy, Toronto, Ontario, April 18, 1950.

52. Ibid.

53. List of the Anomaly Maps Released by the AEC, box 8, folder 53, Anthony J. Albert Papers, NMSRCA, Santa Fe, N.M.

54. McKelvey, "Search for Uranium."

55. Wilson Cliff, "Atom Use Just Begun, AEC Chairman Says," *Albuquerque Journal,* September 1, 1968.

56. Ibid.

57. Ibid.

58. Masco, *Nuclear Borderlands,* 166.

59. Cliff, "Atom Use Just Begun."

60. Gedicks, *Resource Rebels,* 70.

61. "Indigenous Uranium Network: A Structure for Continuing Resistance," [undated, probably 1987], box 1, folder 34, John Redhouse Papers, CSWR, University Libraries, UNM.

62. Cindy Yurth, "New Life for the Yellow Ore?," *Navajo Times,* March 19, 2009.

63. Eichstaedt, *If You Poison Us*, 19.

64. David Getches, Charles Wilkinson, and Robert Williams Jr., *Cases and Materials on Federal Indian Law,* 3rd ed. (St. Paul, Minn.: West Publishing, 1993).

65. Beginning with the Strategic Minerals Act of 1939, federal control over minable resources in the West began to be linked in law and policy to national security and the defense industry, in large part as a response to the industrial challenges of militarization during World War I. The Strategic Minerals Act prefigured the authority of the Atomic Energy Act.

66. Atomic Energy Act of 1946, U.S. Atomic Energy Commission (Washington, D.C.: Government Printing Office, 1965).

67. U.S. AEC Grand Junction, Colorado, Address by Sheldon Wimpfen, Manager, GJOO, at the Metal Mining Convention of the American Mining Congress, Seattle, Washington, September 23, 1953, "The Mechanics of Uranium Production," NARMR, 434-99-195, box 1.

68. Sheldon Wimpfen, "The Present and Future of Domestic Uranium Production," Meeting of the Colorado Mining Association, Denver, January 29, 1954, NARMR, 434-99-195, box 1.

69. "Withdrawal Policy and Procedure," meeting minutes of the GJOO Office of the Manager, October 27, 1953, NARMR, 434-99-197, "Withdrawal Policy."

70. Letter dated December 10, 1953, from Sheldon Wimpfen to William Branch, NARMR, 434-99-208, "Exploration Public Lands."

71. Ibid.

72. Lise Young, "What Price Progress?" *American Indian Law Review* 19, no. 1 (1981): 5.

73. Ibid., 5–6.

74. Letter dated March 30, 1955, from Robert Nininger, NARMR, 434-99-208, "Exploration Public Lands."

75. Jesse Johnson, AEC, February 20, 1956, "The Romance of Uranium," February 20, 1956, NARMR, 434-99-195, box 1.

76. Anaconda would go on to build the massive Bluewater mill in 1953 to process ore from the Jackpile mine. Robert Locke, "Boom and Bust Uranium Town Bustles Again," *Los Angeles Times,* November 15, 1976.

77. Eichstaedt, *If You Poison Us*, xv. By 1960, the company's Bluewater mill was pumping more than 150 gallons per minute of radioactive liquid waste into wells sunk nearly two thousand feet deep. By the early 1980s, environmental health effects of radiation poisoning were measurable among the Pueblo, particularly birth defects. Peter Melnick, "Miners Ignore Indian Maladies," box 1, folder 2. John Redhouse Papers, University of New Mexico, Center for Southwest Research. Roger Rapoport, "The Trouble with 90.5 Million Tons of Radioactive Tailings," *Los Angeles Times,* April 12, 1970.

78. Eichstaedt, *If You Poison Us*, xv.

79. R. S. Fotte, Chief of the Geophysical Section, Division of Raw Materials, AEC, speech to the AIME Annual Meeting in Los Angeles, California, February 18, 1953, "Low Level Airborne Radiometric Surveying in the Western United States," box 8, folder 53, Anthony J. Albert Papers, NMSRCA, Santa Fe, N.M.

80. J. A. Tavelli, *Review of Airborne Radioactivity Survey Techniques in the Colorado Plateau* (Oak Ridge, Tenn.: Technical Information Service, 1951).

81. Fotte, "Low Level Airborne Radiometric Surveying."

82. Johnson, "The Romance of Uranium."

83. Letter from J. W. Gabelman, District Geologist Geologic Branch Exploration Division, AEC, to Dewey Dismuke, Real Property Officer, United Pueblos Agency, August 17, 1955, NARMR, Record Group 434-99.

84. Ibid.

85. Letter from Paul B. Martin, Assistant General Counsel to the Grand Junction Operations Office, to Sheldon Wimpfren, Manager of the Grand Junction Operations Office, on July 1, 1955, General Records of the Department of Energy, NARMR, NRG-434-99-197.

86. Amendment to the permit issued January 11, 1952, signed on September 20, 1955, by Scott Jacket, Chairman of the Ute Tribal Council, Robert Bennett, Superintendent of the Consolidated Ute Agency, and Sheldon Wimpfen, Manager of Grand Junction Operations Office, AEC, NARMR, Record Group 434-99.

87. "Hearing before the Ute Mountain Tribal Council," April 8, 1955, General Records of the Department of Energy, NARMR, NRG-434-99-197.

88. Navajo Tribal Council, *Navajo Tribal Council Resolutions, 1922–1951* (Washington, D.C.: U.S. Government Printing Office, 1952), 336.

89. Chamberlain, *Under Sacred Ground,* x, 21–25.

90. Iverson, ed., *"For Our Navajo People,"* 37–38.

91. As Chamberlain notes of the tribe's experience with oil development, Navajos "struggled with the federal government for some control over their natural resources and for a financial accounting." Chamberlain, *Under Sacred Ground,* xi.

92. Frank MacPherson, "Relations between the Navajo Indian Tribe-Area Office of the Navajo Indian Reservation, and the U.S. Atomic Energy Commission," November 13, 1951, NARMR, 434-99-208, "Program Correspondence," box 3.

93. Ibid.

94. Ibid.

95. Eichstaedt, *If You Poison Us*, 26, 37–38.

96. MacPherson, "Relations between the Navajo Indian Tribe-Area Office of the Navajo Indian Reservation."

97. Ibid.

98. Ibid.

99. Letter dated September 27, 1951, NARMR, 434-99-208, "Program Correspondence," box 3.

100. Chamberlain, *Under Sacred Ground,* xi.

101. Frank MacPherson, "Relations between the Navajo Indian Tribe-Area Office of the Navajo Indian Reservation."

102. Ibid.

103. Eichstaedt, *If You Poison Us,* 26, 37–38. In a larger sense, Donald Parman argues that the stock reduction program exposed much of the Navajo population to the power of federal intervention in Native life through means of the trust relationship—an experience with these power relations that would not be lost on the Tribal Council. Donald Parman, *The Navajos and the New Deal* (New Haven, Conn.: Yale University Press, 1976). Richard White provides a related analysis, exploring how Navajo "dependency" on the federal government was produced through the stock reduction period. What White calls the "coercive power" of the federal government was indeed a fresh memory for Navajo Tribal Council members in the 1940s and 1950s. Richard White, *The Roots of Dependency: Subsistence, Environment, and Social Change among the Choctaws, Pawnees, and Navajos* (Lincoln: University of Nebraska Press, 1983), 313.

104. Myer was granted the position of BIA commissioner in the wake of his leadership role at the War Relocation Authority (WRA), which facilitated the World War II internment of Japanese and Japanese Americans—a position that apparently aptly demonstrated his capacity to relocate large populations from bounded areas in the rural west to cities. His leadership of the WRA thus prefigured Myer's role in the BIA's 1952 Relocation Plan to move Natives off reservations and into cities.

105. Letter from Director of the Division of Raw Materials Jesse Johnson to BIA Commissioner Dillon Myer, July 5, 1951.

106. Ibid.

107. M. F. Bolton to Tom Seale, June 9, 1955, subject: "Status of Tailing Lease," NARMR, Record Group 434-99, Denver, Colo., 434-99-208, Navajo Leases.

3. Cowboys and Indians in Navajo Country

1. This is my own fictionalization of the Paddy Martinez story, based on an excerpt from an interview with Martinez, published with his eulogy when he died on August 27, 1969, at age eighty-eight. Martinez is quoted as saying, "The horse trail goes over a hill . . . and I was just making the top of the hill when I saw a yellow spot under a rock. I got off my horse and looked at it. I broke the rock and . . . put it in my pocket." "Sheepherder Who Sparked Radium Boom," *Washington Post,* August 28, 1969.

2. "Slaves to the Unconventional," *The Age,* June 4, 1955.

3. Iverson, *Navajo Nation,* 50.

4. Bailey and Bailey, *A History of the Navajos,* 220.

5. Randolph C. Downes and Elizabeth Clark, "Navajo Report," 1946, box 2, folder 19, Robert W. Young Papers, CSWR, University Libraries, UNM.

6. Bailey and Bailey, *History of the Navajos,* 220.

7. The conditions in the area seemed dire enough that a Navajo Service doctor volunteered to "fly, ski, or parachute into Navajo Mountain" to be able to assist people on the ground. Near Black Mountain, families used smoke to signal their whereabouts to reconnaissance planes. Letter from J. M. Stewart, General Superintendent, Navajo Service, to William Zimmerman, February 6, 1949, box 3, folder 1, William Zimmerman Jr. Papers, CSWR, University Libraries, UNM.

8. Randolph C. Downes and Elizabeth Clark, "Navajo Report," 1946, box 2, folder 19, Robert W. Young Papers, CSWR, University Libraries, UNM.

9. "Rise in U.S. Output of Uranium Is Due: Atomic Energy Commission Negotiates," *New York Times,* October 16, 1948.

10. Harry Goulding was instrumental in promoting Monument Valley as a prime location for shooting westerns, having traveled to Hollywood to promote the Valley in 1938. John Wayne's *Stagecoach* was subsequently filmed there in 1938, kicking off a series of westerns all made in the Valley. Goulding's trading post became a hub for film crews and tourists alike.

11. Among a range of critiques of the treatment Native Americans have had at the hands of Hollywood filmmakers, some of the most pointed are laid out in the documentary film *Reel Injun: On the Trail of the Hollywood Indian* (produced and directed by Neil Diamond, 2009). In the film, Navajos who acted in westerns in the 1950s and 1960s are shown those movies for the first time. The Diné translate what actors on screen are saying in Diné bizaad, which functions as its own kind of counternarrative within the film. One Navajo actor in a 1964 John Ford

film exchanges lines with a white actor and says to him, in Diné bizaad, "just like a snake you'll be crawling in your own shit. Obviously you can't do anything to me." The white actor carries on with his line, oblivious, while the other Diné in the scene display fine acting chops by keeping straight faces.

12. William S. Barton, "Navajo Finds Great Atom Ore Deposit," *Los Angeles Times,* December 11, 1950.

13. "Uranium Find Makes Indian Railroad's Highest Paid," *Los Angeles Times,* January 24, 1952.

14. Robert Locke, "Boom and Bust Uranium Town Bustles Again," *Los Angeles Times,* November 15, 1976.

15. *Time Magazine* reported yet another version of the story in December 1950, again with close attention to detail: "Last July," they report, "as [Martinez] walked into a trader's store at Rattlesnake, N Mex to buy cigarettes, he saw two men examining a fist-sized, yellow streaked piece of rock. He heard them say, in Spanish, that it was a sample of uranium ore. . . . Paddy decided to try finding some and that same day, as he rode his horse homeward, he spotted an outcropping of the odd-looking rock. He broke off some. Next day he took it to Grants, gave it to the mayor, and asked him to get it analyzed. "How to Find Uranium," *Time Magazine,* December 25, 1950.

16. "Paddy Finds Yellow Rock, It's Rich Claim," *Grants Beacon,* August 13, 1953.

17. "Study Uranium Find, Perhaps Richest in U.S.," *Chicago Daily Tribune,* December 11, 1950.

18. "Slaves to the Unconventional," *The Age,* June 4, 1955.

19. "Paddy Finds Yellow Rock, It's Rich Claim," *Grants Beacon,* August 13, 1953.

20. "Slaves to the Unconventional," *The Age,* June 4, 1955.

21. Ibid.

22. "New Mexico: How to Find Uranium," *Time Magazine,* December 25, 1950.

23. Ibid. A descendant of Carroll, Charles "Bud" Gunderson, writes that "In 1950, a longtime customer, Paddy Martinez, brought a carton of rocks to Mr. Gunderson." Later, "A [New Mexico Institute of Mining and Technology] field study of students came in the store often, and [the] professor confirmed that it was uranium. Gunderson sent the box to Los Angeles to railroad officials he had known for many years." Charles Gunderson, "A Brief History of the Gunderson Oil Company," New Mexico GenWeb Project, http://cibola.nmgenweb.us.

24. For example, the *Los Angeles Times* article of December 11, 1950, notes in separate sections that Martinez has fourteen and "over twenty" children (Barton, "Navajo Finds Great Atom Ore Deposit"). Martinez's fatherhood was consistently juxtaposed against his role in ushering in the uranium boom: he "not only found this tremendous mineral hoard, but has fathered 20 children"; "Paddy's Big Strike," *Los Angeles Times,* December 12, 1950.

25. Pasternak, *Yellow Dirt,* 36–37.

26. Eichstaedt, *If You Poison Us*, 27.

27. Pasternak, *Yellow Dirt,* 38–39. Eichstaedt, *If You Poison Us*, 26–27.

28. Barton, "Navajo Finds Great Atom Ore Deposit."

29. William Chenowith, *Early Vanadium-Uranium Mining in Monument Valley, Apache and Navajo Counties, Arizona, and San Juan County, Utah* (Tucson, Ariz.: Arizona Geological Survey, 1985), 8.

30. Eichstaedt, *If You Poison Us*, 41.

31. "Uranium Find Raises Town's Hope of Boom," *Los Angeles Times,* December 12, 1950.

32. Ibid.

33. "Title Battle on Uranium Find Looms," *Los Angeles Times,* December 14, 1950.

34. Barton, "Navajo Finds Great Atom Ore Deposit."

35. "How to Find Uranium," *Time Magazine.*

36. By the 1950s, these programs were well under way, the relocation program in particular. By 1955, almost 3,000 Navajos were living in Los Angeles, one of the many cities specified in the relocation program. Journalists and government officials cynically couched this move in the context of Navajo pastoralism; as one journalist wrote, "Today, Navajos following the pattern of their restless forefathers are once again a people on the move. . . . The fact is that even this vast territory, abundant with mineral resources and other potentialities, has been unable to support the economy of the 58,000 Navajos." Bill Murphy, "Navajos Find Success on Leaving Reservation: U.S. Encourages Gradual Exodus and Puts Millions into Developing Skills for Jobs," *Los Angeles Times,* December 5, 1955. While the relocation program faced barriers from Navajos who felt strong and abiding connections to Diné Bikéyah, plans to terminate the trust relationship between the Navajo tribe and the federal government met with outright resistance from the Diné. Again, journalists inserted their own take on the fact that more than 12,000 Navajos, one-sixth of the tribe, were resistant to termination. The *New York Times* explained that, while the tribe of "mostly illiterate sheepherders" had "rarely been united on any issue," those opposed to termination had been mobilized against it by young men who went away to college and "returned with the idea of organizing." The article thus managed to both erase a rich tradition of Navajo political engagement and self-determination and simultaneously disparage those Diné who had access to higher education as proverbial rabble rousers. "Navajos Distrust Control by State: 12,000 in New Mexico United Against Bill for Ending Federal Jurisdiction," *New York Times,* December 25, 1957.

37. "Martinez, Paddy," Mining Hall of Fame Inductees Database, http://www.mininghalloffame.org.

38. Philip Deloria, *Playing Indian.*

39. Andrea Smith, "Heteropatriarchy and the Three Pillars," 68.

40. Scott Lyons's work on x-marks provides provocative ideas about unsettling the teleology of U.S. settler history. Historians have also pointed to the ways in which

grand narratives of westward expansion ignore or elide moments in which Natives can be seen as having won against, delayed, and staved off colonization or articulated relationships to colonizers on their own terms. I would argue that the attempts of the Navajo Tribal Council to negotiate uranium mining in ways that would benefit the tribe constitute one of these "x-marks" that unsettled the teleology of settler colonialism. So, too, was the Navajos' victory in returning to Diné Bikéyah after years of incarceration at Bosque Redondo. While hegemonic narratives of U.S. exceptionalism would see these as victories of the American bent toward democracy and justice, despite localized and unfortunate episodes of racial hatred, I see them as evidence that our teleologies of expansion are highly precarious, subject to the contingencies of history and very carefully honed indigenous agency and resistance. Scott Richard Lyons, *X-Marks: Native Signatures of Assent* (Minneapolis: University of Minnesota Press, 2010).

41. Blackhawk, *Violence Over the Land,* 9.

42. Ibid.

43. Renato Rosaldo, *Culture & Truth: The Remaking of Social Analysis* (Boston: Beacon Press, 1993), 69.

44. Pasternak, *Yellow Dirt,* 62.

45. Kathy Helms, "Living in the Valley of Death: Grandson of Paddy Martinez Recalls Uranium Days," *Gallup Independent,* April 16, 2004.

46. Ibid.

47. Barton, "Navajo Finds Great Atom Ore Deposit."

48. Gregg et al., *Maps of the Underground Workings.*

49. Pasternak, *Yellow Dirt,* 44.

50. Gregg et al., *Maps of the Underground Workings.*

51. Chenowith, *Early Vanadium-Uranium Mining in Monument Valley,* 5.

52. Holger Albrethsen Jr. and Frank E. McGinley, *Summary History of Domestic Uranium Procurement under U.S. Atomic Energy Commission Contracts: Final Report* (No. GJBX-220–82) (Grand Junction, Colo.: Bendix Field Engineering Corp., 1982).

53. Gregg et al., *Maps of the Underground Workings.*

54. Walter K. Gutman, "Vanadium Corp: Rich Stake in Uranium Bolsters Its Profits," *Barron's,* September 13, 1954.

55. "5 Uranium Pits Revealed," *New York Times,* May 28, 1949; "Rise in U.S. Output of Uranium Is Due: Atomic Energy Commission Negotiates," *New York Times,* October 16, 1948.

56. Jack Goodman, "Improved Motor Route to Monument Valley," *New York Times,* August 15, 1954.

57. Ibid.

58. Bailey and Bailey, *History of the Navajos,* 264.

59. "Scenic Rangeland," *New York Times,* December 16, 1956.

60. "Mining of Uranium to Aid Tourists," *Los Angeles Times,* April 9, 1951. Throughout the 1930s and 1940s, it was regularly suggested that road improvements

for reasons other than industrial access would be a waste, as Navajos "preferred" to travel by wagon and thus, according to non-Navajos, had no need for new roads.

61. William Zimmerman Jr., Confidential report on the Indian Bureau's program to bring industry to the Reservations, Submitted through the Executive Director to the President and Board of Directors of the Association on American Indian Affairs, December 31, 1956, box 7, folder 22, William Zimmerman Jr. Papers, CSWR, University Libraries, UNM.

62. Quoted by Thomas Jundt, *Greening the Red, White, and Blue: The Bomb, Big Business, and Consumer Resistance in Postwar America* (New York: Oxford University Press, 2014), 86.

63. Philip Simmons, "Finding and Mining Uranium," Annual Meeting, American Institute of Mining Engineers, New York City, February 1954, NARMR, Record Group 434-99.

64. "Scenic Rangeland."

65. New Mexico, on the other hand, saw a 60 percent rise in tourism during the same period. "Arizona and New Mexico—the Old Southwest with a New Look."

66. Iverson, *Navajo Nation,* 57.

67. "Scenic Rangeland."

68. Jack Goodman, "Utah Air Rides: New Wilderness Sights Accessible by Plane," *New York Times,* September 18, 1955.

69. Ibid.

70. Jerry Hulse, "Open Season in Navajoland," *Los Angeles Times,* June 23, 1963.

71. Ibid.

72. Jack Goodman, "Four Corners, USA: The Beauty Spot Where Four States Meet out West," *New York Times,* April 30, 1967.

73. Letter from Superintendent of the Eastern Navajo Agency, to New Mexico Governor David Cargo, November 27, 1968, box 54, folder 10063, Governor Davis Cargo Papers, NMSRCA, Santa Fe, N.M.

74. "In New Mexico's Indian Country," *New York Times,* July 2, 1967.

75. Letter from Superintendent of the Eastern Navajo Agency, to New Mexico Governor David Cargo, November 27, 1968.

76. Philip Joseph Deloria, *Indians in Unexpected Places* (Lawrence, Kans.: University Press of Kansas, 2004), 144.

77. Letter from Barry Goldwater to Carl Skinner, Office of the Secretary of the Interior, December 13, 1947, box 10, folder 6, William Zimmerman, Jr. Papers, CSWR, University Libraries, UNM.

78. Hulse, "Open Season in Navajoland."

79. Deloria, *Unexpected,* 146.

80. Hulse, "Open Season in Navajoland."

81. Richard West, "Where Did the Reservation Go? The Nature of White Power Structure," *Diné Baa-Hani,* April 22, 1971.

82. Philip K. Scheuer, "Ann Sothern, Slezak Augment New Casts," *Los Angeles Times,* July 21, 1964.

83. Contrary to racial stereotypes, many scholars have found alcoholism to be more a regional than a racial problem. One study found that non-Natives living near reservations were just as likely to suffer alcoholism as Natives. In Navajo country, there have been strong connections between livestock reduction and increased binge drinking; in addition, Navajos on average in the 1960s drank less than non-Navajo Americans, but "those who did drink were more likely to do so in excess," as noted by Wade Davies, *Healing Ways: Navajo Health Care in the Twentieth Century* (Albuquerque: University of New Mexico Press, 2001), 87–91. This problem in reservation border towns became a central focus of Native activism in New Mexico through the 1960s, 1970s, and 1980s, as border towns were marked by a troubling nexus of characteristics: white-owned businesses and a white middle class, versus Native (often homeless) poverty; extractive energy industries that reserved good, higher-paying jobs for whites and gave the worst paid and most dangerous jobs to Native men; a steady influx of temporary and new white residents who followed energy industry jobs; and so on. These kinds of conditions, directly connected to the political economy of boom-and-bust energy mining, made border towns dangerous, often violent places for the Navajos and Pueblos who lived there. See New Mexico Advisory Committee to the United States Commission on Civil Rights, *The Farmington Report: Conflict of Cultures* (Washington, D.C.: U.S. Commission on Civil Rights, 1975).

84. Ari Kelman, *A Misplaced Massacre: Struggling over the Memory of Sand Creek* (Cambridge, Mass.: Harvard University Press, 2013).

85. Holaday, David, and Doyle, *Interim Report.*

86. The exact breakdown was as follows: 13.8 percent of white miners and 26.5 percent of white millers showed high rates of pulmonary fibrosis (control group rate for whites was 7.5 percent). For Indians, the rate was 13.2 percent of miners and 20 percent of millers (control group rate was zero). Ibid.

87. Ibid.

88. Eichstaedt, *If You Poison Us*, 63–64.

89. Holaday, David, and Doyle, *Interim Report.*

90. Amendment to the permit issued January 11, 1952, signed on September 20, 1955, by Scott Jacket, Chairman of the Ute Tribal Council, Robert Bennett, Superintendent of the Consolidated Ute Agency, and Sheldon Wimpfen, Manager of Grand Junction Operations Office, Atomic Energy Commission, NARMR, Record Group 434-99.

91. "Navajo Lands Open for Uranium," *New York Times,* February 22, 1952; "Biggest U.S. Uranium Refining Mill Opens Today on the Colorado Plateau," *New York Times,* October 2, 1952.

92. Bailey and Bailey, *A History,* 236. The construction of the Mexican Hat mill, owned by Texas Zinc Minerals Corporation, would go on to be fraught with conflicts

over labor rights. In 1956, sixty Diné workers employed in the mill's construction went on strike over low wages and unfair treatment. "Navajos Strike Building Job," *New York Times,* November 15, 1956. Once the mill was operational, the National Labor Relations Board set out on a four-year campaign to unionize mill workers, against the wishes of the Navajo Tribal Council. O'Neill, *Working the Navajo Way,* 127–31.

93. Reno, *Mother Earth, Father Sky,* 137.

94. Nixon, *Slow Violence.*

95. Jessica S. Pearson, "Organizational Response to Occupational Injury and Disease: The Case of the Uranium Industry," *Social Forces* 57, no. 1 (September 1978): 23–43.

96. Barton, "Navajo Finds Great Atom Ore Deposit."

97. *Begay v. USA.*

98. Eichstaedt, *If You Poison Us*, 63.

99. Masco, *Nuclear Borderlands,* 528.

100. Ibid., 527–28.

101. Advisory Committee on Human Radiation Experiments, Department of Energy (ACHRE) 1995, *Final Report: Advisory Committee on Human Radiation Experiments* (Washington, D.C.: U.S. Government Printing Office).

102. Ibid., 196.

103. Amir Aczel, *Uranium Wars: The Scientific Rivalry that Created the Nuclear Age* (New York: Palgrave Macmillan, 2009), 189. Leslie Groves, the military head of the Los Alamos project, likewise argued, "To enable us to assess accurately the effects of the bomb, the targets should not have been previously damaged by air raids." Rhodes, *Making of the Atomic Bomb,* 627. The experimental nature of the Hiroshima and Nagasaki bombings were neither inevitable nor uncontroversial, as histories of these bombings sometimes suggest. In fact, seventy Manhattan Project scientists signed the Szilárd Petition, which urged the president to explode the bombs in an uninhabited place rather than use it in an attack on a populated city. In doing so, they argued, the Americans would still demonstrate the bomb's terrifying destructive capacity, without killing untold numbers of Japanese civilians.

104. Physicist Robert Serber, quoted in Aczel, *Uranium Wars,* 189–90.

105. ACHRE, *Final Report,* 197.

106. *Begay v. USA.*

107. Eichstaedt, *If You Poison Us*, 6.

4. Hot Spots

1. "Applause for A-Power: A-Power Backers Proclaim Its Value," *Los Angeles Times,* October 14, 1979.

2. Sandie Johnson, "Women of All Red Nations," *Off Our Backs,* July 31, 1980.

3. Lin Nelson, "Promise Her Everything: The Nuclear Power Industry's Agenda for Women," *Feminist Studies* 10, no. 2 (Summer 1984): 302.

4. Ibid.

5. Unger, *Beyond Nature's Housekeepers,* 154.

6. Dorothy Nelkin, "Nuclear Power as a Feminist Issue," *Environment: Science and Policy for Sustainable Development* 23, no. 1 (1981): 14–39.

7. Conversely, the National Association for the Advancement of Colored People did endorse nuclear power, as did the leftist National Caucus of Labor Committees.

8. Unger, *Beyond Nature's Housekeepers,* 146–48.

9. Albrethsen and McGinley, "Summary History," 3.

10. Ibid., 9.

11. Richard Yardley, "A New Career for Mr. A.," *Los Angeles Times,* September 14, 1954.

12. Elaine Tyler May, *Homeward Bound: American Families in the Cold War Era* (New York: Basic Books, 2008), 19.

13. Ibid., 20.

14. Karen DeWitt, "Women Gather to Hear Nuclear Power Promoted," *New York Times,* October 19, 1979.

15. Amundson, *Yellowcake Towns,* 84.

16. Merlin was the last and most famous of a series of Las Vegas women to be crowned Miss Atomic Bomb, an honor that was bestowed at least seven times in all to various Nevada women, most of them dancers in Las Vegas clubs. Despite the pageantry implicit in the title, there were no Miss Atomic Bomb beauty contests—rather, the women were selected by club owners by virtue of being club employees, in a publicity stunt meant to conflate two kinds of spectacle unique to this part of the country: sexy Las Vegas dancers and routine explosions of nuclear weapons at the Nevada Proving Ground. In doing so, the bomb blasts that were otherwise sources of significant American anxieties about the new technology became signified through something more palatable: the bodies of sexualized women.

17. Carol Cohn, "Sex and Death and the Rational World of Defense Intellectuals," in *Women on War: Essential Voices for the Nuclear Age,* ed. Daniela Gioseffi (New York: Touchstone Books, 1988), 97.

18. Ibid.

19. Nelson, "Promise Her Everything," 292.

20. White, *Roots of Dependency,* xix.

21. "Developing Indian Resources," *Indian Record,* December 1966, box 54, folder 10063, Governor Davis Cargo Papers, NMSRCA, Santa Fe, N.M.

22. E. Reeseman Fryer, "Corporations Seen as Means to Boost Tribal Incomes and Use of Natural Resources," *Indian Record,* December 1966, box 54, folder 10063, Governor Davis Cargo Papers, NMSRCA, Santa Fe, N.M.

23. Bailey and Bailey, *History of the Navajos,* 199, 258; Iverson, *Navajo Nation,* 100–104.

24. Iverson, *Navajo Nation,* 100–104, 83.

25. Bailey and Bailey, *History of the Navajos,* 258–59.

26. "New Mexico Supports New Indian Industry," *Indian Record,* December 1966, box 54, folder 10063, Governor Davis Cargo Papers, NMSRCA, Santa Fe, N.M.

27. "Navajos Seek Industry for the 'Four Corners,' " *New York Times,* March 26, 1967.

28. Colleen O'Neill, *Working the Navajo Way: Labor and Culture in the Twentieth Century* (Lawrence: University Press of Kansas, 2005), 2.

29. Bailey and Bailey, *History of the Navajos,* 235–37.

30. Arch Napier and Tom Sasaki, "The Navajo in the Machine Age: Human Resources Are Important, Too," 1958, box 2, folder 38, Robert W. Young Papers, CSWR, University Libraries, UNM.

31. Wilson Cliff, "New Mexico's Mineral Resources: A Definitive Report," New Mexico Institute of Mining and Technology, box 22, folder 753, Lucien A. File Research Files, NMSRCA, Santa Fe, N.M.

32. U.S. DOI Bureau of Mines, "Mineral Production in New Mexico in 1967, Preliminary Annual Figures," box 22, folder 752, Lucien A. File Research Files, NMSRCA, Santa Fe, N.M.

33. Winona LaDuke, *Recovering the Sacred: The Power of Naming and Claiming* (Cambridge, Mass.: South End Press, 2005), 33–46.

34. Iverson, *Navajo Nation,* 105.

35. U.S. DOI Bureau of Mines, "Mineral Production in New Mexico in 1967."

36. Ibid.

37. Wilkins, *The Navajo Political Experience,* 167.

38. Iverson, *Navajo Nation,* 83.

39. Lawrence David Weiss, *The Development of Capitalism in the Navajo Nation: A Political-Economic History* (Minneapolis: Marxist Educational Press, 1984), 116; Weisiger, "Gendered Injustice," 327–455.

40. Rosemary Brown, "The Exploitation of the Oil and Gas Frontier: Its Impact on Lubicon Lake Cree Women," in *Women of the First Nations: Power, Wisdom and Strength,* ed. Christine Miller and Patricia Chuchryk (Winnipeg: University of Manitoba Press, 1996), 151.

41. NEW slideshow "Women and Energy: The Vital Link," quoted by Nelson, "Promise Her Everything," 305.

42. "New Mexico Supports New Indian Industry."

43. Paul Weeks, "Navajos Seek Freedom from Tradition Prison," *Los Angeles Times,* December 1, 1963. This image of severing ties to the Diné homeland by cutting the umbilical cord unwittingly turns on its head the Diné practice of burying a child's umbilical cord near the family home, which underscores the profound connection between Navajos and their land. O'Neill, *Working the Navajo Way,* 29.

44. Albuquerque National Bank, "The Indian: His Importance to New Mexico's Economy," *Albuquerque Progress,* 25, no. 3 (May–June 1958).

45. Andrea Smith, "Not an Indian Tradition: The Sexual Colonization of Native Peoples," *Hypatia* 18, no. 2 (2003): 70–85; Mishuana R. Goeman and Jennifer Nez Denetdale, "Native Feminisms: Legacies, Interventions, and Indigenous Sovereignties," *Wicazo Sa Review* 24, no. 2 (2009): 9–13; Paula Gunn Allen, *The Sacred Hoop: Recovering the Feminine in American Indian Traditions* (Boston: Beacon, 1986); Denetdale, "Chairmen," 9–28.

46. Laura Tohe, "There Is No Word for Feminism in My Language," *Wicazo Sa Review* 15, no. 2 (2000): 103.

47. Eve Kosofsky Sedgwick, *Epistemology of the Closet* (Berkeley: University of California Press, 1990), 10.

48. Napier and Sasaki, "The Navajo in the Machine Age."

49. Quoted by Eichstaedt, *If You Poison Us,* 44.

50. Ibid. "Developing Indian Resources," *Indian Record,* December 1966, box 54, folder 10063, Governor Davis Cargo Papers, NMSRCA, Santa Fe, N.M.

51. Napier and Sasaki, "The Navajo in the Machine Age."

52. "Developing Indian Resources," *Indian Record,* December 1966, box 54, folder 10063, Governor Davis Cargo Papers, NMSRCA, Santa Fe, N.M.

53. Napier and Sasaki, "The Navajo in the Machine Age."

54. Art Seidenbaum, "Indian Spoof Makes the Scalp Tingle," *Los Angeles Times,* November 1, 1964.

55. "Arizona and New Mexico—the Old Southwest with a New Look."

56. Lynn Rogers, "Monument Valley, Land of Wonder," *Los Angeles Times,* November 15, 1953.

57. "Arizona and New Mexico—the Old Southwest with a New Look."

58. Briggs, *Reproducing Empire.*

59. Letter to William Zimmerman from E. Y. Berry, House of Representatives, June 9, 1959, box 3, folder 7, William Zimmerman Jr. Papers, CSWR, University Libraries, UNM.

60. Briggs, *Reproducing Empire.*

61. Plumwood, *Feminism;* Sedgwick, *Epistemology;* Karen Warren and Nisvan Erkal, *Ecofeminism: Women, Culture, Nature* (Bloomington: Indiana University Press, 1997).

62. Jules Michelet, quoted by Simone de Beauvoir, *The Second Sex* (New York: Vintage Books, 1989), xxii.

63. Denetdale, *Reclaiming Diné History;* Denetdale, "Chairmen." Calling this the "incommensurability of gender categories" between Westerners and tribes, Alice B. Kehoe provides insightful discussion of the Western observer bias in interpreting Native gender schemas into Western binary categories. She notes that many studies that purport to recognize gender categories, both normatively cisgender (male bodies and masculine roles, female bodies and feminine roles) or nonnormative (more often than not described with the oversimplified catch-all "berdache"), reflect the observer's own value system and gender schema in ways that "miss the

point" of complex and diverse tribal gender knowledge, embodiment, and articulation. Alice B. Kehoe, "On the Incommensurability of Gender Categories," in *Two-Spirit People: Native American Gender Identity, Sexuality, and Spirituality*, ed. Sue-Ellen Jacobs, Wesley Thomas, and Sabine Lang (Champaign: University of Illinois Press, 1997), 267, 270. This inscription of binary Western gender normativity (and nonnormativity) on tribes reflects the ways in which the gender binary is falsely universalized. For critiques of the highly contested term "berdache," see Jacobs, Thomas, and Lang, *Two-Spirit People,* Introduction, 2–7, and Sue-Ellen Jacobs, "Is the 'North American Berdache' Merely a Phantom in the Imagination of Western Social Scientists?," 21–68.

64. Wesley Thomas, "Navajo Cultural Constructions of Gender and Sexuality," in *Two-Spirit People,* ed. Jacobs, Thomas, and Lang, 158.

65. Ibid., 156–59. Carolyn Epple, "Coming to Terms with Navajo *Nádleehí:* A Critique of *Berdache*, 'Gay,' 'Alternate Gender,' and 'Two-Spirit,' " *American Ethnologist* 25, no. 2 (1998): 175.

66. Maureen Trudelle Schwarz, *Molded in the Image of Changing Woman: Navajo Views on the Human Body and Personhood* (Tucson: University of Arizona Press, 1997), 19.

67. As Epple points out, the story of the nádleeh in the fourth world can be seen as illustrative of the cyclical, rather than binary, nature of Diné epistemology, showing how each person has the capacity to express both masculinity and femininity, depending on one's situation and context. Epple, "Coming to Terms," 183. The story also emphasizes cooperation among genders for the survival of the community as a whole.

68. Sedgwick, *Epistemology,* 18–20.

69. Barre Toelken, "Seeing With The Native Eye," *The Multicultural Southwest: A Reader,* ed. Gabriel A. Meléndez, (Tucson: University of Arizona Press, 2001), 57.

70. Ibid.

71. Ibid.

72. "Squirrels, Beads, and the Hippie-Bead Fad Give Navajos a Lift," *New York Times,* September 7, 1968.

73. Ibid.

74. Ibid.

75. Thora Guinn, "People and Energy in the Southwest," *Akwesasne Notes,* May 31, 1979.

76. Roger Rapoport, "The Trouble with 90.5 Million Tons of Radioactive Tailings," *Los Angeles Times,* April 12, 1970.

77. Robert N. Snelling, "Environmental Survey of Uranium Mill Tailings Pile, Tuba City, Arizona," *Radiological Health Data* 10 (November 1969): 475–87.

78. Robert Snelling, "Environmental Survey of Uranium Mill Tailings Pile, Mexican Hat, Utah," *Radiological Health Data* 12 (January 1971): 17–28.

79. Roger Rapoport, "The Trouble with 90.5 Million Tons of Radioactive Tailings," *Los Angeles Times,* April 12, 1970.

80. Ibid.

81. Ibid.

82. Pasternak, *Yellow Dirt,* 125. Albrethsen and McGinley, "Summary History."

83. Tom Barry, "The Navajo Nation: Living and Breathing Radioactivity," *Akwesasne Notes,* October 1, 1979.

84. Joseph Hans and Richard Douglas, "Radiation Survey of Dwellings in Cane Valley, Arizona and Utah, for Use of Uranium Mill Tailings," Office of Radiation Programs, Las Vegas, Nev. (EPA), 1975.

85. Tom Barry, "The Navajo Nation: Living and Breathing Radioactivity" *Akwesasne Notes,* October 1, 1979.

86. Barry, "The Navajo Nation."

87. Hans and Douglas, "Radiation Survey of Dwellings in Cane Valley."

88. Napier and Sasaki, "Navajo in the Machine Age."

89. Lenora Foerstel, "From Matriarchy to the Mines: American Women in the Southwest," box 1, folder 9, Eda Gordon Papers, CSWR, University Libraries, UNM.

90. Ibid.

91. Pasternak, *Yellow Dirt,* 142–43.

92. Foerstel, "From Matriarchy to the Mines."

93. Cherrie Moraga, *The Last Generation: Prose and Poetry* (Cambridge, Mass.: South End Press, 1993), 173.

94. Ibid.

95. Unger, *Beyond Nature's Housekeepers,* 204–12. Native activism throughout the 1960s and 1970s consisted of a range of organizations, strategies, and geographies, as illustrated by the most well-known events associated with Red Power: the Washington state fish-ins, the Longest Walk, and the occupations of Alcatraz Island, the BIA, and Wounded Knee. AIM, a pan-tribal rights organization, was the most prominent of these Red Power organizations. Troy Johnson, Joanne Nagel, and Duane Champagne, *American Indian Activism: Alcatraz to the Longest Walk* (Chicago: University of Illinois Press, 1997), 33–35. Native women played key leadership and participant roles in these events, and Native women's issues were central to Red Power politics. WARN was the most well known of the multiple organizations formed by Native women during this time. Donna Hightower Langston, "American Indian Women's Activism in the 1960s and 1970s," *Hypatia* 18, no. 2 (Spring 2003): 114–32. Mary Crow Dog, *Lakota Woman* (New York: HarperCollins, 1991).

96. Langston, "American Indian Women's Activism," 129.

97. Jane Lawrence, "The Indian Health Service and the Sterilization of Native American Women," *American Indian Quarterly* 24, no. 3 (2000): 400.

98. Ibid.

99. Sally J. Torpy, "Native American Women and Coerced Sterilization: On the Trail of Tears in the 1970s," *American Indian Culture and Research Journal* 24, no. 2 (2000): 1.

100. Lawrence, "Indian Health Service"; Torpy, "Coerced Sterilization."

101. Crow Dog, *Lakota Woman*, 9, 156–57.

102. Lawrence, "Indian Health Service," 403.

103. Sarah Deer, Bonnie Clairmont, and Carrie A. Martell, eds., *Sharing Our Stories of Survival: Native Women Surviving Violence* (Lanham, Md.: Rowman Altamira, 2008), xi–xiii, 10–15.

104. Dorothy Nelkin, "Native Americans and Nuclear Power," *Science, Technology & Human Values* 6, no. 2 (1981), quoting Pat Bellanger, "On the Edge of Extinction," *Off Our Backs,* May 1979.

105. Johnson, "Women of All Red Nations," quoting Colville activist Yvonne Wanrow Swan.

106. "Radiation: 'Dangerous to Pine Ridge Women,' WARN Study Says," *Akwesasne Notes,* March 1980.

107. Peter Melnick, "Miners Ignore Indian Maladies," *New York Times,* November 27, 1978.

108. Beth Wood, "New Mexican Women Working for Change," New Mexico People and Energy, 1981, box 52, folder 25, Interhemispheric Resource Center Records, CSWR, University Libraries, UNM.

109. Brugge and Buchner, "Health Effects"; Susan E. Dawson, "Navajo Uranium Workers and the Effects of Occupational Illnesses: A Case Study," *Human Organization* 51, no. 4 (1992): 389–97; Stefanie Raymond-Whish, Loretta P. Mayer, Tamara O'Neal, Alisyn Martinez, Marilee A. Sellers, Patricia J. Christian, Samuel L. Marion, et al., "Drinking Water with Uranium below the U.S. EPA Water Standard Causes Estrogen Receptor–Dependent Responses in Female Mice," *Environmental Health Perspectives* 115, no. 12 (2007): 1711.

110. Stein, *New Perspectives,* 1–8.

111. "Anti-Nuclear Support for Native American Action against Uranium Mining and Milling," box 1, folder 8, Eda Gordon Papers, CSWR, University Libraries, UNM.

112. Winona LaDuke, "Conference at Mount Taylor," *Akwesasne Notes,* Spring 1979; "Radiation: 'Dangerous to Pine Ridge Women.'"

113. Stein, *New Perspectives,* 2.

114. Tracy E. Perkins, "Women's Pathways into Activism Rethinking the Women's Environmental Justice Narrative in California's San Joaquin Valley," *Organization & Environment* 25, no. 1 (2012): 77.

115. Sarah Jaquette Ray, "How Many Mothers Does It Take to Change All the Light Bulbs? The Myth of Green Motherhood," *Journal of the Motherhood Initiative for Research and Community Involvement* 2, no. 1 (2011).

116. Perkins, "Women's Pathways," 77.

117. Allen, *Sacred Hoop,* 189.

118. Quoted by Unger, *Beyond Nature's Housekeepers,* 207.

119. Lucy Moore, *Into the Canyon: Seven Years in Navajo Country* (Albuquerque: University of New Mexico Press, 2006), 154. Johnson, Nagel, and Champagne, *American Indian Activism.*

120. The NIYC was first conceived by members of the University of New Mexico's Kiva Club in 1955, and later founded in Gallup, New Mexico. The organization subsequently went on to tackle major issues across Native America, and at one point had 15,000 members; in New Mexico, they allied with local organizations such as the Coalition for Navajo Liberation (CNL) to advocate for social and environmental rights. Bradley Glenn Shreve, "Up Against Giants: The National Indian Youth Council, the Navajo Nation, and Coal Gasification, 1974–77," *American Indian Culture and Research Journal* 30, no. 2 (2006): 18.

121. "Editorial," *Diné Baa-Hani,* February 1971.

122. James Sterba, "Civil Rights Panel Likens Navajo Nation to Third World Countries," *New York Times,* October 29, 1973.

123. Maureen Trudelle Schwarz, *Blood and Voice: Navajo Women Ceremonial Practitioners* (Tucson: University of Arizona Press, 2003), 5.

124. Phillip Reno, *Mother Earth, Father Sky, and Economic Development: Navajo Resources and Their Use* (Albuquerque: University of New Mexico Press, 1981), 134–35.

125. Brugge, Benally, and Yazzie-Lewis, *Navajo People,* xvii. Winona LaDuke, "How Much Development?," *Akwesasne Notes,* February 28, 1979.

126. J. V. Reistrup, "New Code Seen Closing Mines," *Washington Post,* June 8, 1967.

127. Moore, *Into the Canyon,*154.

128. Thora Guinn, "People and Energy in the Southwest," *Akwesasne Notes,* May 31, 1979.

129. *State Compensation Fund and Foote Mineral Co (VCA) v. Fannie Begay Yazzie,* Court of Appeals of Arizona, October 16, 1975.

130. Michael Garitty, "Caution: Radioactivity will Injure your Health," *Akwesasne Notes,* May 31, 1980.

131. Wood, "New Mexican Women Working for Change."

132. Ibid.

133. New Mexico Advisory Committee to the United States Commission on Civil Rights, *The Farmington Report: Conflict of Cultures.*

134. Diane McEachern, Marlene Van Winkle, and Sue Steiner, "Domestic Violence among the Navajo: A Legacy of Colonization," *Journal of Poverty* 2, no. 4 (1998): 35; James W. Zion and Elsie B. Zion, "Hozho's Sokee'-Stay Together Nicely: Domestic Violence under Navajo Common Law," *Arizona State Law Journal* 25 (1993): 407; "Navajo Battered Women," *Off Our Backs,* August–September 1978.

135. Allen, *Sacred Hoop.*

136. O'Neill, *Working the Navajo Way,* 78, quoting a 1954 report by sociologist Seymour Parker.

137. Andrea Smith, *Native Americans and the Christian Right,* xvii.

5. Monsters and Mountains

1. Carl J. Popp, John W. Hawley, David W. Love, and Michael Dehn, "Use of Radiometric (Cs-137, Pb-210), Geomorphic, and Stratigraphic Techniques to Date Recent Oxbow Sediments in the Rio Puerco Drainage Grants Uranium Region, New Mexico," *Environmental Geology and Water Sciences* 11, no. 3 (1988): 254.

2. Abe M. Peña, *Memories of Cíbola: Stories from New Mexico Villages* (Albuquerque: University of New Mexico Press, 1997), 61.

3. Allan M. Winkler, *Life Under a Cloud: American Anxiety about the Atom* (New York: Oxford University Press, 1999), 17.

4. Abe M. Peña, *Memories of Cíbola*, 61.

5. "Geiger Counters Act Haywire," *Grants Beacon,* April 23, 1953.

6. Ibid.

7. U.S. Defense Nuclear Agency, "Shot Badger: A Test of the Upshot-Knothole Series, 18 April 1953," United States Atmospheric Nuclear Weapons Tests, Nuclear Test Personnel Review, January 12, 1982. The codename Badger has other significance in Navajo country: badgers play key roles in Navajo history and origin stories. Most memorably, Badger (Naaschǐd) dug the hole in the sky that allowed the Diné to emerge into the fifth world from the fourth world below. This is where badgers got the black markings on their feet.

8. Ibid.

9. Howard Ball, *Justice Downwind: America's Atomic Testing Program in the 1950s* (New York: Oxford University Press, 1986); Richard Lee Miller, *Under the Cloud: The Decades of Nuclear Testing* (The Woodlands, Tex.: Two Sixty, 1986); Mike Davis, "The Dead West: Ecocide in Marlboro Country," *New Left Review* (1993): 49–49.

10. Philip L. Fradkin, *Fallout: An American Nuclear Tragedy* (Boulder, Colo.: Big Earth, 2004), 9.

11. Ibid., 5.

12. Ibid., 17.

13. Ed Mahr, "A-Blast Appears Success," *Albuquerque Journal,* December 11, 1967.

14. Katy Woolston, "Powerful A-Blast at Dulce Rattles Windows Far Away," *Albuquerque Tribune,* December 11, 1967.

15. "Frightening Power, Then Dead Phones," *Albuquerque Journal,* December 11, 1967.

16. "Project Gasbuggy Preliminary Fact Sheet," U.S. AEC Nevada Operations Office, box 52, folder 1008, Governor David F. Cargo Papers, NMSRCA, Santa Fe, N.M.

17. Woolston, "Powerful A-Blast."

18. Paul G. Zolbrod, *Diné bahane': The Navajo Creation Story* (Albuquerque: University of New Mexico Press, 1984), 192.

19. Washington Matthews, *Navaho Legends* (Columbus, Ohio: American Folk-Lore Society, 1897), 114–15. Some versions of this history indicate that Yé'iitsoh also made a habit of showing himself over other nearby mountains, including Dsīłsitsí (Red Mountain), the Navajo name for Haystack Mountain, where Paddy Martinez's 1950 discovery took place. Matthews, *Navaho Legends,* 234, note 122.

20. Brugge, Benally, and Yazzie-Lewis, *Navajo People,* 2.

21. Ibid.

22. Ibid., 6.

23. Rock Point School, *Between Sacred Mountains: Navajo Stories and Lessons from the Land* (Tucson, Ariz.: Sun Tracks, 1984), 2.

24. Weisiger, *Dreaming of Sheep,* 338.

25. McPherson, *Sacred Land, Sacred View,* 16–17.

26. Matthews, *Navaho Legends,* 79.

27. McPherson, *Sacred Land, Sacred View,* 17.

28. Ibid.

29. Linda Moon Stumpff, "String of Turquoise: The Future of Sacred Mountain Peaks in the Southwest United States and Mexico," in *Science and Stewardship to Protect and Sustain Wilderness Values: Ninth World Wilderness Congress Symposium* (Fort Collins, Colo.: U.S. Department of Agriculture, Forest Service, 2011), 79.

30. McNitt, *Navaho Expedition,* 140.

31. Laura E. Gómez, *Manifest Destinies: The Making of the Mexican American Race* (New York: New York University Press, 2007), 62–63.

32. Kirk Bryan, "Historic Evidence on Changes in the Channel of Rio Puerco, a Tributary of the Rio Grande in New Mexico," *Journal of Geology* 36, no. 3 (1928): 268; Kirk Bryan and Franklin T. McCann, "Successive Pediments and Terraces of the Upper Rio Puerco in New Mexico," *Journal of Geology* 44, no. 2 (1936): 145–72.

33. Mary Austin, "Geographical Terms from the Spanish," *American Speech* 8, no. 3 (1933): 10.

34. McNitt, *Navaho Expedition,* 29; James William Abert, *Abert's New Mexico Report, 1846–'47* (Albuquerque, N.M.: Horn & Wallace, 1962), 77, 92–93.

35. E. J. Dortignac, "The Rio Puerco-Past, Present, and Future," New Mexico Water Conference, New Mexico State University, November 1–2, 1960, accessed at http://wrri.nmsu.edu/publish/watcon/proc5/contents.html. Popp et al., "Use of Radiometric," 254.

36. Bryan, "Historic Evidence," 273.

37. Dortignac makes a compelling case that the health of the Puerco's watershed depended in large part on the number of Spanish livestock grazing out from the settlements, which in turn depended on Spanish relationships to the local tribes. In 1750, he argues, there were large herds and relatively minor pressure from the tribes. By 1800, there was increased threat from the tribes and therefore decreased

livestock and a healthier Río Puerco watershed. By 1855, this process had reversed—the Navajos were under significant pressure to move west, Mexican settlements flourished in eastern New Mexico, and the river's watershed changed dramatically (it was during this time that a number of wells ran dry and entire communities were abandoned). Dortignac, "The Rio Puerco-Past, Present, and Future." See also Bryan, "Historic Evidence," 273, 280–81.

38. Bruce Gallaher, "The Puerco River: Muddy Issues Raised by a Mine Water Dominated Ephemeral Stream," *Proceedings of Twenty-Eighth Annual New Mexico Conference: Water Quality in New Mexico, April 5–6, 1983* (Las Cruces, N.M.: New Mexico Water Resources Research Institute, 1983), 62.

39. Ibid., 61–65.

40. Ibid.

41. Brugge, Delemos, and Bui, "Sequoyah Corporation Fuels Release," 1597.

42. Women for Survival, "Churchrock, New Mexico Uranium Tailings Spill," November 1979, box 1, folder 2, Eda Gordon Papers, CSWR, University Libraries, UNM.

43. Ibid.

44. Molly Ivins, "Dam Break Investigated; Radiation of Spill Easing," *New York Times,* July 28, 1979.

45. Brugge, Delemos, and Bui, "Sequoyah Corporation Fuels Release," 1596; Women for Survival, "Churchrock, New Mexico Uranium Tailings Spill."

46. Johnson, *Romancing the Atom,* 63.

47. Ivins, "Dam Break Investigated"; Sandra Blakeslee, "Cleanup Crew Still Working on Radioactive Spill," *Washington Post,* September 5, 1979.

48. Statement of Larry King, "The Health and Environmental Impacts of Uranium Contamination in the Navajo Nation," Hearing before the Committee on Oversight and Government Reform (Washington, D.C.: U.S. Government Printing Office, 2008), 44.

49. Women for Survival, "Churchrock, New Mexico Uranium Tailings Spill."

50. Brugge, Delemos, and Bui, "Sequoyah Corporation Fuels Release," 1596.

51. One way to measure the size and impact of nuclear disasters is in the number of curies released. The 1979 Three Mile Island accident released thirteen curies; the Chernobyl and Fukushima Daiichi meltdowns released 270 million and 60 million curies, respectively. The Río Puerco accident released forty-six curies. Brugge, Delemos, and Bui, "Sequoyah Corporation Fuels Release," 1595.

52. Ibid., 1598.

53. Johnson, *Romancing the Atom,* 63.

54. Ivins, "Dam Break Investigated."

55. The violation noted that tests showed dangerous quantities of thorium 230 and radium 226 in Río Puerco water, as well as high levels of heavy metals.

56. Sandra Blakeslee, "New Mexico Cleanup Goes On," *Los Angeles Times,* August 22, 1979.

57. "United Nuclear Corp. Made Illegal Discharge into River, EPA Says," *Wall Street Journal,* August 22, 1979.

58. Ivins, "Dam Break Investigated."

59. Women for Survival, "Churchrock, New Mexico Uranium Tailings Spill."

60. Statement of J. David Hann, executive vice president and chief operating officer, United Nuclear Corp., "Mill Tailings Dam Break at Church Rock, New Mexico," Oversight Hearing before the Subcommittee on Energy and the Environment (Washington, D.C.: U.S. Government Printing Office, 1980), 20, 29.

61. Ivins, "Dam Break Investigated."

62. Statement of Paul Robinson, Environmental Analyst, Southwest Research and Information Center, "Mill Tailings Dam Break at Church Rock, New Mexico," 47.

63. Ivins, "Dam Break Investigated."

64. Statement of J. David Hann, "Mill Tailings Dam Break at Church Rock, New Mexico," 25.

65. UNC Resource Reports Press Release, "Church Rock Mill to Reopen," box 1, folder 8, Eda Gordon Papers, CSWR, University Libraries, UNM.

66. Brugge, Delemos, and Bui, "Sequoyah Corporation Fuels Release," 1598.

67. Women for Survival, "Churchrock, New Mexico Uranium Tailings Spill."

68. U.S. EPA Region 6, "Site Status Summary," http://www.epa.gov/earth1r6/6sf/newmexico/united_nuclear/index.html.

69. Blakeslee, "Cleanup Crew Still Working on Radioactive Spill."

70. The phrase "linguistic detoxification" is used by environmentalists to indicate when a toxic substance is deemed less toxic for political, rather than scientific or environmental, reasons: the deregulation of a toxin, for example, or political decisions that change the level of exposure that is acceptable for human and nonhuman health.

71. Women for Survival, "Churchrock, New Mexico Uranium Tailings Spill," November 1979, box 1, folder 2. Eda Gordon Papers, CSWR, University Libraries, UNM.

72. Masco, *Nuclear Borderlands,* 520.

73. Federal defendants in the case were the secretaries of Energy, Agricultural, and Interior, the Tennessee Valley Authority, the EPA, and the NRC.

74. *Walter Peshlakai Sr., et al., v. Charles Duncan Jr. et al.,* Civil Action No. 78-2416, U.S. District Court, September 5, 1979.

75. Ibid.

76. Wolfe, "Settler Colonialism," 163.

77. Interhemispheric Resource Center, "Kerr McGee (company profile)," 1980. box 52, folder 24. Interhemispheric Resource Center Records, CSWR, University Libraries, UNM.

78. Pasternak, *Yellow Dirt,* 137.

79. *Esther Lee Begay et al. v. The Kerr McGee Corporation,* No. 80-6059, U.S. Court of Appeals for the Ninth Circuit, 682 F.2d 1311; 1982, February 5, 1982.

80. *UNC Resources, Inc., v. Kee Joe Benally, et al.,* U.S. District Court for the District of Arizona, 518 F. Supp. 1046; 1981 U.S. Dist. July 16, 1981.

81. *Begay et al. v. United States,* U.S. Circuit Court of Appeals, 9th Circuit, May 16, 1985. 768 F.2d 1059.

82. Brugge, Benally, and Yazzie-Lewis, *Navajo People,* 39–40.

83. Winona LaDuke, "How Much Development?," *Akwesasne Notes,* February 28, 1979.

84. Tom Barry, "Land Rights, Not Uranium Mines," *Akwesasne Notes,* July 1, 1979.

85. Activists consistently couched the Navajo and Pueblo struggle against uranium in the context of both global uranium markets and decolonization movements. John Redhouse described this work as bringing together an "international tribe of activists working and fighting for a non-nuclear future." "Indigenous Uranium Network: A Structure for Continuing Resistance," [undated, probably 1987], box 1, folder 34, John Redhouse Papers, CSWR, University Libraries, UNM.

86. Langston, "American Indian Women's Activism," 117.

87. Statement of Edith Hood, "The Health and Environmental Impacts of Uranium Contamination in the Navajo Nation," Hearing before the Committee on Oversight and Government Reform (Washington, D.C.: U.S. Government Printing Office, 2008), 77.

88. Taiake Alfred, *Wasase: Indigenous Pathways of Action and Freedom* (Toronto: University of Toronto Press, 2005).

89. "Stop the Rape of Mount Taylor: Uranium Mining Kills All Living Things," American Indian Environmental Council, box 1, folder 2, John Redhouse Papers, CSWR, University Libraries, UNM.

90. LaDuke, "Conference at Mount Taylor"; Dede Feldman, "Uranium Mining Sacrilege to Indian Protesters," *High Country News,* May 18, 1979; Tom Barry, "Land Rights, Not Uranium Mines," *Akwesasne Notes,* July 1, 1979.

91. Molly Ivins, "Both Sides in Energy Debate Heard in New Mexico," *New York Times,* April 29, 1979; David Langford, [no headline], Associated Press, April 29, 1979; Winona LaDuke, "Conference at Mount Taylor," *Akwesasne Notes,* May 31, 1979.

92. Tom Barry, "New Mexico: Chicanos and Uranium Development," *Akwesasne Notes,* August 1980.

93. Lise Young, "What Price Progress? Uranium Production on Indian Lands in the San Juan Basin," *American Indian Law Review* 9, no. 1 (1981): 9.

94. Gulf Oil company profile, 1980, box 52, folder 24, Interhemispheric Resource Center Records, Center for Southwest Research, University Libraries, UNM.

95. Ibid.

96. Sandoval Environmental Action Community, "Some Considerations on Uranium Mining and Milling in Sandoval County," November 1978, box 1 folder 9, Eda Gordon Papers, CSWR, University Libraries, UNM.

97. Quoted by Barry in "New Mexico: Chicanos and Uranium Development."

98. "Stop the Rape of Mount Taylor!" American Indian Environmental Council, box 1, folder 2, John Redhouse Papers, CSWR, University Libraries, UNM.

99. LaDuke, "Conference at Mount Taylor."

100. Ibid.

101. Ibid.

102. Peluso, "Whose Woods Are These?" 384. Wood, *Re-Thinking the Power of Maps,* 111–12.

103. For example, Nicholas Rosenthal argues that urban spaces have long been "Indian country." *Reimagining Indian Country: Native American Migration & Identity in Twentieth-Century Los Angeles* (Chapel Hill: University of North Carolina Press, 2012), 4; Mishuana Goeman likewise does important work to reconfigure how we measure and map Native claims to land. *Mark My Words: Native Women Mapping Our Nations* (Minneapolis: University of Minnesota Press, 2013).

104. Kelley and Francis, *Navajo Sacred Places,* 121, 123.

6. The Big Hurt

1. This station is part of a larger tradition of Diné media in Diné bizaad, including the newsletter *Ádahoonílígíí,* originally published in 1943 and always published exclusively in the Diné language, and the radio station KTNN, which provides news broadcasts throughout the Navajo Nation in Diné bizaad. Sherry, *Land, Wind,* 93.

2. KYAT began broadcasting in October 2011. Erny Zah, "KYAT-FM Offers 24-Hour Navajo Language," *Navajo Times,* Gallup, October 17, 2011.

3. Sherry, *Land, Wind,* 93–94.

4. Edward H. Spicer, *Cycles of Conquest: The Impact of Spain, Mexico, and the United States on the Indians of the Southwest, 1533–1960* (Tucson: University of Arizona Press, 1962), 4–8.

5. Gulf Oil company profile, 1980, box 52, folder 24, Interhemispheric Resource Center Records, Center for Southwest Research, University Libraries, UNM.

6. Donald Jaramillo, "Uranium Resources Agrees to Acquire Neutron Energy," *Cibola Beacon,* March 6, 2012.

7. The Gillette syndrome was named for Gillette, Wyoming, a coal boomtown that experienced a range of social problems documented by ElDean Kohrs in 1974. Kohrs attributed these ill effects largely to overcrowding, lack of planning, and poor infrastructure development. "Social Consequences of Boom Growth in Wyoming," Paper presented at the Rocky Mountain American Association of the Advancement of Science Meeting (Laramie, Wyo.: April 24–26, 1974).

8. According to Elizabeth Moen, "women are especially disadvantaged by energy development and are the most isolated and alienated residents of the community." See "Women in Energy Boom Towns," *Psychology of Women Quarterly* 6, no. 1 (1981): 99–112.

9. Ibid., 106.

10. Barton, "Navajo Finds Great Atom Ore Deposit."

11. "Uranium Find Raises Town's Hope of Boom," *Los Angeles Times,* December 12, 1950.

12. Holaday, David, and Doyle, *Interim Report.*

13. "Uranium Find Raises Town's Hope of Boom," *Los Angeles Times,* December 12, 1950.

14. "Arizona and New Mexico—the Old Southwest with a New Look."

15. Robert Locke, "Boom and Bust Uranium Town Bustles Again," *Los Angeles Times,* November 15, 1976.

16. Ibid.

17. Molly Ivins, "Both Sides in Energy Debate Heard in New Mexico," *New York Times,* April 29, 1979; LaDuke, "Conference at Mount Taylor."

18. Ibid.

19. Quoted by Tom Barry, "Land Rights, Not Uranium Mines," *Akwesasne Notes,* July 1, 1979.

20. "Mt. Taylor Cultural Landscape Nomination," New Mexico Historic Preservation Division, Department of Cultural Affairs, 2009.

21. *Gallup Independent* reporter Helen Davis, quoted by Laura Paskus, "Dueling Claims," *High Country News,* December 7, 2009.

22. Confusingly, both sides of the debate claimed and displayed this bumper sticker.

23. Paskus, "Dueling Claims."

24. Mark Teshima, "Milan Man Arrested in Beating Cases, Mountain Rights Blamed for Spilled Blood," *Cíbola Beacon*, June 29, 2009.

25. Ibid.

26. John Redhouse, "Hate Crimes against Natives in Grants, New Mexico," *Censored News,* June 28, 2009.

27. Joseph Kahn, "Cheney Promotes Increasing Supply as Energy Policy," *New York Times,* May 1, 2001.

28. Quoted by Kathy Helms, "Companies Hope to Jump Start Uranium Mining," *Gallup Independent,* October 31, 2007.

29. Quoted by Helms, "Companies Hope to Jump Start Uranium Mining."

30. Quoted by Kari Lydersen, "A New Demand for Uranium Power Brings Concerns for Navajo Groups; Mining Planned at a Mountain Considered Sacred," *Washington Post,* October 25, 2009.

31. New Mexico Off Highway Vehicle Alliance, www.nmohva.org.

32. Ibid.

33. New Mexicans Together for Mount Taylor, nmtfmt.blogspot.com.

34. "CARE" is also the acronym of one of the most important Navajo environmental organizations, Citizens Against Ruining our Environment, which was formed in 1988 as a response to a proposed toxic waste incinerator in the Navajo town of

Dilkon, Arizona. The Navajo CARE was the basis for the major international indigenous coalition Indigenous Environmental Network. See Sherry, *Land, Wind,* for more on the history of CARE.

35. Marita Noon, Executive Director of Citizens' Alliance for Responsible Energy, "Public's Best Interest, Disinterested Public," www.responsiblenergy.org.

36. Paskus, "Dueling Claims."

37. Noon, "Public's Best Interest, Disinterested Public."

38. Quoted by Shelley Smithson, "Radioactive Revival in New Mexico," *The Nation,* June 10, 2009.

39. Paskus, "Dueling Claims."

40. "Mt. Taylor TCP Facts: The Short of It," April 29, 2009, nmtfmt.blogspot.com.

41. Donald Jaramillo, "Why Mount Taylor?," posted to *Cibola Beacon* online (www.cibolabeacon.com), June 24, 2009.

42. Ibid.

43. Ibid.

44. Kosek, *Understories,* 32.

45. Kevin Killough, "Hearing Draws Mostly Pro-Uranium Speakers," *Gallup Independent,* November 22, 2008.

46. Smithson, "Radioactive Revival in New Mexico."

47. Denetdale, *Reclaiming Diné History,* 134–35; Weisiger, *Dreaming of Sheep,* 109–10; Kelley and Francis, *Navajo Sacred Places,* 165–69.

48. Peña, *Memories of Cíbola,* 21.

49. Ibid.

50. Ibid. The timing of the issuance of these grants also coincides with the first period of Nuevomexicano settlement of the area around Mount Taylor, and in the Río Puerco watershed in particular. This first period of Spanish settlement of the area was catalyzed by the issuance of formal grants; the second period, almost exactly a century later, was catalyzed instead by the removal of the Diné to Bosque Redondo and subsequent creation of the Navajo reservation far enough away to the west to make settlement of this area feasible. See Susan E. Diggle and Louis A. Hieb, "From La Tijera to San Luis: Farm and Faith on the Rio Puerco," *Agricultural History* 78, no. 2 (Spring 2004): 171.

51. Denise Holladay Damico, "The Cebolleta Land Grant: Multicultural Cooperation and Contention," *Natural Resources Journal* 48 (2008): 966.

52. Ibid., 967.

53. Brooks, *Captives and Cousins,* 107.

54. Ibid., 107, 113.

55. Peña, *Memories of Cíbola,* 15.

56. Ibid., 21–22.

57. Damico, "Cebolleta Land Grant," 966.

58. Ibid.

59. Iverson, *Diné: A History of the Navajos,* 38.

60. Quoted in Denetdale, *Reclaiming Diné History,* 64.

61. Iverson, *Diné: A History of the Navajos,* 47.

62. Navajo Nation Museum Exhibit, "T'áá Diné Bi Nahat'á: Traditional Diné Leadership."

63. Edward Canby, not Carleton, was the first major proponent of the relocation plan. His troops were also the first to engage in large-scale scorched earth campaigns on Diné Bikéyah. Thomas W. Dunlay, *Kit Carson and the Indians* (Lincoln: University of Nebraska Press, 2000), 261–62.

64. Brooks, *Captives and Cousins,* 3.

65. Peña, *Memories of Cíbola,* 51.

66. Wesley R. Hurt, "The Spanish-American Comanche Dance," *Journal of the Folklore Institute* 3, no. 2 (August 1966): 120.

67. Ibid., 126.

68. Peña, *Memories of Cíbola,* 53.

69. Brooks, *Captives and Cousins,* 3.

70. Ibid., 9–10.

71. William H. Lyon, "The Navajos in the Anglo-American Historical Imagination, 1807–1870," *Ethnohistory* 43, no. 3 (Summer 1996): 483–509.

72. Spicer, *Cycles;* Deloria, *Playing Indian;* Gómez, *Manifest Destinies.*

73. News Release, State of New Mexico, Historic Preservation Division, Department of Cultural Affairs, June 5, 2009.

74. Scott Sandlin, "State Supreme Court Upholds Mount Taylor Designation," *Albuquerque Journal,* February 7, 2014.

75. Kari Lydersen, "A New Demand for Uranium Power Brings Concerns for Navajo Groups; Mining Planned at a Mountain Considered Sacred," *Washington Post,* October 25, 2009.

76. "Rio Grande Resources," General Atomics, www.ga.com/rio-grande-resources.

77. Quoted by Tom Barry in "New Mexico: Chicanos and Uranium Development," *Akwesasne Notes,* August 1980.

78. Application for Registration New Mexico State Register of Cultural Properties, revised May 18, 2007, www.nmhistoricpreservation.org.

79. Ibid.

80. Ibid.

81. Ibid.

82. Wolfe, "Settler Colonialism," 388.

83. Mishuana R. Goeman, "Notes toward a Native Feminism's Spatial Practice," *Wicazo Sa Review* 24, no. 2 (2009): 169–70.

Conclusion

1. "Composite Map Delineating the Boundaries of Navajo Country as Described in Various Documents," box 2, folder 37, Robert Young Papers, CSWR, University Libraries, UNM.

2. Eichstaedt, *If You Poison Us,* and Brugge, Benally, and Yazzie-Lewis, *Navajo People,* give excellent overviews of the struggle to pass and reform RECA.

3. *Southwest Indigenous Uranium Forum Newsletter,* October 1990, Uranium archives, SRIC.

4. Brugge, Benally, Yazzie-Lewis, *Navajo People,* 9.

5. Ibid., 172.

6. Yurth, "New Life for the Yellow Ore?"

7. Leslie Macmillan, "Grand Canyon Uranium Mine Placed on Hold," *Guardian,* November 7, 2013.

8. Karl Marx, *Capital, Volume One: A Critique of Political Economy* (Mineola, N.Y.: Courier Dover Publications, 2012), 257.

9. Mimi Sheller, *Consuming the Caribbean: From Arawaks to Zombies* (London: Routledge, 2003), 14, 143. Stephen Greenblatt, *Marvelous Possessions: The Wonder of the New World* (Chicago: University of Chicago Press, 1991), 71–72, 113–14.

10. Quoted by Churchill and LaDuke, "Native America."

11. Gordon, *Ghostly Matters,* 17.

12. Julie Sze, "Boundaries and Border Wars: DES, Technology, and Environmental Justice," *American Quarterly* 58, no. 3 (2006): 791–814.

13. This can be seen as a counterpoint to other metaphors that have sought to explain the global problematic of toxic industrialism, such as the boomerang effect. Pellow, *Resisting Global Toxics,* 25.

14. Pellow, *Resisting Global Toxics, 30.*

15. Sandra Steingraber, *Living Downstream: An Ecologist's Personal Investigation of Cancer and the Environment* (Reading, Mass.: Addison-Wesley, 1997), 5–11; Frédéric Dallaire, Éric Dewailly, Gina Muckle, and Pierre Ayotte, "Time Trends of Persistent Organic Pollutants and Heavy Metals in Umbilical Cord Blood of Inuit Infants Born in Nunavik (Québec, Canada) between 1994 and 2001," *Environmental Health Perspectives* 111, no. 13 (2003): 1660; Julie Sze, "Boundaries and Border Wars: DES, Technology, and Environmental Justice," *American Quarterly* 58, no. 3 (September 2006): 792.

16. Kuletz, *Tainted Desert.*

17. Ibid.; Valerie Kuletz, "Invisible Spaces, Violent Places: Cold War Nuclear and Militarized Landscapes," in *The Violent Environments: Social Bonds and Racial Hubris,* ed. Nancy L. Peluso and Michael Watts (Ithaca, N.Y.: Cornell University Press, 2001), 237–60.

18. Henryk Bem and Firyal Bou-Rabee, "Environmental and Health Consequences of Depleted Uranium Use in the 1991 Gulf War," *Environment International* 30, no. 1 (2004): 123–34.

19. Joni Seager, *Earth Follies: Coming to Feminist Terms with the Global Environmental Crisis* (New York: Routledge, 1993).

20. Aczel, *Uranium Wars,* 29.

21. Brugge, Benally, and Yazzie-Lewis, *Navajo People,* 2.

22. Leslie Marmon Silko, *Ceremony* (New York: Penguin Books, 2006), 127.

23. Statement of Larry King, "The Health and Environmental Impacts of Uranium Contamination in the Navajo Nation," Hearing before the Committee on Oversight and Government Reform (Washington, D.C.: U.S. Government Printing Office, 2008), 45.

24. Ibid, 62.

25. Brugge, Benally, and Yazzie-Lewis, *Navajo People,* 7–8.

26. Ibid., 8.

27. Ibid.

INDEX

Abbey, Edward, 55
Acoma Pueblo: relationship to Mount Taylor, 179, 186, 191, 197, 202, 206; uranium prospecting and, 80
Adorno, Theodor, 211, 215
adventurism, atomic/nuclear, 156, 208
affect, 11, 13, 15, 20, 21, 23, 86
agriculture, 50; and assimilation, 32, 130; desert, 75–76; Diné, xi, x, 33, 35, 36, 130, 132, 168, 225n5, 226n14; Navajo land and, ix; and soil conservation, 47, 49, 51; and uranium, 80, 165; and westward expansion, 17, 31. *See also* U.S. Department of Agriculture
Akwesasne Notes, 146, 151
Alamogordo, New Mexico, 75, 155
alcohol: and boomtowns, 148, 188; and Paddy Martinez's uranium discovery, 91, 99; and stereotypes, 108, 252n83
Alfred, Taiake, 177
Allen, Paula Gunn, 144, 148
Ambrosia Lake uranium district, 139, 151–53, 154, 188, 205, 206
American Indian Environmental Council (AIEC), 145, 177, 179, 181
American Indian Movement (AIM), 140, 178, 258n95
Anaconda Copper Mining Company, 75, 79–80, 142, 152, 181, 245n76. *See also* Bluewater uranium mill; Jackpile mine
Anasazi, 225n3
anticolonialism, 75, 76, 144, 149. *See also* decolonization
antinuclear: activism, 118, 177–79, 189; sentiment, 118, 122
Arizona Territory, vii, 17, 35, 37, 201
Army Corps of Engineers, 2, 228n10
Asdzani Doo Alchini Dabaghan Association, 148
Assimilation: gendered impacts of, 148; and livestock reduction, 28, 32, 48, 49, 51; of Native children, 19, 49; through wage labor, 21, 84, 96, 124, 130–32
Atchison, Topeka, and Santa Fe Railroad (Santa Fe Industries, Inc.). *See* Santa Fe Railroad
atom, the, 96, 119–21
Atom and Eve, The, 123–24
atomic bomb, 2, 68–69, 122, 158. *See also* Hiroshima, Japan; Nagasaki, Japan; Trinity test

Atomic Energy Act of 1946, 77–78, 244n65
Atomic Energy Commission (AEC). *See* U.S. Atomic Energy Commission (AEC)
atomic modernity, 69–70, 91, 115

Baca, Román, 199
Bailey, Garrick and Roberta Glenn, 89
Barboncito: and Dinétah, 212; and the 1868 U.S.–Navajo Treaty, 36
Begay v. The Kerr McGee Corporation, 176
Begay v. United States, 176
Belgian Congo. *See* Congo
Benavides, Alonzo, xi, 226n16
Benjamin, Walter, 185, 187
berdache, 256n63. See also *dilbaa'*, nádleeh
birth defects, 4, 141–42, 245n77
Blackhawk, Ned, 9, 98
Black Hills (South Dakota): uranium mines and health problems, 141; uranium prospecting, 74
Black Mesa, 12, 125–26, 190; Committee to Save, 145; and energy injustice, 9. *See also* Peabody Coal Company
Bluewater uranium mill, 152, 245nn76–77. *See also* Anaconda Copper Mining Company; Jackpile mine
Bokum Resources Corporation, 180
Bolton, M. F., 86
boom and bust, 5, 186–87, 190, 218; in Grants, New Mexico, 186–87, 188–90, 193–94; socioeconomic and gendered conditions of, 101, 148, 174, 188–89, 252n83, 266nn7–8. *See also* boomtowns; Gillette syndrome, the; uranium booms
boomerang effect, 215, 270n13
booms. *See* uranium booms
boomtowns, 266n7; and gender, 146–47, 188–89; uranium, 5, 14, 194. *See also* boom and bust; Gillette syndrome, the; uranium booms; yellowcake towns
borderlands, 66; of the Navajo Nation, xii, 37, 90, 101–2, 110, 147, 152–54, 155, 185, 202; as a theoretical framework, 19–21, 26, 152–54; and uranium, 3, 6, 99, 179, 193, 214. *See also* checkerboard, the
Born for Water. *See* Tó Bájíschíní
Bosque Redondo, 13, 34, 89, 249–50n40, 268n50. *See also* Fort Sumner; Hwéeldi
Briggs, Laura, 45, 133
Brooks, James, 201–2, 227
Bush administration, 193, 214. *See also* Cheney, Richard (Dick)

Cabezon, 152, 159, 163
Caldicott, Helen, 178
Cameron, Arizona, 6
cancer: lung, 3, 4, 112, 143, 145–46, 176, 216; and radiation exposure, 101, 177, 142–43; and uranium mining, 4, 112–13, 139
Cane Valley, 92, 137
Canyon de Chelly, viii, x, xii, 34, 36, 225n2, 225n5, 226n14. *See also* Tséyi'
Capitan, Mitchell and Rita, 213
Carleton, James, vii, 35, 269n63
carnotite, 1–2, 4, 74, 91, 102
Carriso Uranium Company, 2. *See also* Wade, John
Carrizo Mountains, 2, 21, 22, 52, 102, 139. *See also* East Reservation Lease mines
carrying capacity, 39, 50
Carson, Christopher (Kit), vii–viii, xii, 34–35

Carson National Forest, 158
cartography, 19–20, 30, 32, 212; decolonizing, 218; in livestock reduction and soil conservation, 47, 72; as a tool of resistance, 150, 182–83. *See also* counter-maps and counter-mapping; prolineal geographies
casinos/gaming, 195–96
Cebolleta land grant, 180, 199–203; history of, xii; and the new uranium boom, 188, 192, 197. *See also* checkerboard, the; land claims: competing; land grants; new uranium boom
Ceremony (Silko), 216–17
Chamberlain, Kathleen, 84, 246n91
checkerboard, the, 88, 96; history of, 36–37, 38
Chen, Mel, 72, 211
Cheney, Richard (Dick), 193
Chernobyl, 167, 263n51
Chevron, 205
Chicano movement, 177–78, 181 *See also* land grants
Ch'óóshgai, ix. *See also* Chuska Mountains
Church Rock, New Mexico, 6, 100, 138, 151–52, 164–70, 176, 183, 213–14, 217–18. *See also* Church Rock Uranium Monitoring Project (CRUMP); new uranium boom; Río Puerco: spill
Church Rock Uranium Monitoring Project (CRUMP), 217–18
Chuska Mountains, ix, 6, 7–8
Cibola Beacon, 187, 193, 196. *See also Grants Beacon*
Citizens' Alliance for Responsible Energy (CARE), 195. *See also* Noon, Marita
civil rights: to land, 31; versus natural, 31–32
Clark, Elizabeth, 51–52
climate change, 6, 8
Climax Uranium Company, 93, 176
Cly family: Happy, 18; John Wayne, 18–19. *See also Return of Navajo Boy, The*
coal, xiii, 9, 11–12, 58, 76, 82, 89, 105, 125–27, 172, 178, 182, 183, 232n53, 266n7. *See also* energy industry; Peabody Coal Company
Coalition for Navajo Liberation (CNL), 145, 147, 177, 260n120
Code Talkers, Navajo, 89
Cohn, Carol, 122
Cold War, 11, 59, 66, 110, 119–21, 155
Collier, John, 39, 42–43, 46, 49, 51
colonialism and colonization, ix–xii, 24, 25, 32, 129, 149, 204, 215, 235n97, 249n40; distinction from settler colonialism, 7; imported, 236. *See also* settler colonialism
Colorado Plateau: and uranium prospecting, mining, and milling, 2, 13, 55–78, 80, 107, 110, 111–13, 119, 164; as wasteland, ix, 1, 20–21
Colorado River, x, 63–64. *See also* sacred rivers
complex personhood, 23, 150, 202, 218, 235n98
Congo (Belgian Congo), 2–3, 102
conquest, vii, 33, 98, 162, 200, 201, 204
conservation, 17, 20, 28, 29–30, 39, 43–52. *See also* Pinchot, Gifford; soil conservation; U.S. Soil Conservation Service (SCS)
Council of Energy Resource Tribes (CERT), 126

counter-maps and counter-mapping, 21, 101–2, 182–84, 206, 234n92. *See also* cartography: as a tool of resistance; prolineal geographies
cowboys and Indians, 21, 69, 87, 191; trope, 107–9
Craib, Raymond, 72
critical race theory, 30, 32, 235n99
Cronon, William, 46
Crow Dog, Mary, 140–41
Crownpoint, New Mexico, 6, 151–52, 171, 193, 213–14
Cultural Property Review Board (CPRB). *See* New Mexico Cultural Property Review Board (CPRB)
Curie, Marie, 2, 4
curies, 263n51
Curtis, Edward, 96–97
cyborg, 215

dah nídiilyéél (prayer bundles), 160. *See also* sacred mountains
dance of Los Comanches, 197–202
Davis, Diana, 28, 238
declensionist environmental narrative, 28, 30, 97
decolonization, ix, 23, 140, 149–50, 177, 184, 207–9, 218, 265n85. *See also* anticolonialism
Deloria, Philip, 106
Denetdale, Jennifer Nez, xii, 220, 226n13
dependency, 124, 246n103
depleted uranium, 216
De Re Metallica (Agricola), 229n22
desert, vii, ix, 10; in the American environmental imagination, 8–10, 13–19; Navajo land as, xii, 7–8; in westward expansion, 33
deterritorialization, 8, 231n48
development, economic, xiii, xiv, 9, 43, 81–86, 96, 103, 124, 126, 127, 129, 131–33, 157, 163, 188, 193, 196; resource, 81–86, 105, 121, 125–27, 147–49, 152, 171–74, 179–80, 191–92, 196, 246n91, 266n8
dewatering, 165, 171, 180
Dibe' Ntsaa (Mount Hesperus), ix. *See also* sacred mountains
DiChiro, Giovanna, 209
dilbaa', 133. *See also* nádleeh
Dilkon, Arizona, xv, 267n34. *See also* Diné Citizens Against Ruining Our Environment (Diné CARE)
Diné Ahilndáálnish, Inc. (The People Working Together), 145
Diné Baa-Hani, 107, 145
Dinébe'iiná Náhiilna be Agha'diit'ahii (DNA), 145, 147
Diné Bikéyah, viii, ix–xi, 139, 226n10; borderlands of (*see* borderlands); and Diné geography and historiography, 158–62, 202, 216–17; mapping, 52, 135, 179, 218; as mine country, 185–87, 190; repopulation of after the U.S.–Navajo Treaty of 1868, 37–38, 249n40; tourism and film, 108–10; as wasteland, 27–28, 30, 48, 59. *See also* land claims: competing; Navajo land; Navajo Nation
Diné bizaad, 89, 186, 247n11; and Diné media, 266n1
Diné Citizens Against Ruining Our Environment (Diné CARE), xv, 267n34
Diné College Uranium Education Program, 213, 219
Diné Natural Resources Protection Act (DNRPA) of 2005, 3, 76, 214
Dinétah, 197–98, 212
disappearance, Native, 8, 21, 87, 96–98, 102, 115, 150, 209, 218, 225n3

distributive model of environmental justice, 24–26
Dodge, Chee, 239n52
Dooda (No) Desert Rock Committee, xv
Dook'o'ooslííd (San Francisco Peak), ix. *See also* sacred mountains
Downes, Randolph, 51–52
downwind and downwinders, 11, 135–36, 156–57, 176
Durán y Chaves, Santiago, 198–99. *See also* San Mateo, New Mexico
dzilleezh (mountain soil), x

Eastern Agency Uranium Office (Thoreau, New Mexico), 99
Eastern Navajo Diné Against Uranium Mining (ENDAUM), xv, 213–14, 220
East Reservation Lease mines, 2, 21, 102, 228n10. *See also* Vanadium Corporation of America (VCA)
ecofeminism, 33. *See also* feminism
ecoliberal environmentalism, 209
ecological citizenship, 46, 48
ecological Indian trope, 20
Eichstaedt, Peter, 220
El Malpaís National Monument, ix, 159. *See also* Yé'iitsoh Bidił
El Paso Natural Gas Company (formerly Rare Metals), 136, 156–57
Emmons, Glenn, 104
Energy Association Taxpayers (EAT), 189–90
Energy Day parade (Grants, New Mexico), 189
energy industry, 9, 59, 188, 195, 218, 231n51, 252n83; on Navajo and Pueblo land, 127, 147, 150, 175, 184; nuclear, 119, 122. *See also* coal; nuclear power; uranium
energy injustice, 9, 76, 150, 175; and gender, 121, 127, 147–48
environment: Diné relationships to, 134, 160–62; effects of uranium industry on, 164–66, 171–72; environmental justice perspective on, 26; and race, 23–24; and women's bodies and social roles, 6, 143–44. *See also* environmentalism; land-based life and culture
environmental blackmail or environment-for-jobs, 190, 193–94, 197. *See also* forced choice
environmental history, ix, 16–17, 33, 46, 222, 223, 231n40, 235n99
environmental imaginary, 8, 15–17, 75
environmental impact statements (EIS), 171, 190
environmentalism: and antinuclearism, 177; and debates over uranium mining, 154, 188, 194, 209, 214; as defined in environmental justice, 26; among Diné, xiv–xv, 147; mainstream or hegemonic, 15, 17, 44, 46; pseudo-, 232n60. *See also* conservation; environmental imaginary
environmental justice and injustice, ix, xiv, 7, 9, 115, 193, 215, 220–21; activism and social movements, 142–44, 149, 183–84, 213; gendered effects of, 6–7, 149; relationship to settler colonialism and decolonization, 23–26, 144, 218; and teleologies of injustice, 98–100; and territoriality, 207–9, 213. *See also* environmental racism
environmental justice history, ix, 226n8
environmental privilege, 9, 231n51
environmental protection. *See* conservation; environmentalism

environmental racism, 6–10, 23–24, 26, 190, 230n34, 231n40, 231n51; and wastelanding, 10, 15, 215
environmental self-determination, 76–77, 81
environmental sexism, 142
environmental sociology, 8–9
epistemology: Diné, 11, 44, 133, 154, 157, 161, 182, 257n67; settler colonial, 9, 98, 101, 150. *See also* environmental justice and injustice: and teleologies of injustice; *hózhǫ́*
Erz mountains, 3–4, 229n22
Espiritu, Yen Le, 236n113
experimentation, nuclear, 2, 69, 102, 112–15, 156, 253n103
Exxon, 177, 181

Faris, Chester, 40
Farmington, New Mexico, 105, 146, 147, 157, 183, 192
feminism, 6, 121, 144, 233n69; and antinuclearism, 118; Native, 32–33, 129, 143, 149–50; and theories of gender, 16, 124–25
Fernández, Bartolomé, 198–99. *See also* Fernandez land grant
Fernandez land grant, 192, 198–99, 202–3
Fiestaware, 2
film: criticism of, 247n11; Native stereotypes in, 90, 107–8, 247n11; promotional, 63, 122, 124; set in Diné Bikéyah, 18, 89–90, 107–10; use of Native actors, 19, 107–8. *See also Hallelujah Trail*; Hollywood: westerns; *Return of Navajo Boy, The*
Five Civilized Tribes, 35
five contributing tribes. *See* Mount Taylor: traditional cultural property listing
Flory, Evan, 50–52
Foerstel, Lenora, 138–39, 149–50
Foote Mineral Company, 146, 176, 260. *See also Foote Mineral Company v. Begay Yazzie* (1975); Vanadium Corporation of America (VCA)
Foote Mineral Company v. Begay Yazzie (1975), 146, 176
forced choice, 115, 190, 193–94, 197. *See also* environmental blackmail or environment-for-jobs
Ford, Henry, 2, 228n2
Fort Defiance, vii–viii, 200–201
Fort Sumner, vii–viii, xii, 34–35. *See also* Bosque Redondo; Hwéeldi
Fort Wingate, 40, 49
Foucault, Michel, 150, 234n86
Four Corners Power Plant, 125
four sacred mountains. *See* sacred mountains
Friends of the Earth, 170–71, 190. *See also Peshlakai v. Duncan*
frontier, vii, 18, 31, 69, 76, 95, 97, 110, 149; Colorado Plateau as, 55–59, 66, 70, 76; technological, 113; and tourism, 103–4
frontier thesis (Turner), 66
Fryer, E. R., 39, 42, 124
Fukushima Daiichi nuclear power plant, 167, 263n51

Gadget, the, 67–68, 155. *See also* Trinity test
Galeano, Eduardo, 215
Gallup, New Mexico, 36, 85, 90, 107–8, 152, 192, 260n120; and energy industry, 182–83; and the Río Puerco spill, 166, 168. *See also* borderlands: of the Navajo Nation; checkerboard, the

Gallup Independent, 99–100, 182–83, 197
Gasbuggy Test (Project Gasbuggy), 157–58
Geddicks, Al, 76
Geiger counter, 61, 63–64, 66, 79, 91, 100, 107, 138, 155–56, 188
gender binary (gender dichotomy), 21, 129, 131, 133, 138, 233n69, 256n63. *See also* public/private binary
gender roles: Diné and Pueblo, 126–27, 150, 256n63; normative, 21, 49, 119, 129, 144; and wage work, 135
gender spheres. *See* gender binary
genealogy, 150. *See also* prolineal genealogies
General Allotment Act of 1887 (Dawes Act), 32
General Atomics, 205. *See also* Rio Grande Resources
General Mining Act of 1872, 77, 180
geographical knowledge, Diné, ix–x, 22, 157, 159–62. *See also* sacred mountains
Getty Oil, 181
Gillette syndrome, the, 188–89, 266n7. *See also* boom and bust; boomtowns
goats, 34, 37; reduction of, xiii, 28, 51, 239n51; role in Diné life, 40–42, 239n53. *See also* livestock; livestock reduction
gods, Diné: Áłtsé 'asdzą́ą́ (First Woman), 133, 160–61; Áłtsé hastiin (First Man), 133, 160–61; Asdzą́ą́ Nádleehé (Changing Woman), 159; Black Body, 161; Blue Body, 161; Dootl'izhii nayoo'ali ashkii (the Boy Who Is Bringing Back Turquoise), 161; Naadaa'la'I nayoo'ali at'eed (the Girl Who Is Bringing Back Many Ears of Corn), 161; Na'ashjé'íí 'Asdzą́ą́ (Spider Woman), 159; Naayéé' Neezghání (Monster Slayer), 159, 216; Tó Bájíschíní (Born for Water), 159, 216; Tsóhanoai (the God of the Sun), 159; Yoołgai 'Asdzą́ą́ (White Shell Woman), 159
Goeman, Mishuana, 208, 266n103
Gordon, Avery, 23, 215
Goulding, Harry, 89–90, 92, 247n10
Grand Canyon, xiii, 17–18, 79, 217
Grand Junction, Colorado, 14, 59, 82, 122, 137
Grand Junction Operating Office (GJOO). *See* U.S. Atomic Energy Commission (AEC): Grand Junction Operating Office (GJOO)
Grants, New Mexico, 55, 72, 74–75, and Paddy Martinez, 248; and Mount Taylor Traditional Cultural Property listing, 191–92; as a uranium boomtown, 80. *See also* Grants uranium belt
Grants Beacon, 53, 56, 155–56, 187, 189; special energy edition, 55–59. *See also Cibola Beacon*
Grants uranium belt, 73, 75, 88, 107, 164–65, 171, 176, 181, 186–88, 193; and Paddy Martinez, 88
Groves, Leslie, 67–68, 243n32, 253n103
Gulf Mineral Resources (Gulf Oil), 151, 182, 206; Mount Taylor mine, 154, 159–60, 178–82, 190, 205
Gurley, Fred, 93, 94

Hallelujah Trail, 107–10
Haraway, Donna, 19, 215
Harper, Alan, 82
haunting, 215–16, 217
Havasupai, 214, 217
Haystack Mountain, 87–88, 91, 96, 99–101, 151, 154, 262n19

herding, non-Navajo, 36, 43
heteropatriarchy, 31–32, 124, 149. *See also* patriarchy
Hiroshima, Japan: bombing of, 103, 113–14, 155, 253n103
hogan, 18, 22, 234n94; and Paddy Martinez, 92, 95, 101; non-Navajo depictions of, 45, 131–32; and uranium pollution, 135–36; and white gender norms, 49. *See also* hot homes
Holiday, Mary, 106
Hollywood: filming in Diné Bikéyah, 89–90, 247n10; and Native actors, 90, 247n11; westerns, 18, 21, 90, 107–10. *See also* film
holy people. *See* gods, Diné
Hood, Edith, 177
Hoover Dam (formerly Boulder Dam), xiii
hot homes, 3, 6, 137–39. *See also* uranium mills: tailings piles
hózhǫ́, x; and environmental resources, 134, 161; and juridical articulations of justice, 170–75; and uranium, 160, 216
Hwéeldi, 34–36. *See also* Bosque Redondo; Fort Sumner
hybrid vigor, 44
Hydro Resources Incorporated (HRI), 188, 193, 214. *See also* Uranium Resources Incorporated (URI)

I Love Lucy, 64, 121
imagined communities, 18, 31, 97, 110
imperialist nostalgia, 98
Indian Claims Commission, 212–13, 217
Indian country, 71, 112, 266n103; and the Diné Natural Resources Protection Act (DNRPA), 3
Indian Health Service (IHS), 140
Indianness, 51; and atomic modernity, 91
Indian Reorganization Act of 1934, 77
Indians Against Exploitation, 145
Indian Service, 89, 236n2; and the AEC, 83; soil conservation and livestock reduction, 39, 42, 44–45, 49, 51. *See also* U.S. Bureau of Indian Affairs (BIA)
Indian Territory, 35
Indigenous Environmental Network (IEN), xv, 267n34
Indigenous Uranium Forum, 76, 213
in situ leach mining (ISL). *See* uranium mines and mining: in situ leach
instrument bodies and instrumentality, 113–14
interpellation, 8
intersectionality, 32, 129, 144, 147
"It Was That Indian" (Ortiz), 101, 112
Iverson, Peter, 47, 126, 220

Jackpile mine, 75, 111, 138, 152, 245n76; discovery of, 79–80; and environmental impact, 179–80; and health problems, 142
Jemez Pueblo, 80–81
Jicarilla Apache, 226n16; and Gasbuggy Test, 157–58. *See also* Gasbuggy Test
Johnson, Jesse, 66, 84–85
Juan Tafoya land grant, 188, 192, 197, 203
juridical justice, 24–25, 175–76, 235n103

Kayenta, Arizona, 12–14, 18, 19
Kearny, Stephen Watts, 200
Keeswood family (Lucy, Esther, and Corisea), 146–47
Kelley, Klara, xii, 220, 223

Kennedy, Robert, 18. *See also* Cly family; *Return of Navajo Boy, The*
Kerr McGee Oil, 85; core drilling, 108; Shiprock uranium mill, 21, 85–86, 127–32, 138, 148; uranium mines, 176, 180
Kerr McGee Park (Grants, New Mexico), 187
King, Larry, 166
Kluckhohn, Clyde, xi, 44
KMIN, 185–87
Knaebel, Jack, 80
Kosek, Jake, 196–97, 232n60
Kuletz, Valerie, 8, 10, 231n48. *See also* wasteland discourse
KYAT, 185–87

La Alianza Federal de Mercedes, 178. *See also* land grants
LaDuke, Winona, 26, 143, 151, 181, 223
Laguna Pueblo, 152, 199–200; and the AEC, 80; health problems, 141–42; Jackpile mine, 75, 79–80, 111, 180; and Mount Taylor, 151, 179, 186, 191, 197, 202, 206; women, 138–39
land-based life and culture, x, 126, 132, 147, 159, 169, 226n13
land claims, 181–82, 199, 207, 211; competing, 66, 187, 197, 203–4, 208
land grants: and the Mount Taylor Traditional Cultural Property listing, 191–92, 196–97; Nuevomexicano, xii, 20, 22, 55, 154, 157, 179–81, 186–90, 197–206, 208, 218; railroad, 36; social movements and activism, 177–78
Largos, Zarcillos, 200
LaRouche, F. W., 42–43
late modernity, 9
League of Women Voters, 118
łeetso, 99, 160. *See also* uranium
Lefebvre, Henri, 234n86
legacy mines, 22–23, 217
Leighton, Dorothea, xi, 44
linguistic detoxification, 170, 264n70
Little Colorado River, x. *See also* sacred rivers
Little Herder in Spring, 49
Little Silversmith, 41–42
livestock, xi, 89, 164, 239n51; Bosque Redondo, 34; growth of herds after 1868, 37; and the Navajo problem, 39, 43, 47–49; non-Navajo, 198, 262n37; role in Diné life, 12, 42–43, 132, 160–61; and uranium, 135, 165, 168, 218; and women, 40, 43. *See also* goats; livestock reduction
livestock reduction, 20, 28, 30, 33, 39, 47, 52, 89, 97, 124, 239n52, 239n57, 246n103, 252n83; assimilative, 49, 51; economic impact of, 82, 89, 103, 115; and gender and family forms, 40–43, 126, 143
Locke, John, 31
logic of genocide, 87, 98
Longest Walk, the, 258n95
Long Walk, the, viii, 34, 37. *See also* Bosque Redondo; Fort Sumner; Hwéeldi
Los Alamos National Laboratories (LANL) (formerly Los Alamos Scientific Laboratories), 75, 113, 170; and the Manhattan Project, 2, 67, 243n36, 253n103. *See also* Manhattan Project; Oppenheimer, Robert; Trinity test
Los Ojos de San Mateo land grant. *See* San Mateo land grant
Love Beads, 134–35
Lukachukai mountains: uranium mines in, 85, 93, 130, 139
lung cancer. *See* cancer: lung

MacDonald, Peter, 137
Manhattan Project, xiii, 2, 13, 62, 67, 70, 90, 93, 102, 113–14, 213, 228n10, 253n103
manifest destiny, 7, 31, 98. *See also* westward expansion and exploration
mapping. *See* cartography
Marshall Islands, 113
Martinez, Melton, 99–100, 102
Martinez, Patricio (Paddy): Paddy Martinez Park (Grants, New Mexico), 188; and Santa Fe Railroad, 94, 189; uranium discovery, 72, 87–89, 90, 91–102, 110, 112, 151, 187, 247n1, 248n15, 262n19
Marx, Karl, 215
Masco, Joe, 69, 76, 113, 114, 170
masculinity, 59, 129, 232n60, 257n67
matrilineal gender roles: Diné, 42; Pueblo, 150
Matthews, Washington, 162
McAtee, Waldo Lee, 27–33, 48
McClintock, Ann, 29, 69
McCray, Sarah, 171, 173
Means, Lorelei, 143
Memorial to the King of Spain (Benavides), xi
Merchant, Carolyn, 235n99
Meritt, E. B., 40–42, 239n52
Merlin, Lee, 122. *See also* Miss Atomic Bomb
Mescalero Apache, 34, 35, 226n16
Mexican Hat, Utah, 103, 105; uranium mill, 134–35, 136, 137, 252n92
Mexican land grants. *See* land grants
Mexicans, 16
Mexico, xi, 162, 187; settlement and land claims in the southwest, xii, 33, 198, 200, 262n37
milling. *See* uranium milling
Mills, Charles, 26
Miss Atomic Bomb, 122, 254n16
Miss Atomic Energy, 122
Moab, Utah, 13–14, 19, 63, 105
Mobil Oil Corporation, 171–74, 177. *See also Peshlakai v. Duncan*
modernity, 9, 10, 25, 69, 235n99. *See also* atomic modernity; late modernity
monsters. *See* Naayéé'
Monster Slayer. *See* Naayéé' Neezghání
Monument Valley, ix; in film, 18–19, 90; prospecting for uranium in, 80; roads, 12, 103, 105; as tourist destination, 103–4, 106–7; uranium mines in, 2, 6, 13, 21, 22, 52, 102, 103, 139, 176, 228n10; and the Yazzie family, 92–93. *See also* Tsé bii'nidzisgai; Vanadium Corporation of America (VCA)
Monument Valley Tribal Park, 107
Moraga, Cherrie, 117, 140
Mother Earth, 6, 30, 33, 144
Mount Taylor, ix, 21, 79, 153; claims to, 179, 181–84, 186, 207–9, 218; land grants, 197–204, 268n50; naming of, 151, 162–63; and the new uranium boom, xiii, 188; role in Diné life, 160–62; Traditional Cultural Property listing, 191–97, 206; uranium mines on, 179–80, 189, 205. *See also* Gulf Mineral Resources: Mount Taylor mine; Sacred mountains; San Mateo, New Mexico; Tsoodził
Mount Taylor Alliance, 177
movies. *See* film; Hollywood
Muir, John, 17, 46. *See also* conservation
Multicultural Alliance for a Safe Environment (MASE), xv, 219

mutually assured destruction, 27
Myer, Dillon, 84–85, 246n104

Naayéé', 159–60, 162, 216
Naayéé' Neezghání (Monster Slayer), 159, 216
Nacheenbetah, Frank, 93
nádleeh, 133
Nagasaki, Japan: bombing of, 103, 113–14, 155, 253n103
Narbona, 200
Narbona Pass, 7–8, 200, 231n43
National Citizen's Hearing for Radiation Victims, 146
National Environmental Protection Act (NEPA), 171, 175
National Indian Youth Council (NIYC), 145, 260n120
National Organization for Women (NOW), 118
National parks and monuments, 64, 78–79, 107; Hovenweep, 104; Natural Bridges, 104
National Priorities List. *See* U.S. Environmental Protection Agency (EPA): National Priorities List
national sacrifice, 15, 112, 169, 175
national security, 59, 69, 102, 114, 137, 244n65
natural rights: to land, 31; versus civil, 31–32
Navaho, The (Kluckhohn and Leighton), xi, 44
"Navajo": etymology of, xi
Navajo Birth Cohort Study, 4
Navajo country. *See* Diné Bikéyah
Navajo historiography: gender, 133; Naayéé' Neizghání and Tó Bájíschíní (The Hero Twins), 159–60
Navajo land. *See* Diné Bikéyah; Navajo Nation
Navajo language. *See* Diné bizaad
Navajo Nation, 2, 3, 12–14, 126, 132, 135, 145; geography of, ix–x, 12, 22, 56, 76, 88, 102, 185, 190, 202, 226n10, 266n1; map, xiv; and uranium, xiii, 4–6, 103, 104, 136, 137, 146–47, 166, 176, 193, 214. *See also* Diné Bikéyah
Navajo Nation Council (formerly the Navajo Tribal Council), xv, 227n31. *See also* Navajo Tribal Council (NTC)
Navajo Nation Environmental Protection Agency (NNEPA) (Navajo Environmental Protection Commission), 6, 137
Navajo Nation Museum, 200–201
Navajo neuropathy, 4
Navajo–New Mexico Boundary Bill, 239n62
Navajo problem, the, 28, 30, 38, 39, 43–48, 51–52, 106, 236n3
Navajo raiding, xi, xii, 34, 200
Navajo reservation, 2, 19, 27–28, 89, 226n10; creation of and expansions to, 35–38, 43, 44, 239n62, 268n50; eastern borderlands of, 3, 21, 72, 90, 147, 153, 179; industry, 125–30, 133, 134; maps of, 53, 74, 203, 213; and the Navajo problem, 39, 43–45, 51, 52; roads and tourism, 103–8; and soil conservation, 46–48; uranium industry in, 12–14, 22, 76, 80–86, 103, 111, 114–15, 136, 137, 138, 146, 214. *See also* Diné Bikéyah; Navajo Nation
Navajo Service, 39, 42, 82, 247n7
Navajo Times, 12, 76
Navajo Tribal Council (NTC), 40–42, 104, 106, 107, 126, 137, 145, 226n10, 227n31, 246n103; formation of, 143; and uranium

Navajo Tribal Council (NTC) (cont.) cleanup, 137; and uranium leases, xiii–xiv, 81–83, 86, 115, 249n40, 252n92. *See also* Navajo Nation Council
Navajo War, 1863–1864, vii–ix, 33–35. *See also* scorched earth campaign
Neutron Energy, 193
Nevada Proving Ground, 75, 155–56, 254n16. *See also* Nevada Test Site
Nevada Test Site. *See* Nevada Proving Ground
New Deal, 45
New Mexico Cultural Property Review Board (CPRB), 191, 194, 197, 204. *See also* Mount Taylor: Traditional Cultural Property listing
New Mexico Environmental Improvement Division (EID), 165, 181
New Mexico Legislative Energy Committee, 179
New Mexico Mining Museum, 72, 187
New Mexico State Mapping Agency, 19, 22
New Mexico Territory, viii, 37, 163, 200
New Spain. *See* Spain
new uranium boom, xiii, 3, 213, 214
níłtsą́ bi'áád (female rain), 161
níłtsą́ bikąʼ (male rain), 161
Nomina Abitera (McAtee), 29–30, 33
No Nuclear Strategy Conference (1978), 179
Noon, Marita, 195. *See also* Citizens' Alliance for Responsible Energy (CARE)
normal background radiation, 170–71
Not In My Back Yard (NIMBY), 16, 26
No Washboard Coalition, 117–18, 124. *See also* pronuclearism
nuclear cycle, 11, 113, 155, 157, 216
Nuclear Energy Education Day (NEED), 117–18. *See also* pronuclearism
Nuclear Energy Women (NEW), 117–18, 121. *See also* pronuclearism
nuclear power, 1, 75–76, 112, 126, 165, 167, 189, 190, 193, 213–14, 254n7; and domestic energy consumption, 117–21, 124

Obama administration, 214, 217
Office of Navajo Uranium Workers, 115
Off Our Backs, 118
oil, xiii, 9, 12, 24, 52–53, 58, 76, 82, 84, 105, 125–27, 147, 157, 183, 246n91
Operation Plowshare, 157. *See also* Gasbuggy Test
Operation Plumbbob, 113
Operation Upshot-Knothole, 155. *See also* Nevada Proving Ground; Test Shot Badger
Oppenheimer, Robert, 67–69, 113, 171, 243n32
origin stories, 39; Diné, 133; uranium, 88, 90, 97–98, 109–10, 112
Ortiz, Simon, 101, 112
overpopulation. *See* population and overpopulation

Park, Lisa Sun-Hee, 231n51
Pasternak, Judy, 99, 220
pastoralism, x, 69, 164, 249n36
patriarchy, 25, 32, 129, 140, 149, 173. *See also* heteropatriarchy
Peabody Coal Company, 12, 125–26
peaches, viii–x, xii, 34, 225n5, 226n14. *See also* Canyon de Chelly
peculiar sovereignty, 70–72, 76, 77, 79, 81, 86, 243n39

Pellow, David, 25
Peña, Abe, 155, 157, 199
Peshlakai v. Duncan, 170–76, 182, 190
Petrified Forest National Park, 17, 78
Pinchot, Gifford, 45–46. *See also* conservation
Pine Ridge, 141
Pioneer Metals Corporation, 181
Plains tribes, 35, 90, 109, 202
playing Indian, 24, 134
Plumwood, Val, 27, 30, 235n97
pollutability, 8–11, 15–16, 19, 24, 26, 99, 114, 154, 170, 172, 175, 217, 218
popular culture: uranium in, 63
population and overpopulation: in boomtowns, 188–89; Diné, x, xii, 34, 238n33; reservation size and land quality, 36–39, 43–44, 46
pot hunting, 104
power plants, xiii, 58, 119, 122, 124, 165, 175, 183, 216. *See also* Four Corners Power Plant
preservationism, 17–18, 46. *See also* Muir, John
private sphere (domestic sphere). *See* public/private binary
Project Y, 69, 243n36. *See also* Los Alamos Scientific Laboratories; Manhattan Project
prolineal genealogies, 150
prolineal geographies, 150, 182
pronuclearism: nationally, 117–22; in New Mexico, 189–90
prospecting. *See* uranium prospecting and prospectors
Prospecting for Uranium (AEC), 61
public/private binary, 21, 31–32, 43–46, 121–25, 129–36, 138, 143, 234n90, 235n97. *See also* gender binary
public sphere. *See* public/private binary
Pueblo Revolt, 198
pulmonary fibrosis, 110, 252n86

race: and environmental protection, 232; relations, 101, 173, 195–96; relationship to wastelanding, 8, 10, 15, 16–19; role in constructing the Navajo problem, 30–32; segregation and inequality, 138, 235n99; social construction of, 15–16, 217; theories of, 22–26. *See also* critical race theory; racialization; vanishing race (discourse)
racialization, 15, 16, 23, 32; of Natives, 129, 192; of Navajos, 44, 95, 204; of space and land, 10
racial violence. *See* violence: racial
racism, 10, 24, 32, 86, 101, 115, 144, 149, 196, 235n97; intersectionality, 147; sedimentation of, 22–23. *See also* environmental racism; race; racialization; violence: racial
radiation, 136–39; exposure, 154–56, 170, 218; fears, 112; and geography, 21, 75, 135; health effects, 3–5, 7, 110–13, 145, 178; multiscalarity of, 11; reproductive impacts, 141–42, 245n77; Río Puerco spill, 166–70. *See also* hot homes; normal background radiation
Radiation Exposure Compensation Act (RECA), 176, 213
radio, 107, 166, 266n1. *See also* KMIN; KYAT
radium, 2, 4, 113, 136, 165, 263n55
radon, 3, 4, 137, 139, 171
railroads. *See* Santa Fe Railroad
reconquest. *See* Spain
Redhouse, John, 192, 265n85
Red Mountain. *See* Haystack Mountain

Red Power movement, 140, 177–78, 189, 258n95
Red Rock, 145, 176–77
Red Valley, 6, 139, 176, 177
Red Valley Committee, 177
Red Water Pond, 218
reification, 10, 135, 138, 154, 164
relationality. *See* environmental privilege
relocation: forced, xiii, 246n104, 269n63. *See also* Bosque Redondo; Hwéeldi; Long Walk, the
Relocation Plan of 1952, 96, 124, 127, 246n10, 249n36
reproductive injustice, justice, and rights, 140–44, 149. *See also* sterilization
Return of Navajo Boy, The, 18–19. *See also* Cly family
Ringholz, Raye, 62
Rio Grande Resources, 194, 205–6
Rio Grande River, x, 163; settlements along, 198, 199
Río Puerco: environmental history of, 163–65, 262n37; spill, xiii, 165–70, 177, 263n56, 263n55
Río Puerco valley, 163–64, 204, 268n50
roads, 61; as environmental problem, 171, 180; Navajo need for, 12, 106, 250n60; for uranium industry and tourism, 71, 103–7, 110, 134, 177
Robinson, Paul, 168, 219
Roosevelt, Franklin Delano, 1, 2, 45
Rose, Deborah Bird, 7, 133
Rosenthal, Nicholas, 266n103
royalties, xiv, 77, 84–85, 102–3, 125

sacred land, xiii, 17, 26, 178, 182, 184, 191, 194, 208, 218; legal articulations of, 174–75. *See also* sacred mountains
sacred mountains, ix–x, xiii, 22, 37, 79, 226nn9–10; Tsoodził, 36, 151, 157, 159–60, 202. *See also* Diné Bikéyah; sacred rivers
sacred rivers, x
San Juan River, x, 36, 103. *See also* sacred rivers
San Mateo, New Mexico, 151–54, 157, 159, 188; 1979 Mount Taylor protest, 177–79, 181–82, 198–203. *See also* Gulf Mineral Resources: Mount Taylor mine
San Mateo land grant (Los Ojos de San Mateo), 198–99
Santa Fe Industries, Inc. *See* Santa Fe Railroad
Santa Fe Railroad: and conflicting land claims, 80; and the 1868 U.S.–Navajo Treaty, 36; and Paddy Martinez, 93–95, 189, 248n23; and settlement of northern New Mexico, 187, 204, 208. *See also* checkerboard, the; Gurley, Fred; railroads
scintillators, 63–64
scorched earth campaign, 33–36, 201, 269n63
Seaborg, Glenn, 56, 75–76
Seager, Joni, 216
Second Treatise on Civil Government (Locke), 31
sedimentation: of racism, 23; of the uranium industry, 75
self-determination: for Native nations, 23, 84, 150, 249n36. *See also* environmental self-determination
settler colonialism: as distinct from colonialism, 7; and environmental racism/environmental justice, 22–26, 143, 209; Native feminist approaches to, 149; relationship to Natives, ix, 8, 19, 19, 31, 86, 90,

102, 109, 129, 174–75; and spatial/geographical epistemology, 20, 72, 76, 97, 110, 208, 211–12; and teleology, 97–98, 249n40
sexual violence. *See* violence: sexual
sheep: churra, 40, 239n53; Diné herding and herd sizes, 18, 34, 37; and radiation, 11, 135, 136, 156, 166; reduction, xiii, 28, 39, 42–43, 49, 51, 52, 89, 238n42, 239n51; role in Diné life, 40–42; Spanish/Nuevomexicano, 154, 198, 164. *See also* livestock; livestock reduction
Sherman, William Tecumseh, viii, xii–xiii, 35–37
Shiprock, New Mexico, 22, 139, 177, 183; Kerr McGee uranium mill and ore sampling station, 21–22, 85, 111, 127–30, 132, 137, 138, 188; social effects of energy development, 147–48
Shirley, Joe, 214
Shuey, Chris. *See* Southwest Research and Information Center (SRIC)
silicosis, 4, 110, 112
Silko, Leslie Marmon, 216–17
Simmons, Phillip, 61–62
Simpson, James, xii, 162–63
slow violence, 5, 30, 88, 96, 98, 112
Smith, Andrea, 25, 150
social construction: gender, race, and wasteland, xi, 10, 15–17
social contract, 31–32
Sohio Western Mining, 181
soil conservation, 30, 46–52. *See also* U.S. Soil Conservation Service (SCS)
soil erosion, 27, 39, 48–49. *See also* Navajo problem, the
Soja, Edward, 31
Southwest Indian Development Corporation, 144–45
Southwest Research and Information Center (SRIC), 167, 168, 219
sovereign fantasy, 72
sovereignty: Diné, 14, 86, 208; Native, xv, 55, 144, 147, 149, 184, 207, 208–9, 218; peculiar, 70–72, 76–77, 79, 81, 86, 243n39; plural, 207; U.S., 59, 66
Soviet Union, 114, 122
Spain, vii; colonial period, 187, 197–99, 202; reconquest of New Mexico, 198
Spanish land grants. *See* land grants
Steen, Charlie, 62, 63
sterilization, 140–44, 149
St. George, Utah, 156
stock reduction. *See* livestock reduction
Strategic Minerals Act of 1939, 244n65
Superfund, 169
surveys. *See* uranium, surveying
Sze, Julie, 215, 222, 231n51
Szilard Petition, 253n103

Taylor, Zachary, 162–63
teleology, 74; of injustice, 97–102, 249n40; of progress, 90
termination, 96, 124, 126, 249n36
terra nullius, 175
territoriality, 20, 24, 37, 109–10, 175, 181, 182, 207–9, 218
Test Shot Badger, 155
Test Shot Harry, 156
test shots: nuclear, 11, 155–57. *See also* Nevada Proving Ground
Texas Zinc Minerals Corporation, 134–35, 136, 252n92
Third World Liberation Movement, 177. *See also* decolonization
Thompson, John, vii–ix, x, xii, 34, 225n5

Three Mile Island, 117, 118, 166–67, 190, 263n51
Tijerina, Reies Lopez. *See* La Alianza Federal de Mercedes
Tó Bájíschíní (Born for Water), 159, 216
toponyms, 19, 32, 100, 162, 163, 206
tourism, 13–14, 17–18, 21, 63, 75, 90, 187, 251n65; in Monument Valley, 12, 103–10, 247n10
Toxic Wastes and Race (United Church of Christ), 230n34
Traditional Cultural Property listing. *See* Mount Taylor: Traditional Cultural Property listing; New Mexico Cultural Property Review Board (CPRB)
treadmill of production, 8–9, 25, 26, 217
treaties and treaty rights, 140, 143, 200, 201. *See also* Treaty of Guadalupe Hidalgo; U.S.–Navajo Treaty (1868)
Treaty of Guadalupe Hidalgo, 16, 66, 162
Tribal Minerals Leasing Act (1938), 77
trinitite, 67, 69
Trinity test, 67–70, 155, 156, 157
Truman, Harry, 2
trust relationship: federal–Native, 77, 84, 96, 124, 126, 246n103, 249n36
Tsé bii'nidzisgai, ix, 12, 102. *See also* Monument Valley
Tséyi', viii, 225n2. *See also* Canyon de Chelly
Tsisnaajinii, ix, 22. *See also* sacred mountains
Tsoodził: competing maps of and claims to, 185–86, 198, 203, 218; Diné perspectives on and use of, ix, xiii, 21, 22, 36, 37, 157–63; San Mateo protest, xiv, 177–82; Spanish land grants, 198–202; Traditional Cultural Property (TCP), 191, 197, 206–9; uranium industry and nuclearism, 151–54, 156–57, 179–81, 214. *See also* Mount Taylor; sacred mountains
Tuba City, Arizona, 111–12, 136, 137
Tuck, Eve, 235n103
Turner, Frederick Jackson, 66

Udall, Stewart, 176
UNC v. Benally, 176
union and antiunion activity, 101, 253n92
Union Carbide Corporation, 60, 137, 180–81. *See also* United Nuclear Corporation (UNC)
United Church of Christ, 230n34
United Nuclear Corporation (UNC) (formerly Union Carbide Corporation), 165–69, 176. *See also* Río Puerco: spill; *UNC v. Benally*; Union Carbide Corporation
United Pueblos Agency, 81
United Soviet Socialist Republic (USSR). *See* Soviet Union
U.S. Atomic Energy Commission (AEC): Grand Junction Operating Office (GJOO), 59–64, 75, 78, 82, 85; mine and mill safety and regulation, 111, 136; and nuclear bombs, 156–57; and nuclear energy, 118–19, 126; Raw Materials Division, 66, 70; road-building, 103–5; uranium procurement, prospecting, and ore buying, xiii, 2, 8, 52–53, 56, 59, 71–72, 74, 77–86, 90, 93, 99, 111–12, 115, 179, 189
U.S. Biological Survey, 27, 28, 29
U.S. Bureau of Indian Affairs (BIA), 84, 140, 236n2, 246n104; and mining policy, 77, 81–82, 84–86, 115; in *Peshlakai v. Duncan*, 171, 173; Red

Power protests against, 258n95; and roads, 104–6; and soil conservation, 47, 50. *See also* Indian Service
U.S. Bureau of Indian Affairs (BIA) (Indian Service), 89, 236n2, 246n104, 258n95; and livestock reduction, 27–28, 39–50; and mineral leases on Native land, 77, 84; and road-building, 104, 105–6; role in uranium prospecting, leasing, and mining, 81–86, 111, 115, 171, 173
U.S. Bureau of Land Management (BLM), 154, 192, 194
U.S. Commission on Civil Rights: and Native women, 140
U.S. Congress: House of Representatives Committee on Oversight and Government Reform hearings (Waxman hearings), 177; Joint Committee on Atomic Energy (1967), 112
U.S. Department of Agriculture, 27, 29, 264n73
U.S. Department of Energy (DOE), 67, 171
U.S. Department of the Interior (DOI), 78, 85, 126, 156, 174
U.S. Environmental Protection Agency (EPA), 3, 6, 137, 167, 169; National Priorities List, 169–70
U.S. Geological Survey (USGS), 53, 62, 74, 78, 80–81, 82
U.S.–Mexico War, 35, 162
U.S. National Forest Service (NFS), 180, 192, 208, 217
U.S. National Park Service (NPS), 78–79
U.S.–Navajo Treaty (1868), 35–38, 238n29
U.S. Nuclear Regulatory Commission (NRC), 169, 264n73
U.S. Public Health Service (PHS), 3–4, 139, 141, 189; uranium study, 110–15, 139, 176
U.S. Public Roads Administration, 104. *See also* roads
U.S. Soil Conservation Service (SCS), 28, 44, 46–50, 52, 240n70. *See also* soil conservation
United States Vanadium Company, 59
uranium: deposits, 22, 36, 61, 65, 71, 74, 78, 80–81, 88, 90, 121, 177, 179–80, 228n5; geology of, 72, 74–75, 191, 205–6; health effects of, 4–6; pre-Manhattan Project uses of, 1–2
uraniumaire, 62, 77, 188
uranium booms, 12, 14, 20, 53; AEC and media promotion of, 56–62, 67, 70–71, 77–78, 81, 111; in Grants and the Grants uranium belt, 88, 90, 92–96, 101–2, 110, 112, 155, 170, 186–89, 248n24. *See also* boom and bust; boomtowns; new uranium boom
uranium milling. *See* uranium mills
uranium mills: Bluewater (Anaconda), 152, 245n77; Church Rock (UNC), xiii, 100, 165–69; Grants uranium belt and Ambrosia Lake, 88, 180–82; Mexican Hat (Texas-Zinc Minerals Corporation), 103, 134–35, 252n92; pollution, cleanup, and health problems, 5, 110–11, 136–38, 142, 218; Shiprock (Kerr McGee), 21, 85–86, 127–30, 136, 138, 148, 188; tailings piles, 83; Tuba City (El Paso Natural Gas Company), 136
uranium mines and mining: Cove area (Carrizo, Chuska, and Lukachukai Mountains, Red Valley), 2, 5–6, 21–22, 52, 85, 93, 102, 130, 139,

uranium mines and mining (cont.) 146, 176; on Diné land (overview), xiii, 2–3, 12–13, 18–19, 21–22, 52, 102–6, 176; Grants uranium belt (Church Rock, Crownpoint, Ambrosia Lake), 6, 75, 100, 138–39, 151–52, 154, 164–65, 170–72, 176, 188, 213–14, 217–18; labor in, 21, 84, 111, 119–20, 138–39; map, xiv, 73, 153, 183; Monument Valley, 2, 6, 12–13, 21–22, 52–53, 90, 92–93, 102–4, 139, 176, 228n10; Navajo Tribal Council and, 81–86; on non-Diné land, 13–15, 74, 141; problems with cleanup and health effects, 3–6, 22–23, 100–102, 110–13, 115, 139, 143, 176–77; underground, open pit, and in situ leach (ISL), 103, 138, 142, 160, 165, 171–72, 179–80, 193, 205, 214
uranium prospecting and prospectors: AEC and media promotion of, 55–67; core hole drilling, 14, 108; hobbyists, 63–64, 65–66; and Navajo land, 67, 71, 80, 81–85, 103, 111; on Native land, 77, 79–81; outside of Colorado Plateau, 74; by plane, 60–61, 79–80, 105; in popular culture, 63–64, 121–23; on private land, 64; on public land, 78–79
Uranium Resources Incorporated (URI), 188, 193, 214. *See also* Hydro Resources Incorporated (HRI)
uranium surveying, 79, 89; aerial, 22, 61, 80; ground, 52–53
uranium tailings, 2, 180, 216–17; on Diné land, 3, 22, 83–84, 85–86, 135, 180; health threats and insufficient cleanup, 139–42, 146, 165–68, 188; hot homes and use in other construction, 6–7, 136–38. *See also* Río Puerco: spill; uranium mills
Ute Mountain Tribal Council, 81, 111
Utes, 71, 80–81, 111, 156

vampire: as metaphor, 215
vanadium, xiii, 1–3, 69, 82, 89, 92, 93, 102, 228n2, 228n6, 228n10
Vanadium Corporation of America (VCA), 2, 92, 102–3, 104, 111, 146, 176, 228n6, 228n10. *See also* East Reservation Lease mines; Monument Valley
vanishing race (discourse), 96–99, 106, 115
"Vanishing Race" (photograph), 96–97
Viles, Denny, 92
violence: colonial, ix, 32, 98, 107, 190, 202; environmental, viii, xiv, 11, 23–24, 34, 103, 216; gender and sexual, 25, 32, 34, 127, 141, 188; interpersonal, xii, 181; intersecting forms of, 147–49; and livestock reduction, 39, 40, 42, 43; racial, 10, 15, 31, 56, 70, 101, 109, 192–94, 197, 204, 252n83; slow, 5, 112, 207

Wade, John, 2
wages, 148, 236n109, 252n92
wage work, 21, 96, 124–27, 135–36, 147, 149; Navajo, 12, 19, 43, 89, 90, 125, 129–32, 138
Warren, Louis, 45, 222
Washington, John Macrae, 200
Washington, Sylvia Hood, 226n8, 231n40
wasteland discourse, 8, 10, 19, 23, 109, 112, 146, 154. *See also* wastelanding
wastelanding, 9–11, 15–19, 26, 67, 113, 154, 170, 172, 207, 215–16, 218

Waxman Hearings, 177
Wayne, John, 18–19, 247n10. *See also* Cly family: John Wayne; Hollywood: westerns
Weisiger, Marsha, 40, 42, 220, 223
westerns (film). *See* Hollywood: westerns
Western Shoshone, 155, 216
westward expansion and exploration, 33, 56, 97, 250n40. *See also* manifest destiny
Wetherill, John, 2
white supremacy, 25, 88
widows, 7, 145–47, 176, 178, 213
wilderness, 16–17, 29, 30, 46, 232n60
Williams, Patricia, 30
Wimpfen, Sheldon, 63, 78
Window Rock, 82, 83, 86, 200
Winthrop, John, 31
Wolfe, Patrick, 24, 87, 123, 175
women: as activists, 140–50; health effects of uranium on, 140–43; and labor, 135–39; pro- and antinuclearism, 117–27; as symbols, 127–29. *See also* environmental sexism; feminism; gender binary; gender roles; widows
Women for Survival, 169, 170
Women of All Red Nations (WARN), 140–44, 258n95
women's liberation movement, 118–21, 149
World Uranium Hearing, 213
World War II, 1–2, 8–9, 52, 82, 88, 89, 246n104

x-marks, 249n40

Yazzie, Clifford, 146
Yazzie, Fannie Begay, 146, 176
Yazzie, Luke, 92–93
Yazzie, Tony, 137
Yazzie-Lewis, Esther, 160, 218, 220
Yé'iitsoh, 159–60, 162, 163, 262n19
Yé'iitsoh Bidił (El Malpaís National Monument), ix, 159
yellowcake, 3, 112, 126, 165, 173, 216
yellowcake towns, 13

Zimmerman, William, 132
Zion, Jim, 160, 218, 220
zombie: bombs, 215; mines, 215, 217; uranium as, 216
Zuni National Forest, 203
Zuni Pueblo, 80, 141, 179, 191, 197, 202, 203, 206
Zuni River, x. *See also* Sacred rivers

TRACI BRYNNE VOYLES is assistant professor of women's studies at Loyola Marymount University in Los Angeles.