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# H-Diplo

## H-Diplo Roundtable Review

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Introduction by David Hunt

**Edwin A. Martini. *Agent Orange: History, Science and the Politics of Uncertainty.*** Amherst & Boston: University of Massachusetts Press, 2012. ISBN: 978-1-55849-974-4 (cloth, \$80.00); 978-1-55849-975-1 (paperback, \$24.95).

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Introduction by David Hunt, University of Massachusetts/Boston

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Showing an impressive range and creativity, Edwin Martini has followed his earlier work on the U.S. effort to isolate and punish Vietnam after 1975 with a very different kind of book.<sup>1</sup> It begins with an account of Agent Orange as an instrument of war, then broadens out to examine the consequences of the use of herbicides in Vietnam and elsewhere. Further along, the author presents a finely-balanced treatment of scientific implications. His approach in this regard is informed by compassion for the many Vietnamese and Americans and others who were exposed during and after the war, as well as reflection on the often intractable difficulties standing in the way of determining with certainty the connection between the health problems of individuals and the possibility that they might have been harmed by contaminants. The book follows upon other recent and provocative studies, and, in the opinion of our commentators, amounts to an important contribution to the literature.<sup>2</sup>

David Biggs discerns two tracks in the book, one providing “a detailed, global history of Agent Orange,” the second exploring the “politics of uncertainty” driven by “the inability of scientific researchers to definitively link exposure to Agent Orange with a variety of illnesses claimed by plaintiffs.” Biggs notes that in chapters one to three Martini builds on earlier works, and “fleshes out these reports by integrating archival materials and interviews with Americans and Vietnamese.” He finds a “key insight” in chapter four, which shows how “politics and public opinion with regard to American veterans ultimately shifted in favor of veterans, with the burden of proof shifted to the U.S. government.” Chapter five “argues for an emerging global discourse on Agent Orange and the responsibility of governments to compensate those exposed.” Among points made in the conclusion, Biggs mentions Martini’s emphasis on the “historical asymmetries of power between the United States and Vietnam” and the lack of attention in the U.S. to the problems of some Vietnamese that are “allegedly caused by exposure to Agent Orange.”<sup>3</sup>

In terms of reservations, Biggs notes that Martini’s sources “are almost wholly American,” while also recognizing that he “made the rounds, visiting well-known Vietnamese figures involved in Agent Orange issues.” He declares, contrary to Martini’s argument, that the U.S. military did not procure Agent Orange and then divert it to domestic uses. But in

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<sup>1</sup> Edwin Martini, *Invisible Enemies: The American War on Vietnam, 1975-2000* (Amherst, MA: University of Massachusetts Press, 2007).

<sup>2</sup> David Zierler, *The Invention of Ecocide; Agent Orange, Vietnam, and the Scientists Who Changed the Way We Think about the Environment* (Athens and London: The University of Georgia Press, 2011); and also the titles mentioned by workshop participant Diane Fox. A still broader context for consideration of ecological issues in Vietnam is developed in David Biggs’s breakthrough text *Quagmire: Nation-Building and Nature in the Mekong Delta* (University of Washington Press: Seattle, 2010); and, with a focus on climate change, Eren Zink, *Hot Science, High Water; Assembling Nature, Society and Environmental Policy in Contemporary Vietnam* (Copenhagen, Nordic Institute of Asian Studies Press, 2013).

<sup>3</sup> This “asymmetry” is also a major theme in Martini’s *Imagined Enemies*.

conclusion, he judges *Agent Orange* to be “a welcome addition to a relatively new area of scholarship that merges approaches from environmental, legal, and diplomatic history.”

Diane Fox appreciates the way Martini frames his inquiry with references to in-country Vietnam vets who, after prolonged struggle, are now eligible for service-related disability claims, in contrast to the many Vietnamese who were sprayed with herbicides but remain “ineligible for U.S. support.” She states that the book “describes the material conditions for the use of herbicides in war as having been created by the booming post-war global development, production, testing, and distribution of petro-chemicals, coupled with the multiplying connections between industry, corporations, and the military.” Acting on “faith in technological solutions to social and political issues,” Americans destroyed food crops, set forest fires, and seeded clouds in the hopes of bringing on torrential rains. Further along, she notes that the text underscores the difficulty of drawing lines between enemy combatants and the civilian population and says that Martini deserves praise for adding “nuance and complexity to this oft-cited divide” and also for following out “the global legacies of the chemical war” in Korea, New Zealand, Italy, and Canada, as well as in the United States

Fox believes that *Agent Orange* is “a starting point, not an end,” when it comes to studies of the “politics of uncertainty,” and poses a number of interesting questions which future researchers might profitably address. Perhaps she also thinks Martini could have probed more deeply into the question of how much the military knew about the dangers for human beings when it authorized the use of herbicides to destroy plant life and food sources. Her overall assessment is that the book stands “on its own as a very welcome addition to the small but growing collection of recent works on Agent Orange.”

Keith Woodhouse appreciates the many perspectives in the book, which moves from the use of Agent Orange as a weapon of war to the problematic attempts to arrive at a precise understanding of its effects on civilian populations. In the later chapters, he affirms, Martini “explores the inherent uncertainty of environmental damage and ecologic effects, and the uncomfortable place in which that uncertainty sits in the precise worlds of policymaking and legal decisions.” Woodhouse seconds Martini’s view that “military planners subscribed to an atomistic view of herbicides, guerrillas, civilians, and the landscape, compartmentalizing the various aspects of defoliant operations in a manner that did not align with defoliant practice.”

Woodhouse faults Martini for telling “a top-down story about environmental awareness, focusing on politicians and their programs” and not sufficiently underscoring the role of “environmental thinking and activism.” But in general he salutes the work as “a compelling blend of political, social, military, and environmental history.”

To sum up, all the commentators affirm that more work needs to be done on the uses and especially the effects of defoliation, and all regard Edwin Martini’s book as an important step forward in developing what Diane Fox characterizes as “a fuller, more nuanced understanding of the issues entailed in Agent Orange.”

**Participants:**

**Edwin Martini** is Associate Professor of History and Associate Dean of the College of Arts and Sciences at Western Michigan University. He is the author of *Invisible Enemies: The American War on Vietnam, 1975-2000* (2007) and the co-editor, with Scott Laderman, of *Four Decades On: Vietnam, the United States, and the Legacies of the Second Indochina War* (2013). He is currently working on a global history of napalm.

**David Hunt** earned a Ph.D. at Harvard and is Professor of history at UMass/Boston. He is the author of *Vietnam's Southern Revolution: From Peasant Insurrection to Total War* (Amherst, MA: University of Massachusetts Press, 2008) and "Dirty Wars: Counterinsurgency in Vietnam and Today," *Politics and Society* (2010). He is currently working on a social history of Vietnam in the era of the Vietnam War.

**David Biggs** is an Associate Professor of History at the University of California at Riverside. His recent book, *Quagmire: Nation Building and Nature in the Mekong Delta*, was awarded the 2012 Marsh Prize in Environmental History. His research explores environmental and technological issues in Asia, especially in Vietnam. He is currently writing a long history of war and environmental changes on the central coast of Vietnam with a particular focus on military bases.

**Diane Niblack Fox** holds a PhD in socio-cultural anthropology from the University of Washington. Her dissertation, "*One Significant Ghost*"-- *Agent Orange: Narratives of Trauma, Survival, and Responsibility*, centered on stories told her by Vietnamese families the Red Cross designated as "thought to be affected by Agent Orange." Chapters based on that work have appeared in collections published by Routledge, Cornell and Duke University Presses, and by Les Indes Savantes in Paris. She currently teaches anthropology, Vietnamese studies, and peace studies at the College of the Holy Cross in Worcester, where she continues to work on the stories.

**Keith Mako Woodhouse** received his Ph.D. from the University of Wisconsin in 2010. He is currently a postdoctoral fellow with the University of Southern California and Huntington Library Institute on California and the West, and is working on a history of radical environmentalism in the late-twentieth-century United States.

In this book, Edwin Martini sets out to do two things: write a detailed, global history of Agent Orange and explore the “politics of uncertainty” that fall in the center of more than three decades of trials and hearings. The first three chapters provide a concise overview, and a global history, of the development, use, and disposal of Agent Orange. Martini weaves together anecdotes culled from military records and well-known accounts from secondary histories into a story that ties in sites including Vietnam, the United States, New Zealand, Canada and Korea. These sites share an association with Agent Orange and the herbicide’s controversial contaminant, TCDD dioxin. The fourth chapter explores what Martini calls a “politics of uncertainty.” This refers to the repeated court battles and legislative debates over the inability of scientific researchers to definitively link exposure to Agent Orange with a variety of illnesses claimed by plaintiffs. The fifth and final chapter returns to the global history perspective, considering sites of dioxin contamination and present-day recovery efforts around the world. Aside from some issues with the use of figures to support broad claims and concluding thoughts in the book, I find *Agent Orange* to be an engaging synthesis of diplomatic, environmental, and legal history.

The first three chapters in many respects reprise the main features of earlier histories of Agent Orange by such authors as William Buckingham, Paul Cecil, and Peter Schuck.<sup>1</sup> However, Martini fleshes out these reports by integrating archival images, a Vietnamese propaganda comic, other grey literature, and interviews. He includes detailed biographical studies of key players in debates over Agent Orange such as a former United States Air Force Colonel, Dr. Alvin Young. Young worked as a scientist with the Air Force studying the effects of tactical herbicides including Agent Orange. Other figures include American ambassadors to Vietnam and senior military officials.

The book’s long fourth chapter, “The Politics of Uncertainty,” departs from the global history approach to examine several major court cases and Congressional hearings. The issue of Agent Orange contamination, Martini argues, is historically unique in that it occurred precisely at the time that political environmentalism resulted in the formation of the Environmental Protection Agency and an expansion in toxic tort cases after 1970. Agent Orange missions were curtailed just days before the first Earth Day event in 1970. The chapter follows the class action suits brought into federal courts by veterans alleging health impacts connected with exposure to the chemical. The chapter’s key insight is that politics and public opinion with regard to American veterans ultimately shifted in favor of veterans, with the burden of proof shifted to the U.S. government. With the 1991 Agent Orange Act, Congress gave the Department of Veterans Affairs (VA) the authority to fund the treatment of veterans for certain ailments with a presumed association to Agent Orange. Where the U.S. government could *not* prove definitively that there was absolutely

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<sup>1</sup> William Buckingham, *Operation Ranch Hand: The Air Force and Herbicides in Southeast Asia* (Washington: Office of the Air Force History, 1982); Paul Cecil, *Herbicide Warfare: The RANCH HAND Project in Vietnam* (New York: Praeger, 1986); Peter Schuck, *Agent Orange on Trial: Mass Toxic Disasters in the Courts* (Cambridge: Harvard University Press, 1986).

*no possible connection* between a former soldier's exposure to herbicides and a listed illness, it supported treatment.

The fifth and final chapter returns to the global history, considering cleanups at dioxin-contaminated hotspots and several more recent suits filed by groups outside the United States. Here Martini argues for an emerging global discourse on Agent Orange and the responsibility of governments to compensate those exposed. He compares cleanup operations at sites such as a former chemical plant in New Plymouth, New Zealand, a former air base in Bien Hoa, Vietnam, and a Canadian Forces Base in Gagetown, New Brunswick. The chapter concludes with a comparison of the U.S. government's attitude to supporting American veterans and its relative reluctance to extend the same support to claims brought by people overseas, especially in Vietnam.

The conclusion is organized with questions listed as bolded subheadings, and Martini posits three concluding statements. First, he claims that chemical manufacturers knew about problems of dioxin contamination from the early 1960s, but that U.S. government officials did not. Second, he claims that the question of whether the U.S. government's use of tactical herbicides breached bans on chemical warfare is something of a gray area. I find this second concluding point to be somewhat out of place since none of the preceding chapters devote extensive treatment to U.S. approaches to international law. David Zierler's 2011 book, *The Invention of Ecocide: Agent Orange, Vietnam, and the Scientists Who Changed the Way We Think about the Environment*, tackles it head-on, drawing extensively from the Presidential records of the Kennedy, Johnson, Nixon and Ford Administrations.<sup>2</sup> The third concluding point ends the book with an ethical imperative: "Raising the question of accuracy and evidence does not absolve the U.S. government and the chemical manufacturers of their moral, ethical, and historical responsibilities" (246). Drawing upon multiple failed attempts of Vietnamese plaintiffs to get monetary or material support via U.S. courts, Martini argues that historical asymmetries of power between the United States and Vietnam mean that Americans and Vietnamese suffering from similar health problems allegedly caused by exposure to Agent Orange do not receive equal consideration. This is a deliberately provocative point, and it identifies what is still a high-level bilateral concern between Vietnam and the United States.

Martini's attempt to condense a global history of Agent Orange and associated debates into an accessible, 247-page book is admirable. However, as is often the case with such histories, there are inevitable oversights. The sources used are almost wholly American, raising some question about Vietnamese official and individual perspectives. Martini has made the rounds, visiting well-known Vietnamese figures involved in Agent Orange issues, and the text reflects a considerable effort to integrate their views. My greater concern, however, is with Martini's treatment of the technical and ecological dimensions of Agent Orange. Imprecise use of statistics in several places and one erroneous claim (that Round-Up contains 2,4-D, page 157) give me pause. The following passage is one such example,

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<sup>2</sup> David Zierler, *The Invention of Ecocide: Agent Orange, Vietnam, and the Scientists Who Changed the Way We Think about the Environment*. (Athens and London: The University of Georgia Press, 2011).

suggesting that Agent Orange in 1964-65 might have ended up in domestic, non-military hands. Martini writes (31):

I had assumed the typical barrel of Agent Orange in 1967 did, in fact, ship to Vietnam, arriving at places like Bien Hoa and Da Nang; had it shipped years earlier, it might not have. Buckingham has noted that in the early phases of Ranch Hand, up to 1964, the military consumed a very small portion of the total volume of herbicide production. Even in 1965, of the 3.4 million gallons produced in the United States, 2.8 million were used for domestic agricultural purposes, while only 400,000 gallons were purchased by the USAF. Prior to the use of Agent Orange in 1965, a variety of herbicides, some of which contained a similar combination of 2,4-D and 2,4,5-T and many of which contained significant levels of dioxin, were produced, distributed, and tested at sites around the world.

This passage confuses the procurement of the *tactical* herbicide called Agent Orange with domestic consumption of the two component herbicides 2,4-D and 2,4,5-T. The US Army and the US Air Force placed strict controls on testing, procurement, use, and disposal of *tactical* herbicide formulations such as Agent Orange; and both agencies prohibited diversion of this special military herbicide to non-tactical, commercial, or domestic users. The source cited in the passage above (William Buckingham's *Operation Ranch Hand*) is comparing the military's consumption of the component herbicide chemicals 2,4,5-T and 2,4-D relative to total domestic consumption of the same chemicals albeit in different, commercial formulations to be used on farms, clearing rights of way, in forestry, on ranches and in home gardens. The source cited above is *not* suggesting that the military procured Agent Orange and then diverted it to domestic use before or after 1967.

Given the scale of lawsuits associated with dioxin exposure from Agent Orange, such details are important. One reason for a "politics of uncertainty" in the case of Agent Orange is that the U.S. military's research, development and use of tactical herbicides in the 1950s and 1960s occurred simultaneously with a rapidly expanding domestic demand for herbicides, insecticides, PCBs, and solvents. This was a global phenomenon that included industrialized countries as well as those targeted for development aid. Herbicides, pesticides and other chemicals were a crucial part of the Green Revolution, too. Many of these once-available chemicals including the herbicide 2,4,5-T have since 1970 been restricted or banned. Thus the politics of uncertainty in Agent Orange cases stems in part from a much broader *ecology of uncertainty* associated with the production and release of many different chemicals during this boom period and in various urban and rural environments. This larger ecological context in which Agent Orange was situated is largely absent in the book.

In sum, Martini's book introduces a new generation of students to the history and politics of Agent Orange; and I hope it will spur others to leap further to consider the broader, global ecological dilemma of toxic chemicals. *Agent Orange* does an admirable job of updating and consolidating the history of this tactical herbicide's use as well as explaining

the gradual shifts in the many court cases and hearings that have focused on toxic torts. Martini identifies some of the key paradoxes in American domestic and foreign policy with respect to compensating people who claim damages associated with exposure to tactical herbicides. The fifth chapter details challenges still facing claimants, especially those living outside the United States. In sum, *Agent Orange* is a welcome addition to a relatively new area of scholarship that merges approaches from environmental, legal, and diplomatic history.

“The story of Agent Orange is almost always about much more than Agent Orange,” Edwin Martini writes in the introduction to his book (12). Treating the chemical as both a material artifact with “very real and very serious effects” (5) and as a cultural phenomenon, Martini gives us five such stories in this volume, five chapters bound together by themes of Agent Orange’s global connections, of its reciprocal relationship with the rise of environmental thinking, and of its relationship—again reciprocal—with challenges to scientific and state authority. Each chapter is distinct and meaty enough to stand on its own as a very welcome addition to the small but growing collection of recent works on Agent Orange.<sup>1</sup>

In the opening pages of his book, Martini uses two vignettes to frame the complexity of the controversies that have surrounded, and to some extent continue to surround, Agent Orange. One is of an American veteran with type 2 diabetes, the other of disabled Vietnamese children. The American is eligible for a service-related disability claim because he set foot in Saigon, though only in transit and for less than half a day; the Vietnamese children live in an orphanage for Agent Orange Victims, ineligible for U.S. support. Who can say for certain whether the diabetes and the disabilities were indeed caused by exposure to the dioxin in Agent Orange? The Veterans Administration talks of a “suggestive” link between the disease and exposure; the director of the orphanage, asked about the link between dioxin and the disabilities, replies “We will never know for sure” (2). In this volume, Martini explores the ways uncertainty has permeated debates and actions related to the use and consequences of the chemicals America deployed in Viet Nam.<sup>2</sup>

Three chapters strike me as most directly relevant for readers on this listserv. The first asks how the United States got into this at best murky territory of using chemicals in war in the first place. The second reconstructs how the various parties involved, from policy makers to military leaders to villagers, lived and spoke about the chemicals at the time of their deployment. The third explores the role uncertainty has played in shaping the ways

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<sup>1</sup> See, for example: David Zierler, *The Invention of Ecocide: Agent Orange, Vietnam, and the Scientists Who Changed the Way We Think about the Environment* (Athens: University of Georgia Press, 2011); Charles Waugh and Huy Lien, eds, *Family of Fallen Leaves: Stories of Agent Orange by Vietnamese Writers* (Athens: University of Georgia Press, 2010); and Fred Wilcox, *Scorched Earth: Legacies of Chemical Warfare in Vietnam* (New York: Seven Stories Press, 2011). Several other works are currently in various stages of preparation. Of particular interest is a forthcoming work by Tine Gammeltoft (working title: *Haunting Images: A Cultural Account of Selective Reproduction in Vietnam*, Berkeley: University of California Press), and a dissertation by Takeshi Uesugi, *Delayed Reactions: Conjuring Agent Orange in Twenty-First Century Vietnam*, for the Department of Anthropology, McGill University, Montreal.

<sup>2</sup> Determination of cause of disease at the individual level is not as clear as the effects of dioxin exposure seen in the laboratory, or as statistical probability for a population. Analogies have been made to trying to know ‘for sure,’ for any given individual, the cause of lung cancer, or even the common cold. Not everyone who smokes gets lung cancer, and not everyone with lung cancer has smoked. If we are in a group of people exposed to cold germs, I may start sneezing, and you may not.

Agent Orange has been treated in the intersecting fields of science, politics, law, and lived experience.

Martini phrases the first question pointedly but not rhetorically: How and why did the United States come to carry out chemical attacks on villages in Viet Nam, destroying the crops of people they were trying to protect and for whose hearts and minds U.S. troops were fighting (18)? His answer draws on archival work in military and government records that shed light on the decision-making process, which he sets against the backdrop of the political, military, and material conditions of the period, the late 1950's and early 1960's. He sketches the time as one of intense political and military battles in Southeast Asia, fired by decolonization and the Cold War, and a time of a post-Second World-War glow of victory in America, with a technocratic mindset prevailing in Washington, paired with a sense of mission rooted in idealism, a belief in U.S. superiority, and a refusal to accept the limits of power. He describes the material conditions for the use of herbicides in war as having been created by the booming post-war global development, production, testing, and distribution of petro-chemicals, coupled with the multiplying connections between industry, corporations, and the military. The preparations for the wartime use of chemicals grew these connections, Martini tells us, giving rise to test sites, factories, and storage centers that stretched across the nation and around the world: Arkansas, California, Florida, Hawaii, Maryland, Mississippi, New York, Oregon, Texas, Puerto Rico, Canada, South Viet Nam, Thailand-- the list continues, with 40 sites in all (32).

The use of chemicals in war moved from possibility to plan of action when the newly-elected John F. Kennedy sent a high level delegation to Viet Nam to investigate the deteriorating position of President Ngo Dinh Diem, the U.S. ally in Saigon. Included in the delegation was James Brown of the Chemical Warfare Service (CWS) at Fort Detrick, who made the case for herbicides as a tool for counterinsurgency. (Of the 12,000 chemical compounds studied by the CWS, more than 60 came to be used in Viet Nam, of which the six herbicides continue to draw the most attention (22).) According to Martini, Kennedy thought of chemicals as an alternative to nuclear weapons (21), and intended the herbicide use to be limited, a technological alternative, not a supplement, to the deployment of combat troops (see page 26, where Martini cites David Zierler's argument).

Martini calls this faith in technological solutions to social and political issues an illusive, and elusive, "dream of control by the White House and the Pentagon, including control over nature itself" (41). Herbicidal warfare was but one example of this illusion. Huge forest fires were set or intensified, and clouds were seeded in the hopes of producing flooding and landslides. The monsoon rains largely frustrated the plans for control by fire, although considerable environmental destruction resulted nevertheless. That military intelligence was able to counter concerns about potential danger to human life from the flooding and landslides with the argument that people there were "used to dealing with floods" (49) once again gives rise to the question: how were these actions imagined to be able to win over the people affected by them? One is left hoping that our understanding of our shared humanity has grown over the last half century on a par with the growth in our understanding of the toxicity of the dioxin in Agent Orange.

In his second chapter, Martini further explores the complexities of U.S. engagement through the records of those present at the time, noting the gap between words and deeds, between the ideal and the real, as well as the unresolved clash between military and political objectives. For the most part—but with an important exception, noted below—the military intended the herbicides to defoliate *enemy* soldier cover and destroy *enemy* crops. But the on-the-ground result was the destruction of civilian crops as well; indeed, of course, at times the two were indistinguishable. Civilian crops themselves were targeted during the strategic hamlet program, however, as part of an attempt to separate ‘the fish from the sea,’ the revolutionaries from the people, by forcing villagers out of their homes and into fortified ‘strategic hamlets’—a move the military thought of as protection, and many villagers, as a form of eviction and imprisonment. The military, to the end, saw the use of herbicides as successful, and argued to continue the program; policy makers looking at political results argued for its end. It is a strength of Martini’s work that he is able to add nuance and complexity to this oft-cited divide. (See, for example, his treatment of the RAND studies, 62-69 and 81-92.)

In The chapter entitled “The Politics of Uncertainty: Science, Politics, and the State,” Martini brings us back to the debates over the effects of Agent Orange, and to the “multiple, intersecting, and competing epistemologies” that shape them (149) as he traces the social construction of their particular reality, to paraphrase Peter Berger.<sup>3</sup> He looks at the ways media stories, senate hearings, legal proceedings, contested scientific studies, accounts of personal experience, and the contrasting ways the U.S., Australia, and New Zealand treated their veterans and their claims have all intersected in the stories told about the effects of the chemicals, as all parties “[seek] answers to a number of questions that could not, and likely never will be, answered” (150). The strength of the chapter is its use of archival work and interviews to render more complex some of the key events that are frequently included in narratives told about Agent Orange, by highlighting the role that uncertainty played in each.

I think of this chapter as a starting point, not an end, however—a seed for future research that could be grown into its own book. In that regard I am a bit puzzled by David Zierler’s claim on the back cover that after this volume it is hard to imagine why anyone would attempt to add to the body of literature on Agent Orange. While Martini has given us a more complete picture of some of the issues in some of the debates, his heavy reliance in this chapter on one voice, that of government scientist Alvin Young, strikes me as an invitation to further work. As the fierce debates of the 1980’s become footnotes in the history books, it is good to document that voice; it would be even better to document equally the voices of people who disagree with Young, of whom there are many. And it would be good to bring the study forward into the twenty-first century, through the lens of a student of the history of science, or history of medicine. What uncertainties have become more certain in the past twenty years? What questions remain? But these are not so much critiques of the work

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<sup>3</sup> Peter L. Berger and Thomas Luckmann, *Social Construction of Reality: A Treatise in the Sociology of Knowledge* (Garden City, NY: Anchor Books, 1966)

that Martini has given us, as hopes for future work that will build on his, perhaps from the desk of a historian of science or medicine.

Another topic that Martini opens to further research even as he seeks to close it, it seems to me, is the debate over a letter sent in 1988 by Dr. James R. Clary of the Chemical Weapons Service to Democratic Senator Tom Daschle, affirming that the military had known of the toxic effects of the chemicals at the time, but was not too concerned because they were to be used on the enemy. Martini cites this letter as the only shred of evidence that the military did know and disregarded the potential for harm to humans, suggesting that it may be better to think of the letter as a revision of knowledge shaped by time and the trauma of the war, rather than as proof of a U.S. government cover-up, which is how the letter has at times been used. It seems to me such speculation could cut both ways: that it is just as reasonable to suppose that the CWS took pains to learn about the chemicals it worked with, and did have knowledge of its potential effects. Whether or not one then wishes to make claims about conspiracies and cover-ups seems to me a separate matter, to be argued on separate grounds. Again, careful research seems to me the way to handle this question; and, again, this is not a critique of Martini's work, but an invitation to further work. I appreciate his effort to defuse the inflamed and inflammatory rhetoric that sometimes accompanies the issue.

I do have one strong critique, however. It is on the level of mechanics, not content. As a researcher interested in the many stories and legacies of Agent Orange, I am baffled—frustrated and thwarted—by the absence of a bibliography, both to draw on as a resource for my own work, and as a way to get an overall sense of the basis for this present volume. I hope one will appear in a second edition. And I hope someone writing on Agent Orange will one day produce a chronology that will help us see more clearly the simultaneous development of the story of Agent Orange across many fields of discourse.

Before concluding this review, let me note that the book's two other chapters are also well worth reading for anyone interested in developing a fuller, more nuanced understanding of the issues entailed in Agent Orange. Martini's third chapter recounts the ending and post-war destruction of the chemicals, drawing useful comparisons with approaches to handling dioxin contamination in Times Beach, Missouri, Seveso, Italy, Alesia, Oregon, and New Plymouth, New Zealand. His final chapter treats the global legacies of the chemical war. He offers comparative insights into the approaches to and premises of the legal battles over chemical exposure in Korea, New Zealand, and Canada; fresh insight and nuance to the Vietnamese attempt to sue the chemical corporations; and discussion of the work on the 'hot spots' that remain contaminated and contaminating in Vietnam today, sometimes hundreds of times above the World Health Organization's (WHO) standard for acceptable dioxin levels, in places where Agent Orange was stored or spilled or repeatedly sprayed intensively, as around the perimeter of military bases.

At the conclusion of his work – which he characterizes as “far from comprehensive”(8)—Martini offers three questions to which his work can suggest what he calls “preliminary answers”: “How could the United States and its allies do such a thing?”; “Should the use of Agent Orange be considered chemical warfare?”; and “What can and should be done for U.S.

veterans, Vietnamese victims, and others around the world who believe they are suffering as a result of Agent Orange?" (239, 242, 244) Whether or not you agree with his answers, these questions, and Martini's discussion of them, are well worth pondering.

Edwin Martini's *Agent Orange: History, Science, and the Politics of Uncertainty* approaches the story of Agent Orange from several different angles at once. Martini is primarily interested in the United States military's use of, and later destruction of, the industrial herbicide. But he is also deeply concerned with the politics surrounding Agent Orange's proven and alleged effects on living beings, the role of scientific authority in those political debates, and the influence of ecological ideas on the ethics of deploying weaponized herbicides. The history of Agent Orange, Martini convincingly argues, must include all of these perspectives.

The broad effort to defoliate jungles and destroy crops was known as 'Operation Ranch Hand.' From the first chapter of *Agent Orange*, Martini explains Ranch Hand in terms of ecological thought (or, more often, its absence). The defoliation program assumed the same domineering stance toward the natural world that environmentalists would soon challenge. The United States sought to control the Vietnamese landscape just as it sought to control the Vietnamese people, Martini says, and its various leaders believed that American military might and technological sophistication would facilitate both goals. The technocrats of the Kennedy Administration thought the United States "could, through the analysis and manipulation of data and the proper application of modern tools, including herbicides, impose its will on that environment and its inhabitants" (19). In successive operations initiated under President John Kennedy and continued under Lyndon Johnson, the United States used bombs, napalm, fire, and herbicides (Agent Blue and Agent White in addition to Agent Orange) to render massive swaths of jungle less friendly to guerrillas and more manageable to American forces. This largely unsuccessful effort was less an instance of a war on the natural world than it was an attempt to pacify an unruly environment. "In other words," Martini writes of the war planners, "they treated the forest less like the [Viet Cong] than like the southern Vietnamese population the United States was ostensibly trying to protect" (46). And, like American programs for managing the southern Vietnamese, the jungle-taming operations overestimated American influence and underestimated the complexity of the task at hand. "The control of nature" Rachel Carson wrote in the early 1960s, "is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man."<sup>1</sup> Martini argues that a similar illusion of control, bred of a similar arrogance, characterized American efforts to manipulate the political, social, and natural environments of Vietnam for more than a decade.

Efforts to control natural and human environments in the twentieth century were often grounded in an ignorance of just how complicated those environments could be. Rachel Carson tried to confront that ignorance when she published *Silent Spring* in 1962. The premise of Carson's most famous work is that everything is interconnected, and that chemicals cannot be introduced into ecosystems in an isolated manner. This was another

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<sup>1</sup> Rachel Carson, *Silent Spring* (New York: Houghton Mifflin, 1994 (1962)), p. 297.

lesson lost on military planners in the early stages of the Vietnam War. Dumping clouds of herbicide on large regions of the countryside might go some distance toward accomplishing the tactical goals of clearing jungle and destroying enemy food supplies. But inevitably Agent Orange would also destroy civilian crops, and frighten civilians themselves by bathing them in an unfamiliar substance with little warning. Vietnamese villagers recognized both that the Viet Cong presence led to the use of Agent Orange and that it was the Americans who were deploying the crop-killing clouds. Because villagers could reasonably blame either side, or both, the United States engaged in large-scale propaganda efforts to convince civilians that American forces were fighting for them. According to Martini, what the architects of the war failed to understand was that individual human beings could not be separated from their environment, whether for the purpose of dumping herbicides on plants but not on people or for trying to convince those people that harm to their fields and farms was not, in fact, harm to them also. Agent Orange did not discriminate between enemy and noncombatant, or between Viet Cong crops and civilian crops, and could not be dumped on the enemy without being dumped on other people and on the landscape as well. Before *Silent Spring* and a nascent environmentalism popularized the ecological view that all life is interconnected, Martini argues, military planners subscribed to an atomistic view of herbicides, guerrillas, civilians, and the landscape, compartmentalizing the various aspects of defoliant operations in a manner that did not align with defoliant practice. Distinctions between targets and outcomes that were clear in Washington, D.C. conference rooms were harder to discern through a haze of Agent Orange in Vietnam's villages and jungles.

*Agent Orange* is a compelling blend of political, social, military, and environmental history, and it works hard to put environmental thought, military planning, and political conflict alongside each other. The intersections of these various narrative threads are often fascinating. Environmental thought tends to get the least textured treatment, though, and is often a sort of abstraction that hovers above the on-the-ground action. Martini claims that the history of the Agent Orange controversy pivoted on "environmentalist thinking" that led to sharp restrictions on the herbicide's use and handling. But the specific contours and advocates of environmentalist thinking are not always clear. Who was behind this thinking, and what sort of influence did they have? When did it really take hold in discussions of Agent Orange? Martini establishes that by the time of Operation Pacer HO – the incineration of Agent Orange stockpiles – in the late 1970s, an "environmental awareness" had "taken root in American society" and was reflected in particular laws and regulations (117). Accordingly, the military set strict standards for the handling and disposal of Agent Orange. But "[t]he point here is not that the military itself had an official change of heart"; rather, "a new regulatory apparatus was in place...one that forced the military to deal with the herbicides and the potential dangers, real or imagined, in a wholly different manner" (126). Martini often points to regulatory regimes as engines of environmental thought rather than as consequences of environmental thinking and activism. "The environmental legislation signed into law by Nixon in the early 1970s also raised awareness about air and water pollution," Martini states, although most historians of the period would probably describe causation the other way around (115).

Martini tends to tell a top-down story about environmental awareness, focusing on politicians and their programs. He defends early planners and their cavalier use of dioxin-tinged herbicides from what he considers unfair criticism by reminding us that environmental thinking was little-known at the time, and “that worldview was not available to the policymakers who designed and implemented Operation Ranch Hand” (243). But Operation Ranch Hand began right around the time *Silent Spring* was making headlines and sparking a debate about the pesticide DDT, a debate President Kennedy himself weighed in on. And according to Christopher Sellers’s most recent work, Rachel Carson was only articulating a set of ideas – Sellers calls it a “chemically conceived naturalism” – that suburban homeowners had been discussing already.<sup>2</sup> President Nixon, meanwhile, seems to have been surprisingly ahead of the curve, passing strict rules about dealing with Agent Orange at a time when “the science and politics of herbicides and dioxins were still very new to the American public and their elected representatives” (115). These presidents and presidential administrations were likely responding to cold political calculations as much as to environmental thinking, making the story of Agent Orange and environmentalism a matter not just of emerging environmental awareness but of which environmentalists were or were not paying attention to weaponized herbicides and how much influence those environmentalists held. Environmental awareness ebbs and flows and specific moments shift the discussion, as Martini himself demonstrates at one point through his rich discussion of Times Beach, Missouri, where oil containing dioxin was used to spray local roads, leading eventually to the abandonment of the entire town and greater national concern about dioxin. That story is a rare moment of contingency in the book’s treatment of environmental thinking.

Martini suggests that his research and writing on this topic are only beginning, which is good news for historians of the period and of environmentalism more generally. There are many provocative ideas in *Agent Orange* that deserve further discussion. Martini’s first chapter title, “Only You Can Prevent Forests,” was the ironic slogan of Operation Ranch Hand and a play on the United States Forest Service’s own slogan, “Only You Can Prevent Forest Fires.” Much more ironic, though, and thought-provoking, is the consulting work that the Forest Service did as part of Operation Ranch Hand. At the exact moment the conservation movement was trying to protect fragile American forests, the Forest Service was trying (and largely failing) to destroy durable Vietnamese jungles. Even more provocative – and central to *Agent Orange* – is what Martini calls “the politics of uncertainty.” The second half of the book explores the inherent uncertainty of environmental damage and ecological effects, and the uncomfortable place in which that uncertainty sits in the precise worlds of policymaking and legal decisions. “The politics of uncertainty” have obvious relevance to all sorts of environmental issues, but especially to the dilemma of climate change. Historicizing the way that complex environmental phenomena are translated into the political sphere (or not) is a crucial project. *Agent Orange* is a valuable and revealing part of that larger effort, and Martini’s future work will doubtless build on its strong initial discussion.

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<sup>2</sup> Christopher Sellers, *Crabgrass Crucible: Suburban Nature and the Rise of Environmentalism in Twentieth-Century America* (Chapel Hill: The University of North Carolina Press, 2012), p. 9.

Author's Response by Ed Martini, Western Michigan University

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I want to begin by thanking the H-Diplo staff and editorial team, Tom Maddux, and especially my colleagues David Biggs, Diane Fox, and Keith Woodhouse for expending their valuable time and energy to read, review, and offer their critiques of my work. I'm quite pleased that they found the book, on the whole, to be a positive contribution to the literature on Agent Orange and that they agree with me that the book should be seen as another step in our understanding of a complicated and controversial issue, rather than the final word on the subject.

Since I started researching this book nearly a decade ago, the most exciting and the most challenging aspects of *Agent Orange* have consistently revolved around its complexity and interdisciplinarity. I began the book out of sheer curiosity, attempting to understand a topic that consistently seemed to be oversimplified by what appeared to be two 'sides' of an ongoing battle. On the one hand, military histories of Operation Ranch Hand often seem to take at face value the documentation proffered through official channels, while other approaches to the topic appeared more driven by political advocacy, seeking to reclaim the voices of the victims of Agent Orange, but often at the expense of historical context. To deal with this problem, I sought to employ an interdisciplinary approach that forced me to struggle, and often stumble, across unfamiliar terrain. In addition to working in numerous archival collections around the world, I attempted to learn from scholars working in such fields as toxicology, epidemiology, and public health history. Their work, particularly on the concept of uncertainty, was invaluable in helping me make sense of at least some of the mysteries that continue to surround Agent Orange. The reviews assembled here seem to validate my overall approach and also suggest some areas in which the project was perhaps more successful than others.

For those who are unfamiliar with the work of Diane Fox, it is worth noting that she is a pioneer in Agent Orange research. Her dissertation and subsequent publications have played a critical role in reconstructing the voices of many in Vietnam, particularly Vietnamese women, who were affected by Agent Orange and whose stories are, for the most part, not collected elsewhere. Her work has been instrumental in shaping future approaches to the topic, including my own.<sup>1</sup>

Fox raises two particular issues to which I would like to respond. The first concerns my chapter on "The Politics of Uncertainty," which explores the battles fought in several nations from the late 1970s to the early 1990s over where the burden of proof in Agent Orange exposure and benefits determinations should lay. While I agree with Fox that this

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<sup>1</sup> For a sample of Fox's work, see Diane Niblack Fox, "One Significant Ghost": Agent Orange, Narratives of Trauma, Survival, and Responsibility," (Ph.D. diss., University of Washington, 2007); "Chemical Politics and the Hazards of Modern Warfare: Agent Orange," in Monica Casper, ed. *Synthetic Planet: Chemical Politics and the Hazards of Modern Life* (New York: Routledge, 2003); and "Agent Orange: Coming to Terms with a Transnational Legacy," in Scott Laderman and Edwin A. Martini, eds., *Four Decades On: Vietnam, the United States, and the Legacies of the Second Indochina War* (Durham: Duke University Press, 2013).

chapter is not the last word on the subject, I was surprised that her primary reason for this suggestion is my “heavy reliance” on the voice of Alvin Young, a retired Air Force colonel who was an active participant in a number of events recounted in the book, and a controversial one at that, often being seen an apologist for Agent Orange. It is true that I make extensive use of Young’s work and records in this chapter; regardless of what his critics make of his interpretations of Agent Orange over the years, his voice was incredibly important in shaping the debate during the 1980s and beyond, and it had been previously left out of previous accounts. It is simply not accurate, however, to suggest that I fail to “document equally” the voices of people who disagree with Young. In the specific chapter to which Fox refers, the voice of Young is constantly juxtaposed with those on opposing sides, including workers at the Veterans Administration, members of Congress, and scientists such as Jeanne and Steven Stellman, not to mention the many veterans who worked during these years to reverse the burden of proof in Agent Orange claims.

Fox makes a similar point about the infamous ‘Clary Letter,’ written by James Clary to Democratic Senator Tom Daschle in 1988, which to this day remains the only piece of ‘evidence’ (written two decades after the fact) that the military knew early on about the dangers of Agent Orange and continued to use it in spite of that knowledge. Fox suggests in her critique of my reading of the letter and its role in the history of Agent Orange that “such speculation could cut both ways,” and that “it is as just as reasonable to suppose” that the military did indeed know what Clary’s letter alleges. The point of my argument, however, is not about whether or not such a supposition is reasonable; it is about historical and scientific evidence, and the limits of that evidence in answering questions about Agent Orange. Fox writes that “careful research seems to me the way to handle this question [of the Clary letter].” I agree completely, which is why I spent the better part of the last ten years looking high and low for any piece of evidence that would corroborate the letter. I found none. That doesn’t mean that none exists, but it does support my argument in the book that burden of proof in this particular debate should continue to be borne by those who would use the Clary letter as the sole piece of evidence in their claims of conspiracies and cover-ups.

Finally, and on a lighter note, as to Fox’s concern about the lack of a bibliography, I can only apologize and note that this was an issue of space and cost, rather than choice. This is an unfortunate reality for many university presses these days. The last thing I would wish is to leave any reader “baffled, frustrated, and thwarted,” but I am confident that readers will find the full citations for the sources in the extensive notes at the end of the volume.

I have never considered myself an environmental historian, although my engagement with the field over the past several years has had a major impact on my work. Still, as both David Biggs and Keith Woodhouse point out, this book might have benefited from greater attention to the larger “ecological uncertainty” (Biggs) and “environmentalist thought” (Woodhouse) that surround the history and legacies of Agent Orange.

Woodhouse argues that my engagement with the rise of environmentalist thinking that largely coincided with the active years of Operation Ranch Hand “is often a sort of abstraction that hovers above the on-the-ground action.” I would respectfully quarrel with

the “abstraction” descriptor, but it is true that I consider the rise of the modern environmental movement to be one part of the larger context that is critical to understanding the ways in which public understandings of Agent Orange and its associated dioxin evolved in the 1970s and into the 1980s. I never intended to write a detailed history of the rise of this shift in thinking, but if it comes across to Woodhouse, who is far more knowledgeable in this area than I, that I have represented “regulatory regimes as engines of environmental thought rather than as consequences of environmental thinking and activism,” then that is unfortunate; that was certainly not my intention. I would suggest, however, that while it is certainly correct to say that the environmental protection measures signed into law during the Nixon administration were a response to the rise of environmentalist thinking in the United States, rather than the “engine” that drove that thinking, it remains true that those laws, in turn, also helped to raise awareness about air and water pollution.

I am somewhat less convinced by Woodhouse’s related argument that I have written a “top-down story about environmental awareness.” It is true, especially in the earlier chapters of the book, that I focus on “politicians and their programs,” and that I argue that it is largely unfair to expect members of the Kennedy administration to have taken a more ecological view of the herbicide program in the early 1960s. Even if Woodhouse is correct that I let the policymakers off too easily, other sections of the book look in detail at the ways in which a variety of communities around the world have negotiated the meanings of Agent Orange from the ground up. In places including Times Beach, Missouri; New Plymouth, New Zealand; and New Brunswick, Canada; and for veterans and civilians alike across the United States and Vietnam, let alone Australia and New Zealand, the stories I tell in the book are largely about the struggles of everyday citizens to navigate the expansion of scientific knowledge about dioxin and shifting attitudes about chemicals, bodies, and the environment. Whether in the fatalism of residents who refused to leave Times Beach, or in the popular epidemiology, literally built from the ground up by citizen-scientists in New Zealand, I would argue that *Agent Orange* is far from a top-down approach throughout.

David Biggs offers perhaps the strongest critiques of the book. First, he argues that I make “imprecise use of statistics” and cites a passage where he believes I suggest that the military may have diverted military herbicides for domestic use. In this particular instance, and in pointing out that I listed 2,4-D as the active ingredient in Round-Up herbicide (rather than glyphosate, the primary commercial competitor of 2,4-D), Biggs is correct. The passage he cites is largely a case of clumsy editing on my part, rather than factual error. The point of the larger section from which he draws describes the global apparatus that was constructed to support the production, shipping, and testing of herbicides including Agent Orange and, relatedly, the widespread domestic use of 2,4-D and 2,4,5-T during the same period. The way in which those ideas are conflated in that particular paragraph, is, in retrospect, confusing, and I appreciate Biggs’s careful reading. The point about the global reach of these chemicals remains, and the pages that follow this passage make that clear. Nevertheless, Biggs notes rightly that such details are important, and I should have been clearer in each case.

Biggs's second, and larger, point echoes Woodhouse's concerns about my treatment of the ecological and environmental dimensions of the story, but extends this to a more global scale. He argues that the "politics of uncertainty" I describe stem "in part from a much broader *ecology of uncertainty* associated with the production and release of many different chemicals during this boom period and in various urban and rural environments. This larger ecological context in which Agent Orange was situated is largely absent in the book" (Biggs's emphasis). If I understand his point, Biggs is suggesting that I might have done more to describe the larger impact of chemicals in general during the second half of the twentieth century. I had hoped that I had done so throughout the book, by discussing the ways in which chemical plants, military bases, and the chemical-as-global-commodity impacted multiple communities around the globe. This, again, was a main thrust of the discussion in sections devoted to New Zealand, Canada, and Missouri, in which herbicides and chemicals, but not Agent Orange itself, had profound effects on local actors. Still, Biggs and Woodhouse have written more extensively than I have about these topics, and I defer to their expertise. I look forward to continued engagement with their work and hope to continue to learn from it.

I close the book with the following passage:

As I said in the introduction, my goal is to provide context, not closure. I have attempted to bring some balance to the history and legacies of the chemical war, to seek out some likely explanations in the middle ground long abandoned in the polarized politics of Agent Orange. No amount of historical context will provide comfort to the children of Da Nang and A Luoi, aging American veterans, or to the millions around the world who feel, rightly or wrongly, that they and their loved ones are victims of the chemical war. Their search for answers will continue for some time. So, too, will mine.

And so it does. I truly appreciate the comments of Professors Biggs, Fox, and Woodhouse, and thank them once again for helping me, and all those others on the trail of Agent Orange, to continue that search.

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