



Peace Review

A Journal of Social Justice

ISSN: 1040-2659 (Print) 1469-9982 (Online) Journal homepage: <http://www.tandfonline.com/loi/cper20>

The Legacy of Agent Orange in Vietnam

H. Patricia Hynes

To cite this article: H. Patricia Hynes (2016) The Legacy of Agent Orange in Vietnam, Peace Review, 28:1, 114-122, DOI: [10.1080/10402659.2016.1130415](https://doi.org/10.1080/10402659.2016.1130415)

To link to this article: <http://dx.doi.org/10.1080/10402659.2016.1130415>



Published online: 16 Feb 2016.



Submit your article to this journal [↗](#)



Article views: 34



View related articles [↗](#)



View Crossmark data [↗](#)

The Legacy of Agent Orange in Vietnam

H. PATRICIA HYNES

The Paris Peace Accords were signed on January 27, 1973, making possible a re-united Vietnam. The peace accords ended eight years of the American War (as it is known to the Vietnamese) and two prior decades of covert warfare against this small, agrarian Asian country. For much of the American public, the war was a bitterly divisive issue to put behind them. With no good ending, why dwell on or learn from or lose sleep over Vietnam, unless you had lost a loved one or were a veteran haunted by its violence?

Why were we there? The political *Zeitgeist* that spawned the Vietnam War was the threat of Communist China at Vietnam's northern border and fear of the "domino effect," that is, the progressive fall of one Asian country after another to Communism in their wars of independence from Western colonial powers. President Eisenhower also exhorted that the consequences of losing vital tin, tungsten, and rubber as well as America's strategic position in Asia from a Communist Vietnam were incalculable to the West. In his memoirs, Eisenhower acknowledged that eighty percent of the Vietnamese would likely have voted for North Vietnam's Ho Chi Minh, foremost a nationalist and also a Communist, if the general countrywide election called for by the 1954 Geneva Conference, following French defeat by the Vietnamese, had been held. The election was stymied, however, by the United States, which backed, financed, and armed the corrupt South Vietnamese autocrat Ngo Dinh Diem. And thus were sown the toxic seeds of the American war in Vietnam.

Curtis Le May, Air Force commander of the hellish firebombing of Japanese cities in World War II, retorted to this perfidious logic: why destroy Vietnam if Red China is our enemy? The overarching policy of containing Communism, fused with the presumption that the United States knew best what was good for Vietnam, militarized five administrations' foreign policy—from Truman to Nixon—in Southeast Asia.

The American war in Vietnam was a destined-to-fail military invasion, despite everything concussive and chemical, every armament short of nuclear bombs deployed against a popular, rural-based insurgency for independence. What doomed this apocalyptic war waged by the most powerful military on earth, which dropped a five-hundred-pound bomb and sprayed seven pounds

of herbicides for every woman, man, and child in Vietnam and which killed and wounded nearly one-third of South Vietnam's people?

Many high-level U.S. military alleged that it was restraint: if allowed, they could have bombed Vietnam back to the Stone Age. A more perceptive response is that resistance to the war from within the military ranks doomed the war. Most older Americans remember the stormy and dramatic defiance among young middle-class citizens to the Vietnam War: conscientious-objector (CO) claims, draft-card burnings, draft delinquencies and attacks on draft records; Reserve Officers' Training Corps (ROTC) units expelled from college campuses; antiwar rallies, and hundreds of thousands of animated war protestors marching on Washington. Far fewer know the story of war resistance within the working-class ranks of the military, a resistance that shaped the war's fate. But these are U.S.-centric perspectives.

More nuanced still is the former member of the South Vietnamese National Liberation Front Truong Nhu Tang who, as a member of the Provisional Revolutionary Government, observed America's arrogant reliance on military power, their peculiar blindness toward the culture and values of Vietnamese life, and their underestimate of the Vietnamese iron will for independence. Further, he adds, the United States lost moral authority in the eyes of the world and among many Americans with the ruthless bombing of Cambodia and the 1972 Christmas bombing of Hanoi just weeks prior to signing the Paris Peace Accords. While the Vietnamese resistance used political and diplomatic strategies as well as military, the United States had never assigned any experts to explore diplomacy to negotiate an end to the war. In its conceit, it refused offers for mediation from French President de Gaulle in 1963 and UN Secretary U Thant with de Gaulle in 1967.

During the ten years (1961–1971) of aerial chemical warfare in Vietnam, U.S. planes sprayed more than twenty million gallons of herbicide defoliants in an operation code-named Ranch Hand, to destroy enemy forest cover and crops, and to clear vegetation around U.S. bases for visibility. At least ninety spray operations were aborted because of technical malfunction or enemy fire and resulted in the cargo of herbicides being dumped onto Vietnamese ecosystems and drinking-water sources, as well as U.S. bases.

Ranch Hand's motto, "Only You Can Prevent Forests," branded the mission and (like so many intentionally comedic military code names) trivialized the tragedy and the crime of chemical warfare. Agent Orange, the dioxin-contaminated and exceedingly toxic herbicide, constituted the majority (about sixty-one percent) of the total herbicides sprayed in the war. Thus, Agent Orange serves as a surrogate for the weaponized herbicidal warfare on the ecology and agriculture and, ultimately, the people of Vietnam.

President Kennedy approved testing of these herbicides on Vietnam vegetation in the fall of 1961, with the proviso that South Vietnam does the spraying in U.S. planes disguised with the South Vietnam insignia. This dissimulation was intended to protect the United States from charges of first-strike chemical warfare, in violation of the 1925 Geneva Protocol on Chemical and Biological Warfare. The administration, when confronted, argued that the 1925 Protocol referred to humans not plants, ignoring their military's own definition of biological warfare, which included the use of chemical plant growth regulators (such as Agent Orange) for the purpose of injuring humans, animals, or plants. Further, while the 1925 Geneva Protocol did not specifically mention crop destruction, historically it has been interpreted to include it.

The ingredients of Agent Orange constituted an equal proportion of two plant-growth regulators developed during World War II to target specific plants, 2,4-D and 2,4,5-T. Absorption of them by plant leaves wreaks havoc on the plants' growth hormones and accelerates plant growth. In sufficient strength plants undergo uncontrolled growth until leaves shrivel and fall off within a few days and the plant dies. During World War II, the U.S. government had researched and developed these herbicides for use on Japan's rice crops and forests, but the war ended before they did so. In 1943, government researchers found that arsenic proved more effective against rice than 2,4-D, leading to the development and use of Agent Blue to destroy rice crops in Vietnam. World War II research on weaponized herbicides advanced herbicide use by ten years and launched a staggering increase in herbicides and other pesticides, such as dichlorodiphenyltrichloroethane (DDT), in U.S. suburbs, agriculture, wetlands, pasture, and forestry in the late 1940s and 1950s.

Published on September 27, 1962, Rachel Carson's groundbreaking book *Silent Spring* traced the intensification of pesticide-based agriculture following World War II. Her salvo, aimed at both industry and its ally, the U.S. Department of Agriculture, ignited modern U.S. environmentalism and inspired new legislation for environmental and public health protection in the United States. Two days prior, on September 25, 1962, President Kennedy signed his approval for the rainbow herbicides to be sprayed on Vietnamese food crops as well as forests in the ongoing covert war against South Vietnam resistance forces.

Kennedy had read *Silent Spring* in a serialized version for *The New Yorker* in the summer of 1962; and, like millions of others, he was compelled by her message and had Carson invited to the White House. Yet, what Carson exposed and condemned in our environment, the indiscriminate chemical war on nature with insecticides and herbicides as weapons, did not apply to the triple-canopy forests and coastal mangroves of Vietnam. An unparalleled armamentarium—not only herbicides but also incendiary bombs and napalm,

five hundred- and two thousand-pound bombs, the fifteen hundred-pound daisy-cutter bomb, and the gigantic earthmoving Rome plow—was employed against Vietnam. The country was cratered and leveled; upland and coastal forests, farmland, and countryside were decimated.

By 1966, over five thousand American scientists, among them many Nobel Prize winners, condemned the use of chemical warfare agents in Vietnam. The herbicide program ended in 1971 when Nixon's administration was forced to disclose government-sponsored research data that revealed that one of the herbicides in Agent Orange, 2,4,5-T, caused extreme birth deformities in lab animals and the other, 2,4-D, also caused negative reproductive impacts. The preliminary data had been produced by 1966, but the final results were suppressed until 1969. Moreover, the chemical manufacturers, most notably Dow Chemical Company, pressured the Food and Drug Administration not to disclose the research results. In turn the federal government successfully pressured the company contracted to do the research, Bionetics, to withdraw a planned presentation on the study findings from a Society of Toxicology meeting in March 1969. On October 29, 1969, the White House announced restrictions on the use of 2,4,5-T in order to preempt a *Los Angeles Times* story on the Bionetics study planned for publication on October 30. Against the will of the Department of Defense, herbicide spraying was suspended in Vietnam on April 15, 1970.

Two of the most vocal scientist critics of weaponized herbicides, Dr. Arthur Westing and Dr. Egbert Pfeiffer, made five trips to Vietnam between 1969 and 1973 to document the extent of ecological damage and loss from the war. They described what they witnessed as the largest and most prolonged attempt to destroy an ecology-based culture and agriculture in history. When the American War began, Vietnam was a country of ninety percent subsistence farmers who had lived on the land for centuries. At least one-third of the villagers were forced out of the countryside—leaving behind graves and ancestral altars as well as agricultural fields, rice paddies, fruit trees, fish ponds, and animals—and into cities or planned villages in order to eliminate the rural base of support for the resistance. Fruit trees were especially sensitive to the herbicides and easily killed; and fish in hand-dug ponds died from alterations in their ecosystem. Forty percent of total useable forest was destroyed from bombing, shrapnel, napalm, and herbicides. This ecocide continued to exact a price after the war, given that revival of lost coastal mangrove and highland triple-canopy hardwood forests would need the human hand to regenerate.

Three decades later, the 2002 Environmental Conference on Cambodia, Laos, and Vietnam featured American and Vietnamese forestry, botany, and coastal mangrove researchers and practitioners who have studied the potential of Vietnam's ecosystem regeneration since the war. The destroyed upland forests areas were invaded by grasses prone to fire in the dry season and

secondary tree species with little value for sustainable development, both of which prevent original hardwood forest regeneration, according to Phung Tuu Boi, Director of the Nature Conservation and the Community Development Center in Hanoi. Further, after Agent Orange eliminated the upland forest, tropical rains eroded and washed nutrient-laden soil into downstream rivers and deltas, leaving a depleted, hardened soil base hostile to natural forest regeneration. Even with intense reforestation, the centuries-old triple canopy tropical forests, famed in Asia for the diversity of their wildlife, will take a hundred years or more to restore to pre-war conditions. Further complicating recovery, national reforestation programs to promote sustainable development and alleviate rural poverty are now under pressure from commercial logging.

Agent Orange defoliation of an estimated forty percent of mangrove forests caused the irreversible degeneration of marine habitats: clams disappeared and giant ferns invaded, trapping sediment and snuffing out mudflats and their marine nurseries, ultimately reducing the fish supply. Marine biologist Dr. Bui Thi Lang described a sequence of negative feedback loops since the war that have trapped locals in a cycle of poverty. Overfishing resulted from the post-war reduced fish supply and local people removed mangrove trunks for firewood and supplanted them with rice cultivation. This degradation of the marine environment has impeded restoring the true wealth of the coastal environment—mangrove forests, with their prolific aquatic nurseries.

In 1968, a young obstetrician in Saigon's Tu Du Hospital, Dr. Nguyen Thi Ngoc Phuong, reported delivering grossly deformed fetuses and infants with increasing frequency, some so horrific she could not show them to their parents. Given the denial on the part of the South Vietnam and U.S. governments about the negative health effects of Agent Orange, she preserved dozens of deformed fetuses in formaldehyde, which remain today as chilling evidence of the effects of Agent Orange on fetal development. Dr. Phuong created a residential nursery and home in Tu Du Hospital for handicapped babies whose parents lacked resources and capacity to care for them at home. The Tu Du Hospital Peace Village, as it is called, has sheltered, provided medical and rehabilitative services, and raised and educated hundreds of Agent Orange victims.

Today a third and fourth generation of children, born with horrific birth defects and mental retardation, continues to suffer the legacy of American chemical warfare in Vietnam. Why ongoing toxicity after decades of the war's end? The best studies to date have found that the extremely virulent strain of dioxin in Agent Orange, known as TCDD, persists in the environment of Vietnam, particularly in areas most heavily sprayed and on former U.S. air bases. On these bases, Agent Orange was stored, loaded into spraying equipment, spilled, and also used liberally to clear the periphery of the bases. Washed into local ponds during tropical rainstorms, dioxin in pond sediment is

long-lived, with a half-life of one hundred years. There it bioaccumulates in the food chain, contaminating the freshwater mollusks, fish, and duck harvested by people living on or near the former bases. Recent studies by the Canadian firm Hatfield Associates have found that levels of dioxin in breast milk of women living near and on these bases exceed World Health Organization (WHO) standards for breastfeeding infants. Levels in soil at airbases sampled by Hatfield Associates are hundreds of times higher than the WHO's standard for dioxin in industrial soil, one part per million.

The dioxin TCDD was formed in the manufacturing process of 2,4,5-T, one of the herbicide ingredients of Agent Orange, and it contaminated Agent Orange in higher concentrations because of a speeded-up manufacturing process to meet war demands. The major manufacturers, Dow Chemical in particular, were aware of higher dioxin contamination in Agent Orange but did not inform the government in order to avoid costly regulation and loss of profits. Records suggest that the government was also aware of the higher dioxin content in the wartime herbicides, but it has consistently pleaded ignorance.

TCDD dioxin is one of the most toxic substances known: it is a human carcinogen and an endocrine-system disruptor. Further, recent meta-analysis of human studies has found that parental risk of numerous birth defects, including no limbs, cleft palate, missing facial features, and deformed fetuses, is statistically associated with exposure to Agent Orange dioxin, findings that are consistent with animal studies. Recent animal studies have found trans-generational effects of ovarian and sperm-related disease.

Despite compelling science on the harm of dioxin exposure and the exposure of those living near dioxin hotspots, the Vietnamese victims have received nothing by way of compensation, cleanup, or services from the U.S. government or Agent Orange manufacturers. That is, until 2007 when the U.S. Congress appropriated nine million dollars for cleanup of contaminated sites and health-related activities. In 2011, U.S. AID joined the Vietnamese government in the first phase of a now-estimated eighty-four million-dollar dioxin-contaminated soil remediation program at a former U.S. air base in Da Nang. "It's a big step," said Ngo Quang Xuan, a former Vietnamese ambassador to the United Nations, "of the U.S. partnering with Vietnam in the dioxin removal. But in the eyes of those who suffered the consequences, it's not enough." According to Hatfield Associates, up to 25 other dioxin contaminated sites may exist, given records from the war.

In March of 2014, I traveled through Vietnam from Hanoi to Da Nang in central Vietnam to Ho Chi Minh City (formerly Saigon). The purpose of my journey was to investigate the plight of third- and fourth-generation Agent Orange-dioxin victims, the fate of dioxin-contaminated sites, the extent of ecological restoration needed, and what is being done to overcome the legacy

of the American War. I visited models of community-based care for Agent Orange victims that rival our best ones for handicapped children, staffed by people who spoke of the children as their family. I found that those working to rid Agent Orange from the Vietnam environment harbor no antipathy to American citizens, while they clamor for justice from the U.S. government to pay for the health and environmental costs from our ten years of chemical warfare. Were President Nixon's 1973 peace negotiations' pledge of 3.25 billion dollars for reconstruction (a pledge subsequently spurned by Presidents Ford and Carter and rejected by Congress) honored in today's dollars, the inflation adjusted pledge of seventeen billion dollars would support the costs of health, housing, and educational services for Agent Orange victims; of ecological restoration of forests and mangroves; and of the remediation of remaining dioxin hotspots.

More than a dozen "Peace Villages," some with organic gardens, orchards, and animals, have been built for children and, in some cases, for Vietnamese veterans who have severe mental and/or physical challenges. Here residents receive rehabilitative care and physical therapy and those able to learn are prepared for higher education or taught vocational skills, such as sewing, flower-making, and fabricating incense sticks. Hundreds more Peace Villages are needed for the estimated tens of thousands of multigenerational victims.

The Peace Villages are organized and built by the Vietnam Association for Victims of Agent Orange (VAVA) with funds from the Vietnamese government and international supporters. Many staff and administrators are retired Vietnamese war veterans and some staff are themselves physically handicapped from their parents' exposure to Agent Orange. Some pioneers in this effort to undo the ongoing harm of the Vietnam War and to heal their own spiritual wounds of war are American veterans, who raise funds for the Peace Villages, volunteer their services, and bring other veterans in the spirit of reconciliation.

When I asked about their striking commitment to the Peace Villages, the retired Vietnamese veterans spoke of having lost so many friends in the war that, having lived, they want to give back to war victims. One former general likened his iron-willed commitment to his country's two thousand-year-old history of success against invaders and colonizers: "We beat the Chinese, we beat the French, we beat the Americans, now I want to beat Agent Orange." A young university student working in the VAVA Ho Chi Minh City office, said quietly, "Look at me," pointing to his head shaped like a light bulb. "I hope my passion will contribute to other Agent Orange victims' happiness and freedom." A medical doctor responsible for rehabilitative care of children at the Tu Du Hospital Peace Village responded: "My life is bound to the Agent Orange babies and I am passionate about their right to be treated humanely."

Like many U.S. visitors to Vietnam before me, I found a people who are forward-looking and forgiving; a poor country (rendered more so by the twenty five-year U.S. embargo, which ended in 2000); and a country determined not to leave their victims of Agent Orange behind. Perhaps most telling of their spirit is the response of a Vietnamese veteran when asked by U.S. veteran James Zumwalt why Vietnamese are not bitter toward Americans. “We Vietnamese have small bodies,” he replied. “If we fill them with hate, there is no room for love”—a well of wisdom from which we Americans could draw.

RECOMMENDED READINGS

- Agent Orange: Landscape, Body, Image. 2009. Conference. May 7–9. University of California Riverside. Available at <<http://newsroom.ucr.edu/2063>>, last accessed October 15, 2014.
- Agent Orange Record. Available at <<http://www.agentorangerecord.com/home/>>, last accessed November 20, 2014.
- Conference Report to Environmental Conference on Cambodia, Laos and Vietnam. “Long-Term Consequences of Agent Orange Ecosystems.” 2002. Föreningen Levande Framtid. Sweden. Available at <<http://www.nnn.se/environ/ecology.pdf>>, last accessed September 10, 2014.
- Cortright, David. 2005. *Soldiers in Revolt: GI Resistance during the Vietnam War*. Chicago, IL: Haymarket Press.
- Ecocide: A Strategy of War*. 1981. Film produced by Green Mountain Films and Dr. EW Pfeiffer. Available at <<http://www.gmpfilms.com/ECO.html>>, last accessed November 1, 2014.
- Emerson, Gloria. 1992. *Winners & Losers: Battles, Retreats, Gains, Losses, and Ruins From the Vietnam War*. New York: W.W. Norton and Company.
- Hynes, Patricia H. 1989. *The Recurring Silent Spring*. New York: Teachers College Press.
- Herring, George C. 2002. *America's Longest War. The United States and Vietnam, 1950–1975*. New York: McGraw Hill.
- Manikkam, Mohan et al. 2002. “Dioxin (TCDD) Induces Epigenetic Transgenerational Inheritance of Adult Onset Disease and Sperm Epimutations.” *PLoS One* 7(9). Available at <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3458876/>>, last accessed December 12, 2014.
- Martini, Edwin A. 2012. *Agent Orange: History, Science, and the Politics of Uncertainty*. Amherst and Boston, MA: University of Massachusetts Press.
- National Institutes of Health Report on Dioxin. Available at <<http://www.nih.gov/news/pr/jan2001/niehs-19.htm>>, last accessed December 17, 2014.
- Ngo, Anh D. et al. 2006. “Association Between Agent Orange and Birth Defects: Systematic Review and Meta Analysis.” *International Journal of Epidemiology*. 1–11. Available at <http://www.vn-agentorange.org/edmaterials/ije_paper.pdf>, last accessed November 2, 2014.
- Scientific Statement on Dioxin as Endocrine Disrupting Substance. Available at <https://www.endocrine.org/~media/endsociety/Files/Publications/Scientific%20Statements/EDC_Scientific_Statement.pdf>, last accessed September 4, 2014.
- Sills, Peter. 2014. *Toxic War: the Story of Agent Orange*. Nashville, TN: Vanderbilt University Press.

- Tang, Truong Nhu. 1985. *A Viet Cong Memoir: an Inside Account of the Vietnam War and Its Aftermath*. New York: Vintage Books.
- The Friendship Village*. 2002. Film produced by Cypress Park Productions. Available at <<http://www.bullfrogfilms.com/catalog/fv.html>>, last accessed July 6, 2014.
- Turse, Nick. 2013. *Kill Anything that Moves: The Real American War in Vietnam*. New York: Picador.
- Wilcox, Fred A. 2011. *Scorched Earth: Legacies of Chemical Warfare in Vietnam*. New York: Seven Stories Press.
- Vietnam Veterans Against the War. 1972. *The Winter Soldier Investigation: An Inquiry into American War Crimes*. Boston, MA: Beacon Press.
- Young, Marilyn. 1991. *The Vietnam Wars: 1945–1990*. New York: HarperPerennial.
- Zierler, David. 2011. *The Invention of Ecocide: Agent Orange, Vietnam and the Scientists Who Changed the Way We Think about the Environment*. Athens, GA: The University of Georgia Press.
- Zumwalt, James G. *Bare Feet Iron Will: Stories from the Other Side of Vietnam's Battlefields*. 2010. Jacksonville, FL: Fortis Publishers.

H. Patricia Hynes is an environmental engineer and former Professor of Environmental Health at Boston University School of Public Health. Currently she directs the Traprock Center for Peace and Justice in western Massachusetts within which she has created the Vietnam Peace Village Project: <http://traprock.org/agent-orange/>. E-mail: hphynes@gmail.com