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**“Barren Lands and Barren Bodies:  
Uranium, Genetics, and Sterilization in Navajo Nation”**

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## **Introduction**

In 1974 Native American women including Lorelei DeCora Means and Madonna Thunderhawk created Women of All Red Nations (WARN). True to their organization’s name, they joined together some 300 women from 30 different tribal communities. WARN highlighted the interconnectedness of the problems plaguing their people.<sup>1</sup> These included environmental devastation primarily due to uranium mining and fossil fuel extraction, political powerlessness, forced sterilizations, poverty, and a broad range of health problems including higher than average rates of cancer, miscarriages, stillbirths, and childhood deaths. WARN insisted that the Indian public health crisis could not be properly understood exclusively within the context of the exploitation and pollution of their peoples’ physical environment, but required as well understanding of the larger context of Indian health issues evolving out of past and present cultural and political changes. Their recognition of the interdependence of a broad array of factors occurring over long periods of time proved both instructive and empowering and serves as the model for this article.<sup>2</sup>

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<sup>1</sup> See Barbara Anne Gurr, “Win Oye Ya: An Examination of American Indian Women’s Responses of Resistance to Colonization,” (M.A. Thesis Southern Connecticut State University, 2004); 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): 1-22; Troy Johnson and Alvin M. Josephy, *Red Power: The American Indian’s Fight for Freedom* (Lincoln, NE: Bison Books, 1999); and Andrea Smith, “Beyond Pro-Choice Versus Pro-Life: Women of Color and Reproductive Justice,” *NWSA Journal* 17, no. 1 (Spring 2005): 119-140.

<sup>2</sup> Foundations for some of the material on WARN presented here first appeared in Nancy C. Unger, “Women, Sexuality, and Environmental Justice in American History,” in Rachel Stein, ed., *New Perspectives on Environmental Justice* (New Brunswick: Rutgers University Press, 2004), 45-60; Nancy C. Unger, “Gendered

WARN was certainly not the first group to perceive modern public health issues on rural American Indian reservations as inevitably tied to the larger tragic history of Indian health and mortality since the sixteenth century. Epidemic and pandemic disease have been central to the Indian experience since earliest contacts with Europeans. The ensuing demographic catastrophe and collapse was followed after about 1900 by various ongoing and chronic public health crises proportionally far more widespread among Indians than within the general population of the United States. The ways in which different Indian groups and Euro-Americans have understood the origin and impact of disease on Indian populations has shifted over time, as have the viewpoints of historians and other scholars investigating ongoing Indian health issues.<sup>3</sup> This article focuses on selected health threats affecting the *Diné*, or “the People,” as Navajo Indians call themselves, living in *Diné Bikéyah* (Navajo Nation) during the mid to late twentieth century. Not only were the Navajo faced with the lethal tuberculosis endemic to other Indian populations, but from 1944 to 1971 their impoverished rural homeland was the site of virtually unregulated mining and milling of uranium ore.<sup>4</sup> A reduced level of mining activity continued until 1986 and only in 2005 did Navajo Nation ban all exploitation of uranium.<sup>5</sup> As Navajo Nation became pockmarked by dangerously radioactive water holes, tailings, and work sites, for the first time widespread cancer and serious birth defects came to plague the largely non-smoking population. Simultaneously, through its Indian public health policies, the U.S. government encouraged the practice of forced sterilizations in the 1960s and 1970s. These parallel tragedies left in their wake illness and death, barren lands and barren bodies.

The Navajo were far from passive victims. Despite their burdens, the local population fought back, using their understanding of the environmental and health catastrophes to find

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Approaches to Environmental Justice,” in Sylvia Washington, Paul Rosier, and Heather Goodall, eds., *Echoes from the Poisoned Well* (Lanham, MD: Lexington Books, 2006), 17-34; Nancy C. Unger, *Beyond Nature’s Housekeepers: American Women in Environmental History* (New York: Oxford University Press, 2012); Marie Bolton and Nancy C. Unger, “‘Mother Nature is Getting Angrier’: Turning Sacred Navajo Land into a Toxic Environment,” in Ufuk Özdağ and François Gavillon, eds. *Environmental Crisis and Human Costs* (Colección Benjamin Franklin. Alcalá de Henares, Madrid: Universidad de Alcalá, 2015): 31-45.

<sup>3</sup> See Seth Archer, “Colonialism and Other Afflictions: Rethinking Native American Health History,” *History Compass* 14, no. 10 (October 2016): 511-521.

<sup>4</sup> Doug Brugge and Rob Goble, “The History of Uranium Mining and the Navajo People,” *American Journal of Public Health*, 2002 September; 92(9): 1410–1419, accessed Dec. 1, 2016 at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222290/>.

<sup>5</sup> Jamie deLemos, Tommy Rock, Doug Brugge, Naomi Slagowski, Thomas Manning, Johnnye Lewis, “Lessons from the Navajo: Assistance with Environmental Data Collection Ensures Cultural Humility and Data Relevance,” *Progress in Community Health Partnerships: Research, Education and Action* 1, no. 4 (2007): 321-326, accessed December 4, 2016 at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2719896/>.

home-grown responses. WARN, for example, forged ancient Indian spirituality with modern feminism to create a unique and powerful tool to defend the health and reproductive rights of both the environment and its native people in the face of ongoing attacks on Indian culture, health, and lands. This paper explores late twentieth century Indian public health issues in relation to environmental crisis in *Diné Bikéyah*, in particular the consequences of unregulated exploitation of uranium on Navajo health.

### **Indian Health and Mortality since Early Contact**

To capture some of the complexity of the relationship between Navajos and western-style American health care researchers and providers, the Navajo story must be situated in the larger history of Indian and European-American relations.<sup>6</sup> As early as the sixteenth century, contact between Europeans and Indians led to the spread of alien infectious diseases for which Indians lacked immunity followed by a subsequent, catastrophic demographic collapse of the entire Indian population. Epidemics of measles, influenza, and smallpox broke out wherever Europeans went, from Spanish Hispaniola and Mexico in the 1500s, to British New England and French Quebec in the 1600s, to Alaska and the Amazon in the 1900s.<sup>7</sup> Environmental historian William Cronon notes that to the Puritans of New England, “the epidemics were manifestly a sign of God’s providence.”<sup>8</sup> John Winthrop stated this plainly after a smallpox epidemic killed up to ninety percent of the coastal Indians of New England during the winter of 1634, writing the following summer, “God hath hereby granted our title to this place.”<sup>9</sup> Further west, during the “Killing Years,” as historian Colin Calloway terms the eighteenth century, the first lethal contacts between Indians and European pathogens were accompanied by “defeat, loss of land, and continued disruption of traditional ways” that “generated further upheaval and despair in Indian communities.”<sup>10</sup> The subsequent wave of violent conflict along the frontiers of Indian land that further devastated Indian communities faded in scope as the

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<sup>6</sup> Up until recently medical researchers demonstrated a neglect of the historical perspective which began to be explored by historians in the 1970s. One exception is David S. Jones, a scholar trained in both medicine and history. See David S. Jones, *Rationalizing Epidemics: Meanings and Uses of American Indian Mortality Since 1600* (Cambridge: Harvard University Press, 2004).

<sup>7</sup> Jones, 26.

<sup>8</sup> William Cronon, *Changes in the Land: Indians, Colonies, and the Ecology of New England* (New York: Hill and Wang, 1983), 90.

<sup>9</sup>*Ibid.*

<sup>10</sup> Colin Calloway, *One Vast Winter Count: The Native American West before Lewis and Clark* (Lincoln: University of Nebraska Press, 2001), 367, 374.

great smallpox pandemic of 1779-1783 swept North America and sealed the fate of North American Indians.<sup>11</sup>

The Navajo did not escape the pandemic that spread rapidly along well established trade routes. Smallpox moved south from the Canadian border, west from the eastern seaboard, and north from the heart of Mexico into the Navajo homelands.<sup>12</sup> Spanish priests watched the disease “spread like lightning through all the missions” and cause “havoc which only those who have seen it can believe.”<sup>13</sup> An estimated ninety percent of the nearby Hopi population was killed by a combination of drought and disease.<sup>14</sup> The Navajo, protected from severe mass contagion by their dispersed settlement in small family groupings, suffered a different kind of death. Calloway explains: “Smallpox left survivors heartbroken and dazed. Sometimes it left them pockmarked and blind. It eroded confidence in traditional healers and healing rituals....[S]mallpox cleared the West for occupation.”<sup>15</sup> Epidemics continued throughout the nineteenth century with a particularly virulent smallpox epidemic again hitting the same region, now the southwest of the United States, in 1898 and 1899.<sup>16</sup>

### “A Contest between Traditional and Western Medicine”

The direct role of the federal government in Navajo health care began in the early 1860s. After the United States took possession of the Mexican “far north” following the Mexican-American War (1846-1848), came a relatively calm decade in which well-intentioned federal agents sent into Navajo country were able to encourage prosperity and peace. They could not, however, prevent the new smallpox epidemic that hit the area in 1853-54.<sup>17</sup> A detrimental change in Indian agent personnel in 1856, followed in 1857 by a devastating drought led to the deterioration of relations between the U.S. Army and the Navajo. Sporadic Navajo raiding was met with increasingly harsh army reprisals until April 1861, when the army abandoned the region in response to the outbreak of the Civil War.<sup>18</sup> The army’s return was heralded by the Kit Carson campaign of 1863-64, a large-scale

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<sup>11</sup> Calloway, 420; see also Jones.

<sup>12</sup> Calloway, 419.

<sup>13</sup> Quoted in Calloway, 417.

<sup>14</sup> Calloway, 418.

<sup>15</sup> *Ibid.*, 424, 426.

<sup>16</sup> See Robert A. Trennert, “White Man’s Medicine vs. Hopi Tradition: The Smallpox Epidemic of 1899,” *The Journal of Arizona History*, vol. 33, No. 4 (Winter, 1992), 349-366; Russell Thornton, *American Indian Holocaust and Survival: A Population History Since 1492* (University of Oklahoma Press, 1990), 100.

<sup>17</sup> Robert A. Trennert, *White Man’s Medicine: Government Doctors and the Navajo, 1863-1955* (Albuquerque: University of New Mexico Press, 1998), 21.

<sup>18</sup> *Ibid.*, 22.

“scorched-earth” invasion of Navajo territory, described by Trennert as “intended to lay waste to their economy, cripple their military prowess, and compel surrender through starvation.”<sup>19</sup>

After a series of ferocious military campaigns against the Navajo in their Arizona homeland, in late winter of 1864 the U.S. Army forced over 8,500 men, women, and children on the “Long Walk” to Bosque Redondo, New Mexico. This event, in the words of Richard White, “seared into the Navajo memory, a lasting reminder of the power and ruthlessness of the federal government.”<sup>20</sup> Trennert additionally points out that starvation and exposure were the most severe threats to Navajo health. The attention provided by traditional healers and the few U.S. Army doctors available provided scant relief.<sup>21</sup> The surviving Navajos who arrived at Bosque Redondo provided sharp contrast to what Trennert describes as the “relatively affluent and well-nourished people” who had established a thriving economy and lifestyle based on sheep and horse pastoralism and agriculture.<sup>22</sup>

U.S. Army General James H. Carleton created the reservation at Bosque Redondo with the goal of weaning the Navajo from pastoralism and teaching them western-style farming. However, the land allotted to the Navajo was too small to meet their needs and moreover, attacks by insects devastated the Indians’ farming efforts. Exceptionally bad weather further destroyed their crops and left the Navajo reliant on army rations for survival. Both army records and Navajo lore recall deplorable conditions of starvation, inadequate and non-adapted rations, and poor water supplies that led to chronic dysentery, widespread sickness, and death. Army doctors were led by George Gwyther, chief medical officer at the post, himself not in possession of a medical degree and without any experience working with Indians prior to arriving at Bosque in 1862. Gwyther held what Trennert terms “racially based views on Indian health, considering natives biologically different than white men,” and the army doctors working under his direction “generally believed that the native lifestyle caused the high incidence of disease.”<sup>23</sup> While the doctors concluded that Navajo medical problems were, as Gwyther put it, “wholly owing to their own habits,” Special Commissioner Julius K. Graves, who visited the reservation in December 1866 reached an even more fatalistic conclusion. As had Jonathan Winthrop two hundred years earlier, he declared that the “fearful

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<sup>19</sup> *Ibid.*, 23.

<sup>20</sup> Richard White, “*It’s Your Misfortune and None of My Own*”: *A New History of the American West* (Norman: University of Oklahoma Press, 1991), 100; see also Trennert, *White Man’s Medicine*, 19-22.

<sup>21</sup> Trennert, *Ibid.*, 25.

<sup>22</sup> *Ibid.*

<sup>23</sup> *Ibid.*, 27, 29.

mortality” afflicting the Navajo in various epidemics was the result of “the Divine visitations of God for his own purposes.”<sup>24</sup>

After four years of what White terms “humiliation, suffering, death, and near starvation” at Bosque Redondo, the Navajo were allowed to return to a reservation in their own country.<sup>25</sup> They took with them a determination to rely on their own traditional medicine born out of a deep distrust of government health care providers. Trennert points out that army doctors “handed out pills, forced reluctant patients into the hospital, provided vaccinations, and even cured some individuals, but they could not overcome tribal suspicion, resentment, and preference for their own healers.... [T]he medical care provided at the Bosque Redondo... set up a contest between traditional and western medicine that has lasted to the present.”<sup>26</sup>

Following this traumatic period, the Bureau of Indian Affairs (BIA) administered Navajo health care until 1955, when the U.S. Public Health Service (PHS) established the Division of Indian Health, replaced in turn by the Indian Health Service (IHS) in 1970.<sup>27</sup> The first of these administrative shifts brought beneficial change to the Navajo as chronic BIA underfunding was replaced by the PHS’s more comprehensive, better financed, and more professionally staffed approach to health care.<sup>28</sup> Nonetheless, throughout the twentieth century, the Navajo continued to suffer high rates of infectious diseases accompanied by higher than average mortality rates.

Beginning in the 1890s and continuing into the twentieth century, influenza, trachoma, and tuberculosis had joined the ranks of diseases to strike Navajos with mortality rates that far exceeded those of the general U.S. population.<sup>29</sup> In 1955, as the PHS took on responsibility for Navajo health care, pneumonia, tuberculosis, trachoma, venereal disease, and dysentery were all present at vastly higher rates among Navajo and infant death rates were about five times the U.S. average.<sup>30</sup> By the late twentieth century, tuberculosis would give way, according to Jones, to “heart disease, diabetes, obesity, and the other so-called diseases of civilization.”<sup>31</sup> By this time as well, “Navajo neuropathy” and an explosion of cancer cases and birth defects were ravaging the people living on Navajo Nation.

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<sup>24</sup> Gwyther and Graves quoted in *Ibid.*, 30. See Jones for insight into various aspects of what he calls “rationalizing” poor Indian health.

<sup>25</sup> White, *Ibid.*

<sup>26</sup> Trennert, *Ibid.*, 32.

<sup>27</sup> Jones, 7, 186; Trennert, *Ibid.*, 221.

<sup>28</sup> Trennert, *Ibid.*, 216.

<sup>29</sup> Jones, 170; Trennert, *Ibid.*, 95.

<sup>30</sup> Trennert, *Ibid.*, 216.

<sup>31</sup> Jones, 223.

### **Adapting Modern Medicine to Traditional Ways**

Not surprisingly, given the larger historical context of Navajo health and mortality, health care in Navajo Nation in the post-World War II period was marked by fluctuating degrees of tolerance and cooperation between modern western health care providers and traditional Navajo healers.<sup>32</sup> In response to endemic tuberculosis in 1950 followed by an epidemic of infectious hepatitis in 1951, Cornell University Medical Center tuberculosis researcher Walsh McDermott brought a team to treat ill Navajos with experimental medication. Results were spectacular, leading the Navajo Council to provide funding to continue treatments at a higher rate than that permitted under stringent BIA funding.<sup>33</sup> As a result of their work, McDermott and his colleague René Dubos published studies in 1953 and 1954 demonstrating a larger Navajo health crisis in which “the central and most disturbing fact” about Navajo health was that most disease was preventable. They cited health conditions resembling those “in less developed countries,” due in particular to traditional housing in Navajo hogans in which “the air of the whole room gets poisoned”; inadequate BIA health care; cultural barriers to “the application and acceptance of [modern medical] technology in the community”; and geographic barriers.<sup>34</sup>

In an effort to break down these barriers, McDermott and his team drew parallels between the Navajo and other impoverished rural communities in the U.S. and abroad. In ways reminiscent of nineteenth century U.S. Army doctors, they created a paradigm in which Navajo diseases were possibly shaped by Navajo culture and significantly, identified Navajo culture as posing “formidable cultural and linguistic barriers” to modern medicine. They also sought to monitor “the biologic and social consequences” of efforts to bridge these barriers.<sup>35</sup> To this end, McDermott negotiated with the BIA as well as the Navajo Tribal Council for support in opening a new outpatient health care clinic called Many Farms that operated from 1956 until 1962.<sup>36</sup> Navajo political leaders strongly supported this initiative as a means to save lives.<sup>37</sup> This approach, however, proved to be a double-edged sword.

On the positive side, by including anthropological considerations, McDermott and his team pushed for a partnership between traditional Navajo and modern medical practices.

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<sup>32</sup> Jones, 202 ; Trennert, *Ibid.*, 217.

<sup>33</sup> Jones, 197-8.

<sup>34</sup> McDermott quoted in Jones, 199-200.

<sup>35</sup> *Ibid.*, 199.

<sup>36</sup> *Ibid.*, 195-6; 212.

<sup>37</sup> *Ibid.*, 197.

Many Farms built on cultural understandings to encourage the cooperation of Navajo medicine men to such a degree that according to Jones: “Navajo healers came to the clinic with their own health problems. Navajo diagnosticians even referred patients to the clinic for treatment.... Many healers and patients accepted a division of labor, with Navajo medicine men treating the cause of the disease and the Many Farms clinic treating the pain and discomfort.”<sup>38</sup> In addition, Many Farms personnel put into place a health visitor program. Former Navajo tuberculosis patients were trained in a full curriculum of medicine and public health and sent out to homes scattered across Navajo Nation. Many Farms teams also worked to train interpreters in Navajo and to explain western conceptions of disease with special sensitivity to cultural differences in considering pain and other symptoms. These efforts to recognize and honor Indian ways allowed physicians to better understand and more effectively treat their patients.<sup>39</sup> While McDermott’s approach made a real difference in improving access to Navajo health care, ultimately lack of funding, persistent poverty, and lack of hygienic infrastructure on the reservation limited the progress that could be made in the postwar period.<sup>40</sup>

On the negative side, while McDermott was sensitive to the problems caused by severe poverty, in suggesting that Navajo cultural practices might have biological consequences, he may have set the groundwork for an overreliance on the part of medical research to consider genetic and behavioral causes of diseases to the detriment of environmental factors. In contrast, David Jones situates the medical history of Indian epidemics in what he calls the “changing patterns of disease” and “changing patterns of explanation.”<sup>41</sup> Jones argues that “striking patterns exist in the attempts to rationalize the distribution of health and disease. Explanations can emphasize intrinsic factors (such as racial difference), extrinsic factors (such as climate or socioeconomic status), or behavior (such as hygiene).” He points to key explanations of health disparity that have persisted, such as housing conditions, and others that have changed, such as replacing faith in Providence with “genetic determinism as the most common argument for inevitable disparity.” The goal of

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<sup>38</sup> Jones, 202.

<sup>39</sup> Jones, 203-204.

<sup>40</sup> Jones, 214, 219; see for a discussion of the IHS’s increasing inclusiveness of traditional practices in the late 20<sup>th</sup> century, Everett R. Rhoades, “The Indian Health Service and Traditional Indian Medicine,” *American Medical Association Journal of Ethics*, Vol. 11, No. 10, October 2009, 793-798, accessed October 2, 2016 at <http://journalofethics.ama-assn.org/2009/10/mhst1-0910.html>.

<sup>41</sup> Jones, 3.

these explanations, according to Jones, is to assign responsibility for sickness, with “crucial implications for health policy.”<sup>42</sup>

Omitted from Jones’ discussion of modern ailments are the scourges of cancer, respiratory diseases, birth defects, and what medical researchers referred to as “Navajo neuropathy” (defined as a purely genetic disorder) that devastated the Navajo population in the last half of the twentieth century.<sup>43</sup> This omission is especially striking given that Jones devotes a full chapter to efforts initiated in the 1950s and pursued through the 1970s to create a comprehensive Navajo health system that would “[target] the full burden of Navajo disease, not just tuberculosis.”<sup>44</sup> He also fails to mention the impact on the Navajo of the uranium industry.

### **A Toxic Navajo Homeland**

The formal establishment of Navajo Nation with its modern tribal structure of government coincided with the discovery of oil in Navajo country in the 1920s. The Navajo Nation government website states bluntly: “In 1923, a tribal government was established to help meet the increasing desires of American oil companies to lease Navajo land for exploration.”<sup>45</sup> Beginning in 1944, uranium mining and milling moved into Navajo Nation with lethal effects for Navajos.<sup>46</sup>

From 1944 to 1986, in one of the most extensive uranium mining and milling operations in the United States, nearly thirteen million tons of uranium ore were extracted from Navajo Nation, a vast area of over 27,000 square miles bounded by four sacred mountains.<sup>47</sup> Mount Taylor, or *Tsoodzil*, the sacred mountain of the south, is the site of the world’s largest deep uranium mine. Mining continued at a reduced rate until Navajo Nation prohibited the activity in 2005. Navajo Nation includes thousands of still-radioactive abandoned mines, tailings piles of radioactive stone and dust, radioactive water pits, and

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<sup>42</sup> Jones, 19.

<sup>43</sup> Robert Roscoe, et al, “Mortality among Navajo Uranium Miners” *American Journal of Public Health* (April 1995) 535; see also Otto Appenzeller, et al., “Acromutilating, Paralyzing Neuropathy With Corneal Ulceration in Navajo Children,” *Archives of Neurology* 33, no. 11 (November 1976): 733-38; R. Singleton, et al., “Neuropathy in Navajo Children: Clinical and Epidemiologic Features,” *Neurology* 40, no. 2 (February 1990), 363-67.

<sup>44</sup> Jones, 213.

<sup>45</sup> <http://www.navajo-nsn.gov/history.htm>, accessed September 20, 2016.

<sup>46</sup> See Judy Pasterenak, *Yellow Dirt: An American Story of a Poisoned Land and a People Betrayed* (New York: Free Press, 2010); Traci Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis: University of Minnesota Press, 2015).

<sup>47</sup> Brugge, ed, 3; *Los Angeles Times*, Nov. 9, 2007, accessed Feb. 5, 2010 at <http://www.epa.gov/region09/superfund/navajo-nation/index.html>.

homes built from radioactive waste rock.<sup>48</sup> The area remains inhabited by hundreds of ailing Navajo miners and mill workers and their families, widows, and orphans, as well as other Navajos awaiting illness after long-term exposure to their radioactive surroundings.<sup>49</sup>

The Navajos' decades long struggle to pass protective legislation illustrates the refusal of both corporate leadership and many government officials to recognize the dangers the uranium industry posed to its mostly Indian workers. Sounding a defensive theme common to toxics-producing industries called to account for high lung cancer rates among their workers, the uranium industry consistently claimed that lung cancer rates were due to excessive cigarette smoking among Navajo workers, in spite of their lower than average rates of smoking. A long series of medical studies ensued.

### **A Vast Web of Damage**

In 1975, Environmental Protection Agency radiation specialist Joseph Hans began testing Navajos' hand-built houses. According to his readings the homes were filled with gamma radiation and radon.<sup>50</sup> Hans wrote his superiors at the EPA recommending either clean up or relocation of occupants. When officials ignored his recommendations, he contacted the Indian Health Service (IHS), urging it to act. Once again his warnings went unheeded. Finally, he toured the area with a Navajo translator, warning residents about the health hazards in their homes, but was unable to offer a solution. In 1977, Hans urged the Department of Energy to tackle the problem. Ten years later the Department had replaced three houses, yet avoided replacing six others for lack of proof of the origins of building materials. In 1979, one study of 700 Navajo miners concluded that "the increase in the risk of lung cancer among [these miners] is at least 85 fold."<sup>51</sup>

While appeals to the legal and government system stalled, members of the Navajo community began to realize how deeply radiation had poisoned the entire web of life in *Diné Bikeiyah*, "Home of the People." Water was scarce in the Navajo Nation and shepherders

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<sup>48</sup> Sonia Luokkala, "Abandoned Uranium Mines Plague Navajo Nation," May 5, 2015, *Earth Island Journal*, accessed September 10, 2015 at

[http://www.earthisland.org/journal/index.php/elist/eListRead/abandoned\\_uranium\\_mines\\_plague\\_navajo\\_nation/](http://www.earthisland.org/journal/index.php/elist/eListRead/abandoned_uranium_mines_plague_navajo_nation/)  
<sup>49</sup> *The Progressive*, Madison, Wisconsin, February 1979, 26-7, LAND Box 4 – File 10; *Los Angeles Times*, "A Peril that Dwelt Among the Navajos," 29 Nov. 2006.

<sup>50</sup> Joseph M. Hans, Jr., and Richard L. Douglas, *Radiation Survey of Dwellings in Cane Valley, Arizona, and Utah, for Use of Uranium Mill Tailings* (Las Vegas, Nevada, EPA, Office of Radiation Program, August, 1975), 2-3.

<sup>51</sup> Loretta Schwartz, "Uranium Deaths At Crown Point," *Ms. Magazine*, October 1979, 54, LAND Box 4 – File 9.

often had a long search before finding puddles in sandstone to which to lead their charges. Animals deformed by contaminated water were appearing all across Navajo lands.

Navajo families also suffered from an ever-widening ring of birth defects, childhood sicknesses, and premature deaths. The Nez family lived most of the year at their sheep camp in the heart of the Navajo Nation. Like most Navajo shepherders, they drank the same water as their animals and regularly slaughtered sheep for their food. Helen Nez suffered a stillbirth in 1963. From 1969 to 1978, the Nez family lost a total of six children, all under the age of four, and all suffering from vision problems, muscular weakness, and failing livers. The IHS team treating their children quizzed Helen on her personal habits, asking if she had engaged in incest, consumed alcohol while pregnant, or suffered from mental problems.<sup>52</sup> The Neztosie family's two youngest children were also suffering from mysterious ailments, with vision problems and difficulty walking. Eventually their hands and feet curled into claws. Similar health problems became widespread in the Navajo Nation.<sup>53</sup>

The term "Navajo neuropathy" was coined to describe the lethal syndrome affecting Navajo children on the reservation. The disease was at first considered purely hereditary. However, after it first appeared in 1959, "reported new cases increased through the 1960s, '70s and '80s, then tapered off in the 1990s and have all but disappeared - an arc that mirrors Navajos' exposure to contaminated water from pit mines."<sup>54</sup> The definition of Navajo neuropathy was ultimately modified to include maternal exposure to uranium from contaminated water. In spite of this, as recently as 2006 medical researchers still considered it to be primarily a genetic disease.<sup>55</sup> On July 16, 1979, the devastation was compounded by the largest spill of radioactive wastes in United States history. An earthen dam holding waste water collapsed in Church Rock, Navajo Nation, sending radioactive substances into the Puerco River basin.<sup>56</sup>

What emerges from this deadly picture of health and environmental abuse in the Navajo Nation due to the consequences of uranium extraction is a pattern of negligence on the

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<sup>52</sup> *Los Angeles Times*, "Blighted Homeland: Toxic Water," Nov. 20, 2006.

<sup>53</sup> *Ibid.*

<sup>54</sup> *Ibid.*

<sup>55</sup> "'Navajo Neuropathy' Haunts Blue Gap Family," Kathy Helms, Dine Bureau, Gallup Independent, at <http://nativeunity.blogspot.com/2009/08/navajo-neuropathy-sen-reid-opposes.html>; Charalampos L. Karadimas, et al., "Navajo Neurohepatopathy Is Caused by a Mutation in the *MPV17* Gene," *The American Journal of Human Genetics*, 2006, at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1559552/>.

<sup>56</sup> "Lawmakers Hears Community Concerns and Industry Promises," Southwest Research and Information Center, <http://www.sric.org/voices/2009/v10n2/index.html>, accessed 8 Jan. 2010. See also US Congress, House Committee on Interior and Insular Affairs, Subcommittee on Energy and the Environment. *Mill Tailings Dam Break at Church Rock, New Mexico*, 96th Cong, 1st Sess (October 22, 1979), 19-24; Judy Pasternak, *Yellow Dirt: A Poisoned Land and a People Betrayed* (NY: Free Press, 2010), 150.

part of mining and milling corporations, as well as the various branches of the state and U.S. governments involved in both atomic energy and the administration of Navajo Nation services. For many American Indians, negligence would be much too mild a term. Members of Women of All Red Nations (WARN) chose instead to use the word genocide, and mobilized American Indians, especially women, to fight against the threats to Indian health, lands, water, and reproduction.

### **A Vast Web of Solutions**

Some Indian women had opposed uranium mining from the very beginning. Navajo Edith Hood was only a teenager when the exploratory drilling crew arrived in the 1960s. Although no one told her grandmother what was happening, Hood remembers her grandmother “running to stop them from making roads into the wooded areas. The stakes she drove into the ground did not keep them out.” Hood’s grandmother’s instincts were soon confirmed: “There was no respect for people living there, and certainly no respect for Mother Earth.”<sup>57</sup>

Other Indian women came to environmental activism less directly. The 1973 occupation of Wounded Knee by members of the American Indian Movement [AIM] resulted in the deaths of two American Indian men by federal forces. This incident had changed the perspectives of two American Indian activists present, Madonna Thunder Hawk and Lorelei DeCora. They witnessed the subsequent loss of AIM leadership when many of its male leaders were imprisoned or fell victim to police abuse and FBI and CIA infiltration campaigns. These women joined with others, including many widows of uranium miners seeking compensation for their husbands’ deaths, to found WARN with the goal of focusing their activism on the struggles faced by Indian women and their families. DeCora explained, “On reservations Indian women and children bore the greater burden of poor nutrition, inadequate health care, and forced or deceptive sterilization programs; Native women and children also faced higher levels of domestic violence resulting from poverty, joblessness, substance abuse, and hopelessness.”<sup>58</sup>

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<sup>57</sup> U.S. House of Representatives Committee on Oversight and Government Reform, public hearing, 23 Oct. 2007, Southwest Research and Information Center, “Voices from the Earth,” <http://www.sric.org/voices/2009/v10n2/index.html>, accessed 8 Jan. 2010.

<sup>58</sup> [http://manila.cet.middlebury.edu/rzheng/stories/storyReader\\$26,3](http://manila.cet.middlebury.edu/rzheng/stories/storyReader$26,3); see also, <http://spiritpeople.blogspot.com/2007/07/women-of-all-red-nations.html>.

WARN members were motivated in their fight against the federal government by a variety of factors based in gendered traditions, such as matrilineal inheritance of property and women's spiritual power. Rather than work in isolation, WARN gained strength from liaisons it formed with a variety of feminist groups that advocated policies recognizing the unique concerns of minority women. Native American women were represented at the National Conference on Women in Houston in 1977, and worked closely with the National Organization for Women (NOW) on a number of issues, including all forms of violence against Native American women.<sup>59</sup> WARN's cultural heritage as protectors of the earth was fortified by the newly found insistence that all women should exercise their political rights and demand equality. One of WARN's activities in the late 1970s and 1980s was to draw attention to health concerns involving reproduction, specifically the fantastically high increases in sterilizations, as well as in miscarriages, birth defects, and childhood deaths due to cancer and other environmental diseases on affected Indian reservations, and including the Navajo Nation. WARN's critical perspective allowed its members to make the connection between indigenous people's lands and water sources being poisoned and yet another serious health tragedy that was facing Indian peoples: the IHS's forced sterilizations of from 25% to 50% of Indian women across the U.S. during the 1960s and 1970s.<sup>60</sup> WARN linked the two practices to what its members understood to be a continuation of centuries of Euro-American genocide practiced against Indian peoples.

The Council of Energy Resource Tribes reported in 1979 that 75 to 80% of U.S. uranium reserves were on Indian land. WARN mapped from south to north an "Indian energy corridor, where major coal and uranium resources exist and are being exploited by the big corporations." WARN called this the "International Sacrifice Area, stretching from the southwest to the Northwest Territories of Canada—the area where energy resources are located."<sup>61</sup> WARN disseminated information to help their people understand legal rights concerning minerals, land, leases, and water. It reminded Indians: "This is an important time for our people to stand together. If we let the corporations take away our land, we will no

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<sup>59</sup> See Bruce Johansen, "Reprise/Forced Sterilizations," *Native Americas* 15 (Winter): 4, 44-47; Torpy, "Native American Women and Coerced Sterilization."

<sup>60</sup> Jane Lawrence, "The Indian Health Service and the Sterilization of Native American Women," *American Indian Quarterly*, Summer 2000, 410; see also Torpy, "Native American Women and Coerced Sterilization."

<sup>61</sup> Gail Robinson, "Plundering the Powerless: Uranium Mining Threatens a Land and Its People," *Environmental Action*, June 1979, 3, LAND Box 4 – File 9; WARN Report II, June-Dec. 1979, "The Struggle Against Energy Resource Exploitation in the Four Corners Area," 17, LAND Box 7 – File 14.

longer have a home.... [Your children] will have nothing if you don't keep the land to pass on from generation to generation. *We are the ancestors of those yet unborn.*"<sup>62</sup>

WARN repeatedly emphasized the importance of reproduction in cultural self-determination. Its members saw their reproductive rights threatened by their contaminated surroundings as well as more direct efforts to curtail their populations. WARN worked to inform Native American women of their rights to resist aggressive government-funded mass sterilization, a program WARN termed genocidal. "The plan of sterilization is one way that the government has of weakening our nations," the organization cautioned. "To get control of our land it would be much easier if our numbers got smaller. We must think hard about keeping our right to bring life to the next generation."<sup>63</sup>

WARN stressed the current generation's responsibility to right the wrongs of the past: "We must preserve our rights for the next generation to live the way we want to— SOVEREIGN!" Activists urged Native American women to "Control your own reproduction: not only just the control of the reproduction of yourselves...but control of the reproduction of your own food supplies, your own food systems..." to rebuild traditional native cultures, religions, and ways of living with the earth.<sup>64</sup>

The United Nations designated 1979 as the "International Year of the Child." In June, just before the Church Rock disaster, WARN held a five-day conference, welcoming over 1,200 people to "identify the many problems – the very threat to survival – currently facing the future generations of the Indigenous Nations of the Western Hemisphere."<sup>65</sup> Lakota activist Mary Crow Dog explained that "like many other Native American women...I had an urge to procreate, as if driven by a feeling that I, personally, had to make up for the genocide suffered by our people in the past." Similarly, Mohawk Nation member Katsi Cook declared, "women are the base of the generations. Our reproductive power is sacred to us."<sup>66</sup>

A 1974 study pointed out that only 100,000 "full-blood" Indian women of child-bearing age lived in the U.S., arguing that these women were the most likely victims of government sterilization programs. According to scholar Jane Lawrence, sterilization programs had increased dramatically in the mid-1960s and 1970s primarily because the largely white and male IHS medical personnel believed that smaller Indian families would reduce poverty rates and that fewer Indian births would reduce government welfare spending. Indian

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<sup>62</sup> Marcy Gilbert, WARN Statement, LAND Box 7 – File 14.

<sup>63</sup> WARN, "Sterilization," LAND Box 7 – File 14.

<sup>64</sup> WARN, "Sterilization," LAND Box 7 – File 14.

<sup>65</sup> WARN Report II, June-December 1979, 1, LAND Box 7 – File 14.

<sup>66</sup> Quoted in Lawrence, 412.

women and teenage girls were sterilized without their consent and often without their knowledge, as an added step in another intervention, such as childbirth or appendix operations. These women discovered they could not have children only when they sought medical assistance after being unable to become pregnant. WARN pointed out that tribal councils lost the respect of their communities when they were seen as unable to protect Indian women, further weakening Indian political structures. Some Indian activists concluded: “The sterilization campaign is nothing but an insidious scheme to get the Indians' land once and for all.”<sup>67</sup>

The damage caused to Indian peoples by the intensive sterilization program was compounded for Navajos because of their exceptionally high rate of birth defects. While the rate of birth defects in the overall white U.S. population between 1973 and 1978 was 846.8 per 100,000 births, the rate among the Indian and Chicano population was 1,589 per 100,000 in Arizona, and in New Mexico it was an astounding 2,114 per 100,000. On the Navajo Nation, by 1981 the Navajo Health Authority found a dramatic increase in cancer of the ovaries and testicles among children, at least fifteen times the U.S. average, and bone cancers five times the U.S. average. These increases also began with the rise in uranium production.<sup>68</sup> The illnesses that affected miners and millers, along with their families, were by the 1980s clearly affecting their grandchildren as well.

At its 1979 conference, WARN identified five areas “that a People must have total control over, in their own lives, in order to call themselves sovereign”: First, rebuilding traditional government structures to resolve problems so that “our struggle as a total people won't be continually weakened.” Second, revitalizing traditional economies to “control the reproduction of ... food supplies” on a strong land base. Third, controlling reproduction: “In terms of the children, in terms of guaranteeing the continuity of Our Peoples – the women must lead. The women must re-strengthen themselves....This is coming back, along with the fight against sterilization programs....” Fourth, controlling education to perpetuate an Indian “vision [and] belief in yourselves.” Fifth, controlling “that thing that creates your identify, creates your belief in yourself, creates your vision of the world.”<sup>69</sup> WARN emphasized “learning and living the Indian way of life” as a means of defense against the constant attacks “from all sides in the struggle to survive as a race of Indian nations.”<sup>70</sup> Because of their

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<sup>67</sup> Lawrence, 410-412, 400.

<sup>68</sup> *Minneapolis Daily*, 1 June 1981, LAND Box 4 – File 9.

<sup>69</sup> WARN Report II, 2-3.

<sup>70</sup> WARN Report II, 21.

success in exposing the government's program to limit their race, "The women of WARN," according to scholar Bruce Johansen, "played a central role in bringing involuntary sterilization of Native American women to an end."<sup>71</sup> Indian populations have grown since 1980s, with the highest birth rates registered among Navajo women, who in 1990 averaged 3.13 births per woman aged 35 to 44.<sup>72</sup>

The poisoning of Navajo lands, however, persisted. Yet traditional beliefs and practices encouraged by WARN brought strength to Navajo resistance to uranium development as well. As Medicine Man John Smith explained, Mount Taylor and other Navajo mountains "were embodied with a certain wealth, and we shouldn't begin to disturb them. Our elders have taught us that when you push nature, the balance changes, and she will fight back."<sup>73</sup> The work of WARN in publicizing the related dangers of uranium mining, Indian health problems, and public programs sterilizing Indian women, provided Navajo women and men the information they needed to mobilize further and fight to restore community control over their land.

Spiritual and cultural remedies were augmented by legal reforms. The mountain of evidence produced for the Supreme Court case decided in 1988 was passed on to congressional investigators, and ultimately bore fruit in the form of the 1990 Radiation Exposure Safety Act, later amended to include compensatory payment to mill workers. But the process has been excruciatingly slow, and in 2010 hundreds of Navajo families had still

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<sup>71</sup> Bruce E. Johnson, "Women of all Red Nations," *ABC-CLIO History and the Headlines* <http://www.historyandtheheadlines.abc-clio.com/ContentPages/ContentPage.aspx?entryId=1172002&currentSection=1161468&productid=5>, accessed 24 March 2010.

<sup>72</sup> From: Table 2, *The Size and Distribution of the American Indian Population: Fertility, Mortality, Migration, and Residence in Changing Numbers, Changing Needs: American Indian Demography and Public Health*. National Research Council (US) Committee on Population; Sandefur GD, Rindfuss RR, Cohen B, editors. Washington (DC): National Academies Press (US); 1996. Accessed Nov. 30, 2016 at <https://www.ncbi.nlm.nih.gov/books/NBK233098/table/ttt00003/?report=objectonly>. See also Candis Hunter et al, "The Navajo Birth Cohort Study," *Journal of Environmental Health* 78, no. 2 (September 2015): 42-45; Meg Devlin O'Sullivan, "Informing Red Power and Transforming the Second Wave: Native American Women and the Struggle Against Coerced Sterilization in the 1970s," *Women's History Review* 25, no. 6 (December 2016): 965-982; Christina Cackler, et al, "'Female Sterilization and Poor Mental Health: Rates and Relatedness Among American Indian and Alaska Native Women,'" *Women's Health Issues* 26, no. 2 (March 2016) 168-175; D. Marie Ralstin-Lewis, "The Continuing Struggle Against Genocide: Indigenous Women's Reproductive Rights," *Wicazo Sa Review* 20, no. 1 (Spring 2005); 71-95; Jane Lawrence, "The Indian Health Service and the Sterilization of Native American Women," *American Indian Quarterly* 24, no. 2 (June 2001): 400-419; R.H. Jarrell, "Native American Women and Forced Sterilization, 1973-1976," *Caduceus: A Humanities Journal for Medicine and the Health Sciences* 8, no. 3 (1992): 45-59.

<sup>73</sup> *In These Times*, undated, LAND Box 4 – File 9.

not received payment.<sup>74</sup> In 2014, however, the federal government agreed to pay the Navajo \$554 million to settle ongoing claims of its mismanagement of resources on tribal lands.<sup>75</sup>

In 2015, Navajo Nation began receiving funds from the \$5.15 billion settlement with Anadarko Petroleum and its subsidiary Kerr-McGee. “These funds will go toward the cleanup of 50 abandoned uranium mines on the Navajo Nation,” said Navajo Nation President Ben Shelly. He added, “Although we are receiving more than a billion dollars, much more is needed to address the 520 abandoned uranium mines on the Navajo Nation.”<sup>76</sup> Russel Begaye, Shelly’s successor, expressed his outrage, shared by federal lawmakers, other tribal officials, and state and local officials, at the Environmental Protection Agency’s refusal, in January 2017, to pay the \$1.2 billion in claims against it in response to the Colorado Gold King Mine spill of 2015, which released more than three million gallons of toxic wastewater into a water system that ultimately empties into Lake Powell.<sup>77</sup> The health ramifications for the Navajo nation of this latest uncompensated crisis have yet to be revealed.

Navajo history is marked by a series of catastrophes befalling the health of its people and lands. The twentieth century Navajo story combines the concurrent tragedies of forced Indian sterilizations with the calamitous health consequences of uranium exploitation, consequences that continue into the twenty-first century. This context must not be ignored when assessing the difficulties involved in establishing a trusting relationship between the Navajo people and outside researchers and health care providers. The benefits of establishing such a relationship, based on a holistic understanding and incorporation of the Navajos’ complex medical, political, economic, and environmental history, cannot be overstated. As reported in 2007, when researchers on the Dine Network for Environmental Health (DiNEH) Project sought to carry out a “field campaign to characterize the spatial distribution and geochemistry of uranium for a multipathway uranium exposure assessment,” they partnered with local community members. By attending community meetings and acquiring Navajo language skills, the non-tribal members were able to “integrate local knowledge into sampling approach of sediment, water, and vegetation.” The research teams concluded: “Community

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<sup>74</sup> Eichstaedt, 118, 115, 121, 170; <http://www.wise-uranium.org/ureca.html>, “Compensation of Navajo Uranium Miners,” updated 22 April 2009, accessed 8 Jan. 2010

<sup>75</sup> “US to pay Native American Navajo Tribe \$500m Settlement,” BBC News, accessed 24 January 2017 at <http://www.bbc.com/news/world-us-canada-29357103>.

<sup>76</sup> “Navajo Nation Begins Drawdowns of \$1.2 Billion Anarko V. Tronox Settlement Funds for Cleanup of 50 Abandoned Uranium Mines,” *Native News Online.Net*, 27 January 2015, accessed 24 January 2017 at <http://nativenewsonline.net/currents/navajo-nation-begins-drawdown-1-2-billion-anarko-v-tronox-settlement-funds-cleanup-50-abandoned-uranium-mines/>.

<sup>77</sup> Magdalena Wegrzyn et al, “EPA Says it Won’t Pay \$1.2B in Mine Spill Claims,” *Farmington Daily Times*, 13 January 2017, accessed on 24 January 2017 at <http://www.daily-times.com/story/news/local/four-corners/2017/01/13/epa-says-wont-pay-mine-spill-claims/96553892/>.

engagement helps to sustain equitable partnerships,” but perhaps even more importantly, it “aids in culturally appropriate, relevant data collection.”<sup>78</sup> As illustrated by the example of WARN and confirmed by the success of the NiNEH Project, by recognizing the wide web of factors involved, health can be improved, lives saved, and new threats averted.<sup>79</sup>

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<sup>78</sup> Jamie deLemos, et al, “Lessons from the Navajo.”

<sup>79</sup> See Wade Davies, *Healing Ways: Navajo Health Care in the Twentieth Century* (Albuquerque: University of New Mexico Press, 2001).