

INTO THE WIND: THE KENNEDY ADMINISTRATION AND THE USE OF
HERBICIDES IN SOUTH VIETNAM

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ABSTRACT

This study investigates the origins of Operation Ranch Hand, the United States' aerial defoliation and crop destruction program in South Vietnam. Although Agent Orange is the best-known of the formulas employed, the decision to use chemicals in South Vietnam preceded Agent Orange's 1965 debut by several years. President John F. Kennedy authorized defoliation missions in November 1961. At the behest of the United States military, the Ambassador to South Vietnam, and South Vietnamese President Ngô Đình Diệm, Ranch Hand expanded in 1962 to include crop destruction.

The purpose of this research is to explore why the administration chose to use an untried and possibly illegal weapon in an undeclared war. The need for certainties in an increasingly ambiguous and frustrating conflict contributed to the belief that Ranch Hand was more practical and effective than it was. Even as Ranch Hand's shortfalls became apparent, the administration adhered more and more closely to the agendas of the military and of Diệm who, for different reasons, promoted Ranch Hand as reassuringly successful.

The chemicals most commonly deployed in Ranch Hand, 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), were widely used domestically during the 1950s and 1960s. The persistent questions

among scientists about how the chemicals worked and the continued difficulties in controlling their effects contrasted sharply with the beliefs held by the administration. The conflict between the administration's idealization of science and the uncertainties and contingencies of the scientific process itself was never resolved and is a major theme of this research.

Historians have frequently portrayed the Kennedy Administration as rational and unemotional, but the fears that ran through it promoted the adoption of a weapon that ultimately proved both militarily ineffective and politically disastrous. In their efforts not to 'lose' Vietnam, the administration embarked on a course that would help ensure that Vietnam was lost. The repercussions of chemical herbicide used during the Vietnam War, an effort launched by Kennedy, still reverberate in both the United States and in Vietnam.

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Evelyn F. Krache Morris

“We would rather be ruined than changed. We would rather die in our dread Than climb the cross of the moment And let our illusions die.”

~ *W.H. Auden, The Age of Anxiety*

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CHAPTER 1: INTRODUCTION AND HISTORIOGRAPHY

On November 30, 1961, President John F. Kennedy took the United States another step deeper into South Vietnam. On that date, less than 1 year after his inauguration, Kennedy signed National Security Action Memorandum (NSAM) 115, “Defoliant Operations in South Vietnam.” It called for

a selective and carefully controlled joint program of defoliant operations in Viet Nam starting with the clearance of key routes and proceeding thereafter to food denial only if the most careful basis of resettlement and alternative food supply has been created.¹

Chemicals and C-123s were already in South Vietnam; the plans for Operation Ranch Hand, the Air Force name for chemical herbicide spraying, had been gaining momentum for months.² The impetus came not only from advisors in the field, who were increasingly desperate to stop what they thought were waves of infiltrators and supplies coming from North Vietnam. It also came from members of Kennedy’s own administration, who were themselves more and more pessimistic about the government

¹ National Security Action Memorandum 115, November 30, 1961, <http://www.jfklibrary.org/Asset-Viewer/Z8-vBiaBdEW2Cz9g6NUB7g.aspx> (accessed on February 7, 2012).

² Ranch Hand included only those spraying missions conducted by fixed-wing aircraft. The overall name for the entire aerial spraying effort, including those missions carried out by helicopter and by hand, was Operation Trail Dust. Operation Mule Train provided logistical support to US operations in South Vietnam. The association of these names with the ‘taming’ of the Western United States was probably not coincidental. Ranch Hand operations sprayed about 95% of all herbicides used in South Vietnam, according to a key recent article on Ranch Hand, written by a team of epidemiologists who modified and improved the Air Force’s own records of herbicide use to analyze the levels and effects of spraying operations from 1961 to 1971. Jeanne Mager Stellman et al., “The Extent and Patterns of Usage of Agent Orange and Other Herbicides in Vietnam,” *Nature* 422, no. 6933 (April 17, 2003): 681.

of South Vietnamese President Ngô Đình Diệm and its ability to both form a viable state and ward off Communist advances. Aerial herbicide spraying might address all of these concerns; at the very least it would provide evidence in Sài Gòn and in Washington that the administration was acting decisively and using the latest technology in its fight against global Communism.

Operation Ranch Hand depended on chemicals that had been developed for use during World War II but were never used in combat.³ Phenoxy herbicides, which would include the bulk of the agents used in Ranch Hand, entered the civilian market for land clearing and weed control agents shortly after the war. They were an entirely new class, largely the product of American scientific research. These chemicals were one of a roster of “techniques and gadgets” that the administration considered and approved for use in South Vietnam.⁴

Ranch Hand lasted from 1961 to 1971. After the initial approval by President Kennedy in 1961, the Air Force began the aerial spraying of Agents Pink, Green and Purple, formulations containing the phenoxy herbicides 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T).⁵ The administration expanded the program in 1962 to include crop destruction, the “food denial” Kennedy referenced

³ For more detail on this history, see Barton Bernstein, “America’s Biological Warfare Program in the Second World War,” *Journal of Strategic Studies* 11, no. 3 (September 1988): 292-317.

⁴ Walt W. Rostow memorandum to Kennedy, April 12, 1961, Department of State, *Foreign Relations of the United States 1961-1963: Volume I: Vietnam 1961* (Washington DC: United State Government Printing Office, 1988), 68.

⁵ In 1962, the United States began using Agent Blue, an arsenical. Since this is not a phenoxy herbicide, it falls outside the scope of this study, but the larger strategic, logistical, and moral problems are quite similar. Stellman et al., 682.

in NSAM 115. The operation is today best known for its use of Agent Orange, the formula used most widely in South Vietnam, which the United States did not introduce until 1965. Agent Orange, a mixture of equal parts of 2,4-D and 2,4,5-T, has been implicated in widespread environmental damage in Vietnam as well as in diseases ranging from acne to cancer in both American service personnel and the South Vietnamese. By the time the operation ended, the United States and South Vietnam had sprayed millions of acres with herbicides, many more than once.⁶ In total, herbicide operations used more than 75 million liters of Agents Blue, Pink, Green, Orange, Purple, and White.⁷ Despite the magnitude of the operation, it accomplished little. The clearest effect, as reported in a 1967 RAND study, was to alienate many South Vietnamese from their own government and from the United States.⁸

Ranch Hand promised a relatively quick and inexpensive solution to a difficult problem. In the end, the use of herbicides proved enormously costly. Ranch Hand missions went from controversial to commonplace in less than 2 years, all the while damaging the larger American effort in South Vietnam as well as the South Vietnamese environment. This dissertation will argue that, by the time Johnson became

⁶ Ibid., 685. Throughout this work the term ‘herbicide’ will be used to refer to both defoliating chemicals and chemicals used to destroy crops. To a certain extent, this is a distinction without a difference, since stripping the leaves off of a plant will frequently kill it. Nevertheless, the political and public relations consequences of each were markedly different and, when relevant, I will make the distinction between defoliants and crop-destruction agents clear.

⁷ Ibid., 682. All formulas were either 2,4,5-T alone or a blend of 2,4-D and 2,4,5-T except for Blue and White (a combination of 2,4-D and picloram, another phenoxy herbicide).

⁸ Russell Betts and Frank Denton, *An Evaluation of Chemical Crop Destruction in Vietnam* (Santa Monica, CA: RAND, 1967).

president, Kennedy and his administration had already wagered a great deal on the fate of South Vietnam. Kennedy rapidly lost control of Ranch Hand, despite efforts to maintain authority over the operation in Washington. The devolution resulted from the administration's search for certainty, which Ranch Hand seemed to provide, in the midst of an increasingly difficult and complicated foreign policy problem. It also stemmed from a futile wish for a straightforward military solution to a frustrating political problem.

Popular belief credits the Kennedy administration with avoiding a commitment to South Vietnam. Research into the voluminous written record tells a very different story, however. Despite persistent and growing pessimism about the capabilities of South Vietnamese President Ngô Đình Diệm and about the ability of the United States to wage war indirectly from 12,000 miles away, the administration did not – and probably could not – ask the question of whether or not the United States should attempt to ‘save’ the country from Communism.⁹ Instead, questions concerned what else the Administration could do in South Vietnam.

The use of what some considered a chemical weapon indicated how important South Vietnam was. In addition to incurring domestic and foreign disapproval, the use of this weapon would defy custom as well the International Control Commission, a three-member body responsible for preventing the flow of weapons and military materials into both North and South Vietnam. Moreover, the decisions to use

⁹ According to Leslie Gelb and Richard Betts, the questions were always “how do we” and never “should we.” Leslie H. Gelb and Richard K. Betts, *The Irony of Vietnam: The System Worked* (Washington DC: Brookings Institution Press, 1979), 73.

herbicides and defoliants only elevated the country's importance, as the investment of American technology and expertise increased. By approving Ranch Hand, Kennedy signaled his own commitment to the government of South Vietnamese President Ngô Đình Diệm and his willingness to use even untried and controversial measures to prevent Communist control of the entire nation. The use of chemical herbicides and defoliants, a weapon that the United States had never used before, signaled that the situation in South Vietnam was serious enough to warrant the use of what some officials termed a chemical weapon, albeit one that functioned differently than the gases used against troops.

The assertion that Ranch Hand marked a significant escalation in the United States' commitment to South Vietnam, contests the view that Vietnam was "Lyndon Johnson's War." This argument, made most cogently by Fredrik Logevall in *Choosing War: The Lost Chance for Peace and the Escalation of War in Vietnam*, asserts that Kennedy at worst maintained the status-quo commitment to South Vietnam made by President Dwight Eisenhower.¹⁰ In the most optimistic interpretations, Kennedy would have extricated the United States from South Vietnam before the first ground troops were ever introduced.¹¹

¹⁰ Fredrik Logevall, *Choosing War: The Lost Chance for Peace and the Escalation of War in Vietnam* (Berkeley: University of California Press, 1999). Edward Cuddy makes a similar argument for Eisenhower's culpability in Edward Cuddy, "Vietnam: Mr. Johnson's War – or Mr. Eisenhower's?," *The Review of Politics* 65, no. 4 (Autumn 2003): 351-374.

¹¹ A particularly optimistic account is James G. Blight, Janet M. Lang, and David A. Welch, *Virtual J F K: If Kennedy Had Lived* (Lanham, MD: Rowman & Littlefield, 2010).

The story of Ranch Hand sheds a great deal of light on the workings of the Kennedy administration. The decision to use a new and untried weapon in South Vietnam may appear anomalous, but the decision-making process for Ranch Hand was symptomatic of how the administration functioned. A group of men with an acknowledged bias toward novelty and innovation – “they would try anything,” according to one close observer – turned to technology to solve a seemingly intractable problem.¹² This was not, to the Kennedy Administration, an unreasonable choice; American scientific and technological accomplishments had arguably been decisive in World War II.¹³ Many members of Kennedy’s foreign policy team had served as officers, usually in staff positions, and thus were well-positioned to see the effectiveness of American military technology for themselves. Furthermore, this technology had been deployed against two of the 20th century’s most formidable militaries, Imperial Japan and Nazi Germany. The rag-tag infiltrators from North Vietnam and their Southern collaborators would not be nearly so challenging, they thought.

Ranch Hand also tapped into the Administration’s views about the environment. The idea of civilizing frontiers as an American mission long predates Kennedy, of course. This idea loomed large both in Administration public rhetoric and also in internal discussions of South Vietnam itself. The trope of the “new frontier” cleverly

¹² Arthur M. Schlesinger, Jr., *A Thousand Days: John F. Kennedy in the White House* (1965; repr. New York: Mariner Books, 2002).

¹³ One of the clearest examples of this argument is, unsurprisingly, James Finney Baxter, III, *Scientists against Time* (Boston: Little, Brown & Co., 1947). However, British historian Richard Overy makes a similar argument in Chapter 7, “A War of Engines: Technology and Military Power” in Richard Overy, *Why the Allies Won* (New York: W. W. Norton & Company, 1997).

combined nostalgia for the era of westward expansion with the promise that opportunities for reclamation and improvement had not ended.¹⁴ Administration officials quickly identified South Vietnam as a place that required “American know-how” to become productive and functional, just as the western United States needed settlement.¹⁵

Ranch Hand was also a way to manage, through taking action, the fear that pervaded the administration. In fact, the theme of fear runs through the Kennedy Administration. Historian Lawrence Freedman decries the tendency for historians to downplay the emotions of the Cold War or the threat that Communism seemed to pose.¹⁶ The primary sources, both printed and archival, are clear. Kennedy not only gave harrowing speeches about the threat of Communism, but in internal, classified testimony and documents, the threat of Soviet gains and American impotence was very real. Operation Ranch Hand gave the administration something to do in the face of

¹⁴ The classic exposition of this desire for continued expansion as a requirement for the country’s political, social, and moral health is Frederick Jackson Turner’s 1893 speech to the American Historical Association, “The Significance of the Frontier in American History.” Other more recent works exploring this dynamic are Richard Drinnon, *Facing West: The Metaphysics of Indian-Hating and Empire-Building* (Norman: University of Oklahoma Press, 1997); Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York: W.W. Norton & Company, 1987); Paul Sabin, “Home and Abroad: The Two “West”s of Twentieth-Century United States History,” *Pacific Historical Review* 66, no. 3 (1997); Richard Slotkin, *Gunfighter Nation: The Myth of the Frontier in Twentieth-Century America* (Norman, OK: University of Oklahoma Press, 1998).

¹⁵ The notion of South Vietnam as “Indian country” extends this metaphor, with a turn toward hostility and physical danger. Administration officials did not use this phrase, but their descriptions are nonetheless suggestive.

¹⁶ Lawrence Freedman, *Kennedy's Wars: Berlin, Cuba, Laos, and Vietnam* (New York: Oxford University Press, 2002), x.

these fears. Chemical defoliants and herbicides, weapons that seemed to be safe, inexpensive, and effective, might thwart the Communist advance on South Vietnam, or at least hinder it enough for the establishment of a functional non-Communist government.

A few accounts of Ranch Hand have been published, but they are outdated and relatively narrow in scope. The standard and most widely-cited account of Ranch Hand is William A. Buckingham, Jr.'s *Operation Ranch Hand: The Air Force and Herbicides in Southeast Asia, 1961-1971*.¹⁷ Buckingham's book is an official United States Air Force history of the war. The primary shortcoming of this book is its age. Not only did Buckingham not have access to the enormous amount of secondary literature published on the war in the 1990s and 2000s, but also he had limited access to the thousands of pages of Kennedy administration primary sources that have been declassified subsequent to the book's publication.¹⁸ This release occurred in connection with the 1982 class-action lawsuit by Vietnam veterans and their families against the chemical companies that manufactured Agent Orange.¹⁹ The release of the Agent

¹⁷ William A. Buckingham, Jr., *Operation Ranch Hand: The Air Force and Herbicides in Southeast Asia, 1961-1971*. (Washington DC: United States Air Force, Office of Air Force History, 1982).

¹⁸ Buckingham does not use Vietnamese sources in his work. Since "Đổi mới" (Renovation) in 1986, there have been more Vietnamese-language documents available, although the amount is dwarfed by what the English-language sources accessible in the United States.

¹⁹ The Agent Orange Settlement Fund, approved in an out-of-court settlement in 1984, provided \$180 million against claims by veterans and their families that they had been exposed to Agent Orange. The total class size was 10 million people. Vietnamese victims have been unsuccessful in bringing their own Agent Orange cases to United States courts.

Orange related documents during the class action lawsuit brought against the chemical manufacturers allowed access to a trove of material about Ranch Hand. Buckingham's account is also, by virtue of its audience, skewed heavily toward the Air Force's role in Ranch Hand.

Another frequently cited history of Ranch Hand, Paul Cecil's *Herbicide Warfare: The RANCH HAND Project in Southeast Asia* suffers the same handicaps as Buckingham's work.²⁰ Although Cecil focuses more on the pilots themselves than does Buckingham, the work, like Buckingham's, is largely a military history. Both books virtually ignore the Vietnamese. Cecil himself hopes that his work "will encourage further scholarly studies of the processes by which the political and military decisions concerning herbicide warfare were reached, and of the overall issue of environmental alteration as an element of military tactics and strategy."²¹ It is on these concerns that I concentrate my work, which delves more deeply into the roles of scientists, the South Vietnamese government, and the South Vietnamese environment itself than either of the two books.

The literature on Kennedy and South Vietnam is enormous. The complexities of the administration, the magnitude of the challenge in South Vietnam, and the novelty of phenoxy herbicides required me to draw upon a wide range of material for this project. Broadly, I have used secondary historical works, published primary sources, archival materials, and theoretical literature from other disciplines. Furthermore, I learned

²⁰ Paul Frederick Cecil, *Herbicide Warfare: The Ranch Hand Project in Vietnam* (New York: Praeger, 1986).

²¹ *Ibid.*, xi.

Vietnamese, traveled in southern Vietnam, and read in the scientific as well as historical literature on herbicides to broaden the scope of my research and to give a richer account of Ranch Hand.

Biographies of Kennedy began to be published shortly after his assassination, and the flow has hardly ebbed. Many of these concentrate on White House life, on the concerts and parties of “Camelot” or on the Kennedy family mythology; these were not useful for research. More relevant accounts, ones that focus more on the administration’s decision-making process and internal dynamics, are Robert Dallek’s *An Unfinished Life: John F. Kennedy, 1917-1963*, Geoffrey Perret’s *Jack: A Life Like No Other*, and *President Kennedy: Profile in Power* by Richard Reeves. Dallek’s account is the most provocative. With access to Kennedy’s medical records, he argues that the president’s serious and chronic health problems, including persistent back pain, and the resulting treatments impaired his functioning more than other historians have realized or acknowledged. It is debatable if this assessment is true, but it does provide a useful corrective to the image of Kennedy as tireless and unflappable.²²

One common shortfall in these accounts is their neglect of how assumptions about science and technology influenced foreign policy decisions. To the extent these works do address those issues, it is generally in the context of nuclear weapons. They

²² Robert Dallek, *An Unfinished Life: John F. Kennedy, 1917-1963* (Boston: Back Bay Books, 2004). Geoffrey Perret, *Jack: A Life Like No Other* (New York: Random House, 2001). Richard Reeves, *President Kennedy: Profile of Power* (New York: Touchstone/Simon & Schuster, 1994). This hagiographic image can be found in, among other works, Schlesinger, and Theodore H. White, *The Making of the President 1960* (New York: Pocket Books, Inc., 1961).

devote little attention to Ranch Hand, a new military technology. The history of Ranch Hand sheds a great deal of light on how the administration made decisions and how difficult it was to change course.

Garry Wills, in *The Kennedy Imprisonment: A Meditation on Power* has written a more impressionistic account of the Kennedy presidency, less a biography and more of a cultural history, centering on how John Kennedy and his memory overshadowed the political careers of Robert and Ted. Given the importance of perception and image in the administration, Wills' analysis is in many ways more useful than a traditional biography that does not explicitly address the importance of symbols and organizational culture in the White House. Wills argues that "charisma, the uniquely personal power, delegitimizes institutions", and that John F. Kennedy's presidency, and the cult of personality that arose and blossomed, destabilized not only Johnson's term in office but also the governmental institutions that remained.²³ Wills' analysis is particularly helpful in understanding the dynamics of Kennedy's administration, in which force of personality and personal influence played enormous roles in decision-making about South Vietnam.

The stream of memoirs from the administration also belies its length. Given the extraordinary number of volumes, I have focused on mid-level officials, many of whom were deeply involved in Vietnam policymaking, and on the accounts of those who represented the United States in Sài Gòn. These memoirs were not usually mass-market

²³ Garry Wills, *The Kennedy Imprisonment: A Meditation on Power* (Boston: Little, Brown and Company, 1981), 188.

best sellers like, for example, Secretary of Defense Robert McNamara's *In Retrospect*, nor do they have the function of burnishing a public reputation.²⁴ In addition, the views of senior officials are generally well-represented in the official documentation; the thoughts and observations of those farther down the bureaucratic chain are less apparent.

One of the richest accounts is John Mecklin's *Mission in Torment: An Intimate Account of the U. S. Role in Vietnam*, published in 1965. Mecklin served as the Public Affairs Officer for the United States Embassy in Sài Gòn, and his role as intermediary, combined with his experience as a reporter in Vietnam during the war with France, gives him both access and perspective. Mecklin's account of the failing United States mission in South Vietnam is unvarnished; he names names and spares no one from blame. According to one historian, Mecklin's memoir was so alarming that the book was banned from the library of the United States Information Agency, which Mecklin once led.²⁵ Mecklin's post-mortem on United States efforts in South Vietnam was written when many thought the war might still be won, which makes his views particularly credible.

²⁴ Robert S. McNamara and Brian VanDeMark, *In Retrospect: The Tragedy and Lessons of Vietnam* (New York: Vintage, 1996). This is not to say the memoirs I have drawn on most significantly are not self-aggrandizing; sometimes they are.

²⁵ John M. Mecklin, *Mission in Torment: An Intimate Account of the U. S. Role in Vietnam* (New York: Doubleday & Co., 1965). For the banning of Mecklin's book, see William Prochnau, *Once Upon a Distant War: David Halberstam, Neil Sheehan, Peter Arnett - Young War Correspondents and Their Early Vietnam Battles* (New York: Vintage, 1996).

Kennedy's press secretary, Pierre Salinger, also published a relevant memoir, *With Kennedy*. Although his recollections do not deal with South Vietnam in great depth, his analysis of foreign relations and public perception is insightful. Kennedy used the mass media extensively and adeptly. Salinger details how the White House managed the media so successfully on some issues. Even under these circumstances, relations with the media concerning South Vietnam in general, and Ranch Hand in particular, were adversarial almost from the beginning, as Mecklin describes.²⁶

Another enlightening account, in part because it is so opinionated, is Frederick Nolting's *From Trust to Tragedy: The Political Memoirs of Frederick Nolting, Kennedy's Ambassador to Diem's Vietnam*.²⁷ Nolting staunchly supported Diệm. His memoir is one of the few that attempts to defend United States efforts to preserve South Vietnam with Diệm as its leader. This stance was increasingly unpopular even before the November 1963 coup, but Nolting does not excuse or apologize for his belief that Diệm was a well-meaning patriot who was misunderstood and later betrayed by his American backers. Nolting's point of view is markedly at odds with other accounts, which is part of what makes his memoir so valuable.²⁸

²⁶ Mecklin; Pierre Salinger, *With Kennedy* (London: Jonathan Cape, 1967).

²⁷ Frederick Nolting, *From Trust to Tragedy: The Political Memoirs of Frederick Nolting, Kennedy's Ambassador to Diem's Vietnam* (New York: Praeger, 1988). Nolting's memoir is also sometimes at odds with the archival record.

²⁸ Some historians have been more sympathetic to Nolting's point of view than others. A secondary work that gives a relatively favorable view of Diệm is Francis X. Winters, *The Year of the Hare: America in Vietnam, January 25, 1963-February 15, 1964* (Athens: University of Georgia Press, 1999). One account that assigns the Kennedy administration a large share of responsibility for the failure of Diệm's government and

Finally, *To Move A Nation: The Politics of Foreign Policy in the Administration of John F. Kennedy* by Roger Hilsman provides a detailed account of the foreign policy process inside the Kennedy White House. Hilsman, an ally of Kennedy advisor Averell Harriman and veteran of the China-Burma-India theater in World War II, was Assistant Secretary of State for Far Eastern Affairs. He is blunt in his assessments and, while somewhat self-aggrandizing, details how ultimately helpless the administration was in the face of South Vietnam's decay. In addition, the level of detail he provides about specific meetings and conferences makes his book a useful counterpoint to the voluminous official documentation.²⁹

The most fruitful best-selling memoir is Arthur M. Schlesinger's *A Thousand Days: John F. Kennedy in the White House*.³⁰ Schlesinger's account is shrewd and insightful, despite his hagiographic portrait of the president. Schlesinger's somewhat vague title of Special Assistant to Kennedy did not put him at the same organizational level as, for example, Defense Secretary Robert McNamara. However, the ambiguity of this role allowed him to observe and comment on a wider range of events and people than might be permitted to someone in a specific administration department. His memoir is useful for his view into Washington bureaucracy; his publication of the satirical "Minutes of the Next High-Level Meeting on Vietnam" makes the book at the very least entertaining. Unfortunately, descriptions such as "[Kennedy] was, as much as

his execution is Ellen J. Hammer, *A Death in November: America in Vietnam, 1963* (New York: Oxford University Press, 1988).

²⁹ Roger Hilsman, *To Move a Nation: The Politics of Foreign Policy in the Administration of John F. Kennedy* (Garden City, NY: Doubleday & Co., 1967).

³⁰ Schlesinger.

man can be, self-determined and not the servant of forces outside him” are contrary to contemporary accounts as well as the archival record. They undermine much of the book’s value as an assessment of Kennedy’s own performance.³¹

In addition to memoirs, oral histories have also proven revealing. All are overshadowed by the assassination and thus may cast Kennedy in a more flattering light than they would have had he lived. The accounts of foreign policy conduct, and opinions about other members of the staff, are rich sources, particularly those interviews conducted by men who were themselves knowledgeable about the Kennedy administration. For example, Richard Neustadt, an advisor to Kennedy and a founding member of the John F. Kennedy School of Government at Harvard, interviewed McGeorge Bundy. This level of knowledge allowed the interviewer to probe and to make suggestions with much greater confidence than someone less well-versed.

Outside the government, others involved in the Vietnam War have also told their sides of a complex story. Secrecy was a hallmark of the Kennedy administration. Members kept information and opinions from Congress, the press, and each other. Partly as a result, journalists during this period felt increasingly marginalized, and the relationships between the press and US officials, both in Sài Gòn and in the United States, grew increasingly adversarial.

Difficult as this may have been for policymakers at the time, this anger yielded a trove of rich accounts from reporters. Young journalists like Neil Sheehan and David Halberstam, furious at perceived ill treatment and driven to find out what the

³¹ Ibid., 993-5, 114.

administration was hiding, cultivated a wide network of sources and discounted official versions of events. Vietnam journalist William Prochnau's *Once Upon a Distant War: David Halberstam, Neil Sheehan, Peter Arnett – Young War Correspondents and Their Early Vietnam Battles*, details the efforts of journalists to uncover what was really happening in South Vietnam.³² Halberstam and Sheehan each wrote landmark works about their experiences. Halberstam's *The Best and the Brightest* focuses more on the senior Kennedy officials and their complicity in tying United States prestige and credibility to the fate of a corrupt ruling family 12,000 miles away. Sheehan's monumental *A Bright Shining Lie: John Paul Vann and America in Vietnam*, tells the story of United States involvement through the career of Colonel John Paul Vann, a Cassandra undone not only by personal demons but by the refusal of the United States Army to countenance any but the most positive assessments of the war.³³

Works by individuals are necessarily limited in scope. Published collections of government documents give a broader view. These collections vary widely in their usefulness. Collections like *The Public Papers of the Presidents* series were useful for factual material but were less so for understanding motivation and emotion. In the case of Ranch Hand, both internal and external pressures made an open acknowledgement of the operation highly unlikely. The discussions about chemical spraying in South Vietnam took place in classified documents, not in press conferences.

³² Prochnau.

³³ David Halberstam, *The Best and the Brightest*, 20th anniv. ed. (New York: Random House, 1992); Neil Sheehan, *A Bright and Shining Lie: John Paul Vann and America in Vietnam* (1988; repr. New York: Modern Library, 2009).

Of much more use were published collections of internal documents. Published executive branch sources duplicate archival materials, to some extent, but the chronological integration of documents from various sources is enormously helpful. The two most widely used, the *Foreign Relations of the United States* series and *United States-Vietnam Relations, 1945-1967: A Study Prepared by the Department of Defense*, better known as the Pentagon Papers, provide documents from the State and Defense Departments, respectively.³⁴ These works give context for Ranch Hand, albeit only within a single department. A similar set of documents, *Estimative Products on Vietnam, 1948-1975*, shows the development of Central Intelligence Agency thinking about South Vietnam. There is no published collection for McGeorge Bundy's National Security Council, although some secondary works and oral histories give clues to that body's motivation and activities.³⁵

³⁴ The three versions of the Pentagon Papers, and their release by Daniel Ellsberg and Anthony Russo, have generated a historiography all their own. See, for example, Daniel Ellsberg, *Secrets: A Memoir of Vietnam and the Pentagon Papers* (New York: Viking, 2002). George McT. Kahin, "The Pentagon Papers: A Critical Evaluation," *American Political Science Review* 69, no. 2 (June 1975): 675-684 and H. Bradford Westerfield, "What Use Are Three Versions of the Pentagon Papers?," *The American Political Science Review* 69, no. 2 (June 1975): 685-696. Ellsberg's account, although somewhat self-aggrandizing, provides a fascinating window on the logistics of editing and releasing the thousands of pages of documents in national newspapers. One of the *New York Times* writers assigned to editing the documents for publication was Neil Sheehan; his account is considerably less self-promoting than Ellsberg's.

³⁵ Central Intelligence Agency, *Estimative Products on Vietnam 1948-1975*, ed. by John K. Allen, John Carver, and Tom Elmore. Washington DC: United States Government Printing Office, 2005). On the National Security Council, see the extensive collection of oral histories, notably Michael Forrestal's and McGeorge Bundy's at the John F. Kennedy Presidential Library; Kai Bird, *The Color of Truth: Mc George Bundy and William Bundy: Brothers in Arms* (New York: Simon & Schuster, 2000); David Halberstam, "The Very Expensive Education of Mc George Bundy," *Harper's*, July

Published Congressional documents revealed even more about how decision-makers in Washington and Sài Gòn understood the Cold War, the war in South Vietnam, and the implications of chemical use. The lack of Congressional oversight of United States actions in both North and South Vietnam has become part of the conventional wisdom about the war. Although Congress arguably did not restrain the executive branch to the extent possible, or appropriate, the relevant primary sources tell a more nuanced story.

The transcripts of the Executive Sessions of the Senate Foreign Relations Committee were particularly rich. These detail the efforts of Senators from both parties to get information and opinions from senior members of the military and the executive branch. Often, they were not fully successful in their efforts. Both senators and those testifying before the committee address the idea of secrecy; there are repeated references to classification schedules and the likelihood of testimony reaching the public domain. Unlike press conferences or public interviews, the content of these transcripts is much less manicured. In addition, the pointed questions asked by some Senators force a level of disclosure, or dissembling, that is unusual in department memoranda.

Another important Congressional source is *Technology Assessment of the Vietnam Defoliant Matter: A Case History*, written for the House Committee on

1969. Andrew Preston, *The War Council: Mc George Bundy, the NSC, and Vietnam* (Cambridge: Harvard University Press, 2006).

Science and Astronautics.³⁶ The explicit purpose of the report was to describe the means by which the American Association for the Advancement of Science (AAAS) might study the effects of herbicide use in South Vietnam. In giving the history of the AAAS' involvement, the report provides a fairly thorough summary of how Ranch Hand began.

Unpublished primary sources are, in general, much more revealing than those in print. The most helpful archival collection is at the John F. Kennedy Presidential Library. Although the library declassified many documents in connection with the lawsuits on behalf of United States veterans exposed to Agent Orange, the documents have not been incorporated into any document-level or folder-level finding aids. That said, searches through the numerous files on Vietnam, including cables, memos, and personal aides de memoirs of senior officials, give a clear and detailed picture of growing pessimism about Vietnam and increasing pressure to use any means necessary, short of overt military intervention, to solve the problem. In addition, the library has a range of oral histories, including those of National Security Advisor McGeorge Bundy, Michael Forrestal, a National Security Council staff member and friend of Averell

³⁶ U.S. Congress, House, Research Subcommittee on Science and Development of the Committee on Science and Astronautics, *A Technology Assessment of the Vietnam Defoliant Matter: A Case History*, by F. Huddle. 91st Cong., 1st sess. (Washington DC: United States Government Printing Office, 1969).

Harriman; and John Kenneth Galbraith, an early and prescient critic of United States intervention in Vietnam.³⁷

The National Archives and Records Administration also has an enormous amount of material on the United States in South Vietnam. The most relevant record groups include those of the Sài Gòn Embassy (Record Group 84) and for the Military Assistance and Advisory Group (MAAG) in South Vietnam (Microfilm Group C0095). The memos, reports, and telegrams from these groups give a different picture of events than do the documents produced in Washington. In Sài Gòn as in Washington, however, a sense of fatalism began to permeate the discussions even before the French formally relinquished control. Another prevalent theme was the treacherousness of the Vietnamese environment, both political and natural.

A particularly rich record in both archives is in the telegrams and memoranda between administration members, particularly between the American Embassy in Sài Gòn and the State and Defense Departments in Washington. Almost all communication had to be written down; telephone conversations were prohibitively difficult because of transmission quality and the 12 hour time difference. The telegrams, therefore, function almost as a transcript of conversations.

Even within Washington, with no such curbs on phone calls, one-on-one conversations were limited. The administration was full of very busy men grappling with a number of critical problems; the time for discussion was brief. The written word

³⁷ Forrestal was the son of Defense Secretary James V. Forrestal, who committed suicide in May 1949. Forrestal was a de facto foster son of Harriman's; he was brought into the family after his father's death and his mother's descent into alcoholism.

thus played a central role. In addition, because of the internal dynamics of the administration, which I will explore in Chapter 2, relatively junior officials such as Forrestal would compose memoranda for the record, a candid, if not always completely reliable, paper trail of interactions with other members of the administration. This type of administrative safeguard was particularly useful in an administration in which power did not come from position or role but from access and force of personality.

The diplomatic record, as rich as it is, is only one facet of the story of Ranch Hand. The military in Washington and Sài Gòn, particularly the Air Force, was involved in its planning as well as its execution. The military records from Record Group 472 at the National Archives bring in a detailed view of military activity concerning Ranch Hand. The After Action Reports of various spraying missions, for example, give details about just how difficult weather conditions were and how ineffective spraying was on local flora.

There are, however, significant gaps in the material from the United States government archives. There is very little mention, let alone discussion, of the difficulties domestic users had with aerial herbicide spraying. Decision-makers in Washington and in Sài Gòn took for granted the effectiveness and predictability of herbicides. Another omission is the lack of concern for how aerial spraying might handicap the United States effort to preserve South Vietnam. To the extent officials acknowledged problems with Ranch Hand, the discussions usually focused on managing the accompanying negative publicity, not on the harm it was doing to larger United States goals.

Specialized archival collections provided greater insight into these issues. The two richest collections were the Alvin L. Young Collection on Agent Orange, housed at the National Agricultural Library, Beltsville, MD, and the Dow Chemical corporate papers at the Othmer Library of Chemical History, The Chemical Heritage Foundation, Philadelphia, PA. Both reflect a bias in favor of chemicals in general and herbicides in particular; Young held a PhD in environmental toxicology and served in the United States Air Force at Eglin AFB in Florida, where the Air Force tested herbicides and spraying equipment. The sources, both published and unpublished, enrich a historian's understanding of phenoxy herbicides and why they were so attractive and widely used.

The Young Collection contains more materials that pertain directly to government herbicide use than does the Othmer Library. One of the most remarkable sets of documents is a collection of translated transcriptions of interviews with Vietnamese Communist defectors and prisoners. Other significant holdings include conference proceedings, which detail some of the progress and problems in chemical herbicide research.

The Othmer Library houses the corporate archives of the Dow Chemical Company, the leading manufacturer of 2,4-D. The company published a range of periodicals, including an internal newspaper, a series of position papers on federal issues, and marketing materials such as *Down to Earth* and the *Dow Diamond*. These holdings show how Dow marketed phenoxy herbicides and how they were used in the United States. For example, the ads in the *Dow Diamond* extolling the virtues of 2,4-D

for residential use illustrate both how large the market was and how little public concern there was over the chemical's long-term effects.

The records in Vietnam, specifically those at the General Sciences Library and the National Archives II are not as revealing as might be hoped, in large part because the records of relations between the United States and South Vietnamese governments have not been released. The documents that are available, which include minutes from cabinet meetings, discuss the use of chemicals only rarely. They do, however, give a rich portrait of Diệm and his government, including the level of fear about perceived Communist activity in the south.³⁸ The growing anger and frustration at the scope of subversion makes Diệm's advocacy of crop destruction at least understandable.

The breadth and depth of primary sources have been essential in making my argument. One of the keys to proving the significance of chemical herbicide use in South Vietnam is to figure out what decision-makers were saying in internal discussion and debate. The relative lack of public discussion of Ranch Hand does not prove its insignificance. If anything, the opposite is true. Thus, the most useful archival records are the ones in which decision-makers were talking to each other, rather than the public

³⁸ Other contemporary reports suggest that the Southern government itself bore a great deal of responsibility for the insurrections in the Mekong Delta area. See, for example, Nguyen Thi Dinh, *No Other Road to Take: Memoir of Mrs. Nguyen Thi Dinh*, trans., Mai Elliott (Ithaca, NY: Southeast Asia Program, Department of Asian Studies, Cornell University, 1976). Although Nguyễn Thị Định was a Communist leader in the south, and although her memoir was published by the victorious North, the stories of government brutality in the south have been corroborated elsewhere; see Andrew X. Pham, *The Eaves of Heaven: A Life in Three Wars* (New York: Three Rivers Press, 2008). Also Jeffrey Race, *War Comes to Long An: Revolutionary Conflict in a Vietnamese Province* (Berkeley: University of California Press, 1973).

or to the press. This focus has allowed me, for instance, to track the State Department machinations concerning a press conference on defoliation given by South Vietnamese officials. A flurry of cable traffic implored the embassy to hide United States involvement from reporters, especially David Halberstam.

Another rich source of private conversation was the scientific community. I was able to explore this in several ways: conference papers, internal and corporate publications, and trade journals. Dow Chemical's public response to Rachel Carson's *Silent Spring*, for example, was very different in content and in tone from scientists' quips about 2,4-D at a corporate dinner. The contradictions and disconnections between what the general public, including the administration, thought they knew about these chemicals and what scientists could confirm is one of the most interesting and alarming parts of this story.

The points of view of the Vietnamese are crucial to understanding why Ranch Hand happened and why it moved at the speed it did. President Diệm advocated for crop destruction even before Kennedy approved it. His agency in the decision to spray herbicides in the Mekong Delta (đồng bằng sông Cửu Long) area is clear. In his own cabinet meetings, Diệm exhorts his government to destroy the enemy; he does not mention the potential effects on the South Vietnamese or the environment.

The historiography on Diệm has, until recently, fallen into two disparate camps. Denis Warner, in *The Last Confucian: Vietnam, Southeast Asia, and the West*, portrays Diệm as a scheming despot. Other accounts, like Ellen Hammer's *A Death in November*, describe Diệm as a victim of United States perfidy, a devout and

hardworking patriot who could not ultimately satisfy the unreasonable demands of his patron. Along the same lines, Francis X. Winters' *The Year of the Hare: America in Vietnam, January 25, 1963 – February 15, 1964* argues that Diệm was the one South Vietnamese leader who might have successfully resisted the North and that the administration's decision to support a coup was short-sighted and ultimately counterproductive.³⁹

In more recent, and more nuanced accounts, all of these portrayals have some validity. Edward Miller's important article, "Vision, Power, and Agency: The Ascent of Ngô Đình Diệm, 1945-54" uses Vietnamese sources and delves into Vietnamese political history to detail how Diệm ascended to and maintained power in the competitive world of Vietnam after the Japanese occupation.⁴⁰ Far from being a monster or a martyr, Diệm, in Miller's account, is a shrewd politician. Miller implicitly puts Diệm within the context of other post-colonial leaders, of varying political and administrative abilities, who were able to leverage a domestic political base and an attractiveness to foreign powers into a durable role.⁴¹

Cultural historian Seth Jacobs, in *America's Miracle Man in Vietnam: Ngo Dinh Diem, Religion, Race, and U.S. Intervention in Southeast Asia*, makes largely the

³⁹ Denis Ashton Warner, *The Last Confucian: Vietnam, South-East Asia, and the West* (New York: Macmillan, 1963). Hammer. Winters.

⁴⁰ Edward Miller, "Vision, Power and Agency: The Ascent of Ngô Đình Diệm, 1945-54," *Journal of Southeast Asian Studies* 35, no. 3 (October 2004): 433-458.

⁴¹ For how this pattern evolved in the Philippines, see Nick Cullather, "America's Boy? Ramon Magsaysay and the Illusion of Influence," *Pacific Historical Review* 62, no. 3 (August 1993): 305-338.

same arguments, although through very different lenses.⁴² In Jacobs' account, Diệm's clever exploitation of United States fears and American Catholic hopes gave him a base of influence that no treaty could have ever provided. Diệm's active role in promoting the use of chemicals, particularly for crop destruction, and the influence his views held, makes the most sense given Miller's and Jacobs' analyses.

Despite the range and richness of available sources, a strictly historical approach to the question of why Kennedy decided to use herbicides is inadequate. Understanding why Ranch Hand began requires a multi-disciplinary approach. The records at the John F. Kennedy Presidential Library include yards of archival boxes, and more is declassified every year. Without some sort of theoretical compass, it would be very easy to get lost in primary documents.

The theoretical literature I have used comes from sociology and international relations. Both disciplines have explored in depth how decisions are made and what subjective and structural factors influence those decisions.⁴³ Relying exclusively on

⁴² Seth Jacobs, *America's Miracle Man in Vietnam: Ngo Dinh Diem, Religion, Race, and U.S. Intervention in Southeast Asia* (Durham, NC: Duke University Press, 2005); Seth Jacobs, *Cold War Mandarin: Ngo Dinh Diem and the Origins of America's War in Vietnam, 1950-1963* (Lanham, MD: Rowman & Littlefield, 2006).

⁴³ The wisdom of historians integrating theory into historical accounts has been widely debated. See Bruce Cumings, "'Revising Postrevisionism,' or, The Poverty of Theory in Diplomatic History," *Diplomatic History* 17, no. 4 (October 1993): 539-570, and, more recently, Kenneth Payne, "What's the Point of History?", post at Kings of War, <http://kingsofwar.org.uk/> (accessed on 14 July, 2010.)

primary documents risks adopting the assumptions and worldview that the writers themselves had.⁴⁴

Sociologists have written a great deal on how mistakes occur within organizations. I argue that the use of chemicals was a miscalculation, both in its conception and its execution, and explaining how such mistakes occurred is a major part of this project.⁴⁵ One theory, normal accidents theory, argues that complex organizations will have unavoidable failures.⁴⁶ Both systems and people are fallible, and despite the most thorough safety checks and redundancies, some catastrophes will happen. Charles Perrow literally wrote the book on this theory.⁴⁷

Other sociologists have expanded on Perrow's work. Diane Vaughan's landmark account of the 1986 explosion of the space shuttle *Challenger* draws on normal accidents theory to explain how a sophisticated and previously reliable decision-

⁴⁴ I do not want to fall into the same trap that Kennedy and his advisors did; I will not assume that their decisions were based solely on rational appreciation of all relevant factors. This was not true in the case of Ranch Hand, as I will explain in Chapter 7, "A Wholly Normal Procedure."

⁴⁵ Accounts by Mark Moyer, and Lewis Sorley, among others, argue that United States intervention in Vietnam was not a mistake at all. This work will not engage that larger question. Mark Moyer, *Triumph Foresaken: The Vietnam War 1954-1965* (New York: Cambridge University Press, 2006). Lewis Sorley, *A Better War: The Unexamined Victories and Final Tragedy of America's Last Years in Vietnam* (New York: Houghton Mifflin Harcourt, 2007).

⁴⁶ A competing theory, that of the high-reliability organization, argues that complex organizations are perfectible. A key work from this school is Gene I. Rochlin, Todd R. La Porte, and Karlene H. Roberts, "The Self-Designing High-Reliability Organization: Aircraft Carrier Flight Operations at Sea," *Naval War College Review* 40, no. 4 (Autumn 1987): 76-90. I do not believe this theory is useful in analyzing Ranch Hand and did not use it in this work.

⁴⁷ Charles Perrow, *Normal Accidents: Living with High-Risk Technologies*, Updated ed. (Princeton: Princeton University Press, 1999).

making process went terribly wrong.⁴⁸ Scott Snook explores how such accidents occur in the United States military.⁴⁹ Both Snook and Vaughan highlight the effects of complex technologies in their accounts, which makes these cases especially relevant for understanding Operation Ranch Hand. Vaughan's body of work has focused almost exclusively on organizational dysfunction, particularly in situations of high stress, ambiguous information, and poorly-understood technology. Thus, her analyses have been remarkably useful in understanding Ranch Hand and its allure for the Kennedy Administration.

The most powerful concept from this literature in understanding Ranch Hand is the "normalization of deviance." This trend helps to explain how Ranch Hand operations quickly became routine, even in the face of evidence that they were not only ineffective but were actively harmful to the preservation of the Diêm government. Organizations, particularly ones that deal with innovative technology, can rationalize and excuse ambiguous evidence of failure until the failure is so absolute as to be obvious. Since phenoxy herbicides were themselves a new technology, this framework sheds a great deal of light on how the administration made decisions about Ranch Hand specifically and why those decisions proved misguided. Although Ranch Hand did not result in the same sort of discrete and catastrophic event that both Vaughan and Snook

⁴⁸ Diane Vaughan, *The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA* (Chicago: University of Chicago Press, 1996).

⁴⁹ Scott A. Snook, *Friendly Fire: The Accidental Shootdown of U.S. Black Hawks over Northern Iraq* (Princeton: Princeton University Press, 2000).

describe, it nonetheless not only failed in its objectives but also committed the United States more firmly to the fate of South Vietnam.

More broadly, the concept of “sensemaking,” made famous by sociologist Karl Weick, also informed my understanding of how what was arguably a chemical weapon became not only approved but routinized. As participants in a system are required to solve complex problems, they must continually construct and revise their understandings of what exactly is going on, based on both external factors and on the actions and reactions of others in the group. Sensemaking, according to Weick, requires “a good story,” featuring “plausibility, coherence, and reasonableness.”⁵⁰ In the midst of debate and confusion over the problem of South Vietnam, aerial spraying of herbicides to deprive insurgents of cover and food seemed straightforward and congruent with the rest of the administration’s thinking about what was required to ward off Communist advances into South Vietnam.

Certain areas of international relations research are complimentary to the sociological research on which I draw. Robert Jervis’ work, notably his willingness to ascribe importance to seemingly mundane issues like the amount of paper crossing a decision-maker’s desk, both confirms and illuminates my own research into the Kennedy administration. His research on systems, secrecy, and information has

⁵⁰ Karl E. Weick, *Sensemaking in Organizations*, Foundations for Organizational Science (Boulder, CO: SAGE, 1995), 61.

contributed to a rich and growing literature on beliefs and perceptions and their influence on decision-making and foreign policy formation.⁵¹

A closely related literature in international relations concerns the role of learning in foreign policy decision-making. Whether or not policymakers, let alone states, can learn is a controversial topic.⁵² Almost as contentious is the debate over what sorts of lessons decision-makers draw from the past.⁵³ In the case of Kennedy, he and his foreign policy advisors regularly referenced past events as warnings; they had drawn clear and specific, if not accurate, lessons from the past. Jack Snyder's *Myths of Empire* is especially perceptive in describing how the second generation of Cold War policymakers drew distorted conclusions from the experiences of their predecessors.⁵⁴ In Snyder's account, the fear of Communism and its reach imprisoned American leaders of Kennedy's generation far more than they did public hawks like John Foster Dulles.

⁵¹ The most relevant works by Jervis are Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University Press, 1976); Robert Jervis, *System Effects: Complexity in Political and Social Life* (Princeton: Princeton University Press, 1998). Other works include Peter Katzenstein, ed. *The Culture of National Security: Norms and Identity in World Politics* (Ithaca: Cornell University Press, 1996); Yaacov Vertzberger, *The World in Their Minds: Information Processing, Cognition, and Perception in Foreign Policy Decisionmaking* (Palo Alto: Stanford University Press, 1990). Andrew Bennett, *Condemned to Repetition?: The Rise, Fall, and Reprise of Soviet-Russian Military Interventionism, 1973-1996* (Cambridge: The MIT Press, 1999).

⁵² See, for example, Jack S. Levy, "Learning and Foreign Policy: Sweeping a Conceptual Minefield," *International Organization* 48, no. 2 (Spring 1994): 279-312.

⁵³ Yuen Foong Khong, *Analogies at War: Korea, Munich, Dien Bien Phu, and the Vietnam Decisions of 1965*, Princeton Paperbacks (Princeton, N.J.: Princeton University Press, 1992); Ernest R. May, *"Lessons" of the Past: The Use and Misuse of History in American Foreign Policy* (New York: Oxford University Press, 1973).

⁵⁴ Jack Snyder, *Myths of Empire: Domestic Politics and International Ambition* (Ithaca: Cornell University Press, 1991).

Another area of international relations that has been fruitful is the literature of international norms, particularly concerning the use of new or unconventional weapons. There has been relatively little written on herbicides specifically but more work has been done on chemical weapons more broadly and on sanctions, two areas which have some applicability to Ranch Hand. The morality of herbicide use, especially for crop destruction, was widely debated in the administration. The work of Richard Price on the chemical weapons taboo and that of Jonathan Kirshner on economic sanctions are the most relevant.⁵⁵

Finally, arguably the most illuminating area of social science is the recent work done on modernization theory and United States foreign policy. Much of this work, although primarily historical, draws heavily on sociology and political science. Michael Latham's *Modernization as Ideology* locates this ideology in the larger narrative of American imperialism. Nils Gilman's *Mandarins of the Future*, in contrast, focuses much more on the academic underpinnings of the theory's emergence in the 1950s and

⁵⁵ To give only a few examples, Jonathan Kirshner, "The Microfoundations of Economic Sanctions.," *Security Studies* 6, no. 3 (Spring 1997): 32-64; Rolf-Dieter Mueller, "Total War as a Result of New Weapons? The Use of Chemical Agents in World War I," In *Great War, Total War: Combat and Mobilization on the Western Front, 1914-1918*, edited by Roger Chickering and Stig Foerster, 95-111. Washington DC: German Historical Institute/Cambridge University Press, 2000. Mancur Olson, "The Economics of Target Selection for the Combined Bomber Offensive," *The Journal of the Royal United Service Institution* 107, no. 628 (November 1962): 308-314; Richard Price, "A Geneology of the Chemical Weapons Taboo," *International Organization* 49, no. 1 (Winter 1995): 73-103. The most widely studied cases in the sanctions literature are in southern Africa, but the comparisons to South Vietnam remain useful. Nina Tannenwald has written persuasively on the power of norms and taboos associated with nuclear weapons. See, for example, Nina Tannenwald, "Stigmatizing the Bomb: The Origins of the Nuclear Taboo," *International Security* 29, no. 4 (Spring 2005): 5-49.

1960s.” Both works imply that this prescriptive worldview played a large role in driving United States interventions abroad, particularly during the Cold War. A more comprehensive work is James Scott’s *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Scott does not ascribe any particular national character to ambitious attempts at improvement and rationalization. Instead, he details how and why such plans often fail.⁵⁶

My study covers only the years of the abbreviated Kennedy administration. There are two reasons for this, one structural and one practical. One of the main purposes of the project is to demonstrate the level of commitment that the Kennedy administration made to South Vietnam through the introduction of defoliants and herbicides. Thus, my research focuses almost exclusively on the administration itself. I do not, for example, address operations like Rolling Thunder, which is arguable another turning point in the war but which began under President Lyndon Johnson.

Logistically, writing about the efforts of multiple American administrations in South Vietnam would be a formidable challenge. Integrating ideas about weapons development, organizational dynamics, and counterinsurgency, as well as incorporating the views and actions of successive South Vietnamese administrations, through 30 years of history would prevent me from doing justice to any particular issue.

⁵⁶ Nils Gilman, *Mandarins of the Future: Modernization Theory in Cold War America* (Baltimore: The Johns Hopkins University Press, 2007); Michael E. Latham, *Modernization as Ideology: American Social Science and "Nation Building" in the Kennedy Era* (Chapel Hill: University of North Carolina Press, 2000); James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998).

A complex topic like Operation Ranch Hand requires a broad range of approaches and perspectives. These very complexities, though, underscore the magnitude of the challenge facing Kennedy. The rise of Communism in South Vietnam was a complicated problem for the administration. Using phenoxy herbicides was to some extent an understandable choice. Aerial spraying, which had already worked so well in taming the American West for expansion during the mid-twentieth century, could serve the same function in South Vietnam.

Its ramifications, however, were disastrous. The use of a new, untried, and controversial weapon bound the administration, and the country, even more closely to South Vietnam. As Ranch Hand operations proved ineffective, and as the propaganda campaign against spraying became louder, the administration did not re-evaluate Ranch Hand. Instead, missions grew more frequent and the arguments for continuing became more strident. Ranch Hand did not end until 1971, ten years after Kennedy first approved limited defoliation missions. By then, the human and environmental costs were incalculable.

CHAPTER 2: HOW DO WE GET MOVING

John Kennedy became the 35th president at age 43. General Dwight Eisenhower, Kennedy's predecessor, was nearly 27 when Kennedy was born and had led Allied forces to victory in Europe while Kennedy was a junior naval officer in the Pacific. Running against Eisenhower's Vice President, Richard Nixon, Kennedy campaigned, and won, on a platform of newness, vigor, and pragmatism. Kennedy declared that the sclerotic Eisenhower administration would give way to a "New Frontier," and a fresh approach to foreign policy. Outdated ideas about organization and process would be jettisoned in favor of a more agile foreign policy far better equipped to solve the difficult questions of the Cold War world.

The reality proved far messier, however. The new administration, instead of exploring truly new ways to wage the Cold War, was as much a prisoner of its fears as the Eisenhower administration had been. The existential threat posed by Communism was only one source of anxiety. Others included the fear of political fallout and a horror of appearing 'weak.' Given the potential domestic costs of sending in ground troops, or of letting the South Vietnamese government fall, the decision to use herbicides was a much more palatable choice.

The new administration was organized more loosely than the Eisenhower administration, but this was a source of source of worry and mistrust rather than of strength and flexibility. Disdain for bureaucratic convention led to an organization with few clear rules or norms. This, in turn, rewarded those with the most powerful personalities, the most information, or the greatest access to Kennedy himself. The

climate of uncertainty led to a reliance on secrecy as a means to gain and keep power; administration members hid decisions from Congress, from the public, and from each other.

All of these anxieties contributed to the administration's increased commitment to South Vietnam, a commitment that would lead to the use of chemical defoliants and herbicides. Kennedy himself approved the initial targets for Operation Ranch Hand, the name given to the aerial spraying of chemicals in South Vietnam, in November 1961, sparked both by a fear of Communism and a desire to take action. The threat of Communism contributed to the rise of South Vietnam as a key battlefield in the Cold War. The prospect of appearing as yet another diplomatically inept Democratic administration also goaded the Kennedy administration into action. A candidate who had run on vigor and strength could hardly afford to seem timid in the face of the Communist threat. Finally, the administration's own dysfunction distorted decision-making about South Vietnam. A lack of structure and the penchant for secrecy led to particularly adversarial relationships within and outside Washington regarding what should be done.

Kennedy's presidential campaign gave few hints of these future problems. As the campaign unfolded, the handsome young senator and his photogenic family made an immediate impression, particularly in contrast with staid Eisenhower and shopworn Nixon. Kennedy campaigned with deliberately cultivated images of vigor and activity. He could not compete with Nixon, the sitting Vice President and Republican nominee, on the basis of experience or continuity. Instead, he had to make his youth an asset

rather than a question mark. This strategy worked; Kennedy was able to promote an image of physical strength, vitality, and confidence with the help of the media. The first of the televised presidential debates, in which Nixon appeared haggard and ill at ease and Kennedy looked crisp and relaxed, was only one instance. Much of the press gravitated toward the Harvard-educated war hero, his wildly successful father, and his charismatic siblings. *Time* described the Kennedy family as “handsome as thoroughbreds in a meadow, tough as blackthorn shillelaghs, ruthless as Cuchulain, the mythical hero who cast up the hills of Ireland with his sword.”¹

This emphasis on newness and action, however, would have done little good if the candidate did not have a message people wanted to hear. It was not just the Kennedy campaign that wanted a change. Kennedy’s promotion of energy and accomplishment met with a receptive audience. He won the 1960 election, albeit by a narrow margin of the popular vote.² Within Washington, others had been seeking public leadership from Eisenhower that would never come. The Chairman of the Senate Foreign Relations Committee J. William Fulbright decried the “lack of a sense of urgency” in Congress. “I submit [President Eisenhower] does not impress on the country – he is about the only one that can really do it – the seriousness of this aspect of our whole national conduct.

¹ "The Campaign: Pride of the Clan," *Time*, July 11 1960, 19.

² Reeves, 18. Reeves goes on to write that Kennedy often kept his winning margin – 118,574 votes – on “a slip of paper in his pocket” as a reminder of his tenuous hold on the electorate.

He does not ask the American people to do enough.”³ Kennedy would not make the same mistake.

The election victory, close though it was, seemed to endorse Kennedy’s ideas about governance and the need for new approaches. Things would be different; as journalist David Halberstam later described the transition, “the government had been handed from the tired and flabby Chamber of Commerce mentality of the Eisenhower years to the best and the brightest of a generation.”⁴ Problems that had seemed intractable under Eisenhower would be solved with intellect and élan. “The best people,” in the judgment of *Time*, freed from bureaucratic shackles, would be set loose to solve the nation’s problems.⁵ Reliance on structure was the refuge of dullards. One admiring biographer observes, “Ike’s bent toward order was exactly the kind of passive thinking [Kennedy] wanted to sweep away. He had no use for process, with its notemaking, minute taking, little boxes on charts showing the planning board and the Operations Coordinating Board.”⁶ Government experience and specific expertise were not required; accomplishment, energy and confidence were.

At the center of this new approach was Kennedy’s vision of foreign policy. His goal, according to one scholar, was to conduct foreign policy like a Harvard seminar: “a freewheeling, unstructured and unfettered environment where brilliant minds could

³ *Executive Sessions of the Senate Foreign Relations Committee*. 87th Cong., 1st sess., 1986. Vol. XIII, pt 2., (Washington DC: United States Government Printing Office, 1984), 99.

⁴ Halberstam, *Best and the Brightest*, 18.

⁵ “Picking the Men,” *Time*, December 19 1960, 16.

⁶ Reeves, 23.

do their best work... This was how intellectuals, not bureaucrats, would make foreign policy.”⁷ Arthur M. Schlesinger, Jr., a Kennedy aide and acolyte, portrayed these “New Frontiersmen” as examples of the sunshine and fresh air that had come to Washington after the staleness of the Eisenhower years. Gone were the older, stodgier men who surrounded Eisenhower. This administration would be more innovative and far less beholden to bureaucracy or tradition. The men Kennedy appointed, with one notable exception, personified this new approach to foreign affairs.

His Secretary of Defense, Robert McNamara, had built an impressive career on both an overwhelming self-confidence and an almost preternatural ability to understand quantitative data, at a time when statistics were becoming ever more important and fashionable.⁸ When Kennedy made him the offer after an initial meeting of only 30 minutes, McNamara had just assumed the presidency of the Ford Motor Company as the brightest of the “Whiz Kids” who had joined to reform the company’s systems.⁹ McNamara himself believed he was chosen because, not in spite of, this background; he was “a businessman with innovative ideas.”¹⁰ Kennedy quickly grew to rely on

⁷ Bird, 185-6.

⁸ The field of quantitative measurement was, in fact, gaining a level of credibility among educated laymen that it did not have in the scientific community itself. See Kuhn, Thomas. “The Function of Measurement in Modern Physical Science.” *Isis* 52, no. 2 (June 1961): 161-193. For a critical account of McNamara’s emphasis on this type of data, see Deborah Shapely, *Promise and Power: The Life and Times of Robert McNamara* (Darby, PA: Diane Publishing Company, 1993).

⁹ “The President-Elect: The Great Man Hunt,” *Time*, December 26 1960, 7.

¹⁰ McNamara and VanDeMark, 15. Others from the administration dispute McNamara’s account of his tenure. For example, see Roger Hilsman, “McNamara’s War - Against the Truth: A Review Essay,” *Political Science Quarterly* 111, no. 1 (Spring 1996): 151-163.

McNamara for insight into a whole host of issues beyond the Defense Department. McNamara's "crisp, authoritative, no-nonsense style," in the words of one Kennedy official, matched both the image Kennedy wished to convey about his administration and his own tendencies.¹¹

McNamara staffed the Defense Department with men whose outlooks were very similar to his. Charles Hitch, a World Bank economist and operations analyst, "had shown an ability to break down complex problems to their essentials with a speed and exactness which matched McNamara's own."¹² Along with Alain Enthoven from RAND and another McNamara lieutenant, Hitch could conjure "all the contemporary resources of mathematics and cybernetics to perfect the managerial magic."¹³

McGeorge Bundy, Kennedy's National Security Advisor, was another dazzling appointment. A precocious achiever even among the Kennedy staff, Bundy was Dean of the Faculty of Arts and Sciences at Harvard before joining Kennedy. As one journalist observed, "He was Jack Kennedy's kind of man, not an ideologue, not a bore."¹⁴ His deputy, Walt W. Rostow, joined the staff from the economics department at the Massachusetts Institute of Technology. Rostow believed in the United States' power and duty to support the people of less developed nations in their struggles. However,

¹¹ Ted Sorensen, *Counselor: A Life at the Edge of History* (New York: HarperCollins, 2008), 232.

¹² Schlesinger, 153.

¹³ Ibid.

¹⁴ Halberstam, *The Very Expensive Education of McGeorge Bundy*, 27.

Rostow also maintained staunch anti-Communist views and a willingness, even an eagerness, to combat Communism.¹⁵

Despite their extraordinary abilities and accomplishments, these men, including Kennedy himself, were not immune from the assumptions and pressures that Eisenhower faced. Chief among these was the existential threat posed by Communism. David Halberstam wrote of Kennedy's "modernity, his lack of being burdened by the myths of the past," but this was not true.¹⁶ For Kennedy, the conflict with the Soviet Union from the beginning was not one between competing states with differing interests, but a Manichaeian struggle over the fate of the world. At the start of his first State of the Union Address on January 30, 1961, Kennedy echoed Lincoln's rhetoric during the American Civil War. "I speak today in an hour of national peril and national opportunity. Before my term has ended, we shall have to test anew whether a nation organized and governed such as ours can endure. The outcome is by no means certain. The answers are by no means clear. All of us together - this Administration, this Congress, this nation - must forge those answers." Although Kennedy exhorted his listeners to "meet all dangers free from panic or fear," he then proceeded to list reasons why both panic and fear were amply justified. The world was filled with a 'harsh enormity' of problems. To make matters worse, "Each day the crises multiply. Each

¹⁵ The definitive recent work on Rostow is David Milne, *America's Rasputin: Walt Rostow and the Vietnam War* (New York: Hill and Wang, 2009).

¹⁶ Halberstam, *The Best and the Brightest*, xv-xvi.

day their solution grows more difficult. Each day we draw nearer the hour of maximum danger....”¹⁷

Political scientist Jack Snyder points out that the previous generation of presidential foreign policy advisors, such as Dean Acheson and John Foster Dulles, could evade the bonds of their own public rhetoric when the international situation demanded it.¹⁸ Schlesinger disagreed. He implied that Kennedy was far more nuanced in his views of foreign affairs. "The John Foster Dulles contrast between the God-anointed apostles of free enterprise and the regimented hordes of atheistic communism bored [Kennedy]. Seeing the world as an historian rather than as a moralist, he could not utter without embarrassment the self-serving platitudes about the total virtue of one side and the total evil of the other."¹⁹ Nonetheless, he did utter them, repeatedly. During a campaign stop, Kennedy pronounced, "The enemy is the Communist system itself – implacable, unceasing in its drive for world domination. For this is not a

¹⁷ State of the Union Address to Congress, January 30, 1961, from *The Public Papers of the Presidents*, as found at The American Presidency Project, <http://www.presidency.ucsb.edu/ws/index.php?pid=8045&st=&st1> (accessed August 3, 2010).

¹⁸ Snyder refers to a "spiral of mythmaking" that took hold and led to "rhetorical blowback" in the 1960s. Snyder, 289, 299. Anna Kasten Nelson makes a similar argument about continuities between the Kennedy administration and previous ones. Anna Kasten Nelson, "President Kennedy's National Security Policy: A Reconsideration," *Reviews in American History* 19, no. 1 (March 1991):1-14.

¹⁹ Dulles was Eisenhower's Secretary of State until shortly before his death in 1959. Schlesinger, 298.

struggle for the supremacy of arms alone – it is also a struggle for supremacy between two conflicting ideologies: Freedom under God versus ruthless, godless tyranny.”²⁰

Whatever his private beliefs, the president was careful to maintain a public image of uncompromising Cold Warrior. Given the political climate, perhaps Kennedy could utter little else. Although he may not have believed his own alarming words he, unlike Eisenhower, did not take public steps to qualify or correct them. During a 1954 press conference, Eisenhower admitted, “You certainly cannot hope at the present state of our relations in the world for a completely satisfactory answer with the Communists. The most you can work out is a practical way of getting along.”²¹ Kennedy did not make such pragmatic statements until late in his presidency, and then only in the context of nuclear weapons. Kennedy’s American University speech, delivered on June 10, 1963, was too little, too late to slow the momentum behind Ranch Hand. Both defoliation and crop destruction operations had been underway for months and would continue.

The tenor of discussion was alarmist even in closed-door testimony. A June 14, 1961 exchange between Joint Chiefs of Staff Chairman General Lyman Lemnitzer and

²⁰ September 23, 1960 speech at the Mormon Tabernacle, Salt Lake City, UT, accessed at <http://www.presidency.ucsb.edu/ws/index.php?pid=74176&st=&st1=#axzz1wFXxXFB> (accessed June 19, 2012); as quoted in Thomas G. Paterson, "John F. Kennedy's Quest for Victory and Global Crisis," in *Kennedy's Quest for Victory: American Foreign Policy, 1961-1963*, ed. Thomas G. Paterson (New York: Oxford University Press, 1989), 12.

²¹ April 29, 1954 news conference accessed at: <http://www.presidency.ucsb.edu/ws/index.php?pid=10223&st=&st1=#axzz1wFXxXFB> as quoted in Gelb and Betts, 60.

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illustrates how apparently inflexible the administration had already become.

General LEMNITZER. I would just like to say that we have been in a power struggle with the Soviet Union and communism since World War II, and this struggle continues and the stakes are high.

The CHAIRMAN. That is quite right.

General LEMNITZER. Their objective is world domination.²²

In the administration's defense, there were frightening foreign policy problems facing Kennedy as soon as he took office. As Deputy Assistant Secretary of Defense William Bundy recalled, "It seemed as though there was just no end to the really critical situations that we were confronting... I so well remember the early snow-covered nights when we used to speed through the streets and go up to the State Department to discuss the horrors of some tropical situation."²³ Days before Kennedy took office, Soviet Premier Nikita Khrushchev made an alarming speech in which he promised that the Soviet Union would support "wars of national liberation" around the world. In an era when nationalist sentiment was coalescing and becoming more powerful, the prospect suddenly loomed that former European colonies would come under the Communist spell.²⁴

²² *Executive Sessions of the Senate Foreign Relations Committee*. 87th Cong., 1st sess., Vol. XIII, pt 2. (Washington DC: United States Government Printing Office, 1984), 108.

²³ William Bundy Interview, November 12, 1964, 2, JFKL.

²⁴ Recent scholarship has demonstrated that this view was simplistic. See Aleksandr Fursenko and Timothy Naftali, *Khrushchev's Cold War: The inside Story of an American Adversary* (New York: W. W. Norton & Company, 2007); Geoffrey Roberts, *Molotov: Stalin's Cold Warrior* (Dulles, VA: Potomac Books, Inc., 2011); Vladislav Zubok and Constantine Pleshakov, *Inside the Kremlin's Cold War: From Stalin to Khrushchev* (Cambridge: Harvard University Press, 1997). A work that places both the

Cuba and Laos were among the most difficult foreign policy challenges of the administration's earliest days. The administration's policies concerning Cuba were handicapped almost from the start. On April 17, 1961, less than 3 months into the new administration, Cuban dissidents, trained and transported by the United States, landed near the Bay of Pigs, on the southern coast of Cuba, where Castro's troops defeated them. The theory was that a small dissident force could hold the exposed beach and rally the internal anti-Castro forces that the CIA was certain lay in wait. This could not have been more wrong. Instead, the United States' obvious involvement, combined with the failure of any uprising, embarrassed the administration; cost over 100 lives; and put Cuba, and other countries, on notice that the United States would freely intervene in their internal affairs.²⁵

The Bay of Pigs episode was perhaps the most influential single foreign policy event for the entire administration. Not only was it a public military, political, and diplomatic failure, it happened very early in Kennedy's term. As sociologist Lynn Eden points out, "Formative experiences in the histories of organizations near the time of founding or during turbulent periods of redefinition shape organizational frames that

United States and Soviet struggles for influence in the context of global history is Odd Arne Westad, *The Global Cold War: Third World Interventions and the Making of Our Times* (New York: Cambridge University Press, 2007). See especially Chapter 2, "The Empire of Justice: Soviet Ideology and Foreign Interventions."

²⁵ A particularly useful account that contextualizes the Bay of Pigs within the administration's foreign policy is Freedman, 123-48. See also Westad, 66-72. The Bay of Pigs incident, and what it implied about Cuba's importance to the United States, likely contributed to the Cuban Missile Crisis 18 months later. For more on the Cold War in Latin America, see Stephen G. Rabe, *The Killing Zone: The United States Wages Cold War in Latin America* (New York: Oxford University Press, 2011).

structure how actors in organizations identify problems and find solutions.”²⁶ This catastrophe would lead the administration to look for solutions that were inexpensive and easy to hide. Herbicides fit the criteria.

On the other side of the world the fate of Laos was another formidable problem. A former French colony in Southeast Asia, its status as a neutral nation had ostensibly been determined at the 1954 Geneva Accords. The Communist threat, however, could rise anywhere, 90 miles off the coast of Florida or 12,000 miles away, and would demand a response. The internal politics of Laos were a good deal more complicated than the Geneva negotiators had appreciated, and the country’s neutral status was soon in jeopardy. The rise of the pro-Communist Pathet Lao faction portended another falling domino and another embarrassing loss for the administration. Kennedy’s options were limited. He did not want to appear impotent again so early in his administration and so soon after the Bay of Pigs. However, the military advice he received about Laos was so ambitious as to be ludicrous; the introduction of United States ground troops and nuclear strikes against China were among the options presented.²⁷ Fortunately, Kennedy did not need to commit to the fate of a land-locked Southeast Asian nation. The vast majority of Americans were not particularly invested in the fate of Laos or its

²⁶ Lynn Eden, *Whole World on Fire: Organizations, Knowledge, and Nuclear Weapons Devastation* (Ithaca: Cornell University Press, 2006), 60.

²⁷ Freedman, 302. Harris Wofford, *Of Kennedys and Kings: Making Sense of the Sixties* (Pittsburgh: University of Pittsburgh Press, 1980), 366. For more on United States actions in Laos, see Chapter 4, “The Deepening Crisis, 1954-1961” in Robert J. McMahon, *The Limits of Empire: The United States and Southeast Asia since World War II* (New York: Columbia University Press, 1999).

people. A negotiated settlement would not be ideal, but it would also probably not arouse the ire of many voters.

Like every successful politician, Kennedy was constantly and keenly aware of what concerned his constituents. The president worried about his and his party's electoral prospects. As a Democratic candidate and president, Kennedy grappled with the damage the 1950s had done to his party's standing on national security issues. Less than a generation after the Allies' victory over the Axis, the Democratic Party's reputation in foreign affairs was in tatters. As diplomat and historian Philip Zelikow observed, "A lot of effort in the Democratic Party, especially before and during the campaign of 1960, was put to the task of recovering its reputation for being competent stewards of national security."²⁸ President Franklin Roosevelt guided the nation through World War II; but only 15 years later, Roosevelt's own party was fighting to convince voters it could be trusted to manage foreign affairs. Given the political climate of the early 1960s, Kennedy believed he could not afford to be thought 'soft' on national security. By establishing an atmosphere of imminent threat, he then had the opportunity to appear strong in the face of it. In order to overcome the handicap of being a Democrat, his stance toward Communism must be unwavering. Kennedy understood this, and his speeches reflected it.

The second motivating fear was the fear of appearing too weak and accommodating in the face of the Soviet threat. The accusation of appeasement still

²⁸ Philip Zelikow, "Review of Robert Jervis, 'The Politics of Troop Withdrawal: Salted Peanuts, the Commitment Trap, and Buying Time'" accessed at H-Diplo Article Reviews <http://www.h-net.org/~diplo/reviews/> No. 267 (accessed August 23, 2010).

carried a great deal of weight decades after Neville Chamberlain's infamous meeting with Adolph Hitler. The single word meant cowardice and foolishness that might doom the world to a brutal war against an undeterrable tyrant. "Munich" had similar meanings; the description of any event as "another Munich" implied that the damage had been done and that weakness and compromise had counted for more than resolve and foresight.²⁹ The Soviet Union was an enemy as fearsome as Nazi Germany; this made the analogies convincing, if inaccurate. In the early 1960s, the danger of being accused of appeasement loomed large; there was no corresponding fear of acting too hastily or harshly. Most of the senior members of Kennedy's foreign policy team, from Kennedy himself to the Bundys, had come of age during World War II and remembered well the threat Nazi Germany had posed at its height.

Others outside Washington also remembered. Less than three months after Kennedy took office, *LIFE* was goading the new administration into intervention in Laos. "[Laos] was indeed an unlikely place. But so was Poland in 1939.... The people are bewildered, like children caught in a grown-ups' quarrel. But the American people are grown up and will respond to President Kennedy's statement, a reminder of Churchill's exhortation to England in the Munich year of 1938 to rise again 'and take our stand for freedom as in the olden time.'"³⁰

To make matters still more frightening, the Communists seemed as expansionist as the Nazis. Even a country the size of China was not safe. In 1949, the Communist

²⁹ For an extended discussion of how these terms, and the associated ideas, have influenced United States foreign policy decision making, see Khong.

³⁰ "Far Away...But World Is Small," *LIFE*, March 31 1961, 19.

Red Army of Mao Zedong succeeded in pushing United States ally Chiang Kai-Shek off of the Chinese mainland and onto the island of Formosa. The Chinese Communist Party's victory over the Kuomintang horrified United States observers. One of the largest and most populous nations in the world was now in the Soviet sphere.³¹ Almost immediately, factions in Washington began blaming each other for the "loss" of China. Harry Truman was President and, by extension, Democrats controlled the foreign policy apparatus. Republicans could make a straightforward argument that the Democratic mismanagement led to the fall of China to Communism. The alternative to hurling accusations was accepting that the United States could not directly control the spread of Communism. This idea was too frightening to believe; it was much more reassuring to argue that someone in the United States could have stopped it.

The rise of Chinese communism fueled the growth of an alarming domestic threat: Senator Joseph McCarthy (R-WI). McCarthy's fulminations against a government riddled with Communists charged, among other things, that these fellow travelers were at least complicit in the 'loss' of China. The scourge of McCarthy, whose accusations and hearings decimated the Foreign Service, painted a terrifying picture for many Democrats and Republicans alike. Democrats feared the cross hairs of

³¹ The differences between Soviet and Chinese Communism were enormous from the beginning. However, they were not obvious to the United States and became only gradually apparent. A key work on United States perceptions of China during the early Cold War is Nancy Bernkopf Tucker, *Patterns in the Dust: Chinese-American Relations and the Recognition Controversy, 1949-1950* (New York: Columbia University Press, 1983). In this work, Tucker asserts that the State Department was aware of differences between Soviet and Chinese Communism, despite the government's public pronouncements to the contrary.

another McCarthy; Republicans agonized over a government that they suspected was riddled with treachery. Coming of political age in Massachusetts during the 1950s, Kennedy learned, as did so many in the State Department, of the powers of McCarthyism. Some of the Wisconsin senator's staunchest partisans were from Massachusetts; they were among Kennedy's earliest constituents.³² Kennedy's own father was a public and staunch supporter; John was somewhat less enthusiastic, although largely only in private.³³ He knew that appearing lenient in the face of Communist subversion would end his political career very quickly.

Perhaps the most destructive source of fear for the Kennedy Administration resulted from the lack of institutional controls and norms. Power and access within the administration were constantly contested. The administration's contempt for bureaucratic convention undermined the institutional structures that might have reined in some of the stronger personalities within it. As historian Garry Wills rightly observes, the emphasis during the Kennedy years was on the name, not on the role: "the office was defined by the man."³⁴ If a less forceful personality served as, for

³² Reeves, 227. Also see Lawrence J. Bassett and Stephen E. Pelz, "The Failed Search for Victory: Vietnam and the Politics of War," in *Kennedy's Quest for Victory: American Foreign Policy, 1961-1963*, ed. Thomas G. Paterson (New York: Oxford University Press, 1989). For a sobering account of the period, see David M. Oshinsky, *A Conspiracy So Immense: The World of Joe McCarthy* (New York: Oxford University Press, 2005).

³³ Oshinsky, 241.

³⁴ Wills, 205. Wills himself privileges the name in his title; his book is not only about John Kennedy, but also about his brothers Robert and Ted, both of whom, in Wills' account, were also imprisoned.

example, Secretary of State, he would not be elevated by the position; instead, the role would shrink to fit.

This is, in fact, what happened. The Secretary of State could be an organizational counterweight to the Secretary of Defense, but Dean Rusk, Kennedy's choice, was a man of a very different style.³⁵ Both McNamara and Bundy had much more forceful personalities, and in this administration, personal power counted for an extraordinary amount. Rusk, despite being a Rhodes Scholar, former Assistant Secretary of State for Far East Asian Affairs, and head of the Rockefeller Foundation, was, in the words of *Time*, "a balding, slow-spoken man" who was "everybody's number two...the acceptable man," according to David Halberstam.³⁶ Others who knew Rusk better were more complimentary, preferring adjectives like "low-key" and "unobtrusive."³⁷ Ted Sorensen hinted that Kennedy did not want a strong personality at State because he was too interested in and involved with foreign policy to tolerate a Secretary who exerted "strong minded leadership."³⁸ Even if Rusk had been a more dynamic personality, he would have had a difficult time balancing McNamara and fending off McGeorge Bundy. As it was, Rusk's limitations muffled the department's influence in the controversial decision to use chemical herbicides.

³⁵ Few biographies of Rusk exist, although he is a significant figure in hundreds of books about the Vietnam War. The two most important are Warren I. Cohen, *Dean Rusk* (Totowa, NJ: Cooper Square Publishing, 1980). And Thomas W. Zeiler, *Dean Rusk: Defending the American Mission Abroad* (Wilmington, DE: Scholarly Resources, 2000). See also Rusk's memoir: Dean Rusk and Tom Rusk, *As I Saw It* (New York: Penguin, 1991).

³⁶ Halberstam, *The Best and the Brightest*, 32-33; "Picking the Men."

³⁷ Ted Sorensen, *Kennedy* (1965; repr., New York: Harper & Row, 2009), 271.

³⁸ *Ibid.*, 270.

Wills' observation is also true for those personalities that expanded the roles they occupied. The position of Attorney General is not typically involved in decision-making about foreign affairs. Attorney General Robert Kennedy, the president's combative and protective younger brother, assumed much more expansive responsibilities than might be inferred from his title.³⁹ To inflame the situation further, Bobby Kennedy's personality was even stronger than his brother's, and he did not have the constraints of high elected office to keep him in check. "Bobby is capable of dealing with bureaucrats like you wouldn't deal with a dog," said National Security Advisor McGeorge Bundy. There was little recourse against the president's brother. Averell Harriman, known as 'the Crocodile' for the quickness and sharpness of his bureaucratic bite, came to the administration in part because he had the experience and fortitude to contain Bobby.⁴⁰ Harriman, too, occupied a position in the administration far exceeding that granted by his title, which initially was Ambassador at Large. Michael Forrestal, who served on the National Security Council, was brought into the administration "to be a kind of ambassador to that separate sovereignty known as Averell Harriman."⁴¹

One of the most valued personality traits in the administration was a type of governmental *machismo*, a collective belief that action equaled manliness. Those averse

³⁹ Bobby's influence during the Cuban Missile Crisis has been well documented in, for example, Aleksandr Fursenko and Timothy Naftali, *One Hell of a Gamble: Khrushchev, Castro, and Kennedy, 1958-1964*, Reprint ed. (New York: W. W. Norton & Company, 1998).

⁴⁰ McGeorge Bundy Interview, March 1964, 120, JFKL.

⁴¹ Michael Forrestal Interview, April 8, 1964, 5, JFKL.

to a particular course were not only in the wrong, they were weak and effeminate, fatal flaws in this organization. As Schlesinger, an astute observer of men not named Kennedy, recounted

Moreover, the advocates of the [Bay of Pigs] adventure had a rhetorical advantage. They could strike virile poses and talk of tangible things - fire power, air strikes, landing craft and so on.... I could not help feeling that the desire to prove to the CIA and the Joint Chiefs that they were not soft-headed idealists but were really tough guys, too, influenced State's representatives at the cabinet table.⁴²

This desire to prove their individual and collective manhood prevented the State Department from providing a counterweight to those advocating action, however misguided, in Cuba.

The dynamic was not unique to the Bay of Pigs. The department would also abdicate this role during discussions about Ranch Hand. Those in the administration with a “‘frontier’ love of guerrilla boldness”, which included the president, marginalized “courtly Dean Rusk and moralizing Chester Bowles,” both of whom served in the State Department.⁴³ To be in the inner circle, a reputation for toughness was required. Rusk and Ambassador to the United Nations Adlai Stevenson were too “ladylike” to be included often in White House decision-making. “I know everyone is grabbing their nuts on this,” was one phrase Kennedy would use to cut off debate about a particular course of action. Further discussion would be not only unwanted but unmanly. This was, of course, reinforcing; as more cautious voices were stifled, the bias for action became more and more pronounced.

⁴² Schlesinger, 255-6.

⁴³ Wills, 147.

Another pernicious effect of the emphasis on personal, rather than on institutional, power, was the fights for access that took place. A lack of clearly defined reporting and access meant that one's ability to influence events could be undermined, whether covertly or overtly, by those who had different agendas. The bureaucratic structures so decried by the New Frontiersmen may have stifled creative thinking, but they also provided established guidelines and procedures for communicating information – and dissent. In contrast, the freewheeling, unstructured environment, and the pervasive uncertainty about status, led to almost constant jockeying for position and for contact with the president via meetings or memos. This was hotly contested, since there were so few established rules for who or what the president saw. As Forrestal remembered, “No one can tell you how to [get access to the President]. Indeed, people tend not to tell you how, because they don't want to have competition for the access.”⁴⁴

These traits were not unique to the Kennedy Administration. However, they were particularly toxic given the magnitude and number of foreign policy problems and the extraordinarily high stakes of miscalculation. To make matters even more difficult, Kennedy, McGeorge Bundy, and McNamara, the three men most influential in making decisions, were all relative neophytes in international affairs. Given these constraints, typical organizational problems became particularly dangerous and difficult to overcome.

Although he had limited experience in foreign policy, McGeorge Bundy was a master at the competition for access. Bundy ran his National Security Council out of the

⁴⁴ Michael Forrestal Interview, April 8, 1964, 17, JFKL.

White House.⁴⁵ As Hilsman observed, “The position and title – the ‘platform’ – that McGeorge Bundy occupied in the Kennedy administration existed in Eisenhower’s day, but it was Bundy who made it powerful.”⁴⁶ Being so close to Kennedy, literally and figuratively, gave him enormous power. “Bundy was always there, darting in and out of the President’s office (‘Goddammit Mac,’ someone heard Kennedy say, ‘I’ve been arguing with you about this all week,’ and *that* was power, the access to argue all week long.)”⁴⁷ Bundy’s “little State Department” had interaction and influence with Kennedy that rivaled that of any cabinet official. Bundy’s department was alone in the basement of the White House, in the same building as Kennedy, not blocks away or across the Potomac. Furthermore, “one of Bundy’s major facilities in the basement was the Situation Room – the intelligence and communications center of the White House. It was under military guard and was manned around the clock by Bundy’s staff.”⁴⁸

Kennedy and his key advisors, which did not include every Cabinet official or senior member of Congress, tended to compartmentalize foreign policy debate.⁴⁹ Without bureaucratic norms, such as who should be invited to meetings about a given topic, participation depended on who could wrestle it for themselves or their allies. At

⁴⁵ He was also no friend to the State Department. In an April 5 memo to the president, he laid out his assessment of why the administration was so challenged by various foreign policy problems. “...we did not get clearly focused responsibility. The reason was that the Department of State was not quite ready.” “Crisis Commanders in Washington”, April 5, 1961, as quoted in Reeves, 84.

⁴⁶ Hilsman, 561.

⁴⁷ *Italics* Halberstam’s. Halberstam, 29, 22.

⁴⁸ Salinger, 78.

⁴⁹ Kennedy’s ambassador to South Vietnam was by his own description “not among the ‘in’ crowd at the White House.” Nolting, 42.

this, too, McGeorge Bundy was an expert. “The decision as to who should come to the ...meeting was left almost entirely to the Bundy staff officer,” remembered one official.⁵⁰ Bundy also managed to insert himself into the State Department’s communications with Kennedy. In one instance, Undersecretary of State Bowles, Rusk’s deputy, dissented from Kennedy’s emphasis on counterinsurgency as a means to subdue the population. He sent a memo to Kennedy advocating a more comprehensive program to improve the lives of rural populations, which Bundy intercepted. “Bowles has volunteered certain of his personal views.... If you agree, I will acknowledge receipt of the memorandum, expressing your interest, etc.”⁵¹ Bundy’s contempt could not have been much plainer.

Furthermore, even those included in high-level meetings often felt unable to speak. They feared embarrassment and exclusion. Bowles, acting Secretary of State while Rusk was at a conference, was aghast at the plans to invade Cuba. He did not voice his objections but instead wrote a memo to Rusk, who promptly put it aside. Schlesinger, another attendee and a man not ordinarily lacking in self-confidence, “bitterly reproached myself for having kept so silent during those crucial discussions in the Cabinet Room, though my feelings of guilt were tempered by the knowledge that a course of objection would have accomplished little save to gain me a name as a nuisance.”⁵²

⁵⁰ Michael Forrestal Interview, April 8, 1964, 42, JFKL.

⁵¹ Reeves, 233.

⁵² Arthur M. Schlesinger, Jr., *A Thousand Days: John F. Kennedy in the White House*, 1965; repr. ed. (New York: Mariner Books/Houghton Mifflin, 2002), 255. This

These internal pressures of contested roles and access, combined with the international and domestic ones, contributed to a culture of secrecy within the administration. The political machinations within the administration handicapped the foreign policy process, particularly since there were so few established patterns or structures on which to fall back. According to one scholar, “The key actors were often in the dark about the attitudes and behaviors of other members of the same government, never mind the calculations of their enemies.”⁵³ Roger Hilsman, a veteran of the Kennedy White House, stated bluntly, “Secrecy is power.”⁵⁴ Since power did not come from title or role, members found it in other places. One official remembers that restrictions on who exactly could know what about the Bay of Pigs invasion “had the idiotic effect of excluding much of the expertise of government at a time when every alert newspaperman knew something was afoot.”⁵⁵

The administration kept secrets from those outside the White House as well. The botched invasion of Cuba caused a great deal of collective soul-searching, not least because of the United States’ disastrous inability to keep American involvement a secret. The conclusion was not that secret operations were by definition practically impossible but that the United States needed to be more careful. “We have to give real

dynamic is similar to that displayed in the hours before the launch of the doomed *Challenger* space shuttle. One engineer remembered, ‘If I look back on it now, what I should have done is I should have done everything in my power to get it stopped. I should have taken over the meeting and all that. But, you know, really I’m not of that grade structure or anything.’ Vaughan, 381.

⁵³ Freedman, x.

⁵⁴ Hilsman, 67.

⁵⁵ Schlesinger, 248.

thought...,” Rusk told the Senate Foreign Relations Committee, “to see to what extent it is possible for the United States to take part in such matters [as the Bay of Pigs invasion] without accepting full, open and public responsibility, and devising our actions on that basis.”⁵⁶ Even more liberal publications such as *The Atlantic* acknowledged the validity of this approach. “After Cuba, the President said in a New York speech that, while there was need for ‘far greater public information,’ there also was need for ‘far greater official secrecy.’ This raised a howl from the press, but the problem needs to be thought through.”⁵⁷ Herbicide spraying would presumably be much easier to conceal than an amphibious assault.

The attraction to secrecy puzzled others in Washington, particularly members of Congress who took their oversight responsibilities seriously. Senator Frank Lausch (D-OH) advised Rusk, and by extension the administration, that “Axiomatically it ought to be written down that nothing that you do in our country will remain secret; nothing that we do in this [Executive Session of the Senate Foreign Relations Committee] meeting will be a permanent secret.”⁵⁸ Senator Wayne Morse, (D-OR), an early and consistent critic of United States involvement in Vietnam, was more pointed. “I respectfully say I think this administration is raising a lot of fears and doubts about covert activity by carrying on a program that has some of the resemblances of Communist tactics

⁵⁶ Dean Rusk, May 1, 1961, “Briefing on the Cuban Situation” in *Executive Sessions of the Senate Foreign Relations Committee*, 87th Cong., 1st sess., 1961 (Washington DC: United States Government Printing Office, 1984), 344.

⁵⁷ “The Atlantic Report on the World Today: Washington,” *The Atlantic*, July 1961, 4.

⁵⁸ Frank Lausch, May 1, 1961, “Briefing on the Cuban Situation”, in *Executive Sessions of the Senate Foreign Relations Committee*, 87th Cong., 1st sess., 376.

themselves.”⁵⁹ The administration’s response was not to be more forthcoming but to keep even more decisions away from prying Congressional eyes. Ranch Hand, for instance, was not subject to Congress’ scrutiny or questions.

Fears of Communist victory and electoral defeat made South Vietnam seem critically important. Kennedy himself, in the early stages of his presidential campaign, eloquently made the case for the defense of South Vietnam in a speech to the American Friends of Vietnam (AFV), and he did so primarily through contrast with Soviet depredations. Without American advice and support, South Vietnam would be lost to Communism. “The American people have all but forgotten the tiny nation for which we are in large measure responsible,” Kennedy warned, and this neglect would result in yet another victory for Communism.⁶⁰ South Vietnam may have been tiny, but to Kennedy its global importance was clear: “Vietnam represents the cornerstone of the Free World in Southeast Asia, the keystone to the arch, the finger in the dike.”⁶¹ If South Vietnam were lost to Communism, the effects could be disastrous.

⁵⁹ Wayne Morse, May 1, 1961, “Briefing on the Cuban Situation” in *Executive Sessions of the Senate Foreign Relations Committee*, 87th Cong., 1st sess., 380. By 1961, Morse had already established himself as a contrarian voice in the Senate; he had switched from the Republican Party in 1953.

⁶⁰ June 1, 1956 remarks of Senator John F. Kennedy (D-MA) at the Conference “America’s Stake in Vietnam” sponsored by the American Friends of Vietnam, Willard Hotel, Washington, D.C. as found at <http://www.jfklibrary.org/Research/Ready-Reference/JFK-Speeches/Remarks-of-Senator-John-F-Kennedy-at-the-Conference-on-Vietnam-Luncheon-in-the-Hotel-Willard-Washing.aspx> (accessed April 13, 2009.) For more on the importance of the AFV, see Joseph G. Morgan, *The Vietnam Lobby: The American Friends of Vietnam, 1955-1975* (Chapel Hill: University of North Carolina Press, 2009).

⁶¹ June 1, 1956 remarks, “America’s Stake in Vietnam.”

Kennedy went on to echo traditional themes of tutelage and role modeling. “If we are not the parents of little Vietnam, then surely we are the godparents.” Godparent, in Christianity, has specific connotations of obligation and moral leadership; these would have been clear to both Kennedy and to the largely Catholic audience.⁶² “[Vietnam] is our offspring – we cannot abandon it, we cannot ignore its needs.” His program was “the revolution we can, we should, we must offer to the people of Vietnam...a revolution of their own making.”⁶³

Furthermore, the image of Vietnam in American minds was quite vivid and sympathetic.⁶⁴ The flight of refugees from North Vietnam, whose fates under Communism were luridly described in the mainstream press, personalized the Communist menace to South Vietnam.⁶⁵ The Vietnamese were charismatic and courageous and deserving of help; the Lao, on whose behalf Kennedy would not intervene, were an indistinct and indolent people and arguably not worth American efforts. In addition, South Vietnamese President Ngô Đình Diệm and his family were

⁶² The role of religion in general, and the Catholic Church specifically, in framing the United States’ understanding of Vietnam has been explored in Laura Szumanski Steel, “In the Name of the Father: The American Catholic Church and United States Foreign Policy During the Vietnam War” (PhD diss, Temple University, 2005). And Morgan, as well as in Seth Jacobs’ work.

⁶³ June 1, 1956, “America’s Stake in Vietnam.” Khrushchev would later make similar arguments about national liberation.

⁶⁴ Mark Philip Bradley, *Imagining Vietnam & America: The Making of Postcolonial Vietnam, 1919-1950* (Chapel Hill: University of North Carolina Press, 2000).

⁶⁵ For example, Tom Dooley’s book, *Deliver Us From Evil* received the approval of both the United States Government and *Reader’s Digest*; the United States Information Agency distributed it worldwide, and *Reader’s Digest* excerpted it for millions of American readers. Christina Klein, *Cold War Orientalism: Asia in the Middlebrow Imagination, 1945-1961* (Berkeley: University of California Press, 2003), 90-96.

staunch Catholics, as were many of the refugees. The support of Christianity against Communism was already a well-established theme in Cold War America; South Vietnam was yet another place in which the two sides were at war. In addition, the visibility of Catholicism in coverage of South Vietnam made the South Vietnamese seem more Western and less foreign than the North Vietnamese.⁶⁶

From the outset of his administration, Kennedy sought rapid progress. Only 8 days into the new administration, senior officials convened a Saturday meeting to discuss South Vietnam. Kennedy's questions were pointed. "The President asked," according to Rostow, "how do we change morale; how do we get operations in the north; how do we get moving?... The President said we must change our course...and we must be better off in three months than we are now."⁶⁷ The bias for action that would characterize so much of Kennedy's foreign policy was already evident in how the administration reacted to what from the start it believed to be a crisis. There was no time to waste on indecision.

By April 1961, the Vietnam problem was acute enough to warrant the appointment of a Presidential Task Force. The timing of this, only 3 days after the Bay of Pigs, suggests that Kennedy was, at least in part, reacting to a very public embarrassment. The formation of a task force would guard against any rogue agencies,

⁶⁶ In fact, most South Vietnamese were not Catholic, and many viewed the religion as yet another colonial imposition. For more on this, see Chapter 5, "Simple Tools of Victory."

⁶⁷ Memo from Rostow to Bundy, January 28, 1961, Re: Meeting Saturday Morning, January 28, in the President's Office, on Viet-Nam, Department of State, *Foreign Relations of the United States 1961-1963: Volume I: Vietnam 1961*, 18, 19.

such as the CIA, committing the country to plans that were at best unlikely to succeed. The embarrassment at the Bay of Pigs had dented the administration's confidence, particularly in dealings with Khrushchev. In the wake of the failed invasion, Kennedy worried that Khrushchev would not be intimidated by him or his country.⁶⁸

Furthermore, the failure in Cuba, combined with Communist gains in places like South Vietnam, hinted at a frightening future of Soviet advances and American impotence.

The Laotian settlement, although it allowed the United States to avoid a substantial commitment to that country, made it less likely that the same strategies would be applied in Vietnam. Allowing the possibility of one neutral Southeast Asian country in the Cold War might be a sign of flexibility. Letting two slip away, particularly in the wake of the Bay of Pigs disaster, could only be foolhardy weakness. "I can't accept a third" foreign policy failure, Kennedy told Ambassador to India John Kenneth Galbraith.⁶⁹ A large part of Kennedy's appeal was his apparent strength; he could not seem weak and survive politically. The stakes for Kennedy grew higher as 1961 went on. After a harrowing summit meeting with Khrushchev in June, shortly after the Bay of Pigs, Kennedy told journalist James Reston that, "now we have a problem in making our power credible...and Vietnam is the place."⁷⁰

⁶⁸ Dallek, 402.

⁶⁹ Wofford, 379.; Dallek, 417.

⁷⁰ Stanley Karnow, *Vietnam: A History*, Rev. and updated ed. (New York, N.Y.: Viking, 1991), 264-5. For a more positive view of Kennedy's political and personal power during this summit, see Richard Ned Lebow, "Deterrence and Reassurance: Lessons from the Cold War," *Global Dialogue* 3, no. 4 (Autumn 2001): 119-132. See also Richard Ned Lebow and Janice Gross Stein, *We All Lost the Cold War* (Princeton: Princeton University Press, 1995), 70-71.

The institutional obstacles within the administration were already firmly in place and had begun to hamper decision-making about South Vietnam. The State Department's contribution would be muffled. The department had only one, relatively junior representative on the Task Force. Alexis Johnson, the Deputy Undersecretary of State for Political Affairs, was a career foreign service officer. In contrast, the Chair of the Task Force, personally appointed by Kennedy on April 20, was Roswell Gilpatric, Deputy Secretary of Defense and a Yale-educated corporate lawyer.

This was not enough for some. The military was clamoring for a central role in South Vietnam and positioning the problem as a military one. The State Department was already marginalized, so the tendency to see the problems in South Vietnam as military ones was exacerbated by the weakness of the one department charged to argue otherwise.⁷¹

Dean Rusk did not attend the monthly high-level meetings on South Vietnam, held in Honolulu, nor did he ever visit South Vietnam. Ambassador Frederick Nolting, who did not trust McNamara or Harriman, recalled pleading with his boss to get more involved. "I could never get him to focus on our problems when I was in Vietnam. Policy fell by default first to Bob McNamara in Defense and then to Averell Harriman. As late as August 1963, when I went to Rusk to talk about Vietnam, he told me, "Averell's handling this.""⁷² Harriman had taken a crucial role in handling one of

⁷¹ Diệm, too, was anxious to frame the problem as a military one. If the United States began to view his government's weakness as politically-based, it could lead to awkward questions and difficult demands. For more on this, see Chapter 5.

⁷² Nolting, 129.

the administration's most important foreign policy problems; the Secretary of State could not or would not.

Rusk did, however, promote a level of secrecy around events in South Vietnam that some on the outside found ridiculous. As part of the 1954 Geneva settlement, the United States had agreed to comply with a restriction against shipping military aid into either North or South Vietnam. By the end of 1961, the administration was violating the restriction in plain view of interested reporters in Sài Gòn. In one account, "On December 7, four days before the *Core* steamed into Sài Gòn, with an open deck laden with violations of the Geneva Accords, Rusk sent a[n]...awkward order to lie about the obvious: NO ADMISSION SHOULD BE MADE THAT ACCORDS ARE NOT BEING OBSERVED."⁷³

Rusk was hardly alone; the regular afternoon press briefings in Sài Gòn, which correspondents derisively named "the 5 O'Clock Follies," contained a wide assortment of equivocations, omissions, and lies. General Paul Harkins, McGarr's successor, developed an adversarial relationship with the press, founded on a bias for secrecy. His handling of a 1962 mission is illustrative. John Mecklin, public affairs officer for the United States Embassy in South Vietnam, recounted the damage done.

Then came Thanksgiving Day, November 22, 1962. Residents of the area around the Sài Gòn airfield were awakened at dawn by the throbbing of forty-five American helicopters loaded with Vietnamese troops....At that time it was the biggest combat helicopter operation in the history of warfare, with at least two hundred American fliers and infantry advisers on board. No American newsman had been invited to go along, much less advised that the operation was going to happen. Still worse, neither General Harkins' headquarters nor the

⁷³ Prochnau, 21.

Vietnamese would discuss the operation for several days. It was classified 'secret.' There was a security investigation to find out who told the newsmen that forty-five helicopters participated – called off when the sleuths found out that one of the reporters had simply counted the copters from his bedroom window.

As usual with such massive operations, relatively little damage was done to the Viet Cong, but the newsmen were apoplectic.”⁷⁴

Aerial herbicide spraying was on the menu of tactics considered almost from the outset and, given the constraints and the predilections of the administration, it was an especially attractive choice. Spraying could be done quickly; the chemicals had already been developed for civilian use. Kennedy himself could maintain control, rather than ceding it as he did for the Bay of Pigs operation. In NSAM 115, “Defoliant Operations in Viet Nam”, issued on November 30, 1961, he reserved the right to approve Ranch Hand targets. Congress need not be involved. The Air Force would carry out Ranch Hand sorties; the State Department would have a very limited role. Ranch Hand could be kept secret from others outside the administration, although it did not long remain a secret.

Ranch Hand also generated quantitative data, which had great practical and symbolic importance within the administration. Defoliation and crop destruction could generate reams of easy-to-understand data about gallons sprayed and acres covered. It seemed to require little specialized or qualitative information, which the administration neither had nor desired.

Another attraction of Ranch Hand was its reliance on new technologies. The chemicals used were less than 20 years old, and the United States military had never

⁷⁴ Mecklin, 138-9.

before used chemical herbicides in a foreign country. Technological innovation was increasingly in vogue both inside and outside the White House and seemed to promise a relatively quick and inexpensive solution to the problems in South Vietnam. What the administration thought data and technology could provide was, in fact, very different than what they were able to offer.

CHAPTER 3: ALL - PURPOSE MEN

The Kennedy administration was immediately forced to grapple with complicated and challenging foreign policy issues, ones that, decided incorrectly, could have devastating consequences. The urgency of the situation in South Vietnam, combined with the punishing demands of other foreign policy problems from Korea to Cuba, led to the search for simplifying assumptions. Anthropologist James Scott uses the Platonic term “*techné*” as the label for such “self-contained systems of reasoning” which serve to “bracket uncertainty.”¹

These beliefs – in the primacy of quantitative information and in the power of American technology to win wars – gave policymakers a reassuring sense of certainty about their choices in South Vietnam. The administration already had a number of influential members, including Secretary of Defense Robert McNamara, who believed wholeheartedly in the power of numbers to explain the most complicated problems and in the ability of American technology to defeat any foe. The administration also lacked the specific expertise required to understand, for example, the political history of South Vietnam. This information was far more difficult to obtain. Furthermore, there were several practical reasons, such as decision-makers’ lack of time, to rely more on numbers.

Most importantly, however, data assumed an important symbolic role in the administration. The continued contests for power within the administration gave quantitative information an importance beyond that which it conveyed. Operation

¹ Scott, 320-1.

Ranch Hand could easily be reduced to numbers and charts, and the speed with which defoliation and crop destruction occurred after spraying seemed to provide reassuring evidence that the United States was taking appropriate action in South Vietnam.

The Kennedy administration was not alone in viewing quantification as both powerful and benign. Outside of Washington, academics were bringing numbers to bear on problems that had not been quantified before. This mindset had serious shortcomings, however, in helping the administration grapple with the deteriorating situation in South Vietnam. Data proved unreliable and unwieldy, and it was insufficient for successful execution of defoliation and crop destruction missions.

Technological innovation served a similar role as a means to manage a foreign policy challenge that seemed increasingly difficult. New technologies sparked public imagination, and fear, even more than quantification. New military technology could never be sufficient, however, to solve what was fundamentally a political problem. Furthermore, like the administration's emphasis on numerical information, the focus on technological innovation created its own problems, most importantly by fostering the expectation of a quick solution to the spreading crisis in South Vietnam. An affinity for numbers and an attraction to new military technologies underpinned the decision to begin aerial spraying; they also helped contribute to Ranch Hand's failure.

The administration already had in-house experts in statistics and in the new field of operations research, which purported to quantify previously amorphous business decisions. McNamara, who had been president of Ford Motor Company before joining the administration, believed in "quantification as a language to add precision to

reasoning about the world.”² The influence of McNamara’s position, as well as his own considerable personal power, gave this philosophy an important place in the administration.

McNamara was not alone. While he and the other “Whiz Kids” were trying to bring the discipline of numbers to the unruly automobile industry, others were engaged in similar work on even more complex issues. The influential Research and Development (RAND) Corporation was founded in 1947 at the behest of the United States Air Force. Its initial task was to use cutting-edge technologies and theories to grapple with how a nuclear war could be conducted, how the United States might win, and what victory would cost. RAND analysts did not concentrate on the qualitative or moral costs of strategic bombing.³

The Department of Defense and RAND developed a close relationship during the Kennedy years. McNamara, himself a true believer in the power of numbers, recruited from RAND, and its culture helped define that of the Kennedy administration. RAND defended this approach as not only the most practical, but also the most useful. As the organization’s official history argued, subjective analysis is inherently more

² McNamara and VanDeMark, 6.

³ Bernard Brodie, among a few others, realized the moral implications of planning for nuclear war, particularly with hydrogen bombs. His qualms were largely unheeded in the early 1950s. See Chapter 5, “The Superbomb” in Fred Kaplan, *The Wizards of Armageddon* (Stanford: Stanford University Press, 1991). RAND published its own official history of these years: RAND Corporation, *The Rand Corporation: The First Fifteen Years* (Santa Monica, CA: RAND Corp., 1963). Other accounts of RAND’s early history are Alex Abella, *Soldiers of Reason: The Rand Corporation and the Rise of the American Empire* (Boston: Mariner Books, 2009); Kaplan.

unreliable “and even more highly oversimplified [than quantitative analysis].”⁴

The primacy McNamara and his department gave to quantitative data over more subjective and anecdotal information echoed and reinforced beliefs that were already prevalent in Kennedy’s administration. David Halberstam, one of the administration’s closest observers, summed up the Kennedy years. “If those years had any central theme, if there was anything that bound the men, their followers, and their subordinates together, it was the belief that sheer intelligence and rationality could answer and solve anything.”⁵ Rationality, in this worldview, implied quantitative versus qualitative knowledge; experience and expertise were of less value.

The administration did not value specialized knowledge very highly. Part of this bias came from Kennedy himself, according to advisor Arthur Schlesinger, Jr.

"Kennedy resisted pressures toward specialization: he wanted a group of all-purpose men to whom he could toss anything."⁶ The choice between functional and area specialization faces all administrations, not only Kennedy’s. The atmosphere in the Kennedy administration, however, discouraged the cultivation of expertise. There simply was not enough time. “Everything was a crisis. Everything had a deadline,” Daniel Ellsberg remembered.⁷ Given the complexities of aerial herbicide use, this frenetic pace helped doom Operation Ranch Hand. Successfully determining who harvested which rice paddies, for example, would make the difference between

⁴ RAND Corporation, 30.

⁵ Halberstam, *The Best and the Brightest*, 44.

⁶ Schlesinger, 213.

⁷ Ellsberg, 46.

depriving the revolutionaries of food and alienating the local population. This determination would later prove impossible.

One reason for the reliance on quantitative information was that it appeared much less ambiguous than the more anecdotal or qualitative kind. Finding out ‘the facts’ about South Vietnam was a formidable challenge. Even someone as brilliant, stubborn, and intimidating as McNamara was limited. “What ‘facts’ could the Secretary of Defense get?”, asked Hilsman.

He could talk to the same American military advisers that [Marine Corps] General [Victor ‘Brute’] Krulak had talked to, fly over the same terrain, and receive the same warm assurances from the same self-interested Vietnamese officials who owed their positions to Diem. An American Secretary of Defense could hardly drift quietly around interviewing the Vietnamese man in the street, much less the Vietnamese man in the paddy field.⁸

Ordinarily, the American Embassy might supply this type of information, but Nolting could not provide it because he did not have it either. The ambassador was so out of touch with sentiment in South Vietnam that he was blindsided by the outbreak of the Buddhist protests in the spring of 1963 and, even after confronted with the level of rage against the government, suspected that the protests were the work of the Viet Cong. “Certainly, it had a Viet Cong smell to it,” he recalled.⁹ Numbers of acres

⁸ Hilsman, 507.

⁹ Nolting, 111-115.

sprayed and sorties flown were much easier for Washington officials to get; more qualitative information was considerably more difficult to obtain.¹⁰

Under other circumstances, policymakers faced with a complicated problem like the fate of South Vietnam might consult with country experts in the State Department, but this was not practical during the Kennedy administration. The Foreign Service, already decimated and demoralized from the McCarthy years, could contribute little. Accusations of treason had forced some members to resign while discouraging others from voicing opinions that might be even slightly unconventional.¹¹

Furthermore, in the case of countries like South Korea and South Vietnam, specialists were not in government service. Foreign service officers decried the lack of country expertise in government. 'We have been willing to leave 30,000 men on the battlefields of Korea, but we have seemed unwilling to support with consistency and hope of ultimate success a single career dedicated to American relations with Korea,' wrote one specialist. 'The tacit assumption that countries of medium size can absorb American blood and treasure, but are somehow unworthy of the sustained interest of an intelligent mind or an ambitious career is, in these areas, unhelpful to our interests or reputation.'¹²

One reason that this expertise did not exist within the Foreign Service was that there was virtually no audience for it. Administration officials were not interested in

¹⁰ An important caveat is the access of journalists to sources and stories to which officials in Sài Gòn paid little attention. The role of media will be explored further in Chapters 6 and 7.

¹¹ Mecklin, 232.

¹² Schlesinger, 413.

the historical relationship between the government and the Vietnamese peasant, for example. Therefore, few experts were found within the government. Because the information was not readily available, it did not appear to be important, so the gaps in knowledge widened.¹³

There was little incentive for even motivated officers to develop expertise in Vietnam. As John Mecklin, public affairs officer for the United States embassy in South Vietnam, pointed out, “Sài Gòn became a post where a foreign service officer could consider that a tour of duty was successful if he simply stayed even, with neither damage nor profit to his career. Nobody had ever been able to use Sài Gòn as a stepping stone to high position.”¹⁴ Furthermore, the shortfall would not be made up elsewhere in government. As Department of Defense analyst and RAND alumnus Daniel Ellsberg remembered, ““It is fair to say that Americans in office read very few books [on Vietnam], and none in French; and that there has never been an official of Deputy Assistant Secretary rank or higher (including myself) who could have passed in office a midterm freshman exam in modern Vietnamese history, if such a course existed in this country.””¹⁵ When planning for specific Ranch Hand operations was underway, this lack of local knowledge would prove to be an enormous handicap, and not just within the State Department.

¹³ For more on the “fallacy of centrality”, see Weick, 2-3. and Snook.

¹⁴ Mecklin, 38.

¹⁵ As quoted in Loren Baritz, *Backfire: A History of How American Culture Led Us into Vietnam and Made Us Fight the Way We Did* (Baltimore: The Johns Hopkins University Press, 1998), 21.

The South Vietnamese government was itself of little help. South Vietnamese President Ngô Đình Diệm was unable to contribute very much of value. “Diem and Nhu talked of the peasants in intellectual jargon, but knew less about them than a Manhattan bartender knows about the Mexican wetbacks in Southern California,” remembered Mecklin.¹⁶ High-ranking South Vietnamese and American officials in Sài Gòn generally shared this disdain. The lack of this type of information would force Ranch Hand planners to rely even more heavily on the information they did have, no matter its relevance.

There were other, more prosaic reasons for reducing South Vietnam to a series of numbers.¹⁷ One was a lack of time. The situation in South Vietnam led decision-makers in the administration to rely on data that was easily obtained and distributed. Furthermore, South Vietnam’s very importance precluded the development of expertise, a process that would take time the administration did not believe it had. Analysis of an issue as important as the fate of Diệm could not be left to a specialist in the bowels of the State Department. It required high-level attention from men already overwhelmed. The situation was urgent enough to demand the attention of senior officials, men who could not know every nuance of the situation – or even most of them. As Thomson observed, “the more sensitive the issue, and the higher it rises in the bureaucracy, the more completely the experts are excluded while the harassed senior generalists take

¹⁶ Mecklin, 73.

¹⁷ James Scott explores this in Part 3, “The Social Engineering of Rural Settlement and Production” in Scott., especially 183-191. Numbers, in Scott’s account, allow for measuring, codifying, and tracking, all things that make a particular area more subject to external control.

over (that is, the Secretaries, Undersecretaries, and Presidential Assistants).... The frantic skimming of briefing papers in the back seats of limousines is no substitute for the presence of specialists."¹⁸ This skimming, which Deputy Assistant Secretary of Defense William Bundy recalled so vividly, substituted for more deliberate study.

Although this was common practice, the reliance on cursory knowledge from high-level officials would prove particularly inappropriate for Ranch Hand. Defoliation and crop destruction, which could be easily quantified, would seem well suited to this level of analysis. In order for them to succeed, however, missions would require detailed knowledge of the South Vietnamese landscape, the people who lived there, and their relationships to the revolutionaries. That information was not available, and no one thought it necessary.

Another logistical consideration in favor of quantitative data was the demand of primitive computers for a new language. Maps of Vietnam did not describe lakes or roads or villages in words. The introduction to a gazetteer of South Vietnam explained, "It has been necessary to express in code number and letters some of the information in the gazetteer in order to accommodate it to the machine method of tabulation"¹⁹

¹⁸ James C. Thomson, Jr., "How Could Vietnam Happen? An Autopsy," *The Atlantic*, April 1968, 49.

¹⁹ NIS Gazetteer, South Vietnam, Military Records Research Room, National Archives and Records Administration, College Park, MD, i. The introduction goes on: "Southern Vietnam is divided into 42 first-order administrative divisions, four of which, (Sai Gon, Da Lat, Da Nang, and Hue, are essentially urban in character. For convenience of reference, the four urban divisions are combined with the rural divisions in which they are geographically located (see numbers 46514, 46532, 46546, and 46547). The general number for Southern Vietnam (46500) is used for international features and for features common to two or more subordinate units.", iii

However, this accommodation to computers obscured other types of local knowledge, types that would be critical to Ranch Hand's success. Journalist Michael Herr made the distinction. "In point of geographical fact, for example, the delta of Vietnam comprehends the Plain of Reeds and frames the Sài Gòn River, but on all the charts and deep in all the sharp heads, it ended at the map line dividing III and IV Corps."²⁰ These simplifications of the South Vietnamese environment, although necessary for a smoothly functioning bureaucracy, would be a significant handicap for Ranch Hand missions. For successful defoliation and crop destruction sorties, detailed environmental knowledge would be crucial, and also unavailable.²¹

Administration officials were not alone in their attraction to quantified, seemingly objective solutions. Military officers also had an interest in minimizing the importance of specific expertise in South Vietnam while emphasizing quantitative information. During the early 1960s, the situation in South Vietnam was as close as there was to a war, and ambitious officers wanted that credential in their promotion files. William Bundy lamented the effect of this on what the United States was trying to accomplish.

You didn't have people saying, "Look, stop. Train some people for a year. Tell them they are going to spend the next five years of their lives with this problem. Extend the tours of duty for the military." Right at the beginning they were set wrong because everybody felt "This is the only war we've got and it's going to be Buggin's turn the next time up.... There wasn't nearly enough saying, "Now, you're going to go to school for three or six months to understand these people well enough to behave when you get there, and then you're going to stay for a long, long while." We were just terribly short-term minded, terribly incapable of

²⁰ Michael Herr, *Dispatches* (New York: Vintage Books, 1991), 92.

²¹ Scott, 44.

seeing what it was we were really doing on this problem.²²

Herbicide spraying, which resulted almost immediately in dead leaves and dying plants, seemed to require no interpretation and was well-suited to ‘short-term minded’ planners.

Given these biases and constraints, quantitative information began to assume an importance within the administration that was in excess of its usefulness. Within the administration the gathering of numbers, whether about infiltration rates or percentage of mangroves defoliated, served several important purposes; obtaining data was only one of them.

The most important advantage of quantitative information was that it helped administration officials manage anxiety and fear over a foreign policy situation that was increasingly unstable and controversial. The greater the uncertainty, the more people will try to impose certainty, in this case by means of numbers and theories.²³ Decision-makers under pressure – and for the Kennedy Administration, it was unrelenting – give greater weight to information that is vivid and easy to digest.²⁴ In the case of South Vietnam, this was quantitative data; qualitative data was much more ambiguous and in much shorter supply.

Data was also a way to reconcile deep-rooted disagreement. Relying on numerical data was a way to avoid grappling with more subjective issues. This proved to be a mistake, since in the case of South Vietnam, and Ranch Hand, these were

²² William Bundy Interview, March 6, 1972, 78-9, JFKL.

²³ Vertzberger, 16.

²⁴ Ibid., 62.

critically important. South Vietnam was a controversial and complicated problem. State Department official Roger Hilsman, who was deeply involved in South Vietnam planning, observed,

When knowledge is inadequate, when problems are complex and especially when they are also new – presenting a challenge with which there has been no experience – there is in such circumstances room to spare for disagreement, conflict, and turmoil.... McGeorge Bundy once said that policy in Vietnam was ‘the most divisive issue in the Kennedy administration.’ He meant *inside* the administration, and he was right.²⁵

One way to smooth this process was to focus on seemingly objective data; decisions would then stem from an agreed-upon body of knowledge. No one would need to argue about, for example, whether or not Diệm really intended to reform the South Vietnamese political system and what it might mean for the United States if he did not. Instead, disagreements could focus on less debatable and emotionally charged topics, such as how many acres should be sprayed in the next Ranch Hand mission.

Access to data was also a way to increase personal power in an organization that valued it more than title or role. As organizational theorists Martha Feldman and James March observed, “information is not simply a basis for action. It is a representation of competence and a reaffirmation of social virtue.... The belief that more information characterizes better decisions engenders a belief that having information, in itself, is good and that a person or organization with more information is better than a person or organization with less.”²⁶ In an organization that valued the seemingly objective over

²⁵ Hilsman, 12.

²⁶ Martha S. Feldman and James G. March, "Information in Organizations as Signal and Symbol," *Administrative Science Quarterly* 26, no. 2 (June 1981): 177-8.

the subjective, the definition of information included only the former.

Ranch Hand fit neatly into existing administration beliefs about the value of information. The Taylor Mission Report, issued in the fall of 1961, was remarkable for its faith in the breadth and accuracy of the intelligence the United States had about its enemies in South Vietnam. The ‘fog of war’ was not in the forecast. The logistical problems of precisely spraying small fields in mountainous, poorly mapped terrain were dismissed. “Strike at food supply (crops) by spraying appropriate crop killing agents,” the report recommended. “Presence of crops to be determined by photographic coverage throughout areas known to be occupied only by Viet Cong.”²⁷ The location of these troops, was one of the most important and persistent challenges the United States faced over the course of the war, Taylor’s confidence notwithstanding.

This faith in the availability, appropriateness, and accuracy of data, however, performed important bureaucratic functions. As Feldman and March have argued, confidence in information, no matter its accuracy, can reinforce confidence in the decision making process itself.

Using information, asking for information, and justifying decisions in terms of information have all come to be significant ways in which we symbolize that the process is legitimate, that we are good decision makers, and that our organizations are well managed... When there is no reliable alternative for assessing a decision maker's knowledge, visible aspects of information gathering and storage are used as implicit measures of the quality and quantity of information possessed and used.²⁸

²⁷ Taylor Report – WR working copy, Tab II, National Security Files, Countries, Vietnam, Box 203, 7g, JFKL.

²⁸ Feldman and March, 178.

Since there was little institutional knowledge of South Vietnam, and few of the decision-makers had spent any time there, assertions like Taylor's could pass unchallenged. In fact, senior officials perceived no reliable alternative. Tabbed reports and columns of numbers, the "visible aspects" that Feldman and March describe, thus had great significance, and it was these that helped build support for Ranch Hand and its expansion. Ranch Hand was not only based on such information, it generated its own easily gathered and digested data about acres sprayed and missions flown, further strengthening a sense of faith what the United States was doing in South Vietnam. In an administration in which bureaucratic power was so evanescent, and in a period when good decisions seemed equally urgent and difficult, information, whatever its explanatory or predictive worth, gave the bearer status and gave the recipients reassurance. Furthermore, the numbers generated by Ranch Hand could serve to discourage dissent even further. The pattern had already developed within the administration. "'When a newcomer enters the field [of foreign policy]', Chester Bowles wrote in a note to himself... 'and finds himself confronted by the nuances of international questions he becomes an easy target for the military-CIA-paramilitary type answers which can be added, subtracted, multiplied, or divided.'"²⁹

Lacking information, and thus an image of competence and social virtue is, as Washington veteran James Thomson described, professionally fatal. "The most important asset that a man brings to bureaucratic life is his 'effectiveness,' a mysterious combination of training, style, and connections. The most ominous complaint that can

²⁹ Halberstam, *The Best and the Brightest*, 89.

be whispered of a bureaucrat is 'I'm afraid Charlie's beginning to lose his effectiveness.'"³⁰ Effectiveness rested not on knowledge of Vietnamese history or on the ecology of the Mekong Delta. This was not the type of knowledge that buttressed one's position in the Kennedy administration.

The emphasis on numbers, and on the accuracy and precision they seemed to imply, gave a sense of confidence that was both false and reassuring. South Vietnam was not, in fact, what sociologists call a well-structured problem, much as foreign policy officials hoped it would be.³¹ The problem facing the United States could be defined, measured, and managed. As one journalist observed, "The war is peculiarly the war of the Whiz Kids and their friends and supporters in the liberal, business, and academic community. It is the war of those who thought we could manage force, and tune violence finely."³² Aerial spraying could be targeted precisely, which gave the illusion that its effects could also be controlled and fine-tuned. This would not be the case.

Because quantitative information was both available and important, the administration's goals in South Vietnam began to derive in part from what information could be quantified. According to National Security Council staff member Robert Komer.

The overall reliance on attrition helped spawn the quantitative measurement systems devised in an attempt to measure military 'progress' in this strange war.... Since it was even harder to measure the impact of indirect firepower

³⁰ Thomson, 49.

³¹ Vertzberger, 54.

³² Joseph Kraft as quoted in Gelb and Betts, 18.

such as air and artillery, the usual measurement of their effectiveness was one of output, not impact.³³

Qualitative information about South Vietnam was virtually unavailable, and thus its importance decreased. As it did, the focus on goals that could be measured with quantitative data increased, and the cycle would intensify. As Komer went on to describe, “We measured the measurable; how relevant it was is another matter.”³⁴

The attraction of quantitative solutions to previously insoluble problems was not limited to Washington and Sài Gòn. The late 1950s and early 1960s were studded with advances in fields previously assumed to be beyond the reach of science. For example, in corporate finance, itself a new field, Merton Miller and Franco Modigliani published two landmark papers that purported to quantify precisely the amount a corporation should spend on a given project. This method did not consider company management, patents, or any other qualitative factors. The equations set forth in the papers assumed that all relevant information was immediately available and that actors were rational. In reality, this was never the case, but the “M&M” model did not attempt to grapple with these complications.³⁵ Similarly, planning for Ranch Hand would ignore details about

³³ Robert W. Komer, *Bureaucracy Does Its Thing: Institutional Constraints on U.S. - GVN Performance in Vietnam* (Santa Monica, CA: RAND, 1973), 58.

³⁴ Ibid.

³⁵ Franco Modigliani and Merton H. Miller, "The Cost of Capital, Corporation Finance, and the Theory of Investment," *American Economic Review* (June 1958): 261-297. Franco Modigliani and Merton H. Miller, "Dividend Policy, Growth, and the Valuation of Shares," *Journal of Business* (October 1961):411-433. For a clear description of these theories and their context within the larger discipline of economics, see Justin Fox, *The Myth of the Rational Market: A History of Risk, Reward, and Delusion on Wall Street* (New York: HarperCollins, 2009)., particularly Chapter 5, "Modigliani and Miller Arrive at a Simplifying Assumption"

weather patterns and chemical viscosity, for example, in favor of a simplified approach to a complex problem.

The difficulties that came with privileging quantitative data over qualitative information became apparent from the administration's earliest days, before Ranch Hand was approved. McNamara and his team ran afoul of the military almost immediately. Members of the Defense Department quickly made their feelings known about what the military might contribute to ongoing debates. "[Charles Hitch and Alain Enthoven, Assistant Secretary of Defense and Deputy Assistant Secretary of Defense, respectively] began to enrage the military as they dismissed cherished beliefs and expensive programs with an analytical flourish. 'Their initial position,' recalled one of their victims, 'was that military people were border-line literate at best and communicated by animal noises.'"³⁶ The contempt was returned in full. Former Air Force Chief of Staff Thomas D. White rebuked the Administration for its dependence on models and game theory.

In common with many other military men, active and retired, I am profoundly apprehensive of the pipe-smoking, tree-full-of-owls type of so-called professional defense intellectuals who have been brought into this nation's capital. I don't believe a lot of these often over-confident, sometimes arrogant young professors, mathematicians and other theorists have sufficient worldliness or motivation to stand up to the type of enemy we face.³⁷

The profound disagreements between the Defense Department and the military over what constituted knowledge would have disastrous consequences in South Vietnam, not least because the military's marginalization within the administration would fuel its

³⁶ As cited in Freedman, 45.

³⁷ Schlesinger, 319.

desire to have a meaningful role in South Vietnam, including in Operation Ranch Hand. This resentment grew from more than differences in style. The military's traditional role in strategy was eroding; organizations like RAND, staffed by bright young civilians with, in the words of one officer, their "slide-rule razzmatazz," were assuming this prestigious and important responsibility.³⁸

The military's opposition aside, there were other difficult obstacles. Reliable numbers were hard to find. Some tried to solve the problem, without success. William Jorden, a member of the State Department's Policy Planning Council 'arrived in Saigon on August 26 [1961] for the purpose of trying to develop hard evidence of DRV [Democratic Republic of Vietnam, or North Vietnam] aggression.'"³⁹ The lack of hard evidence is particularly striking given the extraordinary efforts, from a dedicated task force to the shipment of herbicides, that had already been made to thwart such aggression.⁴⁰

Jorden was not the only official trying to determine what exactly was happening in South Vietnam. On October 3, 1961, Secretary of State Rusk sent an almost plaintive telegram to the embassy in Sài Gòn. "Realizing impossibility precise estimates we

³⁸ Schlesinger, 313-314. Kaplan, 103.

³⁹ "Presidential Report on the Status of Viet-Nam as of September 1, 1961" National Security Files, Countries, Vietnam, 9/61, Box 194, Document 9, 4, JFKL.

⁴⁰ The report that stemmed from Jorden's visit, *A Threat to the Peace: North Viet-Nam's Effort to Conquer South Viet-Nam*, quickly became a canonical text within the administration. See, for example, Letter from Harriman to Kennedy, November 12, 1961, in Department of State, 580, 582. Department of State, *A Threat to the Peace: North Viet-Nam's Effort to Conquer South Viet-Nam*, by William Jorden. (Washington DC: United States Government Printing Office, 1961.)

urgently need your closest answers to following questions.” Rusk went on to ask basic questions about infiltration levels and routes, questions that had not yet been answered.⁴¹

Questions lingered through the year. When the report of the mission of General Maxwell Taylor, Kennedy’s Military Representative, was published, it frankly acknowledged “Enemy strength is not based on ‘hard facts.’ This is speculative and estimates vary greatly.... even trained US observers have widely different views on Viet Cong strength....”⁴² The report nonetheless offers some fairly specific estimates. Furthermore, the report admits that “intelligence on the location of infiltration routes is not ‘hard’ intelligence....” This contested information about infiltration routes helped determine the routes of defoliation missions. As Taylor was qualifying the information available to planners, drums of herbicides were already being shipped to South Vietnam.

The sheer volume of information, unreliable or incomplete though it was, presented its own challenges. The United States embassy staff in Sài Gòn spent, in the words of one member, “countless man-hours and reams of paper to reduce the question of who controls what to charts and graphs.”⁴³ Officials in Washington struggled with the same problem and could not solve it either. National Security Council staff member

⁴¹ Telegram #374, October 3, 1961 from Rusk to American Embassy, Sài Gòn, National Security Files, Countries, Vietnam, General, 10/1/61-10/3/61, Box 194, Document 8, JFKL.

⁴² Taylor Report, WR Working Copy, Tab II, 7gg, National Security Files, Countries, Vietnam, Subjects – Taylor Report 11/3/61, JFKL.

⁴³ Mecklin, 102.

Michael Forrestal recalled how numbers were used. “These statistics were a source of constant trouble, because as soon as you get numbers in Washington, the first tendency is, first of all, to believe them; and the second tendency is to plot them on a chart so you can establish trends.”⁴⁴ McNamara, for one, remained confident in the explanatory power of statistics. “Every quantitative measurement we have”, he declared in 1962, “shows we’re winning this war.”⁴⁵

By 1963, the importance of providing more and more information, accurate or not, was entrenched in administration thinking about Vietnam. Mecklin was horrified by a Washington visit in late April.

What counted seemed to be the paper itself, not what it said. It was usually a race between Officer A and Officer B to produce a paper first, and often they would both be outdone by Officer C working in another task force in another corner of the building...And we would all find out what was really happening only by reading James Reston’s column in the *New York Times* the next morning, if indeed anything was happening at all.⁴⁶

This pattern was not only disturbing to observers, it handicapped those responsible.

The voluminous amount of data – 7 pounds of paper per day according to Forrestal’s own estimation – contributed to the problem.⁴⁷ As one sociologist has described, “Efforts to communicate more can result in knowing less. Rules that guarantee wide distribution of information can increase the amount to the point that a lot is not read.”⁴⁸

⁴⁴ Michael Forrestal Interview, August 14, 1964, 126, JFKL.

⁴⁵ Schlesinger, 549.

⁴⁶ Mecklin, 208.

⁴⁷ Michael Forrestal Interview, April 8, 1964, 21, JFKL.

⁴⁸ Vaughan, 250.

Furthermore, the focus on data nearly to the exclusion of all else left American officials open to manipulation. While the United States may have lacked insight into South Vietnam, the South Vietnamese understood quite well the importance the Americans placed on quantitative information. Hilsman recounted one story he had heard. “‘*Ah, les statistiques!*’ one of the Vietnamese generals exclaimed to an American friend. ‘Your Secretary of Defense loves statistics. We Vietnamese can give him all he wants. If you want them to go up, they will go up. If you want them to go down, they will go down.’”⁴⁹ This further compromised the accuracy of the data upon which decisions were based.

Even with manageable amounts of reliable and complete data, the search for a quantifiable answer to the problems in South Vietnam was doomed to fail. What the administration did not realize was that their conception of how to understand a problem scientifically was itself stylized and inaccurate. The administration’s trust in and reliance on hard data was a standard that physical scientists themselves did not hold. Scientists themselves did not conform to the idealized images put forth by RAND and others. Thomas Kuhn, a physicist, historian and philosopher of science, decried the perception that scientists arrived at exact measurements and conclusions. Kuhn argued both in his 1961 article for *Isis* and his seminal 1962 book *The Structure of Scientific Revolutions* that even the most quantitative sciences were not static or monolithic. In both works, Kuhn explores the idea that “reasonable agreement” among scientists can

⁴⁹ Hilsman, 523.

obscure differences that are, in fact, profound.⁵⁰ The popular image of scientists working exclusively with precise and replicable data was not reality.

Furthermore, the isolation of quantitative data from specialized knowledge was misguided. As Kuhn himself argued, "Numbers gathered without some knowledge of the regularity to be expected almost never speak for themselves. Almost certainly they remain just numbers."⁵¹ Sociologist Brian Wynne goes even farther. "Technology is not about universality....It is about functioning in concrete, complex situations. One key task of experts is to contextualize general idea of design into working solutions in this or that situation."⁵² Numbers do not confer expertise; they require it.

Charles Hitch, Assistant Secretary of Defense, acknowledged the limitations of RAND's approach. "There will always be considerations which bear on the very fundamentals of national defense which are simply not subject to any sort of rigorous, quantitative analysis.... The fact that we cannot quantize [sic] such things...does not mean that they have no effect on the outcome of a military endeavor - it simply means that our analytical techniques cannot answer every question."⁵³ Hitch's candor

⁵⁰ Kuhn, "The Function of Measurement in Modern Physical Science"; Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: The University of Chicago Press, 1962). Sociologist Donald MacKenzie makes a similar argument about mathematics. MacKenzie, Donald. "Computing and the Cultures of Proving." *Philosophical Transactions: Mathematical, Physical, and Engineering Sciences* 363, no. 1835 (October 2005): 2335-2350.

⁵¹ Kuhn, "The Function of Measurement in Modern Physical Science," 175.

⁵² Brian Wynne, "Unruly Technology: Practical Rules, Impractical Discourses and Public Understanding," *Social Studies of Science* 18, no. 1 (February 1988): 152.

⁵³ As quoted in Schlesinger, 314.

notwithstanding, the problem ran even deeper than unanswered questions. If a type of information is not available, then questions that require it often do not get asked.

Like quantitative data, technological innovation seemed to be a substantial advantage for the United States in South Vietnam, given the nation's experience in World War II. At the very least, it appeared to give reassurance that the United States was not powerless to stem the Communist tide in South Vietnam. Ranch Hand, a clever new use of herbicides, promised to be an innovative and inexpensive solution to the chronic problem of infiltration.

Administration officials shared an early enthusiasm for the use of military technology in South Vietnam. On April 12, 1961, less than three months into the new Administration, Deputy National Security Advisor Walt Rostow pointedly recommended, "After the [April 9, 1961] Vietnam election is over, I believe we must turn to gearing up the whole Vietnam operation...[with] various techniques and gadgets," he wrote to Kennedy.⁵⁴ The Task Force on Vietnam, chaired by Deputy Secretary of Defense Roswell Gilpatric, drafted recommendations that included a call for "a Combat Development and Test Center [CDTC] in South Vietnam to develop, with the help of modern technology, new techniques for use against Viet Cong forces."⁵⁵ The CDTC began operating in Sài Gòn in June 1961, and work continued briskly through the year; by September the joint United States/South Vietnamese

⁵⁴Walt Rostow memorandum to John Kennedy, April 12, 1961 in Department of State, 68.

⁵⁵ "A Program of Action to Prevent Communist Domination of Vietnam," May 3, 1961, in *ibid.*, 108.

(GVN) testing efforts were collaborating with the Pentagon's Advanced Research Projects Agency (ARPA). The CDTC was the testing ground for an assortment of new technologies including defoliants and herbicides. In addition to those innovations outlined in a September 20 update, there were 30 other new projects being considered.⁵⁶

The reliance on technological solutions contributed to how the administration conceptualized the problems it faced. As historian Loren Baritz observed, "At its root [the technological view of the world] is an attitude about the nature of reality. At a dinner with a group of sophisticated engineers I was told that 'if it doesn't have a solution it isn't a problem.'"⁵⁷ This contradicts Kuhn's approach but clearly reflects the administration's approach to South Vietnam. Military problems were, for a country as technologically advanced as the United States, relatively easy to solve. Ambassador Nolting summed up the prevailing view: "Pressures for a quick military solution were not uncommon in Washington. They reminded me of a story about the country doctor who used to give all of his patients, no matter what disease they had, a dose designed to throw them into 'fits' because, he said, he was 'hell on fits.'"⁵⁸ Historically, the United States had been hell on military problems.

National Security Council staff member Robert Komer shared Nolting's view. "Also in the American style," he wrote, "was the extent to which our R&D effort was technologically oriented. Its chief focus, even in a low-intensity insurgency war, was

⁵⁶ Robert Johnson memorandum to Walter Rostow, September 20, 1961, National Security Files, Countries – Vietnam, Box 194, Document 19a, JFKL.

⁵⁷ Baritz, 47.

⁵⁸ Nolting, 36.

on better machines or new technology.”⁵⁹ The feats of scientific innovation and technological development during World War II were already legendary. Political problems had proved far more difficult; the ongoing frustration with South Korean leaders was ample evidence.

As with its focus on quantitative solutions, the administration was not alone in its attraction to new technologies. Americans outside of Washington also believed in the importance of technological innovation. The Soviets seemed to be advancing at an even faster rate than the United States. Three years before Kennedy’s election, the United States had received a harrowing display of technological achievement: the Soviet satellite *Sputnik*. The October 4, 1957 launch seemed to demand an abrupt change in national priorities. “The immediate, number one problem of Congress is to provide the Nation with the wherewithal, the understanding, and the cooperation necessary to stay ahead of the Russians in the military and scientific fields,” declared Republican Congressman Kenneth Keating of New York.⁶⁰ Along with this change came fear that the United States would not be able to catch up and that American technological dominance was ending.⁶¹

The urgency was not confined to Congress. Television commentator David Brinkley of The Huntley-Brinkley Report responded bluntly to the question, “What is

⁵⁹ Komer, 49.

⁶⁰ *Congressional Record*. 85th Cong., 2nd sess., 1958. Vol. 104, pt.1, 87.

⁶¹ Columba Peoples, "Sputnik and "Skill Thinking" Revisited: Technological Determinism in American Responses to the Soviet Missile Threat," *Cold War History* 8, no. 1 (February 2008): 61. See also Zuoyue Wang, *In Sputnik's Shadow: The President's Science Advisory Committee and Cold War America* (New Brunswick, NJ: Rutgers University Press, 2008).

that beep-beep [of *Sputnik*] saying to our military men?...There is no arguing with the Russian scientific-intellectual achievement that we cannot match.... it requires us to look at ourselves critically and to see if we have not spent too many years putting the wrong values on the wrong things.”⁶² The candidate railed against this as well. “The first vehicle in space was called Sputnik, not Vanguard. The first passengers to return safely from outer space were named Strelka and Belka, not Rover or Fido.” For Kennedy, this was a matter of “the cause of freedom and...American prestige.”⁶³

To make matters worse, *Sputnik* was not the only frightening technological display coming from the Soviet Union. United States citizens had already witnessed harrowing evidence of Soviet accomplishment. Each May 1, the theatrics of the May Day parades would be broadcast around the world. As one American defense contractor recalled, the 1954 parade featured

“what seem to be [Khrushchev’s] latest grave-makers: a half-dozen new long-range missiles on huge portable launchers being trucked through Red Square, while overhead wave after wave of a new heavy bomber rattled the Moscow rooftops. Our military observers from the embassy counted one hundred bombers, nicknamed the Bison, that were capable of reaching New York with a nuclear payload.”⁶⁴

⁶² U.S Congress, *Congressional Record*, 85th Cong., 2nd sess., 1958. Vol. 104, pt.1, 173.

⁶³ Reeves, 54. Eisenhower was unconvinced, even after the launch of *Sputnik*. In his words, “Anyone who would spend \$40 billion in a race to the moon for national prestige is nuts.” Ibid., 457. Christopher Preble states that President Kennedy himself believed that there was missile gap despite contrary arguments from McNamara and others. Christopher A. Preble, “Who Ever Believed in the 'Missile Gap'?": John F. Kennedy and the Politics of National Security," *Presidential Studies Quarterly* 33, no. 4 (2003): 802.

⁶⁴ Ben R. Rich and Leo Janos, *Skunk Works: A Personal Memoir of My Years at Lockheed* (New York: Little, Brown and Company, 1994), 122-3.

National magazines like *LIFE* ran pictures of the May Day parades, ensuring that millions of Americans would witness Soviet technological might and be appropriately frightened of the Communist menace. The American technological dominance that had prevailed in World War II appeared to be ending, and an adversary pledged to the destruction of the American system was ascendant.⁶⁵

Meanwhile, scientists themselves did not object to the growing interest in their role. In their view, the foreign policy establishment had begun to discount the potential contributions of the scientific community. Technological innovation was supposedly instrumental in winning World War II, and the glowing press researchers received after the war solidified this view.⁶⁶ In the post-war years, however, their collective star had faded. The Korean War was a long slog through miserable weather and tenacious enemies, not another triumph of American science.⁶⁷ By the time Kennedy became president, scientists were becoming increasingly discouraged about the role of science in government and its perceived contribution to the Cold War. At the same time, the value of scientists to private industry was increasingly better recognized, and firms

⁶⁵ In fact, the pictures were deceptive. The missiles in the parades often appeared two or three times each, giving the appearance that there were many more missiles in the Soviet arsenal than actually existed. Soviet bombers flew in circles over the parade, misleading observers into thinking that the Soviet Air Force was far stronger than it actually was.

⁶⁶ David K. Hecht, "The Atomic Hero: Robert Oppenheimer and the Making of Scientific Icons in the Early Cold War," *Technology and Culture* 49, no. 4 (October 2008): 943-966. An important and laudatory history of this contribution is Baxter.

⁶⁷ For a harrowing account, see David Halberstam, *The Coldest Winter: America and the Korean War* (New York: Hyperion, 2007).

compensated scientists accordingly.⁶⁸ Scientists could make more money and have more prestige working outside of the government; it is little wonder that many did so.

To combat the alarming images of the Soviet threat, and to attract scientists back to government service, Kennedy sought to reassure voters that his administration was up to the challenge of recovering United States technological dominance. The ability of American science and technology to solve formerly impossible problems was a theme Kennedy returned to, both during the course of his campaign and after his election. From his first day in office, he had promised “to invoke the wonders of science instead of its terrors...explore the stars, conquer the deserts, eradicate disease, tap the ocean depths.”⁶⁹ Ten days later the new president told Congress “this administration intends...to extend farm technology to hungry nations – to wipe out disease.”⁷⁰ Kennedy’s extravagant visions for what science could do for the nation implied that his administration, unlike the preceding one, would not fall behind the Soviets in missiles or anywhere else.

The shortfalls in the administration’s reliance on technology became apparent, just as the problems with quantitative information were increasingly obvious. These

⁶⁸ The treatment of J. Robert Oppenheimer, arguably the single most important contributor to American science during the war, did not make government service attractive to scientists. See Hecht. For a fuller account of Oppenheimer’s travails, see Kai Bird and Martin J. Sherwin, *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer* (New York: Knopf, 2005).

⁶⁹ Inaugural address of January 20, 1961 as found at http://avalon.law.yale.edu/20th_century/kennedy.asp (accessed January 29, 2008.)

⁷⁰ *Public Papers of the Presidents - John F. Kennedy, 1961*, (Washington DC: United States Government Printing Office, 1961), 10.

difficulties included a mismatch between what technological solutions could accomplish and what the Việt Minh were offering to the South Vietnamese.

Despite the flurry of ideas, within the administration there was at least an occasional admission that the problems in Vietnam might not be rooted in technological underdevelopment and might not be solved with more ‘gimmicks’. The Taylor Report, which drove much of the planning and thinking about South Vietnam during the Kennedy administration, had a brief acknowledgement on page 21, tab C. “The basic military, political, and administrative problems outlined in this report must be solved with the help of R and D, but not by R and D alone, if the [South] Vietnamese are to win.”⁷¹ However, the report goes on to advocate that defoliation and crop destruction both “pushed with great operational vigor.”

From the time of Ranch Hand’s inception, there were doubts that it, or any new “gadget” would prove adequate. From South Vietnam, a 1961 Military Advisory and Assistance Group - Vietnam (MAAG) report warned of the advantages held by the North Vietnamese “Poor Man’s Army” against United States tactics. These tactics were “too often geared to highly sophisticated weapons systems.”⁷² (Emphasis in original) Even as the report dismissed reliance on technology, however, MAAG posed a solution: “We must build a ‘better automobile’ – a better concept or combination of

⁷¹ Taylor Report, November 3, 1961, Tab C, 21, National Security Files, Countries, Vietnam, Subjects, Taylor Report 11/3/61, Box 203, JFKL.

⁷² Introduction – Part I – The Nature of Threat, 3-4, National Security Files, Countries – Vietnam, Subjects, MAAG – Counterinsurgency, Part I, Box 204, JFKL.

concepts....”⁷³ The metaphor chosen was one of technological innovation, and it stuck. The Chief of MAAG, Lieutenant General Lionel C. McGarr, later referred to a draft of “our Better Automobile, or Tactics and Techniques, paper.”⁷⁴ Despite declaring that new gadgets were not going to be decisive, MAAG still put them in the forefront of their analysis, symbolically and in fact.

The chief problem was that the innovations proposed by both the South Vietnamese and the Americans – such as herbicides – had only negative consequences; they did not make a positive case for the South Vietnamese to align with their government. In the words of one historian who wrote an account of the war in Hậu Nghĩa province, “Almost all ‘progress’ from the allied point of view was coercive and entailed an essentially negative process: The [National Liberation] Front [the military arm of the Việt Minh] could be weakened...but the GVN could not be strengthened.”⁷⁵ This assessment is quite similar to that offered by political scientist Jeffrey Race in his famous study of Long An province. The internal security problem which had so mesmerized both the American and South Vietnamese governments, and which drove the development of new military technologies like Ranch Hand, was only a symptom of a disease that no technology could cure.⁷⁶ New technologies could not redistribute

⁷³ Introduction – Part II – Further Thoughts on Counterinsurgency Operations, 17, National Security Files, Countries – Vietnam, Subjects, MAAG – Counterinsurgency, Part I, Box 204, JFKL.

⁷⁴ “Remarks by the Chief of the Military Assistance Advisory Group in Vietnam,” January 30, 1961, in Department of State, 24.

⁷⁵ Eric M. Bergerud, *The Dynamics of Defeat: The Vietnam War in Hau Nghia Province* (Boulder, Co: Westview Press, 1993), 5.

⁷⁶ Race, 151.

farmland more broadly among the rural South Vietnamese nor could they reform the increasingly autocratic southern government.

Another important problem inherent in the conception of South Vietnam as a military matter was that the Kennedy administration viewed military power as a way to manage the uncertainties and unanswered questions of South Vietnam. Columns of numbers about acres sprayed and missions flown led inexorably to conclusions about how and when Communist infiltration will be stopped.

The emphasis on technological solutions would prove to be a mistake, and would also contribute to the growing impatience with the Vietnam situation that would, ironically, continue to fuel the search for quick solutions to an increasingly intractable problem. “The nation appeared to be frustrated and humiliated by the realization that a few thousand Vietnamese peasants had been able to thumb their noses at all the brains, industrial genius and Buck Rogers weaponry of the most powerful nation on earth,” observed Mecklin. “We could go to the moon, but not to a Vietnamese hamlet without an armed escort.”⁷⁷ Ranch Hand exemplified this pattern. Early missions were plagued with equipment failures and inconclusive results. Nonetheless, operations expanded as the situation in South Vietnam continued to deteriorate and as Vietnamese hamlets continued to be impervious to displays of American technology.

A reliance on quantitative data and distorted ideas about the role of scientific innovation skewed not only the answers about Vietnam but also the very questions that were asked. Chemical herbicides fit neatly into the administration’s preferences for

⁷⁷ Mecklin, 294.

numbers, and technological innovation. However, this confidence was illusory; even botanists and chemists themselves did not understand how these chemicals worked or, more importantly how to control them.

CHAPTER 4: TRICKY BUSINESS

Administration officials were not the only ones intrigued by the possibilities of new technology. On the farm and in the suburbs, the use of a new class of herbicides was becoming ever more prevalent. 2,4-dichlorophenoxyacetic acid (2,4-D), first developed in the 1940s and refined for possible use in the Pacific theater during World War II, quickly became a mainstay of American weed control. By the time of Kennedy's inauguration, millions of gallons had been sprayed across the country, on everything from sugar maples in New York State to invasive weeds in Hawaiian sugar cane fields.¹ 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), like 2,4-D a phenoxy herbicide, debuted in the late 1940s; farmers and public works programs adopted it quickly, too.

Problems with phenoxy herbicides quickly became apparent, however. This class of herbicides, first tested in 1942, was less than 20 years old, and scientists did not understand them nearly as well as the administration claimed.² The herbicides themselves were difficult to control, and effective and accurate application was fraught with problems. Safety concerns persisted, even as the agricultural chemical industry claimed they were overblown. As these compounds became widely used by farmers, road crews, and homeowners, people from rural hunters to insurance underwriters grew

¹ Noel S. Hanson, "Dalapon...For Control of Grasses on Hawaiian Sugar Cane Lands," *Down to Earth: A Reivew of Agricultural Chemical Progress*, Fall 1956, 2.

² Gale E. Petersen, "The Discovery and Development of 2,4-D," *Agricultural History* 41, no. 3 (1967): 244-5.

increasingly vocal in their concerns about phenoxy herbicides and the consequences of aerial application.

The genesis of these chemicals was, ironically, a concerted effort to improve agricultural production. 2,4-D and 2,4,5-T encouraged plant growth; originally, it was this property that made the chemicals so attractive. In an effort to explain why exactly it was that plants grew toward light sources, a phenomenon first detailed by Charles Darwin, researchers in the Netherlands discovered a chemical they called an ‘auxin.’³ The first successful isolation of an auxin was in 1926, years before their military usefulness in destruction became apparent. The overall philosophy driving the research into auxins was that managing plant growth was both useful and possible. Control of nature through chemistry was already integral to the development of what would later become 2,4-D. Nicolas Rasmussen, in his account of herbicide development, posits that the emphasis on plant productivity and growth blinded scientists from seeing the herbicidal potential of auxins. In addition, those studying weed control were not studying plant hormones, and vice versa.⁴

The demands of World War II brought the two sides together. As one writer put it, “No one knows who first suggested we quit fooling around trying to use the potent

³ Donald E. Davis, "Herbicides in Peace and War," *BioScience* 29, no. 2 (1979): 84. For a brief but thorough history of pre-World War II phenoxy herbicide development, see Nicolas Rasmussen, "Plant Hormones in War and Peace: Science, Industry, and Government in the Development of Herbicides in 1940s America," *Isis* 92, no. 2 (June 2001): 291-316.

⁴ Rasmussen: 299.

substances as plant growth regulators and instead use them to kill plants.”⁵ Scientists at the University of Chicago and at the United States Department of Agriculture’s Bureau of Plant Industry in Beltsville, Maryland realized that the auxins responsible for spurring plant growth might also be agents of plant destruction; plants might grow to death. The Chemical Warfare Service of the United States Army, which had proven itself a formidable lobbying force after World War I, received a significant increase in funding during the war for research and production of chemical and biological warfare agents.⁶ The demands of the Pacific theater in World War II encouraged research into quick, inexpensive ways to clear unwanted vegetation. The Pacific campaign was brutal not just because of the ferocity of the fighting, but also because of the foreign and difficult terrain American soldiers faced. Clearing the triple-canopy jungle cover on Pacific islands would improve mobility and lessen the odds of ambush or spying.⁷ By June 1944, research on herbicides had progressed enough that J. W. Mitchell and C. L. Hamner published the first study of 2,4-D’s herbicidal potential.⁸

By mid-1945, there was serious discussion within the Truman Administration about the feasibility of destroying Japanese crops. One of the participants was Harvey

⁵ Davis, 84.

⁶ Bernstein, 296-7.

⁷ For more on chemical research during World War II, see Barton Bernstein, "America's Biological Warfare Program in the Second World War," *Journal of Strategic Studies* 11, no. 3 (1988). John Ellis van Courtland Moon argues that poison gas was never seriously considered for use in the Pacific Theater; he does not address the prospect of herbicide use. John Ellis van Courtland Moon, "Chemical Warfare: A Forgotten Lesson," *Bulletin of the Atomic Scientists* 45, no. 6 (1989).

⁸ John W. Mitchell and Charles L. Hamner, "Polyethylene Glycols as Carriers for Growth-Regulating Substances," *Botanical Gazette* 105, no. 4 (June 1944): 248; Petersen: 248.

Bundy, special assistant to Secretary of War Henry Stimson and father of McGeorge and William Bundy, who would serve in the Kennedy Administration and be deeply involved in later debate about chemical crop destruction.⁹ Keith Barrons, a researcher for Dow Chemical Corporation, speculated that the United States would have used herbicides against Germany as well if the war had continued.¹⁰ In that case, the target would have been the country's sugar beet and potato crops.¹¹ Although it is not mentioned by name, it seems likely that the newly formulated 2,4-D would be part of any chemical herbicide arsenal.

2,4-D was demobilized without seeing combat. Its civilian career was just beginning. International hostilities may have ended, but the war to clear and control the American landscape was still being waged.¹² A 1946 article titled "Weed Waterloo" carried the military metaphor nearly to its limit. "It was in 1944 that one of America's costliest weeds – bindweed – was challenged by a spraying of a new chemical. The battlefield was an experimental weed-infested plot in New York State, and the conquering gladiator was a Cornell University research worker, armed only with a

⁹ Bernstein: 308.

¹⁰ Manuscript of *The Dow 2,4-D Story*, p. 4, Box 1, Folder 2 – II. Products, Agricultural Chemical Books, Keith Barrons Papers, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA.

¹¹ Manuscript of *The Dow Chemical Story*, p. 4, Box 1, Folder 2 – II. Products, Agricultural Chemical Books, Keith Barrons Papers, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA. The use of herbicides against food crops would have raised issues later discussed during Ranch Hand, specifically the morality and legality of targeting civilians, even indirectly.

¹² This war had been going on for decades; Bordeaux mixture, an early contact herbicide made of copper sulfate and hydrated lime, was invented in the 19th century.

knapsack sprayer.”¹³ According to the *Dow Diamond*, a promotional publication from Dow Chemical Company, the benefits of these new weapons were clear and widespread.

For the farmer it means millions of dollars in increased yields and millions of hoeing hours saved. To the hay fever sufferer it means less ragweed pollen in the air in areas where there is widespread weed killing. To the golfer it means walking up to take a second shot without having to differentiate between the ball and several thousand dandelions when these troublesome pests go to seed. And to you and to me it means that our lawns are going to be more beautiful with less labor and at a nominal chemical cost.¹⁴

There was also a humanitarian cast to some of the arguments for 2,4-D. In the post-war world, when so many were left hungry, improving American farm yields might provide critical food aid to starving allies.¹⁵

By 1946, phenoxy herbicides were in wide use against a variety of plants, from wild roses to dandelions. Dow Chemical, which would later become the United States military’s largest supplier, received government approval for civilian use very shortly after submitting an application. At a dinner celebrating the 50th anniversary of 2,4-D, a Dow executive joked that the product was approved “after about a three-week review (laughter),” and this was not far from the truth.¹⁶

¹³ Eugene Perrin, "Weed Waterloo: 2,4-D Kills Weeds Easily, Completely, Chemically," *Dow Diamond*, May 1946, 8.

¹⁴ *Ibid.*, 10.

¹⁵ "Rose Rout in Texas: Chemistry Battles the Flower That Has Become a Menace to Gulf Coast Agriculture," *Dow Diamond*, September 1946, 15. It should be said that this use was implicit only; there was no direct mention of agricultural subsidies or grants to starving allies as a result of the improved yields resulting from phenoxy herbicides.

¹⁶ "50th Anniversary Celebration of 2,4-D Transcript" (1998), p. 7, Box 3, Folder 92 – VII Archival Source Documents, Agricultural Chemical Books, Keith Barrons Papers, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA.

The United States government, in fact, was instrumental not only in getting the new product quickly to market but in undermining any private patent rights. The American Chemical Paint Company (ACPC) and Du Pont each claimed to have the rights for 2,4-D. ACPC had already introduced the first retail formula of 2,4-D, “Weedone,” in 1945.¹⁷ Du Pont, in its patent application, did not mention the compound’s herbicidal properties, which gave ACPC an opening to contest the patent. Both companies were ultimately unsuccessful. In response to these claims, Dow Chemical and the Sherwin-Williams Chemical Company, along with the United States Department of Agriculture, sued ACPC after ACPC threatened legal action for copyright infringement.¹⁸ This opposition to ACPC’s patent is not hard to understand. Chemical manufacturers realized from the start that chemical herbicides were potentially a lucrative market, and the federal government had no interest in paying monopoly prices for the millions of gallons required for public works projects such as land clearing.¹⁹

The scramble for patent rights was warranted; 2,4-D marked a major change in agricultural chemistry. Up until its development, the only type of herbicide available had been contact herbicides, which acted by caustically burning coated leaves. According to one historian, other ‘then-mainstream approaches...[included] fire and

¹⁷ Cecil, 12.

¹⁸ A more detailed account of these legal actions can be found in Rasmussen, 304-309.

¹⁹ In his account, Rasmussen avoids the word “collusion”, with its implications of illegality but does say that the federal government, industry experts, and rival companies “collaborated” against ACPC. Rasmussen, 309.

total soil sterilization with inorganic toxins.”²⁰ Not surprisingly, these methods often had the unintended consequence of killing both weeds and crops. 2,4-D was very different; it interfered with the plant’s physiology and thus was able to cause deeper and more widespread damage to a given plant.²¹ A plant’s leaves absorbed the chemicals and they entered the vascular system, where they then acted as an artificial auxin, or growth hormone. The exact mechanisms of this abnormal and fatal growth, however, remained unknown. One report was almost rueful: “Because small amounts of 2,4-D can cause such profound changes within the plant’s many interrelated systems, it has long been suspected that it affects the enzyme systems. Findings indicate, however, that there is no simple explanation.”²²

To complicate matters further, there were serious practical problems in the use of phenoxy herbicides. 2,4-D was from the outset difficult to manage. One of the first hints of this problem came in December 1946. Traces of spray on work clothes “hung up in the headhouse of a greenhouse after work” were enough to damage severely poinsettias in the greenhouse itself. “This convinced us,” a Dow scientist later wrote,

²⁰ Rasmussen, 299. The latter method was, of course, far from environmentally friendly. Deleterious environmental effects did not start with the introduction of phenoxy herbicides.

²¹ “Weed Killers Need Extensive Testing,” *Down to Earth: A Review of Agricultural Chemical Progress*, May 1945. *Down to Earth* is a publication of the Dow Chemical Company.

²² Frederick Monroe, L., *The Effects of 2,4-D and Related Compounds on Plants* (Eglin AFB, FL: Air Proving Ground Center, Air Force Systems Command, United States Air Force, 1965), 6.

that more research into less volatile versions would be required.²³ Repeated accidents confirmed that it took very little exposure to affect some species. The chemical's volatility would remain a concern as its use in the United States and South Vietnam increased rapidly.

As early as 1949, over a decade before herbicides would be considered for use in South Vietnam, scientists raised alarms about their unpredictability even in the laboratory. One Dow Chemical botanist had to stop an experiment when his control plants became contaminated by 2,4-D. He pointed to this outcome as a warning to other users.

It is easily possible to contaminate any or all of the plants being used in connection with studies on 2,4-D and its derivatives due to the potent activity even at extremely low concentrations of these chemicals. Every precaution should be taken to avoid contamination. This is particularly true when using plants that are very sensitive to 2,4-D, such as tomatoes and cotton. Although this was done, it was found that one experiment had to be discarded when the untreated controls showed slight leaf modification.²⁴

Even under closely supervised conditions, 2,4-D could not be reliably controlled.

Another question, which became increasingly important as herbicide use increased, concerned the development of resistance to 2,4-D. A scientist for Shell's Agricultural Chemical division observed that, "in certain plant species and varieties protein molecules occur which bind 2,4-D. Such plants would be tolerant to the

²³ Manuscript of *The Dow Chemical Story*, p. 9, Box 1, Folder 2 – II. Products, Agricultural Chemical Books, Keith Barrons Papers, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA.

²⁴ Wendell R. Mullison, "The Volatility of Several Salts and Esters of 2,4-D as Determined by the Response of Tomato, Bean, and Cotton Plants," *American Society for Horticultural Science* 53, no. (1949): 287.

herbicide.”²⁵ 2,4,5-T was a stronger and more advanced formula but users had similar problems. The difficulty appeared to be with all herbicides that acted internally on plants. “There is a need for diversification of spraying with several types of chemicals,” one scientist warned:

in order to prevent the reproduction of tolerant individuals that may build up strains of plants with herbicide tolerance. An example of this is fireweed.... Plants of this species in the past have been relatively easy to kill with 2,4-D, but at present there is a population building up in field on several plantations that appears to be difficult to control with this chemical. Strong contact herbicides are necessary to prevent its spread.²⁶

An unintended consequence was the attractiveness of treated plants to other species. Japanese beetles, invasive and voracious, preferred leaves treated with 2,4-D; sugar cane borers also had a taste for the chemical. Field mice were partial to treated corn. More seriously, farm animals enjoyed the taste as well. One USAF report found that “In California, sheep ate *Centaurea solstitialis* only after it was sprayed with 2,4-D, and poisonous *Corium maculatum* though usually avoided was eaten by cattle after it was sprayed causing the cattle to die.... It is possible that the animals prefer those aforementioned plants because of the increase in sugar content.”²⁷

As domestic use skyrocketed during the 1950s, civilian botanists and foresters still had basic questions that remained unanswered. A 1960 symposium, “The Use of Chemicals in Southern Forests”, held at Louisiana State University brought together

²⁵ J. Van Overbeek "Survey of Mechanisms of Herbicide Action," in *The Physiology and Biochemistry of Herbicides*, ed. Leslie Audus (New York: Academic Press, 1964), 390.

²⁶ Hanson, 2.

²⁷ Monroe, 5-6.

academic and industry experts from all over the country. Rather than spreading knowledge, however, the outcome of this conference seemed to be raising still more questions about chemical defoliation. “Killing hardwoods with hormone herbicides,” declared Professor of Forestry Paul Burns, “is a tricky business.”²⁸ Even synopses of existing research were riddled with caveats. In one interview, John Kirch of Amchem responded to a question about current findings: “This is a case where basic research is needed.”²⁹ Professor Burns, too, puzzled over exactly how the compounds worked.

The most commonly used chemical in aerial spraying for pine release is 2,4,5 – trichlorophenoxy acetic acid.... Related chemicals sometimes used are 2,4-D and silvex.... These compounds are hormones or growth regulators and are selective in that species vary considerably in resistance to them. The exact mechanism by which these chemicals cause death of sprayed trees is unknown, but they usually bring about a depletion of carbohydrate reserves, which could be the cause of death.³⁰

To make matters still more complicated, a host of variables seemed to affect the ability of these chemicals to kill weeds, however this was accomplished physiologically. The precise action of a herbicide on a given plant species was complicated enough to understand. Before the chemical could do its work, however, it had to penetrate the plant’s circulatory system. Unlike contact herbicides, which work by burning the leaves, phenoxy herbicides needed to adhere to the plant. In order to get

²⁸ Paul Y. Burns, "Use of Aircraft for Foliar Applications of Herbicides in Southern Forests," in *The Use of Chemicals in Southern Forests*, ed. Robert W. McDermid (Baton Rouge: Louisiana State University Press, 1961), 92.

²⁹ John H. Kirch, "Foliar Application of Chemicals to Weed Tree Species," in *The Use of Chemicals in Southern Forests*, ed. Robert W. McDermid (Baton Rouge: Louisiana State University Press, 1961), 81.

³⁰ Burns, 84-5.

the herbicide to stick, applications contained both the herbicide itself and an additional chemical surfactant.

Surfactants introduced their own uncertainties, but these remained poorly-understood well into the 1960s. As late as 1965, years after Ranch Hand began, botanists J. F. Parr and A. G. Norman warned “there is increasing evidence that some surfactants are also capable of exerting biochemical effects of considerable subtlety.” Investigators, according to Parr and Norman, had ignored the effects of surfactants and also failed to consider that the surfactants were “often used...at concentrations which greatly exceed that required...and which many times exceed the concentration of the test compound, whose effect is actually being evaluated, by a factor of many thousand fold.” This problem is especially relevant when the test compound is an auxin, such as 2,4-D.³¹ Experiments performed on phenoxy herbicides, in other words, were often compromised from the outset. This further obscured the means by which these chemicals functioned.

From a practical standpoint, surfactants complicated the use of herbicides still further. Like the herbicides themselves, the surfactants’ actions depended not only on the plants being sprayed but also on the specific type and formula of the chemical itself. Trained botanists had a hard enough time understanding and accounting for these effects, as Parr’s and Norman’s review makes clear.³² It is unlikely that a rural ‘crop

³¹ J. F. Parr and A. G. Norman, "Considerations in the Use of Sufectants in Plant Systems: A Review," *Botanical Gazette* 126, no. 2 (June 1965): 86

³² *Ibid.*, 94.

duster' could guess with any certainty what the cumulative effects of his spraying operation would be.

The alternative to aerial application was application by hand. Using this method to apply herbicides over large areas was time-consuming and labor-intensive, if it was possible at all. Suburban lawns were typically less than 1 acre in area; hand application was possible and relatively easy. In the case of larger farms and power line and road projects, hand application became much more difficult. Even if the area itself was not prohibitively large, it was often impractical to send men with backpack sprayers into, for example, stands of dense or thorny growth.

For military application, application by hand was usually not an option; aerial spraying was almost always the only possible method. Although commercial spraying could be done with no more than a small single engine or propeller plane, the demands of combat required sturdier aircraft and thus a different spraying system. Given these constraints, testing of 2,4-D and 2,4,5-T included a search for the proper equipment. In the early 1950s, the United States Air Force (USAF) tested delivery systems for cargo planes, heavy and light bombers, and helicopters. In 1952, the Hayes Aircraft Company introduced the MC-1 "Hourglass" spraying system, which featured a 1,000-gallon tank that could be adapted for use in a variety of aircraft, and by 1958 it had been adopted by the USAF.³³

³³ Cecil, 18, 23. Cecil implies that the Korean War ended before aerial delivery could be perfected. However, in the official Air Force history of Operation Ranch Hand, William A Buckingham, Jr. asserts "the tactical situation and the vegetation in Korea were not conducive to the use of aeri ally sprayed herbicides." Buckingham, 4. The

The first military use of aerially-sprayed defoliants was not in South Vietnam, or in Korea, but in upstate New York. The effectiveness of phenoxy herbicides did not escape the notice of the United States Army, which struggled with plant control problems of its own. Clearing firing ranges, which had live ordnance on the ground, could not be done manually. However, the sugar maples at Camp Drum, NY had become such an obstruction to artillery exercises that something had to be done. In 1959, the first military aerial spraying of 2,4-D and 2,4,5 - T took place at Camp Drum and was a success.³⁴

Proper equipment did not entirely solve the aerial application problem. Pilots and crew required training to operate the aerial spraying system, in addition to whatever specialized training was needed for the airplane itself. This problem did not surface in the initial planning for military use, but quickly became obvious as the prospects for spraying in combat increased in the late 1950s and early 1960s.³⁵

Even with the right system and adequate training, which were by no means universal, aerial application of these herbicides introduced still more uncertainty. Aerial spraying was relatively cheap and convenient; its effectiveness, however, was much less clear. Precise application of the chemical involved a number of factors, some of which

nickname "Hourglass" refers to the leisurely pace of the system's development. Ibid., 5.

³⁴ Buckingham, 6.

³⁵ History of the 4500 ABW Wing, January-June 1962, Folder Name: "Typescripts: Special Aerial Spray Flight Information form 4500 Air Base Wing History 1962, 1963; History of C123B, Serial Number 56-4362, 63, Alvin L. Young Collection, National Agricultural Library, Beltsville, MD.

were out of the operator's control. An effective spraying mission, according to Dr.

Burns, must account for these factors:

(1) kind of chemical being used, (2) amount of chemical which gets on the plant, (3) stage of growth of the plant, which in turn is affected by temperature and soil properties, (4) age of the plants being treated, (5) plant vigor, (6) kind of carrier used in the spray, (7) amount of carrier which gets on the plant, (8) size of droplet in the spray, and (9) weather conditions.

Other scientists considered even this assessment of aerial spraying too simplistic.³⁶

The most obvious and difficult problem associated with aerial application was drift. Airborne chemical sprays were practically impossible to control. In some cases, herbicidal spray traveled as far as 20 miles beyond the target. This was not limited to an isolated puff of vapor. One USAF study found "In a report from Texas in the summer of 1947, 2,4-D injured cotton fields were found 15 to 20 mi from fields dusted with airplanes. The airplanes may have passed closer than this to those affected fields but the damage over the field was uniform, indicated that the dust must have traveled a distance of at least 10 mi[les]."³⁷ Dust was particularly prone to drift, but no formulation was immune. A plant pathologist cautioned that it would be a grave mistake to assume that low-volatile or amine formulations of 2,4-D are entirely safe. "The mists from these forms may drift for several hundred yards and injure sensitive plants. Therefore do not use any kind of 2,4-D, regardless of formulations,

³⁶ Burns, 92. Ernest Epps, "Legal Problems Connected with Widespread Application of Chemicals," in *The Use of Chemicals in Southern Forests*, ed. Robert W. McDermid (Baton Rouge: Louisiana State University Press, 1961), 102.

³⁷ Monroe, 8.

within ½ -mile of a susceptible crop.”³⁸

This, of course, was not always practical. Scientists and users alike debated how best to minimize drift and whether or not drift could be reliably managed. As late as 1963, when thousands of gallons had already been sprayed on South Vietnam, there was no consensus. *Agricultural Chemicals*, a leading industry publication, admitted “Some reduction in drift has been accomplished by low-volatile chemical formulations, low-pressure spray systems, and application during times of little wind movement. However, none of these safeguards has proven universally effective, and countless occurrences of damage are registered each year.”³⁹

A related problem, one that would prove more troublesome in South Vietnam, was run-off. Plants in particularly humid climates can become covered in dew. When spraying rice and sugar cane for alligator weed, a particularly rugged and invasive aquatic weed, this particular problem became clear.

Heavy dews are present in April, May, and June. It has been estimated by the writers that the volume of dew present on the vegetation in the early hours of the morning represents from 3 to 5 times more water than dry plants will have when sprayed at the rate of 100 gallons per acre. This heavy dew not only dilutes the spray but also causes considerable run-off or drip.⁴⁰

³⁸ "600 Attend Illinois School for Custom Spray Operators," *Agricultural Chemicals*, March 1959, 63. Dusts have the advantage of not requiring mixture with a liquid, which can adversely affect the spraying equipment.

³⁹ Morrow Judd, "Bifluid Spraying System Offers Increased Drift Control," *Agricultural Chemicals*, May 1963, 59.

⁴⁰ Clair A. Brown and T. C. Ryker, "The Control of Alligator Weed in Sugar Cane and Weeds in Rice with 2,4-D," *Down to Earth*, February 1947, 7.

Not only did these challenges arise, but the amount and type of surfactant required under these conditions would also be different, setting in motion another chain of complications.

Despite these chronic problems with their use, phenoxy herbicide sales boomed during the 1950s and 1960s. The first market was the agricultural community. “There is scarcely a farmer in the country,” declared the Dow Chemical publication *Down to Earth*, “who cannot employ [2,4-D] to advantage for the control of unwanted vegetation.”⁴¹ Farmers across the United States began to use phenoxy herbicides. Their efficacy, cost-effectiveness, and ease of use far outstripped those of earlier methods such as hand weeding or caustic herbicides

As the 1950s went on and housing spread, land for power lines and roads also needed clearing. Power lines required vegetation control to prevent damage to the lines themselves, and to do this manually was time-consuming, taxing, and sometimes dangerous work. One potentially enormous opportunity for aerial herbicide spraying was the construction of an interstate highway system. The attractiveness of a national highway system became obvious as suburbs became more diffuse. The effort to gain federal support and funding for such a project was helped in large part by lobbying groups such as the American Road Builders Association (ARBA), which quickly became one of the most powerful and best-funded lobbies in Washington. American auto manufacturers, which had potentially enormous amounts of excess capacity after

⁴¹ “2,4-D Declares War on Weeds,” *Down to Earth: A Review of Agricultural Chemical Progress*, November 1945, 5.

war-related production ended, used their influence as well; General Motors, in fact, was a leading financial backer of ARBA.⁴²

Cold War worries also influenced interstate highway planning.⁴³ President Dwight Eisenhower specifically linked the Interstate Highway Act to responsible planning for nuclear attack, a fear that was not only real but also politically unassailable. With the passage of the act in 1956, the impetus for land clearing became even stronger. The act provided for the construction, refurbishment and maintenance of a 41,000 mile long national highway system, in part to provide, in Eisenhower's words, "a road net [to] permit quick evacuation of target areas" in the event of a Soviet nuclear attack.⁴⁴ Furthermore, the display of organizational and technological power provided by this project would send a message to enemies and allies alike about the breadth and strength of United States capabilities.⁴⁵

The safety of the herbicides so crucial to this project was purportedly an important concern, since their use on public lands might expose unwitting residents. Dow Chemical, for one, was confident that Americans were safe. "Public utilities must be exceptionally careful about the use of poisonous or dangerous materials, inasmuch as the public is constantly in close contact with their rights-of-way. Since the use of 2,4-D

⁴² Kenneth T. Jackson, *Crabgrass Frontier: The Suburbanization of the United States* (New York: Oxford University Press, 1987), 248.

⁴³ A lively account of how domestic life in the United States was profoundly affected by the Cold War is Elaine Tyler May, *Homeward Bound: American Families in the Cold War Era*, 20th Anniv. ed. (New York: Basic Books, 2008).

⁴⁴ Jackson, 249.

⁴⁵ For more on massive public works projects as signals of state power, see Chapter 3, "Authoritarian High Modernism" in Scott.

compounds doesn't present a hazard to either man or animals, they are receiving ready public acceptance." The same article in *Down to Earth*, however, also mentions "Chemical application must usually be heavier and more uniform for brush control than for ordinary weed control."⁴⁶ The magazine did not address the potential for harm from these heavier applications. In later discussions of the product, Dow scientists acknowledged that herbicidal application by road crews was not easy. These difficulties resulted, in Dow's account, from zealous insurance companies wary of chemical drift and from budgets that did not allow for proper application procedures, not from any safety issues with the chemicals themselves.

There would always be the potential for damage to plants off herbicide-sprayed areas along highways, pipelines, railroads, highways [sic] and electric transmission lines. Educating responsible supervisors of right-of-way maintenance was a task for sales people early in the commercial introduction of phenoxy herbicides. With liability claims staring them in the face this was not difficult but passing this on to spray crews, whether in-house or contracted out, sometimes fell short of success. Even with proper equipment spraying frequently had to be stopped because of wind thus increasing labor costs.⁴⁷

Another potentially enormous market was the suburban homeowner. Chemical companies began advertising directly to consumers shortly after World War II, primarily through point-of-sale promotions. As became apparent during the patent struggles of ACPC, both the federal government and the manufacturers were eager to get this product into the hands of consumers. Homeowners who may have been utter

⁴⁶ F. A. Ashbaugh, "2,4-D Fulfills Promise on Right-of-Way Maintenance," *Down to Earth: A Review of Agricultural Chemical Progress* 3, no. 4 (1948): 10, 12.

⁴⁷ Manuscript of *The Dow Chemical Story*, p. 30, Box 1, Folder 2 – II. Products, Agricultural Chemical Books, Keith Barrons Papers, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA.

novices at lawn care could now easily buy these potentially dangerous and certainly unpredictable chemicals. Trade publications, unsurprisingly, presented phenoxy herbicides as safe, convenient solutions to chronic problems. In July 1947, the *Dow Diamond* ran an article about suburban life. Titled “Lawn Loveliness”, it recounted the losing struggle of an American family against weeds.

The story of the MacPhail lawn was not a happy one. For several summers Mrs. MacPhail spent torturous hours crawling over the lawn digging out dandelions and plantains, breaking her fingernails and working up a good ‘mad.’ Evenings Mr. MacPhail spent his time doing the same thing. And still the weeds continued to come. So it wasn’t surprising when Mr. MacPhail came home a few weeks ago with a can of 2-4 Dow Weed Killer. The joke of it was that on her shopping trip that same afternoon Mrs. MacPhail bought a can of it too.⁴⁸

One strand of marketing played on fears of Asian invasion. During World War II, *Better Homes and Gardens*, which catered explicitly to suburbanites, promoted 2,4,5-T as a bulwark against Japanese honeysuckle, a “‘Jap invader [which] has taken over large areas in the Eastern United States” and which threatened to drown fruit trees “‘in a green wave,” an image that echoed the familiar “yellow peril” theme.⁴⁹

By 1960, the industry had explicitly identified homeowners as a lucrative market. One industry overview analyzed the reason for the change.

The market, as we think of it today, is quite new, and can’t compare with the home garden industry of 20 years ago. Today’s market has materialized largely because of the move to ‘suburbia’ – and the heightened interest of the average householder in a well cared for lawn and a productive vegetable, fruit and/or flower garden. The end user which this branch of the industry caters to is, of

⁴⁸ “Lawn Loveliness,” *Dow Diamond*, July 1947.

⁴⁹ Carleton, R. Milton. “New TCP Kills Toughest Weeds,” *Better Homes and Gardens*, February 1945: 15, 93-5, as quoted in Nicolas Rasmussen, “Plant Hormones in War and Peace: Science, Industry, and Government in the Development of Herbicides in 1940s America,” *Isis* 92, no. 2 (2001): 309-310.

course, the home owner – not the farmer.⁵⁰

In less than 20 years, phenoxy herbicides like 2,4-D had moved from scientific journals to hardware store shelves – and basic questions about their effectiveness and safety remained unanswered.

During these years, government oversight was limited. Historian Edmund Russell highlights the relatively relaxed control over chemicals like DDT during the years between the end of World War II and 1972. The dynamics that led to this malignant neglect were similar to those that drove the use of chemical herbicides: as these chemicals moved from the military to the retail market, the ability of the government to control their use dropped precipitously. Furthermore, as long as people like the MacPhails were buying and using them, there was limited political appetite for imposing regulation.⁵¹ Besides, the immediate effects seemed overwhelmingly beneficial.

Underneath assurances that phenoxy herbicides were harmless, there were persistent and growing doubts. Early testing of 2,4-D for its environmental effects was haphazard. This was perhaps understandable; few if any researchers at an agricultural extension station or a chemical company wanted to demonstrate that a potentially revolutionary class of chemicals was, in fact, unsafe to use. Government testing of 2,4-

⁵⁰ "Home Garden Market: Point-of-Sale Merchandising Key to Eveready Sales Program," *Agricultural Chemicals*, November 1960, 40.

⁵¹ Edmund P. Russell, III, "The Strange Career of DDT: Experts, Federal Capacity, and Environmentalism in World War II," *Technology and Culture* 40, no. 4 (October 1999): 774.

D was cursory. After its approval, research continued on its unintended effects, but this was often desultory. Barrons recalled that

...he happened to see Dr. Peter Tack, a fish disease specialist on the MSU faculty and inquired what one would have to do to run a range-finding test on fish. His reply, "Bring me two dozen gold fish from the Woolworth story and I can give you a quick answer." So the fish were delivered to his laboratory along with a sample of 2,4-D amine. In two weeks Dr. Tack reported that no effect was observed when the fish were kept in water containing 10 and 20 ppm of 2,4-D. Later the Tack's [sic] lawn ceased to be a haven for healthy dandelion.⁵²

Concerns about the chemicals' volatility grew along with their ubiquity. As the application of these chemicals increased, particularly in the American south and west, their unintended effects became more pronounced and harder to ignore. "Improper use can create trouble in a hurry," warned the Chief Chemist for the Louisiana Department of Agriculture.⁵³ Some reservations came from government agencies. By the early 1960s, officials from the United States Fish and Wildlife Service were advising that pilots flying aerial spraying missions "should avoid turns over streams, rivers, and lakes and should avoid using these areas as boundaries for control operations."⁵⁴ The risk of damage from drifting herbicides was too great.

Other warnings came from more unlikely sources. The California Agricultural Aircraft Association (CAAA) heard alarming advice from agronomist Stuart Turner. Both Turner and the CAAA might have been expected to encourage herbicide use; the

⁵² Manuscript of *The Dow Chemical Story*, p. 13, Box 1, Folder 2 – II. Products, Agricultural Chemical Books, Keith Barrons Papers, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA.

⁵³ Epps, 101.

⁵⁴ John L. George, "Possible Effects of Widespread Use of Forest Chemicals on Wildlife Populations," in *The Use of Chemicals in Southern Forests*, ed. Robert W. McDermid (Baton Rouge: Louisiana State University Press, 1961), 148.

CAAA and its members would get a great deal of business from aerial spraying. This was not the case. Instead, the CAAA grappled with insurance claims, and Turner advised that

The major [liability] claims this past year came from defoliant spraying, resulting in drift claims and personal claims....Leakage of defoliants and other materials also is a problem, and he urged operators to keep a close check on their equipment. Property damage claims along power lines also are increasing, according to Mr. Turner. He closed his talk with another warning to operators regarding defoliants and said that they should apply them just as though they were applying a very toxic material and use all the needed precautions.⁵⁵

In Illinois, property insurance companies also began to make their concerns known before spraying began in the Mekong Delta. In 1962, underwriters tightened their standards for farms that used these chemicals extensively.⁵⁶ The problem of drift had not yet been solved to the satisfaction of the underwriters, who could not estimate the potential damage caused by herbicides accidentally destroying the wrong plants. The League of Ohio Sportsmen asked the United States Congress to ban aerial application of herbicides by federal agencies.⁵⁷ Recreational hunters might seem an unlikely group to advocate increased government regulation, but they also recognized the potential for widespread environmental damage from herbicide use.

Even the trade journals, which were usually pro-herbicide, raised the specter of increased regulation because of safety concerns. By 1960, unsafe use of herbicides was giving rise to caution. The problem, according to articles in *Agricultural Chemicals*,

⁵⁵ "Liability, Insurance, Poisoning Discussed at Caaa Meeting," *Agricultural Chemicals* (1959): 59.

⁵⁶ "14th Custom Spray School: Flame Cultivation, Face Flies among Topics at Illinois Conference," *Agricultural Chemicals* 17, no. 3 (1962).

⁵⁷ "Seek Aerial Application Ban," *Agricultural Chemicals*, May 1959, 63.

was not the products themselves but their improper use.

In the future...a man may have to take an examination and prove his qualifications to apply pesticide chemicals and an unlicensed farmer could not even spray his own fields.... a situation similar to this now exists in California where, in some areas, only qualified personnel can make 2,4-D applications, and then only with the direct permission of the county commissioner of agriculture for each spray job. Highly toxic materials...can be used only with the permission of the county agricultural commissioner. Such materials can be purchased only with written consent of the commissioner, and then only in sufficient quantities to do a designated spraying on a designated field.⁵⁸

The manufacturers were silent on how the complexity of application could be reconciled with direct-to-consumer marketing to homeowners who were probably unsophisticated in the ways of weather patterns and plant physiology.

The highest-profile opposition to chemical herbicides was still to come. As the administration was forming its ideas about whether and how to use these poorly-understood and hard-to-control chemicals in South Vietnam, concerns about their use in the United States made national news. Rachel Carson, an environmental writer trained as a marine biologist, published *Silent Spring* in 1962. The book provided vivid portraits of a land poisoned by pesticides, among them the herbicides so widely used in the western United States. "There is a steadily growing chorus," Carson asserted, "of outraged protest about the disfigurement of once beautiful roadsides by chemical sprays, which substitute a sere expanse of brown, withered vegetation for the beauty of fern and wildflower...."⁵⁹ Its appeal was immediate and broad; Carson's story appeared

⁵⁸ "Editorials," *Agricultural Chemicals*, August 1959, 31; "Possibility of Licensing Told at Kansas Meeting," *Agricultural Chemicals*, February 1960, 63.

⁵⁹ Rachel Carson, *Silent Spring*, 50th Anniv. ed. (New York: Mariner Books, 2002).

in national media from *Time* to CBS News and sold over 100,000 copies in less than 2 months.⁶⁰

Despite widespread and lingering questions about the action of 2,4-D and the feasibility of accurate aerial spraying, the agricultural chemical community revealed no doubts about herbicide use when confronted by Carson's book. The industry, not surprisingly, closed ranks against what it saw as an unjustified and poorly argued attack against scientific progress. Carson famously begins her work with an idyllic portrait of nature before it is despoiled with chemicals.⁶¹ As one scientist countered, "[Carson's] picture is a fantasy... It ignores the village's average life expectancy of thirty-five years, an infant mortality rate of one in five, foods and homes infested with vermin, and frequent famines."⁶² *Agricultural Chemicals* did have a point; the pastoral images in Carson could not exist apart from disease, danger, and backbreaking work.

Less convincing were the declarations of the unassailable goodness of scientific development. In the public arena, particularly when challenged, some scientists fell back on positions of certainty and infallibility. The publication of *Silent Spring* led to

⁶⁰ Mark Hamilton Lytle, *The Gentle Subversive: Rachel Carson, Silent Spring, and the Rise of the Environmental Movement* (New York: Oxford University Press, 2007), 176, 185. Some historians have noted Carson's explicit appeals to women as consumers and guardians of their families' health. In this context, the overwhelmingly male agricultural chemicals industry appears in even greater contrast to Carson. Adam Rome, "'Give Earth a Chance': The Environmental Movement in the Sixties," *The Journal of American History* 90, no. 2 (September 2003): 536-7.

⁶¹ Carson, 1-2.

⁶² "Naca Readies Counterattack on Carson's 'Silent Spring'; Pr Job Will Be a Big One," *Oil, Paint, and Drug Reporter*, September 10 1962. Subject Clips, Box 2, #252, Dow Chemical Company, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA.

nationwide worries about the safety of many forms of pesticides, among them defoliants and herbicides. Some within the agricultural chemicals industry defended the contributions of 2,4-D and other formulas by putting forward the false choice between improved living with chemicals and steady decline without. “Man has the choice,” one scientist declared, “of advancing into the future armed with his reason and the tools of science. Or, he can revert to the ways of the past...”⁶³ The choice was clear: progress with science or regression.

In 1961, the same year that President Kennedy approved the first spraying operations in South Vietnam, Alden Crafts’ *The Chemistry and Mode of Action of Herbicides* synthesized the latest research in chemistry, botany, and biology into a handbook for users. Crafts had studied chemical herbicides for 30 years by the time it was published. He began his book with a warning. “Only when the operator has complete knowledge of the physiology of his weed species and the chemistry of his herbicides may he hope for complete success.”⁶⁴ Other scientists could not promise even this. Dr. Wendell Mullison, who had researched 2,4-D and 2,4,5-T in the laboratory and in the field, admitted, “The mode of action of 2,4-D has been extensively studied since its discovery. However, 37 years later, the specific way it acts is still not completely clear.”⁶⁵

⁶³ "Dr. White-Stevens Attacks "Fallacies" of Silent Spring," *Agricultural Chemicals* (1963): 92.

⁶⁴ Alden S. Crafts, *The Chemistry and Mode of Action of Herbicides* (New York: Interscience Publishers, 1961), 17. For a sketch of Crafts’ career, see Rasmussen: 299.

⁶⁵ Dr. Wendell R. Mullison, “Public Concerns About the Herbicide 2,4-D” (1981): 1 Dow Publications: Health Concerns (folder name), Collection 0011, The Chemical

Phenoxy herbicide use was complicated enough for American farmers spraying their own fields. For USAF pilots and planners in South Vietnam, the challenges would be almost insurmountable. Despite Air Force arguments to the contrary, Ranch Hand operations were not the same as those performed in the United States. Research done after the end of Ranch Hand reported levels and concentrations of spraying far in excess of typical civilian use although, as is usually the case, the research did not give definitive answers. In 1974, the National Academy of Sciences (NAS) found that “Herbicides have been used in [military] operations at levels roughly five to ten times higher than in normal agricultural practice, and some areas were sprayed twice, and more often sometimes within a relatively short time.”⁶⁶ Defense Department officials later admitted that the dense cover in Vietnam received chemical sprays with concentrations up to 12 times domestic levels in order to penetrate through the canopy.⁶⁷

All of the problems with surfactants and drift would appear, and many would be exacerbated by the punishing climate of South Vietnam. Instead of spraying familiar pests like bindweed and dandelion, defoliation missions would target plants that were unknown to most American researchers. Perhaps the most difficult issues, however, would not be with herbicides, spray equipment, or plants. Instead, they would be with

Heritage Foundation, Philadelphia, PA.

⁶⁶ Geoffrey E. Blackman, John D. Fryer, Anton Lang, and Michael Newton, *The Effects of Herbicides in South Vietnam*, (Washington DC: National Academy of Sciences, 1974): 1.

⁶⁷ Bruce F. Meyers, "Soldier of Orange: The Administrative, Diplomatic, Legislative and Litigatory Impact of Herbicide Agent Orange in South Vietnam," *Boston College Environmental Affairs Law Review* 8, no. 159 (1979-1980): 162.

the leader nominally in charge of the missions, South Vietnamese President Ngô Đình Diệm.

CHAPTER 5: SIMPLE TOOLS OF VICTORY

While botanists and chemists struggled to understand the herbicides that would be used in South Vietnam, American foreign policy officials wrestled with their own dilemmas. As French defeat in Vietnam became more and more certain, the Eisenhower administration had to placate an embarrassed and frustrated ally and also cobble together an agreement that could both preserve a non-Communist South Vietnam and also limit United States responsibility for its fate. An exiled Francophone nationalist named Ngô Đình Diệm emerged as the most logical choice to lead the new country.

When Eisenhower left office in early 1961, he bequeathed to Kennedy a situation in Vietnam that was both chaotic and constrained. The revolutionary movement in South Vietnam was gaining momentum as Diệm's leadership became more brittle and less responsive to the rural South Vietnamese who were the vast majority of his citizens.¹ Nevertheless, only a few months after taking office, Kennedy, with Diệm's encouragement, authorized the use of defoliants in rural South Vietnam, the very area that was slipping still further from government influence.

This chapter will argue that Kennedy's foreign policy team, rather than being puzzled or put off by Diệm's autocracy and his evident enthusiasm for aerial spraying in his own country, understood the South Vietnamese president's position quite well. The

¹ When discussing the organized opposition to Diệm in the countryside, I use the term 'revolutionary movement' rather than narrower ones such as "Viet Cong" or "communists". A broader term for the anti-government opposition is more apt. For more on this, and a fuller argument for the use of the term 'revolutionary movement', see Race, xviii-xix.

two governments shared similar views of the inappropriateness of democracy for South Vietnamese, the need to modernize the backward people of rural South Vietnam, and the urgency of a military solution to the unrest in the country. Diệm's staunchest allies were the two men in charge of the United States effort in South Vietnam, United States Ambassador Frederick Nolting and General Paul Harkins, commander of the United States Military Advisory Command, Vietnam (MACV). Both agreed with the South Vietnamese president's views on the nature of the problems his government faced, and all three men supported the use of chemicals for defoliation and crop destruction in South Vietnam.

The roots of the United States' relationship with Diệm, and with South Vietnam, were already deep when Kennedy assumed office. During the Eisenhower administration, the United States had played a key role in arranging an orderly withdrawal of French troops from the former colony and in installing the exiled Diệm as South Vietnam's first president. This was a formidable task; President Eisenhower remembered that "the Geneva Conference could not have begun or been conducted under worse conditions."² The conference, which opened on May 8, 1954, revealed that all of the major powers participating, including the Soviet Union and Communist China, wanted the French to leave Vietnam with French dignity and military capability intact. The United States, for one, wanted French troops in France, ready for a possible Soviet attack, rather than in a brutal war half a world away. If France could bring back enough

² Dwight D. Eisenhower, *Mandate for Change, 1953-1956* (Garden City, NY: Doubleday & Company, Inc., 1963), 351.

troops to fulfill its defense responsibilities under the North Atlantic Treaty Organization (NATO), there might be no need for the European Defense Community (EDC) to serve as a bulwark against the powerful Soviet Red Army, or for a remilitarized Germany.³ The Soviet Union also wanted the French to leave Vietnam; they too had little appetite for German rearmament, which the United States would not sanction if French troops were available instead. China was more concerned with carrying out its 5-year economic plan and with negotiations about the fate of the Koreans than with buttressing the claims of the North Vietnamese. The prospect of continued war on its border, with the looming possibility of United States intervention on behalf of France, was not attractive to the Chinese.⁴

In order to free the French from the shackles of Vietnam, the major powers officially committed to holding elections throughout Vietnam in 1956. This was a compromise reached to placate the Việt Minh (Việt Minh Độc Lập Đồng Minh Hội, or the League for Vietnamese Independence). This organization, founded and led by Hồ Chí Minh, had as its original purpose the eviction of the Japanese. After 1945, the next goal was the expulsion of the French. The Việt Minh, without the promise of elections, would very likely have refused to agree to the armistice, since the absence of elections

³ George McT. Kahin, *Intervention: How America Became Involved in Vietnam* (Garden City, NY: Anchor Press/Doubleday, 1987), 55-58. Also see Freedman, 305. Odd Arne Westad, *The Global Cold War: Third World Interventions and the Making of Our Times* (New York: Cambridge University Press, 2007), 180-181.

⁴ China was making one of its early entrances into international diplomacy. The recent death of Stalin was beginning to fray Soviet-Communist Chinese relations; the Soviets were no longer able to represent the interests of the entire Communist world. Kahin, 52-58.

would remove a crucial means of self-determination. For the major powers, the collapse of the conference would have been a disaster, so the deal was struck.⁵

The prospect of elections was attractive to the North Vietnamese. The Viet Minh's political position throughout Vietnam was strong relative to any other group, including that of the French- and United States-supported Bảo Đại government, of which Diệm was at least nominally a member.⁶ Bảo Đại, the titular ruler of Vietnam, lived not in Sài Gòn but on the French Riviera.⁷ There was little reason for anyone to suspect that the Việt Minh's position would weaken substantially over the next 2 years, especially if external support for the southern government were reduced. Eisenhower himself observed "I have never talked or corresponded with a person knowledgeable in Indochinese affairs who did not agree that...possibly 80 percent of the population would have voted for the Communist Ho Chi Minh as their leader rather than Chief of State Bao Dai."⁸ The lead negotiators for the Việt Minh were pleased at the prospect of national elections to ratify their political – and military – victory over the French. Diệm was much less enthusiastic.⁹

⁵ Ibid., 61.

⁶ Politically, before the Geneva Agreement there was no such entity as Vietnam except as part of greater French Indochina, which also included Cambodia and Laos.

⁷ In fact, Diệm orchestrated a 1955 election to depose Bảo Đại and install himself as chief of state. This gave an early indication of Diệm's views of democracy and popular sovereignty for those paying attention. Few were. Jessica M. Chapman, "Staging Democracy: South Vietnam's 1955 Referendum to Depose Bao Dai," *Diplomatic History* 30, no. 4 (September 2006): 671-703.

⁸ Eisenhower, 372.

⁹ Melvyn P. Leffler, *For the Soul of Mankind: The United States, the Soviet Union, and the Cold War* (New York: Hill and Wang, 2007), 177.

The Việt Minh were right to be optimistic about their election prospects. Diệm, despite a significant level of support in the south, particularly in more urban areas and among Francophone and Catholic South Vietnamese, did not have a very auspicious beginning to his term. General Edward Lansdale remembered the reception given to Diệm during what was ostensibly his triumphant return to Sài Gòn. During the fraught negotiations in Geneva, Diệm returned to his country on June 25, 1954, traveling in a motorcade that drove quickly down the Rue deGaulle, the main thoroughfare connecting Tân Sơn Nhứt airfield with Sài Gòn proper. Lansdale was unimpressed, and uneasy. “Perhaps his advisers were afraid of the people, to rush him so into town behind a police escort. I wondered aloud what further errors of judgment Diem’s advisers might be making.”¹⁰ Lansdale had already become practically a by-word for American can-doism in decolonizing nations; his skepticism of Diệm was thus particularly ominous.¹¹

Diệm returned to a capital city on the brink of collapse. Sài Gòn was “a very sinkhole of violence, corruption, and intrigue,” according to one journalist.¹² In the city, what control there was came from the Bình Xuyên, a criminal organization that also helped run the cảnh sát (local police). The city had little governmental

¹⁰ Lansdale, 157.

¹¹ Lansdale is widely believed to be the basis for the character of Colonel Edwin Hillandale in the pointed roman-a-clef, *The Ugly American*. William J. Lederer and Eugene Burdick, *The Ugly American* (New York: W. W. Norton & Company, Inc., 1958).

¹² Frances Fitzgerald, *Fire in the Lake: The Vietnamese and the Americans in Vietnam* (Boston: Little, Brown and Company, 1972), 77.

infrastructure; the capital had been in Huế until 1945, and the legacy of Japanese and French occupation had retarded the growth of an indigenous governing class.

As Lansdale had suspected, the South Vietnamese were unenthusiastic about Diệm's return. Diệm's distrust of his countrymen was at least in part the result of the near-constant threat of a coup. This sense of persecution, however justified, contributed to increased repression and isolation, thus giving even more reason for plotters to act. The sense of time running out for the government was almost palpable from Diệm's first weeks in office. As one reporter remembered, "'Someone once asked Roger Hilsman when the Americans heard the first rumor of a coup. '1954,' he answered, naming the year Diệm came to power. '1954?' '1954 and every week afterward,' he replied.'"¹³ This threat may have made quick-acting military tactics like Ranch Hand even more attractive. It may also have made the use of chemical herbicides against his own people easier to justify.

However weak his political base in his own country, Diệm had very powerful allies elsewhere. A staunch Vietnamese nationalist, and a staunch Catholic, Diệm had spent years in exile rather than serve under a French administration he considered too repressive. Part of his time away had been at the Maryknoll Seminary in Lakewood, New Jersey, where he learned English. While in the United States, he had the opportunity to meet many prominent Catholic politicians, who saw in Diệm a living antidote to Communist atheism and persecution. He did not disabuse them. Round-

¹³ Prochnau, 430-1.

faced and usually impeccably dressed in white sharkskin, Diệm nevertheless managed to suggest a Gandhi-like asceticism in pursuit of his dream: a unified, free Vietnam.

Eisenhower's Secretary of State, John Foster Dulles, was equally implacable. He was a faithful Cold Warrior and committed Christian, and he would not hear of relinquishing Vietnam.¹⁴ As early as January 1955, he was ready to abandon plans to hold elections in 1956, as called for Geneva Agreement. It was clear to almost everyone, including Eisenhower, that should elections be held as scheduled, the Việt Minh would win by an alarmingly wide margin. Eisenhower's Special Representative to Vietnam, General J. Lawton "Lighting Joe" Collins had written to Dulles "the prospect of national elections in 1956 hangs as a threat over Free Vietnam."¹⁵ For Dulles, the path was clear. "There were,...said Secretary Dulles, other techniques, many of which were very familiar to the Soviets, for preventing the holding of these elections."¹⁶

Dulles was successful. Despite the plans laid out in the Geneva Agreement, there were no national elections held in Vietnam in 1956. Throughout 1955 and 1956, the United States continued to propose stringent requirements for elections to be held,

¹⁴ Important works on Dulles' career include Richard H. Immerman, *John Foster Dulles: Piety, Pragmatism, and Power in U.S. Foreign Policy* (Wilmington, DE: SR Books, 1998); Chris Tudda, *The Truth Is Our Weapon: The Rhetorical Diplomacy of Dwight D. Eisenhower and John Foster Dulles* (Baton Rouge: The Louisiana State University Press, 2006).

¹⁵ Memorandum from the Special Representative in Vietnam to the Secretary of State, January 20, 1955, in Department of State, *Foreign Relations of the United States 1955-57: Volume I: Vietnam* (Washington DC United States Government Printing Office, 1985), 56.

¹⁶ Memorandum of Discussion at the 234th Meeting of the National Security Council, Washington, January 27, 1955 in *ibid.*, 68.

conditions that did not exist even in the United States itself. Dulles stated that “there must be adequate guarantees for, among other things: freedom of movement; freedom of presentation of candidates; immunity of candidates; freedom from arbitrary arrest or victimization; freedom of association and political meetings; freedom of expression for all; freedom of the press, radio, and free circulation of newspapers, etc. . . [sic] secrecy of the vote; security of polling stations and ballot boxes.”¹⁷ By setting such conditions, the United States thus made countrywide elections in Vietnam essentially impossible.

Meanwhile, the images of the Việt Minh in the United States grew ever more threatening and the organization’s legitimacy increasingly questionable. Tom Dooley, a doctor and veteran who worked in Southeast Asia wrote a lurid account of life in South Vietnam in his book *Deliver Us From Evil*. The plight of the refugees from the north, and the tales of Communist depravity that they brought with them, made what appeared to many to be irrefutable evidence of the threat posed by the Việt Minh.¹⁸ The book, the *Uncle Tom’s Cabin* of the United States war in Vietnam according to historian Seth Jacobs, became a best seller in 1956. The fact that many of the refugees were Catholic only added to the pathos.

¹⁷ Telegram #4361 from Dulles to United States Embassy in Sài Gòn, April 6, 1955 in *ibid.*, 209.

¹⁸ Jacobs, *America’s Miracle Man in Vietnam: Ngo Dinh Diem, Religion, Race, and U.S. Intervention in Southeast Asia*, 129. Interestingly, perceptions within Vietnam, and in some American accounts were quite different. In an alternative perspective, the refugee flow demonstrated the incompetence of the Diệm regime and its inability to cope with the challenges of a civil war. See The magazine article includes a picture of a refugee camp headlined “Scenes from a Disintegrating Land.” For a similar account, Pham, 22-24.

Besides the thorny issue of elections, another difficulty in the Geneva Accords was the ban on the importation of military supplies by either side in the struggle. The International Control Commission (ICC), a three-member body including one Communist representative (Poland), one democratic representative (Canada), and one non-aligned representative (India), would enforce the ban. The United States did not endorse the Geneva Accords but pledged to abide by their provisions and to “refrain from the threat or use of force to disturb them.”¹⁹ The limits on aid to South Vietnam mandated in the agreement would make this promise very difficult to fulfill.

Dulles’ sponsorship notwithstanding, the Eisenhower administration became increasingly disenchanted with Diệm. As the United States was committing more money and more attention to Diệm and South Vietnam, notes of concern and discouragement crept into internal discussions. From Sài Gòn, United States Ambassador Elbridge Durbrow noted that support for Diệm remained weak, particularly among urban elites. This was because “Diem’s rigidity in pursuing goals and brooking no opposition has alienated many able persons....Although successes over past year remarkable and degree of stability and security achieved now make long-term planning possible, regime still not successful in overcoming native complacency and generating broad popular support or enthusiasm.”²⁰

Support for South Vietnam was becoming ever more entrenched within the

¹⁹ Kahin, 61.

²⁰ Telegram #3280 from Durbrow to the Department of State, April 29, 1957, in Department of State, *Foreign Relations of the United States 1955-57: Volume I: Vietnam*, 788.

government, however. In response to earnest State Department officials who advocated “the reaffirmation of the validity of our policy on Indochina set forth in NSC 5429/5, which calls for the U.S. to take all feasible measures to save Vietnam,” Eisenhower “observed that this was a good deal like repeating the Doxology.”²¹ Saving Vietnam was by this time an article of faith.

As the 1950s wore on, South Vietnam fell out of the United States headlines. Events within South Vietnam, however, were moving closer and closer to open war. The Việt Minh were running out of time. The Diệm regime began to solidify itself economically and stepped up its violent campaigns against Communists, sympathizers, and anti-regime activists in the south; the chances for unification under a northern flag grew more remote.²² The mood in the south turned more bitter against “Mỹ-Diệm” (“American Diem”) but that resentment might also turn against those in the north who would not sanction retaliation.

The communist leadership in Hà Nội, far from being the puppet masters behind southern revolt, tried to stem the growing frustration and violence in the south. North Vietnam had suffered enormously during the previous 20 years from war and famine and was in no position to supply an insurrection against a very well funded and well-armed adversary. Furthermore, armed resistance might bring in United States troops.

The South Vietnamese government resolved the dilemma for the Communists, and southern resistance escaped northern control. The growing repression of the Diệm

²¹ Memorandum of Discussion at the 234th Meeting of the National Security Council, Washington, January 27, 1955 in *ibid.*, 64.

²² Westad, 181.

government climaxed with the passage of Law 10/59 on May 6, 1959. The law prescribed sudden and harsh penalties, including public beheadings, for any revolutionary activity, and was broadly, if not indiscriminately, enforced. This had the unintended effect of giving the southern revolutionaries an unanswerable argument; the Diệm government “demonstrate[d] to the population something the revolutionary movement could not prove by itself: that there was no alternative to violence.”²³ In the face of Law 10/59, with its mass arrests and executions, the northern leadership was powerless to stop the increase in retaliatory violence.²⁴ In her memoir *No Other Road to Take*, Nguyễn Thị Định describes the catalysts for armed resistance in the south. “...in this period Diem concocted the 10/59 decree.... The brutality of Ngo Dinh Diem’s reactionary regime was at its peak. Their desire now was to imprison all the patriotic people of Ben Tre province in the Thanh Thoi agroville, this hell on earth, and to liquidate the people of the South with the 10/59 decree and the guillotine.”²⁵ Nguyễn led the first major uprising during the war in the south.

²³ Race, 184.

²⁴ Recent scholarship has refuted the idea that the North Vietnamese sponsored violent resistance in the South under the auspices of Maoist China and after their former Soviet masters ceded control. This gives no agency to either the Northern or Southern Vietnamese. Robert Brigham has written a provocative and persuasive analysis of the role of the NLF as a separate entity from the Ha Nội government and an international actor in its own right. Robert K Brigham, *Guerrilla Diplomacy: The N L F's Foreign Relations and the Viet Nam War* (Ithaca: Cornell University Press, 1999).

²⁵ Dinh, 61. Định’s account is not completely reliable, given the limitations of memoir and the political value of her story. However, the violence and repression in the Mekong have been corroborated in other accounts, including Race. The *Times of Vietnam Magazine* praises the opening of the same agroville: “New Agroville Completed: Equal Opportunities for Peasants to Face Life,” *The Times of Vietnam*

As far as Diệm was concerned, the unrest in the countryside was a military problem, solvable only by military means. An August 1960 Special National Intelligence Estimate reported that this assessment had already taken root.

Although he has taken some steps to meet the internal security problem, [Diem] tends to view it almost entirely in military terms. He believes that increased military activity against the Viet Cong, along with an expansion of the agrovillage problem, will greatly improve internal security. He had been openly contemptuous of the views of oppositionist in Sài Gòn and regards them as uninformed and dupes of the Communists.²⁶

The report also warned of the deterioration in South Vietnamese politics. Dissent within Diệm's cabinet was growing, "and there is considerable uneasiness concerning the operations and activities of the organization."²⁷ Among the most controversial projects of the government was the Cần Lao, in Vietnamese the Cần lao Nhân vị Cách mạng Đảng (Personalist Labor Revolutionary Party). This was the special project of Diệm's younger and more ruthless brother, Ngô Đình Nhu. Nhu ran the organization, sometimes described with euphemisms like "secret society", as a secret police force charged with crushing dissent.²⁸ The Cần Lao at its peak included ten domestic intelligence services charged with rooting out "traitors, spies, and foreign

Magazine 2, no. 23 (July 23, 1960): 3, General Sciences Library, Hồ Chí Minh City, Vietnam.

²⁶ Central Intelligence Agency, *Special National Intelligence Estimate: Short-Term Trends in South Vietnam*, 63.1-601960. 2.

²⁷ Ibid.

²⁸ "Richer Prize," *Time*, April 14 1961. : <http://0-web.ebscohost.com.library.lausys.georgetown.edu/ehost/detail?sid=0dfe053b-423a-40ae-9250-4fc22355632f%40sessionmgr13&vid=9&hid=14&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=aph&AN=54204327> (accessed June 13, 2011.)

plots,” according to journalist Frances Fitzgerald.²⁹ The breadth of Law 10/59’s definition of treason meant that the Cần Lao would have a great deal to do.

Casting the unrest as a military problem, rather than a political one, also allowed Diệm to delay the democratic reforms he was desperate to avoid. Diệm believed that the tumult of democracy, with its protests and dissent, was inappropriate for his nation. *The Times of Vietnam Magazine*, sponsored by the Diệm government, advised in July 1960 that “...we should give [the present government of Vietnam] all the help and support we can. If we cannot contribute anything positive, we should just keep quiet and enjoy the good things in life. This, at least, is a way of being patriotic.”³⁰ “Democratic liberties” would mean the end of his rule, and Diệm knew it. “ ‘More democratic liberties in Viet Nam,’ the frivolous editorialists demand irresponsibly. Do they ignore that ‘liberties’ do not sell retail and that the Brooklyn, Tottenham, or Aubervilliers – style electorate they advocate would result in an instantaneous legion of Communist candidates in every constituency?”³¹

By promoting a view that the unrest in South Vietnam was a military problem, Diệm could hold his officers accountable. Badly shaken by the November 11, 1960 coup attempt by members of the South Vietnamese armed forces, Diệm had retreated even further into his family, and his distrust of the military grew. If his United States

²⁹ Fitzgerald, 97.

³⁰ “Editorial: Preserving Our National Existence”, *The Times of Vietnam Magazine* 2, no. 30 (July 9, 1960): 19, General Sciences Library, Hồ Chí Minh City, Vietnam.

³¹ A. K. Mukerji, “An Identity of a People, Pt. 3,” *The Times of Vietnam Magazine* 2, no. 40 (December 17, 1960): 20, General Sciences Library, Hồ Chí Minh City, Vietnam.

patron shared his conception of the conflict, Diệm would have an unimpeachable reason to keep a close eye on his officers, and replace those who might be liabilities.

For Diệm, political reform was neither necessary nor desirable, certainly not the type of systemic changes that would be required for a democratic system. His contempt for western-style democracy did not go unnoticed. *Time* was blunt in the assessment it shared with millions of American readers in 1961. “But Ngo Dinh Diem is no democrat by instinct; he remains aloof from the masses in the tradition of a mandarin who follows the ancient Confucian code of a divinely guided prince.”³² Tempting as it was to cast Diệm in the role of democratic savior of South Vietnam, he had little interest in playing it.

Diệm, like some of his American advisors, believed that the South Vietnamese peasant needed tutelage and leadership to cope successfully with the Communist onslaught. According to his government, the rural South Vietnamese were the “quần chúng non nớt (immature masses).”³³ When Diệm ascended to the presidency, rural South Vietnam was, in his view

a confusing and disquieting situation inherited by the Government after the Geneva Agreement and from centuries of an old way of living in which peasants dwelled in lonely farmsteads and decrepit hamlets lost in the boundless rice-fields and never penetrated by either administration or civilization. The remote,

³² “South Vietnam: The Firing Line,” *Time*, August 4 1961. <http://0-web.ebscohost.com.library.lausys.georgetown.edu/ehost/detail?sid=f2ea147e-fe83-4df4-a1b5-8c33e736eb86%40sessionmgr12&vid=6&hid=11&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=aph&AN=54205464> (accessed March 1, 2012).

³³ “Tình-hình địch” (“Enemy Situation”) in “Nhận - định tổng-quát” (“Comprehensive Assessment”) 1963, 4, National Archives II, Hồ Chí Minh City, Vietnam

self-centered hamlets where no one dared explore during the war, soon after the Geneva truce became again hideouts for the Communists.³⁴

Furthermore, the Nhu family had lived for generations in the ancient and imperial city of Hue in central Vietnam. Diệm, like most northern and central Vietnamese, looked down on Southerners as lazy.³⁵ Rural South Vietnamese, in his view, needed a new way of life to combat the communist scourge in their midst.

Diệm's assessment of South Vietnamese rural life was remarkably similar to the view of traditional societies within modernization theory, a worldview that was in vogue within the Kennedy administration.³⁶ According to historian Michael Latham, modernization theory implies that nations are either traditional or modern, that there is a defined path by which nations can move from traditional to modern, that this path includes economic, political, and social change, and that contact with developed nations can accelerate the process.³⁷ In this theory of development, the United States exemplified the type of polity and society that other nations should adopt. To the extent they differed from the United States, there was a need for them to "progress" along a defined path of development. The United States would serve as both example and

³⁴ "New Agrovilla Completed," 21.

³⁵ Race, 6.

³⁶ The classic argument for the importance of such worldviews in influencing foreign policy is Michael H. Hunt, *Ideology and U.S. Foreign Policy* (New Haven: Yale University Press, 1988). Hunt himself has questioned whether or not modernization should be thought of as another fundamental United States ideology. Michael H. Hunt, "Modernization: Ideology or Fad?," *American Diplomacy* VI, no. 2 (2001). http://www.ciaonet.org.ezp-prod1.hul.harvard.edu/olj/ad/ad_v6_2/hum01.html (accessed July 18, 2012).

³⁷ Latham, 4.

tutor.³⁸ The certainties of this theory, couched in the language of science, were something that not even chemistry or botany could provide.

Modernization theory in its purest form was not only a way to understand the present but also a means to direct, and thus forecast, the future. The pervasive fears and uncertainties of the Cold War could be held at bay; there was a scientific plan for teaching nascent countries democracy and integrating them into the global capitalist system. This project could, and should, be managed through the intervention of properly trained intellectuals, all white men, from the United States. It would not require military intervention but instead would highlight the national qualities of which so many Americans were most proud: optimism, innovation, leadership, and tutelage of those who had not evolved to the same level.

Cultural historian Michael Adas sees this pattern of promoting modernity over a certain set of traditions as a theme of the Kennedy Administration. "The near obsession of McNamara and other key presidential advisors with computerized data and their consequent tendency to disregard the historical dimensions of Vietnamese responses

³⁸ Even within the American business community, questions were arising about exactly how smoothly the country's economic and social systems were functioning. In a moving article on the plight of Harlan County, Kentucky, *Business Week* complained that, "America is supposed to be a place of two-car families, all-electric kitchens, rumpus rooms, paid vacations, and Martini talk.

"It isn't supposed to be a place where unemployment ranges from 8% to 25% of the labor force...[where] per capita income is as low as \$314 a year...where children go to bed hungry, where tens of thousands of families stay alive on government food handouts of dried milk and rice...." "How to Live with Bad Times," *Business Week*, January 28 1961, 128. For more on this, see D. Michael Shafer, *Deadly Paradigms: The Failure of U.S. Counterinsurgency Policy* (Princeton: Princeton University Press, 1989), 46, 55-66.

were quite consistent with the antipathy to ‘tradition’ that was pervasive among the modernization theorists in the Kennedy administration.”³⁹ Members of the administration were, of course, bound by their own traditions. Modernization theory was a means by which to make other, less developed nations more like the West, specifically the United States. Modernization theorists may have used complicated quantitative models to chart and to prove their hypotheses, but the ideas underpinning modernization theory were in fact quite traditional. Historians like Latham and Nils Gilman have traced the core assumptions back through Wilsonian messianism and back to the early republic’s vision of itself as “the shining city on the hill.”⁴⁰ Gilman explained the link between modernization and health. A healthy society supported “economic expansion and political consensus”; those that did not fit the modernizers’ criteria of success “would be explicable only in terms of deviance and pathology.”⁴¹

The Soviet Union, under the schemata of modernization, was itself a modern society. It was a corrupted and decaying one, however, and developing countries that emulated the Soviet model would find themselves in the same dismal state. The United States had not only self-interested motives in intervening in these nations but also a moral obligation to save them from the fates of backwardness and Soviet blight.

South Vietnam was particularly vulnerable to contamination, given its shared border with the Communist north and the withdrawal of French supervision. An

³⁹ Michael Adas, *Dominance by Design: Technological Imperatives and America's Civilizing Mission* (Cambridge: Harvard University Press, 2009), 296.

⁴⁰ Latham. Gilman.

⁴¹ Gilman, 199.

intensive program of investment and rehabilitation was required to preserve the nascent South Vietnamese state. Walt Rostow, McGeorge Bundy's deputy brought into the Kennedy administration from the Economics Department of the Massachusetts Institute of Technology, quickly brought modernization principals to bear on the problem of South Vietnam. His landmark exposition of modernization theory, *The Stages of Economic Growth: A Non-Communist Manifesto*, laid out the economic and moral dimensions of modernization theory and explained a 5-stage evolutionary process every modernizing nation must undergo.⁴² This type of orderly, manageable process would appear very attractive in the midst of the Cold War's threats and uncertainties.

Rostow was perhaps the most visible modernization theorist but he was not alone. Scholars like Lucian Pye put forth similar unifying theories of development couched in fashionable theoretical language.⁴³ Goals for South Vietnam were not limited to defeat of the National Liberation Front (NLF) forces or even to modest reforms to the South Vietnamese government. The administration, while planning for Ranch Hand, developed elaborate schemes to build the South Vietnamese economy and reform the entire polity. In one program, developed for the administration by Eugene Staley of Stanford University, the tasks required encompassed all aspects of South Vietnamese life. Battling the "international Communist apparatus operating through

⁴² Walt W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1960). Gilman, 191-2.

⁴³ See, for example, Lucian Pye, *Politics, Personality, and Nation Building: Burma's Search for Identity* (New Haven: Yale University Press, 1962).

Hanoi” required nothing less than the total restructuring of South Vietnamese society, under the supervision of the United States.⁴⁴

Early in the administration, there were already ambitious plans for recasting the Vietnamese economy. The August 8, 1961 Status Report on the Presidential Program for Viet-Nam proposed “the development of a long-range economic development program as a means of demonstrating US confidence... the US is prepared to discuss a long-range joint five-year development program.”⁴⁵ The goal for the United States was for South Vietnam not only to push back the threat from the North but to become “a self-sustaining economy and a peaceful, free society.”⁴⁶ The United States would lead the effort to remake the country. According to historian Loren Baritz, “We would invent South Vietnam. They would be delighted, we assumed, because we believed their old country was a mess and was responsible for the ignorance, disease, and illiteracy. They must have hated it all along.”⁴⁷ It followed that other nations would leap at the opportunity to become more like the United States, the apotheosis of an economic system that was attractive and appropriate for all. Political evolution could be left until later.

⁴⁴ Staley Report, “Joint Action Program Prepared by the Viet-Nam United States Special Financial Group”, n.d., National Security Files – Regional Security, Box 231, Southeast Asia, General, Rostow Report, Second Try IV, 7/25/61, Staley Report, Document 1, page 1, JFKL.

⁴⁵ Status Report on the Presidential Program for Viet-Nam as of August 8, 1961, National Security Files, Countries, Vietnam, 8/61, Box 194, Doc 8, 9, JFKL.

⁴⁶ Staley Report, “Joint Action Program Prepared by the Viet-Nam United States Special Financial Group”, n.d., National Security Files – Regional Security, Box 231, Southeast Asia, General, Rostow Report, Second Try IV, 7/25/61, Staley Report, Document 1, page 2-3, JFKL.

⁴⁷ Baritz, 41.

Within modernization theory, simplifying assumptions about quantitative data and the development of societies buttressed another one. The Vietnamese were not fundamentally different than the Chinese, Japanese, Koreans or Filipinos. The United States had extensive experience with those countries, although much of it was unhappy. Surely the Vietnamese would not deviate markedly from other Asians. The prevailing “sense [was] that since 'all Asians look alike,' all Asian nations will act alike.”⁴⁸

For both the United States and Diệm, however, the most urgent concern was the military situation. Even before Kennedy took office, the dimensions of the problem seemed to be coming into focus. The Military Assistance and Advisory Group (MAAG), the predecessor to MACV, determined that “... the most vital consideration of US policy in Vietnam is to create governmental stability by the eradication of insurgency in the Republic of Vietnam and to that end the activities of all US agencies will be coordinated.”⁴⁹ The Country Team Staff Committee prepared a paper shortly before Kennedy’s inauguration that laid out the challenge clearly. “Military force, in the form of increased communist insurgency, is clearly the major immediate threat to the stability of Viet-Nam today.”⁵⁰

The definition of the situation in South Vietnam was a self-reinforcing one. A Defense Department official, Deputy Defense Secretary Roswell Gilpatric, headed the

⁴⁸ Thomson, 48.

⁴⁹ Revised Draft Study, Internal Security Problem, SVN, January 9, 1961, Records of the Military Assistance & Advisory Group, Vietnam 1950-1964, Part I, RG 59, C0095, NARA

⁵⁰ Paper Prepared by Country Team Staff Committee, Saigon, January 4, 1961, in Department of State, *Foreign Relations of the United States 1961-1963: Volume I: Vietnam 1961*, 2-3.

Presidential Task Force on Vietnam, convened by Kennedy in April 1961. It was therefore not surprising that the task force defined the problem as a military one. Even political reforms would require an increased military presence, according to the Program for the Presidential Task Force. “To help in stronger U.S. actions, eliminate U.S. restrictions upon the number of U.S. military personnel in Vietnam, under the terms of the 1954 Geneva Agreement, as necessary.”⁵¹ United States aid reflected, and solidified, this conception of the problem; “throughout the Diem era,” asserts Fitzgerald, “the United States spent approximately 90 percent of its aid on the creation of an army and a military bureaucracy.”⁵² This bureaucracy would lead the development of aerial defoliation and crop destruction.

The Kennedy administration remained steadfast in its conception of South Vietnam as a military problem. Diệm’s refusal to promote democracy as the United States understood it would have been overruled had American policymakers themselves been convinced of the need for and the feasibility of elections. However, members of the Kennedy administration echoed Diệm’s views. *A Threat to the Peace*, the influential 1961 State Department report on the depredations of the North, dismissed the call for elections in 1956, as stipulated by the 1954 Geneva Accords, as a “well-laid trap” set by the North Vietnamese in Geneva.⁵³ Furthermore, the Vietnamese were simply not ready. As one military officer asked, “In South Vietnam, 800,000 mountaineers use

⁵¹ Program for the Presidential Task Force on Vietnam, April 22, 1961, in *ibid.*, 75.

⁵² Fitzgerald, 121.

⁵³ Department of State, *A Threat to the Peace*, 1.

bow and arrow getting their food supply. Are these people expected to operate within the framework of modern Western democracy??”⁵⁴

Diệm’s apparent flouting of even basic political freedoms was ignored; the real problem facing South Vietnam, according to the prevailing view, was not political at all. In March 1962, *The New Republic* published a scathing article that argued “[None of] the eager New Frontiersman of the Kennedy Administration...was willing to ask the truly searching questions...the fact that 98 percent majorities [in South Vietnamese elections] were obtained even in areas which were patently outside government control seemed to bother no one in Washington – even when Diem’s storm troopers, armed with Tommy guns, entered the country’s national Assembly” and rounded up opposition party members.⁵⁵ In a rebuttal, Thomas Hughes of the State Department stated “The job cannot be done, as we see it, by putting the political-economic aspects first in the face of the current threat.”⁵⁶

Given the shared understandings of what the central problems were in South Vietnam, it is not surprising that both the Kennedy Administration and Diệm saw chemical herbicides and defoliants as useful and justifiable. The Kennedy administration did not impose Ranch Hand on Diệm’s government; if anything, Diệm

⁵⁴ Memorandum to Brigadier General Edward G. Lansdale, USAF from Major General Bela K. Kiraly, “Comment on ‘South Vietnam’ The Atlantic Report, The Atlantic, October 1961, 16-22”, National Security Files, Countries – Vietnam, General, 10/4/61-10/9/61, Box 194, Document 13a, 2, JFKL.

⁵⁵ 'Z', "The War in Vietnam: We Have Not Been Told the Whole Truth," *The New Republic*, March 12 1962, 23-24.

⁵⁶ Memorandum from Thomas Hughes to Edward Rice, March 12, 1962, “Comments on ‘The War in Vietnam’ by ‘Z’, *New Republic*, 3.12.62”, President’s Office Files, Countries, Vietnam, General, Box 128a, Folder 3, Doc 7a, 2, JFKL.

was a more vocal supporter of defoliation and crop destruction than many in Washington. From July 1961, months before Kennedy issued NSAM 115 approving limited chemical defoliation, the South Vietnamese government had worked with MAAG on testing defoliants and other “tools of modern technology” for use in the rural South. The border between South Vietnam and Cambodia had been a contested area long before the arrival of the Americans or the rise of the National Liberation Front NLF.⁵⁷ By the summer of 1961, it was “the subject of a joint MAAG – RVNAF (Republic of Viet Nam Air Force) Study Group. R&D team...gave attention to the problem, particularly in the area of Chemical Plant Killers...” By this time, drums of chemicals were on their way to South Vietnam.⁵⁸ A few weeks later, the rest of the equipment necessary for “an extensive defoliation test” was enroute.⁵⁹

Although crop destruction had not yet become part of the discussion in Washington, it was very much on the mind of President Diệm. Even before the approval for defoliation, a less controversial and damaging project, the South Vietnamese leader was lobbying General Taylor for the necessary chemicals and equipment. “President Diem,” wrote Taylor in November 1961, “has requested that initial supplies of commercially available manioc destructant...with additional supplies to be brought in as available.” Tellingly, the final phrase was not ‘as necessary’; Diệm

⁵⁷ For an account of just how contested, see David Biggs, *Quagmire: Nation-Building and Nature in the Mekong Delta* (Seattle: University of Washington Press, 2011).

⁵⁸ Status Report on the Presidential Program for Viet-Nam as of July 10, 1961, National Security Files, Countries, Vietnam, General, 7/61, Box 194, Document 5, 6-7, JFKL.

⁵⁹ Status Report on the Presidential Program for Viet-Nam as of July 28, 1961, National Security Files, Countries, Vietnam, General, 7/61, Box 194, Document 6, 9, JFKL.

wanted all he could get. In fact, during the course of conversations with the members of the mission led by General Maxwell Taylor and Rostow, Diệm increased his demands. A later page in the report states, "The original requirement...was for a manioc (tapioca) plant killer deliverable by aircraft. The requirement was later extended to include the spraying of rice and sweet potatoes." The initial request was for 100,000 gallons of 2,4,5-T.⁶⁰

Diệm's influence in Washington increased with the appointment of Ambassador Frederick Nolting in May 1961 and the selection of General Paul Harkins in January 1962. Nolting was the most important exception to Diệm's contempt for the State Department. Diệm and Nolting were remarkably compatible in their views. Despite Diệm's general mistrust of the Foreign Service, he found in Nolting a patient and receptive audience. Nolting, whose foreign service career had been almost exclusively in Europe before his appointment to South Vietnam, quickly became sympathetic to Diệm's position and the seemingly impossible demands Washington officials were putting on him.⁶¹ According to a *Time* account, "Nolting has probably done more than anyone else to persuade Washington to stick with Diem."⁶²

⁶⁰ Taylor Report, November 3, 1961, Tab 8, page 2, 5, National Security Files, Countries, Vietnam, Subjects – Taylor Report, Box 203, Document 5, JFKL.

⁶¹ Like Diệm, Nolting was something of a snob when considering public opinion. When describing the problems in South Vietnam in 1961, Nolting observed, "this was the kind of situation with which the impatient American public and the volatile American political situation were ill equipped to cope." Nolting, 13.

⁶² "To Liberate from Oppression," *Time*, May 11 1962. Academic Search Premier, EBSCOhost (accessed November 16, 2011).

Nolting saw many of the same problems others did, but he did not view them as adequate reasons to abandon Diệm. The American Ambassador to South Vietnam agreed with the South Vietnamese leader about what the nature of the conflict was and that it had relatively little to do with the failings of the South Vietnamese government. “He knows all of Diem's familiar shortcomings—his authoritarian rule, which has 30,000 political prisoners under arrest, his inability to delegate authority, his refusal to allow any political opposition, the excessive powers vested in his family. But Nolting sees no alternative to Diem, insists accurately that he is a man of personal honesty, high courage and deep dedication.”⁶³

The relationship between Harkins’ predecessor Lieutenant General Lionel McGarr, the head of the United States Military Assistance Advisory Group, Vietnam (MAAG-V) and Diệm had been fraught with disagreement and condescension on both sides. As William Bundy remembered, “It was as though Diem was a junior officer in the command and general staff school getting a critique of what he was doing. ‘You’re doing this all wrong. You’ve got to do this, do that, do the other.’ [McGarr’s letters to Diệm] had a very strong hectoring, teacher aspect to them with no softening or gestures toward the ego of the man he was addressing.”⁶⁴ These tensions contributed to McGarr’s eclipse by General Paul Harkins in early 1962.

The arrival of Harkins as chief of the newly formed Military Assistance Command, Vietnam (MACV) signaled, among other things, a change in the American

⁶³ Ibid.

⁶⁴ William Bundy Interview, March 6, 1972, 30, JFKL.

military's dealings with Diệm. Harkins was much less demanding on Diệm, although in the end the change in approach gained little. "The proper policy in [Nolting's and Harkins'] view was," according to Arthur Schlesinger,

to win Diem's confidence by assuring him unswerving support and then try to steer him gently and gradually toward reform; if Diem felt this backing to be anything less than whole-hearted, the policy would not work. This became known, in the phrase of Homer Bigart of the *New York Times*, as the period of 'sink or swim with Ngo Dinh Diem.'⁶⁵

In fact, in discussions about herbicide use, Diệm and Nolting were very much in agreement, more so than Nolting was with members of his own government. As historian and Ranch Hand veteran Paul Cecil writes

President Diem's request for a trial program [of crop destruction] was supported by Ambassador Nolting, the Country Team, and General Paul D. Harkins, Military Assistance Command, Vietnam (MACV) Commander. Opposition to the program was strong in the State Department....⁶⁶

Some, particularly in the State Department, believed that Nolting was little more than Harkins' advisor.⁶⁷ Given the weakness of the State Department's position in Vietnam policymaking, Nolting's relative powerlessness might not have been a great surprise. Certainly, he worked far more closely with Harkins than he did with members of the State Department. This was partly a function of geography; Harriman and Rusk were on the other side of the world. It also reflected a growing difference in opinion about the ability of Diệm to lead South Vietnam away from Communism. Nolting's enthusiasm for Ranch Hand was reinforced by his closeness to Diệm, by his alliance

⁶⁵ Schlesinger, 548.

⁶⁶ Cecil, 38.

⁶⁷ William Bundy Interview, November 12, 1964, JFKL, 24.

with Harkins, and by his estrangement from his own department. Because of their positions, Harkins and Nolting were experts on South Vietnam, at least compared to those in Washington. Their reliance on Diệm, and Diệm's growing disengagement from his countrymen, however, made their pronouncements misleading and damaging to American efforts to determine if Ranch Hand would work and, if so, how it might be implemented.

As the United States' commitment to Diệm's South Vietnam deepened, and as Ranch Hand operations increased, the impotence of United States efforts in South Vietnam were becoming apparent. Chief among the problems was one against which Ranch Hand was completely ineffective: Diệm. The handicap of alignment with Diệm was becoming more obvious, at least to those outside the American Embassy. In March 1962, *LIFE* diagnosed the South Vietnamese problem as follows. "American advisers have also been trying, diplomatically and with very limited success, to deal with what is, aside from the Viet Cong itself, perhaps the greatest single problem within free Vietnam: the stubbornness of President Diem."⁶⁸

By mid-1962, Diem had dispensed with any pretense of representative government, regardless of the suggestions offered by his American patrons, and was "run[ning] South Vietnam as a kind of family corporation."⁶⁹ If the United States acknowledged that the tenuous position of the southern government was not a matter of military weakness but of political illegitimacy, then inevitably harsh questions would be

⁶⁸ Scot Leavitt, "Dilemma for U.S.: Clever Adversary, a Difficult Friend," *LIFE*, March 16 1962, 41.

⁶⁹ "Richer Prize."

raised about the level of support for Diệm and the wisdom of financing a regime that was part of the problem.

Framing the issue as a military one made finding solutions much easier. Certainly chemical defoliation was a much more straightforward project than, for example, convincing Diệm to accept opposition parties in his government. Designed to hamper infiltration from the north, the goal of Ranch Hand implied that the problem was an external threat, not internal decay.

Crop destruction was different; it was much closer in fact, if not in spirit, to a war on civilians. Diệm, however, dismissed these concerns. In the pages of *The Times of Vietnam Magazine*, a publication that even Nolting acknowledged was “extravagantly pro-government,” articles and editorials repeatedly argued for the safety and efficacy of herbicides.⁷⁰ An anonymous April 1963 article claimed, “These chemicals [2,4-D and 2,4,5 – T] are better for vegetation control than other compounds of a similar nature because they are not harmful to people or animals....Agricultural research scientists also know that the chemicals do not harm the soil, water or livestock.”⁷¹ This was not the case. A later account was even more cavalier about the use of herbicides.

This fantasy of Peking’s [about the dangers of herbicidal spraying] reminds me of a pleasant time I once spent during a vacation in the south of France helping spray vineyard [sic] with certain of the products mentioned above to preserve the grapes from harmful insects. If these sprays had the terrible effects on the men and animals that enemy propaganda claims, both French wines and I myself

⁷⁰ Nolting, 120.

⁷¹ "Herbicides Used Extensively in Many Lands," *The Times of Vietnam Magazine*, April 7 1963, 6. General Sciences Library, Hồ Chí Minh City, Vietnam.

would have ceased to exist a long time ago.⁷²

Meanwhile, Nolting's and Diệm's interests continued to converge. Nolting, like Diệm, bemoaned the perfidy of public opinion. By the summer of 1963, after the Buddhist crisis had become above-the-fold news around the world, both Diem and Nolting complained that "'world opinion' [has] joined American 'public opinion' in overwhelming any sense of fairness or fidelity toward an ally."⁷³

This misplaced support damaged Nolting's usefulness as a representative of United States interests. His allegiance to Diệm also gave him less and less patience with other United States civilians in Sài Gòn. Embassy Public Affairs Officer John Mecklin, whom Nolting claims "seemed to feel that it was better to have a government policy supported by the press than an unpopular one that was consistent and reasonably successful," was in fact quite sympathetic to Nolting's quandary.⁷⁴ According to Mecklin, Nolting was "a fine man who had staked his career on the regime's defense" and paid dearly for it with his recall in August 1963.⁷⁵ As the administration became disenchanted with Diệm, Nolting's close relationship with him became a handicap.

Even after Nolting's removal, Diệm persisted in his calls for Ranch Hand's expansion. In a September 1963 meeting with senior United States officials, include McNamara and Taylor, the South Vietnamese leader made his position clear. "He said

⁷² N. P. Buu-Hoi, "Vegetation Control Chemicals Less Dangerous Than Kitchen Salt," *The Times of Vietnam Magazine*, April 28 1963, 5. General Sciences Library, Hồ Chí Minh City, Vietnam.

⁷³ Nolting, 127.

⁷⁴ Ibid., 92.

⁷⁵ Mecklin, 180.

flatly that regardless of whatever confusion might reign on the subject in Washington, crop destruction and defoliation were not humanitarian questions but were simple tools of victory.”⁷⁶ Ranch Hand in general, and crop destruction in particular, were ongoing subjects of debate within the White House, in part because of the potential effects on rural South Vietnamese. Their own president had no such qualms.

The Kennedy administration was tied to an ally with whom it shared a great deal. Both governments believed that the South Vietnamese were not ready for democracy, that South Vietnamese peasants were in need of tutelage and development, and that the most immediate problem facing the country was a military one. However, Diệm’s motives and methods were increasingly diverging from those of the White House. This was not enough to end, or even limit, the scope of Ranch Hand. Ranch Hand operations quickly developed their own momentum. Defoliation and crop destruction seemed a simple and straightforward way to take decisive action in South Vietnam while avoiding the potentially calamitous choice to introduce United States troops. The start of Ranch Hand thus became a foregone conclusion several months before Kennedy issued his approval.

⁷⁶ Memorandum of Conversation, September 29, 1963, Department of State, *Foreign Relations of the United States, 1961-1963: Volume IV: Vietnam, August-December 1963* (Washington DC: United States Government Printing Office, 1991), 314.

CHAPTER 6: SETTING THE COURSE

Operation Ranch Hand officially began on November 30, 1961. On that date, Kennedy authorized National Security Director McGeorge Bundy to issue National Security Action Memorandum (NSAM) 115. Titled, “Defoliant Operations in Viet Nam”, the brief statement carefully restricted the use of chemicals in South Vietnam. The initial goal was limited to defoliation in specific areas. The jungles in Zone D, surrounding Sài Gòn, and on the Vietnamese-Cambodian border, were forbidden. Food denial was also prohibited.¹ This chapter will explore the extent to which NSAM 115 was only a ratification of what was already happening in South Vietnam, and the reasons for the memorandum’s failure to contain the momentum behind the use of chemicals. The administration’s perception of Ranch Hand as a quick, simple and straightforward tactic that would obviate the need for United States ground troops, its penchant for secrecy, and the prospect of conquering another frontier all contributed to the approval, and the escalation, of Ranch Hand.

An attractive aspect of Ranch Hand was the speed with which it could be started, even imperfectly. South Vietnam was among the administration’s highest priorities from the very start. In a Saturday morning meeting a few weeks into his term, “the President said that he wanted Mr. [McGeorge] Bundy to make sure to get prompt action on the question of personal responsibility in Washington for the four crises areas: Viet-Nam; Congo; Laos; and Cuba. The President said we must change our

¹ National Security Action Memorandum 115, “Defoliant Operations in Viet Nam”, November 30, 1961.

course in these areas and we must be better off in three months than we are now.”²

Political solutions to the situation in South Vietnam, such as convincing South Vietnamese President Ngô Đình Diệm to hold contested elections, would take time, if they could be accomplished at all. After all, as Rostow advised Kennedy in early May, “If we do not move fast enough in all these directions, we can still lose....”³ At the same time, the smoldering crisis over Berlin demanded high-level attention.

Ranch Hand offered a military solution, one that did not require direct United States intervention, that both the administration and Diệm preferred to more complicated, time-consuming, and risky political reforms. “The most important thing” for South Vietnam, said Vice President Lyndon Johnson after his May 1961 visit, “is imaginative, creative American management of our military aid program.”⁴ The Taylor Mission Report, issued later that year, demonstrated by its very title the extent to which South Vietnam had become a military problem. General Maxwell Taylor was the President’s Military Representative, a newly-created position designed to bring Taylor back into government service. Deputy National Security Advisor Walt Rostow, who had accompanied General Taylor, was already distinguishing himself as an interventionist, “[Undersecretary of State] Chet Bowles with machine guns”, according

² Memo from Rostow to Bundy, January 28, 1961, Re: Meeting Saturday Morning, January 28, in the President's Office, on Viet-Nam, Department of State, *Foreign Relations of the United States 1961-1963: Volume I: Vietnam 1961*, 18.

³ Memorandum to the President from Walt Rostow, May 6, 1961, National Security Files, Regional Security, Southeast Asia, General, 1/20/61-5/31/61, Box 231, Doc 5, JFKL.

⁴ As quoted in Halberstam, *The Best and the Brightest*, 135.

to one contemporary joke.⁵ Perhaps more to the point, he had little interest in any of the complexities inherent in thinking through what a political solution would look like. As one State Department official remembered, “Walt Rostow in particular was completely impervious to area knowledge. It didn't make any difference to him. He'd figured out how to build nations, you know, so what's good for Peru is good for Vietnam.”⁶ There was no high-level representation from the State Department on the mission.

Preparations for Ranch Hand began months before NSAM 115. The first drums of herbicides entered South Vietnam in early July 1961. This shipment was part of the “Presidential Program for Viet-Nam”, an effort “to prevent Communist domination of Viet-Nam by initiating, on an accelerated basis, a series of mutually supporting actions of a political, military, economic, psychological, [redacted] character, designed to create in that country a viable and increasingly democratic society and to keep Viet-Nam free.”⁷ One of the strategies to achieve this ambitious program was ‘to develop and test, using the tools of modern technology, new techniques to help the U.S. and GVN [Government of Viet Nam, or the South Vietnamese government] in their joint campaign against the Communists.’ Along with voice amplifiers and assault rifles,

⁵ As quoted in Freedman, 29.

⁶ Paul Kattenburg, as quoted in Christian G. Appy, *Patriots: The Vietnam War Remembered from All Sides* (New York: Penguin Books, 2003), 82.

⁷ Status Report on the Presidential Program for Viet-Nam as of July 10, 1961, National Security Files, Countries, Vietnam, General, 7/61, Box 194, Document 5, 1, JFKL.

spray tanks and ‘defoliating chemicals’ came into South Vietnam.⁸ By the end of July, “all components needed for an extensive defoliation test are now enroute to Saigon.”⁹

On its face, this importation appeared to violate the restrictions on military equipment described in the 1954 Geneva agreement. The Kennedy administration, knowing the United States had never signed the agreement, did not feel bound by it. More to the point, at least according to the American Embassy in Sài Gòn, “US assistance, which is purposely distorted in letters from Hanoi authorities, has been requested by the GVN to assist it to defend itself against the guerrilla warfare being carried out by armed groups directed and supported by the Hanoi authorities...In other words, the assistance which the GVN has requested from the US is directly attributable to violations by the Hanoi authorities of the cease-fire provisions of the Geneva Accords...”¹⁰ Thus, the International Control Commission (ICC) restrictions on weapons importation could be ignored.

Despite the embassy’s insistence that the ICC was at worst a nuisance, there was ambivalence from the start about the wisdom and propriety of using chemicals in South Vietnam. Deputy Assistant Secretary of Defense William Bundy remembered, “the defoliant thing was always in a different category. I can’t remember a time when the

⁸ Status Report on the Presidential Program for Viet-Nam as of July 10, 1961, National Security Files, Countries, Vietnam, General, 7/61, Box 194, Document 5, 7, JFKL.

⁹ Status Report on the Presidential Program for Viet-Nam as of July 28, 1961, National Security Files, Countries, Vietnam, General, 7/61, Box 194, Document 6, 6, JFKL.

¹⁰ Undated memorandum, Saigon Embassy General Records, 1956-1963, Folder 310, Box 5, RG 84, NARA.

defoliant thing wasn't argued quite extensively, from the very first time."¹¹ In early August, after the drums of chemicals had already arrived, National Security Council staff member Robert Johnson warned Rostow that the decision to use defoliants might, and arguably should, come from the president himself. "A question currently under consideration....is the use of BW [biological weapons] or CW [chemical weapons] in Viet Nam....This is obviously a subject that would warrant Presidential consideration because of the very important international political as well as possible moral considerations involved."¹² As Ranch Hand preparations accelerated, Rostow would later raise these concerns to the president. Even he, a man of "methodical belligerence" in McGeorge Bundy's apt phrase, had reservations about the effects of herbicide use on the United States' image abroad.¹³ However, these were not enough to prevent Ranch Hand's approval.

The legal ramifications were relatively easy to minimize. The 1925 Geneva Protocol, properly known as the Protocol on the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of War, did not specifically ban herbicides and defoliants, since they had not yet been invented. The United States had also not ratified this protocol and was thus not bound by its prohibitions. Moreover, it was not clear what, if any, the consequences would be for

¹¹ William Bundy Interview, March 6, 1972, 26, JFKL.

¹² Memorandum from Robert H. Johnson to Walt Rostow, "Guerrilla Warfare Research Relating to South Viet Nam", August 8, 1961, National Security Files, Countries – Vietnam, 8/1961, Box 194, Document 9, JFKL.

¹³ McGeorge Bundy interview, March 1964, 139, JFKL.

ignoring the protocol. Italy, a signatory to the 1925 agreement, did in fact use mustard gas in its 1935 invasion of Ethiopia, but the League of Nations did not intervene.¹⁴

Moreover, chemical defoliation, in the context of other military options being considered, appeared relatively anodyne. An amphibious invasion of Hà Nội and the use of limited nuclear strikes to deter Chinese Communist involvement were just two of the choices raised in administration memoranda from 1961.¹⁵ In this context, the use of benign “weed killers” seemed easier and more humane. The decision to send United States ground troops into South Vietnam was more seriously debated during the summer and fall of 1961 than other more drastic measures, but even this would have been an extremely controversial choice.

There was significant internal pressure building for something to be done. Ambassador to South Vietnam Frederick Nolting, for one, warned in September that “If situation substantially worsens here, US will be faced with alternatives of sending US forces into SVN or backing down.”¹⁶ Nolting was shrewd in his choice of options; neither alternative was at all appealing. Using chemicals would be a clear demonstration both within the administration and to Diêm that the United States was, in fact, taking action but without tying the United States to the use of American troops.

¹⁴ Jonathan B. Tucker, *War of Nerves: Chemical Warfare from World War I to Al-Qaeda* (New York: Pantheon Books, 2006), 21, 29. Also see Lina Grip and John Hart, *The Use of Chemical Weapons in the 1935-36 Italo-Ethiopian War* (Stockholm: SIPRI, 2009), 6.

¹⁵ For one example of these options, see George McGhee to Walt Rostow, “Security in Southeast Asia”, July 28, 1961, National Security Files, Regional Security, Southeast Asia, General, 7/25/61-7/28/61, Box 231, Doc 9a, 3, JFKL.

¹⁶ Telegram #373 from Saigon Embassy to Rusk, September 18, 1961, in Department of State, *Foreign Relations of the United States 1961-1963: Volume I: Vietnam 1961*, 302.

By mid-September, Bowles was advocating both defoliant and “manioc (tapioca) killer” for use in beleaguered South Vietnam. His courtly manner disguised a willingness to use new weapons in South Vietnam. The situation, according to Bowles, was dire. “Deterioration Laos...scale September VC attacks which took such heavy toll... and probable effect on GVN morale require US take emergency action within 30 days if GVN to retain capacity to defend itself...”¹⁷ The National Security Council was also exploring new ways to help Diệm in his battle against subversion. On September 20, Johnson forwarded to Rostow a copy of the Advanced Research Projects Agency (ARPA) progress report from the Viet Nam Development and Test Center. ARPA was the Defense Department agency formed in 1958 as a response to *Sputnik* and charged with maintaining American superiority in military technology. The first item in the progress report, “selected according to [its] importance to the immediate situation”, was defoliation; the third was crop destruction. Neither had yet received presidential approval, although the crop destruction tests were taking place “at the strong insistence of the Vietnamese government.”¹⁸

ARPA’s endorsement notwithstanding, not everyone was so sanguine about the role of technology in South Vietnam. The day after Johnson sent the report, Rostow received a letter from George Tanham, a colleague and friend at RAND. Rather than trumpeting the usefulness of scientific innovation in South Vietnam, he warned Rostow

¹⁷ Draft Telegram from to State and Defense Departments, September 20, 1961, National Security Files, Countries, Vietnam, 9/61, Box 194, Document 19b, 1,3, JFKL.

¹⁸ Advanced Research Projects Agency, Progress Report, “Vietnam Combat Development and Test Center”, n.d., National Security Files, Countries, Vietnam, 9/61, Box 194, Document 19a, 1-2, JFKL.

that “The reports I get from Vietnam are extremely discouraging, and unless a serious effort is made above and beyond the hardware approach, I am afraid the country will be gone within the next couple of years.”¹⁹ Chemical herbicides were not precisely hardware, but Tanham’s letter argued against the adoption of technological solutions for problems that are not amenable to them.

To further complicate the decision, the line between defoliation and crop destruction had already begun to blur. In a September 20, 1961 telegram, entitled “Emergency Assistance”, the Departments of State and Defense informed the United States Embassy in Sài Gòn exactly what would comprise that assistance. Among the items on their way were “defoliant, manioc (tapioca) killer and bulldozers for clearing in frontier areas.”²⁰ NSAM 115, which would approve only defoliation, was still two months away.

Meanwhile, Bowles sent the final version of the September 20 telegram to Admiral Harry Felt, Commander in Chief - Pacific (CINCPAC) and the Sài Gòn embassy, advising that “those responsible for military program are urged request additional materiel....Favorable consideration can be anticipated.” Bowles went on to suggest explicitly that herbicides be included in any request.²¹ Nolting agreed with

¹⁹ Letter from George K. Tanham to Walt Rostow,, September 21, 1961. National Security Files, Countries, Vietnam, 9/61, Box 194, Document 22, JFKL.

²⁰ “Emergency Assistance”, draft telegram, joint State-Defense message to American Embassy, Sài Gòn, September 20, 1961, National Security Files, Countries, Vietnam , 9/61, Box 194, Document 19b, JFKL.

²¹ Telegram 337, September 22, 1961, from Bowles to CINCPAC and Sài Gòn Embassy, National Security Files, Countries, Vietnam, 9/61, Box 194, Document 24, 1,3, JFKL.

Bowles about the suitability of defoliation. In an October 2, 1961 reply to Bowles' telegram, the ambassador cabled to Secretary of State Dean Rusk that "we share your sense of urgency," He also welcomed the offer of additional equipment and supplies. Defoliation was "a project of such magnitude that request for spray planes from out-of-country is being formulated."²² Shortly after this exchange, the Military Assistance and Advisory Group (MAAG), the embassy's military counterpart, formally made its request for six fixed-wing aircraft and four helicopters for use in spraying operations. The request for aircraft was, of course, in violation of the Geneva prohibitions. The agency charged with inspecting and monitoring what came into North and South Vietnam was the International Control Commission (ICC), a three-member body including representative from Canada, India, and Poland. The ICC had no enforcement powers; it could do little more than report violations.

The administration was increasingly committed to the Diệm government. The growing sense of crisis about the fate of South Vietnam, combined with the administration's own predilections for speed and decisiveness, contributed to a sense of urgency that demanded action. Crucial choices happened quickly and could not easily be reversed. As Undersecretary of State George Ball argued, "I still, in retrospect, think that the decisions made in the fall of '61 were the critical decisions because they set the course. And thereafter it became increasingly difficult to turn it around."²³ One of these

²² Telegram #427, October 2, 1961 from Nolting to Rusk, National Security Files, Countries, Vietnam, 10/1/61-10/3/61, Box 194, Document 3, 1,3, JFKL.

²³ George Ball Interview, February 16, 1968, 11, JFKL.

decisions, ratified in late November but in reality made weeks before, was the introduction of chemical herbicides into South Vietnam.

Planning for Ranch Hand continued, despite significant gaps in what the administration knew about revolutionary activities in South Vietnam. Less than 2 months before NSAM 115, Rusk sent a telegram to Nolting asking for information “vital to current decisions at highest level on our problems...in Viet-Nam.” The questions revealed a lack of knowledge about infiltration routes and indigenous participation in the war in the south, questions that needed to be answered for defoliation missions to be executed properly.²⁴ Despite the lack of answers, Nolting, MAAG, and Rusk were already deep into planning for aerial spraying. “MAAG has requested 120-day TDY [Temporary Duty] assignment Viet-Nam of six C-119 or C-123 aircraft and four H-34 helicopters in connection defoliant spraying program,” reported Nolting on October 8.²⁵ Ranch Hand was by now practically a fait accompli. Sociologist Diane Vaughan has explored how even critical and contested choices may get made without a formal decision. What Vaughan terms “an incremental descent into poor judgment” may appear, at the time, to demonstrate initiative and efficiency.²⁶

Given the limited appetite for pushing Diệm to adopt political or administrative changes, the only lever available was military. Since Kennedy believed that the

²⁴ Telegram #374, From Rusk to American Embassy Saigon, October 3, 1961, National Security Files, Countries, Vietnam-General, 10/1/61-10/3/61, Box 194, Document 8, JFKL.

²⁵ Telegram #448 from Nolting to Rusk, October 8, 1961, National Security Files, Countries, Vietnam-General, 10/4/61-10/9/61, Box 194, Document 16, JFKL.

²⁶ Vaughan, xiii.

introduction of United States troops into South Vietnam was prohibitively dangerous politically, military advantage would need to come in other ways. The Taylor Mission Report suggested what one of the sources might be. “There are a range of limited concrete devices which could assist both militarily and psychologically in the war against the Viet-Cong. These deserve urgent and careful operational consideration, notably the following: the use of chemicals to attack the rice and manioc crop in carefully selected mountain areas where the Viet-Cong buildup depends on their own plantings to supplement a thin local food supply....”²⁷ Taylor was already anticipating the approval of crop destruction missions.

By early November, all that remained was to receive presidential approval. The necessary equipment could be in South Vietnam “within 20 days”, and the South Vietnamese Air Force had already made plans both to defoliate portions of the Delta and to spray crops.²⁸ Diệm strongly supported the use of chemicals as both defoliants and herbicides. A few weeks before Kennedy issued NSAM 115, which approved their use for defoliation only, Diệm ‘requested that initial supplies of commercially available Manioc destructant together with 4 H-34 helicopters and 6 C-119’s be introduced into Viet Nam within 30 days”, or December 2, 1961.²⁹ This request later expanded to include chemicals targeting rice and sweet potatoes. The identification of rice as a

²⁷ Taylor Report, November 3, 1961, Tab C, National Security Files, Countries, Vietnam, Subjects: Taylor Report 11/3/61, Document 7, 22, JFKL.

²⁸ Taylor Report, November 3, 1961, National Security Files, Countries, Vietnam, Subjects: Taylor Report, 11/3/61, Tab 8, 2, JFKL.

²⁹ Taylor Report, November 3, 1961, National Security Files, Countries, Vietnam, Subjects: Taylor Report, 11/3/61, Tab 8, 2, JFKL.

target implies that herbicides would be sprayed in the Mekong Delta, (đồng bằng sông Cửu Long) Vietnam's 'rice bowl.' Previous statements about crop destruction had implied that it would be limited, at least initially, to areas further north.³⁰

Although Kennedy had yet to approve the use of chemicals for defoliation, let alone crop destruction, senior military leaders already viewed herbicides as a potentially important weapon. The military's ambitions for Ranch Hand were already beginning to expand past those approved by Defense or State. A memorandum from a November 11 National Security Council meeting outlined extensive preparations, and ambitions, for chemical use in South Vietnam. The first item on the list of "Collateral Actions Pending or Approved" was one that had been explicitly not approved: "Provide aircraft, personnel and chemical defoliants to Vietnam to kill Viet Cong food crops and defoliate selected border and jungle areas to assist in uncovering enemy hideout and transit areas." This was a much broader mandate than either the Defense or the State Department had recommended or that Kennedy would initially approve. Nevertheless, the plans were in motion for this more expansive program of defoliation and crop destruction. "Spraying equipment has been installed on Vietnamese H-34 helicopters and is ready for use against food crops (manioc and rice), Phase I."³¹

³⁰ Taylor Report, November 3, 1961, National Security Files, Countries, Vietnam, Subjects: Taylor Report, 11/3/61, Tab 8, 5, JFKL.

³¹ Excerpt from Project "Beef Up" Status Report of the Military Actions Resulting from the National Security Council Meeting, November 11, 1961, Operations Directorate, J-3, November 27, 1961, National Security Files, Countries, Vietnam, General, 11/26-11/28/61, Box 195, no Document Number given, JFKL.

Kennedy's explicit approval became less and less crucial as Ranch Hand gained momentum. "Shipment defoliants and spraying equipment for helicopters approved," Rusk telegraphed to Nolting shortly before Kennedy issued NSAM 115. "Operational use not approved until further notice," the telegram continues, although it is doubtful that the Diệm government, which had long advocated for their use, would be content to have helicopters and drums of chemicals sitting idle.³²

Nonetheless, concerns persisted about what exactly Ranch Hand was and what its implications might be. Rostow put some of his most serious reservations into a November 21, 1961 memorandum to Kennedy. Titled "Viet-Nam Status Report", it painted a pessimistic picture of the situation in South Vietnam. "There has been continuing deterioration...in the military situation. The crisis described in the Taylor Mission Report has not been reversed."³³ The update ends with a warning for Kennedy about a decision he will soon need to make. "You will be receiving papers from Defense and State soon raising the question of whether we should support the use of a weed killer to attack crops in the plateau area on which the VC feed and to clear jungle

³² Telegram #594, Dean Rusk to American Embassy, Saigon, November 13, 1961, National Security Files, Countries, Vietnam, General, 11/11/61-11/13/61, Box 195, Document 6, JFKL.

³³ Memorandum to the President from Walt Rostow, "Viet-Nam Status Report", November 21, 1961, National Security Files, Countries, Vietnam, General, 11/21-11/23/61, Box 195, Doc 5a, 1 JFKL.

paths, notably for an attack on Zone D. Your decision is required because this is a kind of chemical warfare.”³⁴

These papers arrived on Kennedy’s desk almost simultaneously with Rostow’s. Roswell Gilpatric, Deputy Secretary of State and the former head of the Viet Nam Task Force wrote the department’s position paper on defoliation. Pressure was continuing to build for a formal approval of chemical spraying. “President Diem had appealed for United States support of a defoliation program in Viet Nam. The Country Team has recommended urgent approval of a program....The field has urged speed, especially for the food denial phase.”³⁵ Already, momentum for crop destruction was building, even though defoliation had not yet been approved. Although riddled with caveats, the paper advocated for ‘a selective and carefully controlled program’ of herbicide use.³⁶ This was the very wording later used in NSAM 115, and later flouted.

Gilpatric’s November 21 memorandum introduces phrasing that would be repeated throughout Ranch Hand. In asserting the safety of 2,4,-D and 2,4,5-T, he wrote, “The agents have no harmful effects on humans, livestock, or soil. Their only

³⁴ Memorandum to the President from Walt Rostow, “Viet-Nam Status Report”, November 21, 1961, National Security Files, Countries, Vietnam, General, 11/21-11/23/61, Box 195, Doc 5a, 3 JFKL.

³⁵ Memorandum from Gilpatric to Kennedy, November 21, 1961, “Defoliant Operations in Viet Nam”, National Security Files, Countries, Vietnam, General, Memos & Reports, 11/17-11/30/61, Box 195, Document 6, 1, 2, JFKL.

³⁶ Memorandum from Gilpatric to Kennedy, November 21, 1961, “Defoliant Operations in Viet Nam”, National Security Files, Countries, Vietnam, General, Memos & Reports, 11/17-11/30/61, Box 195, Document 6, 5, JFKL.

effect is to kill the plant growth upon which sprayed.”³⁷ Insurance underwriters, hunters, and botanists might disagree with this reassurance; all of these groups had publicly expressed reservations about how safe and controllable these chemicals really were. Nevertheless, the assertion that phenoxy herbicides were completely harmless except to their targets would appear regularly in both internal documents and propaganda directed toward the South Vietnamese.

The State Department assessment, issued over Rusk’s signature, was much briefer and less nuanced. The memorandum focused primarily on the legality and public relations implications of spraying. Rusk’s piece, written in response to Gilpatric’s, dismissed any concerns about Ranch Hand’s legitimacy, regardless of what North Vietnam or its allies might charge. “The use of defoliant does not violate any rule of international law concerning the conduct of chemical warfare and is an accepted tactic of war....We will, of course, be the object of an intense Communist ‘germ warfare’ campaign which may be picked up by some neutrals.”³⁸ The State Department concurred with the Defense Department’s recommendations for Ranch Hand.

Days later Kennedy issued NSAM 115. It was much narrower than the United States military’s conception of herbicide use, and it did not authorize chemical spraying to the extent Diệm wanted. Even with the limited scope dictated by NSAM 115,

³⁷ Memorandum from Gilpatric to Kennedy, November 21, 1961, “Defoliant Operations in Viet Nam”, National Security Files, Countries, Vietnam, General, Memos & Reports, 11/17-11/30/61, Box 195, Document 6, 2, JFKL.

³⁸ Memorandum for the President from Dean Rusk, November 24, 1961, National Security Files, Countries, Vietnam, General, Memos and Reports, 11/17-11/30/61, Box 195, Document 7, JFKL.

Kennedy's directive marked the first use of aerial defoliation against a foreign country and not on a domestic military installation. The first instance of destroying another country's crops was still to come. Kennedy would come under increasing pressure for expansion; he would authorize crop destruction in October 1962.

A variety of factors contributed to Ranch Hand's appeal and helped to drive its rapid adoption and escalation. Some of these, such as the perceived need for a military solution in South Vietnam, were specific to the particular problems the administration faced in supporting the Diem government. Others, such as the ability to keep Ranch Hand a secret and the allure of civilizing another frontier, reflected broader trends and perceptions within the Kennedy administration.

Ranch Hand seemed to be a particularly clean military tactic; no soldiers on the ground, no dangerous amphibious landings. Air power already had an image of a sanitized form of military involvement, and Ranch Hand fit neatly into that model.³⁹ As Roger Hilsman recalled from his involvement in decisions about South Vietnam, there was "a long history of attempts to use air power not as a supplement for ground power in Asia, but as a substitute for it – attempts to make war 'immaculate,' to move it up above the jungle muck and blood of ground combat to the clean blue skies."⁴⁰

³⁹ In reality Ranch Hand missions were quite dangerous, since the planes flew at such low altitudes they quickly became vulnerable to anti-aircraft fire.

⁴⁰ Hilsman, 101. The intersection of air power and counterinsurgency, particularly the idea that air power is a particularly clean and effective method for waging a counterinsurgency campaign, is explored in, for example, James S. Corum and Wray R. Johnson, *Airpower in Small Wars: Fighting Insurgents and Terrorists* (Lawrence: University Press of Kansas, 2003); Stephen T. Hosmer, *Operations against Enemy Leaders* (Santa Monica, CA: RAND/Project AIR FORCE, 2001). Michael S. Sherry,

The United States Air Force, too, held idealized images of what air power could achieve in South Vietnam. As one student at the Air Command and Staff College argued in May 1962, “There is no such thing as limitations or impossible conditions, only incorrect tactics or poor employment.”⁴¹ Ranch Hand operations fit within the enduring idea of “precision bombing.” Destruction would not rain indiscriminately from the sky but would instead be controlled and managed. This concept, first articulated in the 1930s in the wake of the devastation of World War I, promised a more humane and proportional way of war, as Ranch Hand seemed to offer in South Vietnam.⁴²

Ranch Hand also appeared to be a proportional response politically, according to National Security Advisor McGeorge Bundy. “My own sense of the matter is that what was decided was to do the maximum amount that did not create a major international noise level and see what happened, and did not create a major domestic noise level and see what happened.”⁴³ Spraying agricultural chemicals seemed comfortably within the range of existing military commitment, as in an early 1962 meeting.

In the discussion concerning South Vietnam the President re-emphasized the importance of the U.S. not becoming further involved militarily in that

The Rise of American Airpower: The Creation of Armageddon (New Haven: Yale University Press, 1987). provides important historical context for the development of these views. Also useful is Phillip S. Meilinger, ed. *The Paths of Heaven: The Evolution of Airpower Theory* (Maxwell AFB, AL: Air University Press, 1997).

⁴¹ William R. Becker, “Air Power in the Fight Against Guerrillas,” Air Command and Staff College, May 7, 1962, 91 as quoted in Dennis M. Drew, “U.S. Airpower Theory and the Insurgent Challenge: A Short Journey to Confusion” *The Journal of Military History* 62, no. 4 (October 1998): 815.

⁴² Corum and Johnson; Hosmer; Sherry, 51-54.

⁴³ McGeorge Bundy Interview, March, 1964, 138, JFKL.

area...Following a briefing on the proposed defoliant operations, it was agreed that the first step would be for a small-scale application on an experimental basis which would be limited to the first priority road, i.e., a stretch of approximately 35 to 40 miles long.⁴⁴

In 1961 and early 1962, the perception was that chemical spraying would provide a quick, straightforward, inexpensive, and easily disguised solution to a difficult problem. Shipping in drums of commercially-produced chemicals and existing airplanes would be much simpler than introducing political reforms or even training South Vietnamese soldiers in the latest counterinsurgency techniques. The chemicals were already in domestic production and in heavy use, and the necessary spraying equipment could be adapted for military purposes. The Camp Drum test proved that spraying with military airplanes was possible. Chemical defoliants and herbicides could be rapidly deployed. Spraying widely-used chemicals to kill plants, as thousands of United States farmers and homeowners were already doing, appeared uncomplicated. After all, suburban families were having great success with 2,4-D on their lawns, without any specialized training in botany or plant physiology. The actions of phenoxy herbicides on the Vietnamese environment were, ostensibly, well-understood

Furthermore, Ranch Hand could be kept secret. Plans for deceiving the ICC were well underway at the time Kennedy issued NSAM 115. Ranch Hand could easily be executed in the face of ICC restrictions on the importation of military equipment.

The communists had been violating these restrictions for years, according to the

⁴⁴ Memorandum for the Record of a Meeting With the President, Palm Beach, Florida, January 3, 1962, Subject: President's Meeting with JCS on January 3, 1962 in Department of State, *Foreign Relations of the United States, 1961-1963: Volume II: Vietnam, 1962* (Washington DC: United States Government Printing Office, 1990), 3.

administration, so it was necessary for the allies of South Vietnam to flout them too.

John Mecklin, the Public Affairs Officer of the United States Embassy, dismissed as “schoolbook morality” the administration’s initial adherence to the prohibition.⁴⁵

Methods to evade ICC inspections became an integral part of planning for Ranch Hand.

The chemicals themselves entered the country manifested as “civilian cargo”: the rainbow of chemical names came from the colors of the bands around the otherwise anonymous 55-gallon drums.⁴⁶ Disguising the planes and crews would be done through other deceptive markings. “We see no serious ICC problems with regard this project,” confided Nolting, “provided aircraft carry civilian and not rpt not US military markings and pilots and crew wear civvies.”⁴⁷

Congress was also not privy to what exactly the Administration was doing in support of Diệm. Ambassador Nolting did not share Ranch Hand’s progress in January 12, 1962 testimony to the Senate Foreign Relations Committee; he did not even mention its existence. Nolting declared that the major problem facing South Vietnam was not the Diệm administration nor was it the increasing alienation of rural South Vietnamese from the central government. Rather, it was the infiltration of North Vietnamese troops and supplies into the south. Senators on the Foreign Relations Committee pressed Nolting on what the solution to this problem was, and how much of a difference solving it would make to the success or failure of United States efforts to preserve a non-

⁴⁵ Mecklin, 106.

⁴⁶ Cecil, 32. Buckingham, 26-7.

⁴⁷ Telegram 448, October 7, 1961 from Nolting to Rusk, National Security Files, Countries, Vietnam, 10/4/61-10/9/61, Box 194, Document 16, 1, JFKL.

communist South Vietnam. Under questioning by Senator John Sparkman (D-AL), Nolting avoided any mention of aerial spraying, purportedly a key anti-infiltration tool.

Senator SPARKMAN. Mr. Chairman, before he leaves that infiltration subject, may I ask this? You say unless we can effectively stop, or some such statement as that, that infiltration-can we?

Mr. NOLTING. I think we have a reasonably good prospect, Senator Sparkman.

Senator SPARKMAN. How will it be done? Our help is to train and equip their men, isn't it?

Mr. NOLTING. Yes, sir, but one of the factors, internally, in South Vietnam that will help to cut down on this if not stopped is the mounting of a very active ranger border patrol. This would be 5,000 to 6,000 Vietnamese rangers. We have trained those people." ⁴⁸

By the time of Nolting's testimony, Ranch Hand had been officially underway for 2 months, and unofficially it had been happening for even longer.

Perhaps most compelling in support of Ranch Hand, however, because of their longevity and pervasiveness, were existing beliefs about frontiers. As a candidate, Kennedy famously made the "New Frontier" a central metaphor of his 1960 presidential campaign. In his Los Angeles acceptance speech, he invoked

What was once the last frontier. From the lands that stretch 3,000 miles behind me, the pioneers of old gave up their safety, their comfort, and sometimes their lives.... Today some would say that those struggles are all over – that all the battles have been won – that there is no longer an American frontier. But I trust that no one in this vast assemblage will agree with those sentiments.... We stand today on the edge of a New Frontier. ⁴⁹

The idea of civilizing the frontier was not new to Kennedy but did carry a great deal of significance during his presidency. This idea of the frontier, in American

⁴⁸ Ambassador Frederick Nolting testimony, January 12, 1962, in *Executive Sessions of the Senate Foreign Relations Committee*. 87th Cong., 2nd sess., Vol. XIV (Washington DC: United States Government Printing Office, 1984), 38.

⁴⁹ John F. Kennedy, "Democratic Convention Acceptance Address," *Vital Speeches of the Day*, August 1 1960, 611.

history, has been bound up with the idea of conflict and challenge. Pioneers into the American West left their homes and communities to travel into a dangerous wilderness. The western settlers had triumphed in an existential struggle, similar to the one facing Americans during the early 1960s, and they had done so through courage, persistence, and innovation.⁵⁰ This narrative, perhaps because of its mythic qualities, gave both direction and reassurance during the Kennedy presidency.

The conception of the frontier as dangerous was particularly powerful in mid-20th century understanding of South Vietnam. As cultural historian Richard Slotkin observes, “The Indian-war metaphor became increasingly prominent in the rhetoric of counterinsurgency after 1961, in part because of the parallels between these two kinds of fighting – both of which took place in a ‘wilderness’ setting against a racially and culturally alien enemy.”⁵¹

Contemporary writing on South Vietnam also made these connections. *LIFE* pointed out that the very qualities that made Native American fighters so formidable in the Western plains seemed to be equally valuable in the jungles of South Vietnam.⁵² The South Vietnamese upland tribes known as the Montagnards, according to *The Saturday Evening Post*, “look more like American Indians than Orientals, and they are

⁵⁰ This conflict was not limited to the western United States. Historian Walter Williams makes explicit the parallels in his analysis of the Indian wars and the Philippine insurrection. See Walter L. Williams, "United States Indian Policy and the Debate Over Philippine Annexation: Implications for the Origins of American Imperialism," *The Journal of American History* 66, no. 4 (March 1980): 810-831. See also Drinnon.

⁵¹ Slotkin, 493.

⁵² "The Lovely Land That May Blow Up: Cradled in Buddhism, Colonized by the French, Needed by the Free World: This Is Vietnam," *LIFE*, October 27 1961, 48.

the most skillful hunters and trackers since the Apaches.”⁵³ Journalist Beverly Deepe, filing for the Associated Press, also promoted the metaphor of South Vietnam as another American frontier, complete with stagecoaches, log forts, and marauding natives.

I thought I was seeing the filming of a cowboys and Indians movie...a bit of the old frontier days of the American Wild West.

The large wooden fort with gun ports and log cabins were not, however, in Hollywood....They protect against an enemy more serious than the Indians – the Communist Viet Cong guerrillas.

The Project at Kham Duc might be called President Ngo Dinh Diem’s new frontier....a protected fortress for Vietnamese and mountaineer tribesmen for miles around.... The scene was not too different from the stories my grandfather had told me when he traveled westward from Ohio to Kansas and then Nebraska, the covered wagons clustered together for self-protection against marauding Indians.”⁵⁴

It followed that herbicides like 2,4-D, which had been so important in civilizing the American west just a few decades earlier, might play the same role in South Vietnam.

Herbicides and defoliants were new methods of achieving an enduring goal. The theme of taming the frontier reached past ideas about indigenous peoples. South Vietnam, itself like the American West, could be reclaimed through the use of chemicals. “Plans call for burning over the defoliated areas where they have dried out sufficiently,” a report on “Suggested Courses of Action” stated, “This will drive out any Viet Cong still taking cover there, and will facilitate later planned reclamation of much

⁵³ Harold H. Martin, "Fighting an Unseen Enemy," *Saturday Evening Post*, November 24 1962, 16.

⁵⁴ Beverly Deepe, "Girl in Kham Duc: President Ngo Dinh Diem's New Frontier," *The Times of Vietnam Magazine*, April 29 1961, 18-19. General Sciences Library, Hồ Chí Minh City, Vietnam.

of the area for crops.”⁵⁵ George Tanham of RAND gave similar advice to Rostow.

After defoliation, “new crafts and new crops might be introduced” to increase the land’s productivity.⁵⁶

These efforts at improvement seemed to succeed. One report boasted that, “A considerable boom may be observed in the vegetable growing areas of Da Lat. Using American tractors, the local farmers are conquering virgin lands. Irrigated terrace gardens are built on the slopes of hitherto bare hills.”⁵⁷ One of the goals of the United States Civic Action program in Vietnam was to teach the Vietnamese how to use more effectively the lands they had been farming for centuries. The United States Operations Mission (USOM) aimed for “rural rehabilitation” and planned to provide “pest control programs...fertilizer supplies, seeds, [and] advice on crop patterns.”⁵⁸

Chemicals like 2,4-D played an important part in implementing one of the basic methods of control for both suburban and delta landscape: the grid. This method of land subjugation was, of course, not new to the Cold War; Thomas Jefferson advocated it when the “wild west” included present-day Ohio, and the 1862 Homestead Act

⁵⁵ “Summary of Suggested Courses of Action”, 1961, National Security Files, Countries, Vietnam, Box 203, JFKL.

⁵⁶ Memorandum from George Tanham to Walt Rostow, September 21, 1961, “Suggested Actions After a Successful Clearing Operation in Vietnam”, National Security Files, Countries, Vietnam, 9/61, Box 194, Document 22, JFKL.

⁵⁷ Communication from Maj. Gen. Bela K. Kiraly to Brig. Gen. Edward G. Lansdale, National Security Files, Countries-Vietnam, General, 10/4/61 – 10/9/61, Box 194, Doc 13a, JFKL. It is not entirely surprising that Đà Lạt would be ‘underdeveloped.’ It had long served as a resort for high ranking French and South Vietnamese officials who wanted to escape the punishing Sài Gòn rainy season.

⁵⁸ Briefing Paper for a Presentation by the Director of the Vietnam Task Force Before the Special Group (Counterinsurgency), March 22, 1962, in State, 259.

codified it. The grid as a tool for land management persisted well into the 1960s. Suburbs represented a 20th century imposition of the grid, and herbicides helped to transform, in David Nye's words, "an untouchable remnant of original nature..[into] a generic, blank space waiting to be surveyed into squares and inserted into a national narrative of inevitable progress."⁵⁹ Furthermore, maintaining the integrity of these squares required tight control of the land itself, including the plants that grew on it.

In South Vietnam, a similar pattern emerged. The grid was both a means of control and a way for Americans in the jungle to understand a frighteningly foreign land. The United States Air Force designated Ranch Hand targets as R-4, R-5 and R-6; the American embassy used labels like "Target zone area BQ750650" to accommodate the formatting demands of early computers.⁶⁰ Briefings to the media used similar conventions. In order for these precise and artificial definitions to have meaning, the underlying landscape had to be tightly bounded and controlled. Herbicides were a proven method for this task.

The wilderness of South Vietnam seemed to require the same sort of pest control that suburban lawns needed. The Việt Minh and their southern allies, the NLF, were, in this conception, little more than invasive growths. Theodore Heavner, the Deputy Director of the Vietnam Working Group under Kennedy, summed up the

⁵⁹ David E. Nye, *America as Second Creation: Technology and Narratives of New Beginnings* (Cambridge: The MIT Press, 2004), 301-302.

⁶⁰ Telegram from the Embassy in Vietnam to the Department of State, July 7, 1962, in State, 505.

distinction. “The basic aim is, of course, to separate the people from the VC.”⁶¹ In this view of the situation, the two categories were static and unchanging. One contained human beings, the other something different, something that needed to be eradicated. Chemical defoliation was one of a set of tools through which the United States could “clean up” the landscape, an explicit goal of Ranch Hand. A joint message from the Departments of Defense and State asserted that, “In this operation we are merely clearing jungle growth along the sides of roads,” much as Americans had already done in their own country.⁶²

These ideas of separation and control are, of course, integral to suburban lawn care. Nye, a historian of technology, has proposed that a dominant American narrative has been “self-conscious movement into a new space”, be it Levittown or Long An province.⁶³ “[Lawns] depend on their success on the *overcoming* of local conditions,” wrote Michael Pollan, and herbicides would help new and fragile lawns prevail over existing scrub and invasive weeds.⁶⁴ Recently planted, non-native species would require outside assistance to prevail against those already living and thriving there. The chemical industry integrated these parallels into their discussions of the benefits of herbicides. For example, at the same time Kennedy administration officials were

⁶¹ Report by the Deputy Director of the Vietnam Working Group, December 11, 1962, Visit to Vietnam, October 18 - November 26, 1962, in *ibid.*, 768.

⁶² Joint State-Defense Message – Task Force Vietnam, December 1961, National Security Files, Countries, Vietnam – General, 12/14/61-12/18/61, Box 195a, Document 2, JFKL.

⁶³ Nye, 3.

⁶⁴ Michael Pollan, *Second Nature: A Gardener's Education* (New York: Grove Press, 1991), 63. Italics Pollan's.

considering the use of herbicides and defoliants in South Vietnam, the trade journal *Agricultural Chemicals* observed, “Weeds infiltrate the farmlands and monopolize the soil’s supply of water and nutrients, starving the crops. Their relentless encroachment takes another mammoth bite out of agriculture.”⁶⁵

The idea of health also loomed large in thinking about unimproved land, communism and the chemical herbicides themselves in both the United States and South Vietnam.⁶⁶ Historian Kenneth Jackson, in *Crabgrass Frontier: The Suburbanization of the United States* describes the dynamics of suburban development. One driver of growth was a fear of epidemic disease. During the 19th century, when American suburban living was first coming into vogue, Jackson discovered, “scarcely a single suburban advertisement...failed to contain the boast that residence among open spaces was more healthy than life in cities.”⁶⁷ Well into the 20th century, as Priscilla Wald describes, urban centers also appeared to be centers for contagious disease.⁶⁸

In the early 1950s and 1960s, another epidemic threatened the entire world. Discussions of Communism frequently compared it to a disease. As early as 1947, media outlets such as *Reader’s Digest* described Communism as a virulent infection,

⁶⁵ "Du Pont Movie Tells Story of Unseen Harvesters," *Agricultural Chemicals*, September 1962, 40.

⁶⁶ For a provocative analysis of western settlers’ perceptions of health, see Conevery Bolton Valencius, *The Health of the Country: How American Settlers Understood Themselves and Their Land* (New York: Basic Books, 2004).

⁶⁷ Jackson, 58.

⁶⁸ See especially Chapter 3, “Communicable Americanism: Social Contagion and Urban Spaces” in Priscilla Wald, *Contagious: Cultures, Carriers, and the Outbreak Narrative* (Durham, NC: Duke University Press, 2008).

hinting at what would later be called the domino theory.⁶⁹ This view persisted. According to Rostow, Communism was a virus that preyed on states that were frail or very young.⁷⁰ Wald, in her provocative book *Contagious: Cultures, Carriers, and the Outbreak Narrative*, suggests that the idea of contagion can be traced from the conceptualization of cities as sources of illness through the onset of the Cold War and the increasingly prevalent understanding of Communists acting as carriers, “threatening to corrupt the dissemination of information as they infiltrated the nerve center of the state.”⁷¹ Popular media used the metaphor also: one *Time* account of the struggle was titled, “South Vietnam: To Eradicate the Cancer.”⁷² Herbicides would, in this worldview, act as a kind of chemotherapy against Communism in South Vietnam.

The evolution of Ranch Hand continued despite reservations within the administration. There were a number of factors that lent chemical spraying an attractiveness that proved false. All of these factors, from a reluctance to impose political solutions in South Vietnam to existing beliefs about landscapes and their worth, contributed to Ranch Hand’s development and fueled its growth, even as Kennedy himself tried to limit it.

The advantages that Ranch Hand seemed to bring, however, were illusory. The program was, in fact, complicated and prohibitively difficult to execute. It could not be

⁶⁹ Klein, 98.

⁷⁰ Gilman, 195. Rostow was not alone in equating Communism with disease. Robert Langbaum, “Totalitarianism: A Disease of Modernism?,” *Commentary* 19, no. 5 (1955).

⁷¹ Wald, 159.

⁷² “South Viet Nam: To Eradicate the Cancer,” *TIME*, February 1962.

kept secret, and even the chemicals themselves were beyond Americans' control. The program itself quickly escaped Kennedy's management, despite the president's efforts at oversight. Meanwhile, the scope and the stakes of the operation grew larger.

CHAPTER 7: A WHOLLY NORMAL PROCEDURE

From the start, Operation Ranch Hand did not go as planned. Not only were the initial preparations more complicated than first assumed, but even after spraying missions began, unexpected problems continued to surface. As difficult as aerial herbicide spraying was in the United States, it was even more complicated in South Vietnam. United States efforts to mask American involvement in Ranch Hand quickly became unmanageable. More seriously still, Ranch Hand quickly slipped from institutional controls. A program that Kennedy was to oversee personally came under increasing pressure from, and influence by, the United States military and the American Embassy. The program expanded, even as its effectiveness remained questionable. The underlying rationale for the program remained constant: defoliation and crop destruction would be an innovative and inexpensive weapon against Communist infiltration, one that did not require politically difficult choices.

Spraying in South Vietnam was much more difficult than in, for example, western Kansas. One problem was the aircraft used. The demands of Ranch Hand required that spray planes be less agile than civilian “crop dusters.” According to historian Paul Cecil, himself a Ranch Hand veteran,

Commercial spray equipment in the United States was usually mounted on light aircraft, such as the PA-18, AgCat, or Steerman World War II trainer. These aircraft, however, were unsuitable for operation in a combat environment and limited in the amount of chemical that could be carried. Instead, it was decided to equip several available military aircraft with spray equipment originally designed for other purposes.¹

¹ Cecil, 23.

One of the aircraft was C-123, a sturdy but somewhat clumsy cargo plane powered by four engines. The other was the H-34 helicopter, originally designed for anti-submarine missions and powered by a type of engine particularly ill-suited to South Vietnam's high humidity.²

The spraying equipment itself was yet another problem. According to Cecil, the viscosity of military herbicides prevented even state-of-the-art application systems from functioning properly. The thicker formulas did not flow easily through existing equipment, but they were necessary for proper application in extremely hot and humid conditions. "Even with the Hourglass pumps running at maximum output (150 gallons per minute), application rates of less than one gallon per acre were all that could be achieved, an amount insufficient to significantly affect any but the most sensitive forest plants."³

Pilot training posed still another challenge. The airplane most often used to deliver herbicides in South Vietnam was the C-123. This type of aircraft required specialized training. In addition, pilots needed further instruction in aerial application of herbicides. As a result, according to one United States Air Force assessment, "Training pilots to qualify as both C-123 pilots and spray pilots was a primary problem. Pilots were either qualified in one phase or the other during the entire period [from January to June 1962] and at the close of the reporting period no pilot assigned to

² Aircraft details from the National Museum of the United States Air Force (C-123). <http://www.nationalmuseum.af.mil/factsheets/factsheet.asp?id=310> and the National Air and Space Museum (H-34) <http://www.nasm.si.edu/collections/artifact.cfm?id=A19750823000>

³ Cecil, 33.

the flight was a qualified spray pilot in the C-123 aircraft.”⁴ Since pilots were not properly trained in aerial application flew Ranch Hand missions, precise and accurate spraying was difficult to achieve. Adhering to Kennedy’s requirement of “selective and carefully controlled” herbicide application thus would be practically impossible.⁵

Once the pilots were in South Vietnam, the shortage of qualified personnel became if anything even more acute. The history of the 4500 Air Base Wing, which supplied both pilots and aircraft for Ranch Hand, hinted at the shortage of trained pilots to fly Ranch Hand missions in late 1963, when the program had already expanded into crop destruction. “Three crew and aircraft were committed to this operation during the entire period. The average length of tour for each crew averaged approximately four months, with the tours being rotated among the spray flight personnel. This rotation of crew personnel caused an occasional temporary shortage of qualified spray flight crews in the United States.”⁶ These short rotations would also prevent pilots from accumulating much knowledge of the vagaries of Vietnamese wind and weather patterns, compounding the problem of inexperience with the planes and equipment.

⁴ Typescripts: Special Aerial Spray Flight Information form 4500 Air Base Wing History 1962, 1963; History of C123B, Serial Number 56-4362, June-December 1963, 63, Alvin L. Young Collection on Agent Orange, National Agricultural Library, Beltsville, MD.

⁵ National Security Action Memorandum 115, “Defoliant Operations in Viet Nam”, November 30, 1961.

⁶ Typescripts: Special Aerial Spray Flight Information form 4500 Air Base Wing History 1962, 1963; History of C123B, Serial Number 56-4362, June-December 1963, 55, Alvin L. Young Collection on Agent Orange, National Agricultural Library, Beltsville, MD.

As their civilian counterparts had long known, military users of 2,4-D and 2,4,5-T discovered just how hard these chemicals were to tame. As the United States Air Force (USAF) worked to develop the proper equipment for herbicide spraying, testers quickly ran into unexpected problems.

One problem encountered while conducting flow rate tests was the rather rapid deterioration of the rubber diaphragms used in the check valves. The Hycar rubber from which the diaphragms are made was apparently attacked by the Purple within a very short time. New diaphragms were swelled, and curled up when removed, after only a few hours exposure to the solution. Although this may not have interfered seriously with their function in the check valve, it was necessary to continually replace diaphragms to reduce nozzle dribble. Frequently it was found that the center of the diaphragm had fractured....”⁷

Even storing the chemicals proved difficult. The chemicals were so volatile that empty barrels alone could be lethal. In William Buckingham’s account, at Tân Sơn Nhất airfield, just outside the center of Sài Gòn, “the vapors from the herbicide had killed the vegetation around [the planes’] parking area, including two large flame trees next to their hangar.”⁸ Barrels held 208 liters of chemical; even after they were emptied, about 2 liters remained. This was enough to cause, according to public health experts, “inadvertent defoliation of trees and gardens in Da Nang, Nha Trang, Bien Hoa, Phu Cat, and Sài Gòn civilian areas.”⁹

⁷ James W. Brown, Modification and Calibration of Defoliation Equipment (C-123 - First Modification), Joint Report by personnel of USDA, USAF, and USA or work performed under ARPA Order 256-4, July 1962, Eglin AFB Florida, 5, Alvin Young Collection on Agent Orange, National Agricultural Library, Beltsville, MD.

⁸ Buckingham, 39.

⁹ Stellman et al., 685.

These types of problems persisted well after the first Ranch Hand operations. The initial crop destruction mission, performed almost a year after Ranch Hand's initial approval, was inconclusive, in part because the American and South Vietnamese Air Forces had not yet solved the mechanical difficulties of spraying itself. Because of various equipment malfunctions, the helicopters sprayed only about 70% of the chemicals loaded on.¹⁰

Ranch Hand defoliation and crop destruction missions in South Vietnam also faced difficulties specific to the South Vietnamese environment. The topography alone proved a challenge to successful spray missions. C-123s, considerably larger than civilian crop dusters, were not nearly as maneuverable as their domestic counterparts. One evaluation found that, "The chemical effectiveness, along lines of flight was degraded sometimes by the inability of the C-123 aircraft to fly precisely along severely curving and undulating roads, rivers, canals and the powerlines."¹¹

As with aerial spraying in the United States, detailed knowledge of the local environment was critical. However, this was not available to Ranch Hand planners, pilots, or crews. Despite the administration's reliance on data, versus more qualitative information to justify its decisions, a lack of both quantitative and qualitative information plagued Ranch Hand from the start.

¹⁰ Buckingham, 79-80.

¹¹ Peter G. Olenchuk, Task Force Saigon Herbicide Evaluation Team "Evaluation of Herbicide Operations in the Republic of Vietnam (September 1962-September 1963)," Alexandria, VA: Defense Technical Information Center, October 1963, 9, Alvin L. Young Collection on Agent Orange, National Agricultural Library, Beltsville, MD.

The problem stemmed in part from the existing culture of the administration. State Department coverage of Vietnam was anemic, few foreign service officers spoke Vietnamese, and becoming an expert on Vietnam was not the way to build a career. This was markedly different than specialization in the Soviet Union, for example, or even France. Expertise in these areas could be springboard to influential positions. Furthermore, the fumes of McCarthyism had not yet cleared; creative thinking and dissent from conventional wisdom about the global Communist menace were still largely missing. Efforts to understand the history of the Việt Minh were irrelevant, if not actually suspect. In part because of this neglect, there was little knowledge about South Vietnam's indigenous species. These were not relevant in the fight against global Communism, at least not until Ranch Hand.

The new environment meant that mission planners and pilots had a great deal to learn: what grew in the jungles, where farmers had placed homes and fields, what specific chemicals in what concentrations would be effective, and what were local rainfall and weather patterns.¹² This specific information was at best difficult to obtain. One officer remembered his daunting efforts to get weather data. "When the Ranch Hand crew was ready to depart, the weather observer gave them a weather briefing based upon the best information he had, which was simply a recapitulation of what the

¹² U.S. Congress, House, Research Subcommittee on Science and Development of the Committee on Science and Astronautics, *A Technology Assessment of the Vietnam Defoliant Matter: A Case History*, by F. Huddle. 91st Cong., 1st sess. (Washington DC: United States Government Printing Office, 1969): 12-13.

crew had told him when they landed.” Since the observer did not have any equipment with which to do his job, anecdotal information was the best he could provide.¹³

Even the maps supplied to pilots were old and inaccurate, a significant obstacle to fulfilling NSAM 115’s mandate of “carefully controlled” operations and avoiding spraying the wrong areas. This was hard enough to do with current maps. In order to get usable maps, RF-101 Voodoo reconnaissance planes first surveyed the target areas. Films from these missions were then sent to Japan for processing into new, more reliable maps.¹⁴ This helped, but did not completely solve the problem of accurate target identification. Ranch Hand officers still had to coordinate target selection with both the South Vietnamese Joint General Staff and the province chief in charge of the area. Once these negotiations were completed, the proposed coordinates of the targets then had to be approved in Washington.¹⁵

The plants themselves posed even greater mysteries. Because different species of plants react in very different ways to 2,4-D and 2,4,5-T, this information would be instrumental in a spraying operation’s success or failure. Yet as the Taylor Mission Report admitted,

There is a pressing need for extensive research and development in delta mobility. Very little qualitative work has been done in this field, either in the U.S. or elsewhere. For example, rivers and canals are often clogged by weeds and plants, yet only a few of the types are familiar to U.S. botanists. Without

¹³ Buckingham, 38.

¹⁴ Ibid., 37.

¹⁵ Ibid.

more knowledge about these plants it is difficult to formulate plans to clear them or chemically control their growth without harming animal life.¹⁶

The report's assessment came less than 4 weeks before Kennedy approved defoliation missions; the drums of chemicals to spray unidentified plants were already in South Vietnam. Vietnamese forests contained over 200 different species, many of which were unknown to United States botanists.¹⁷ "A great deal of research had been done on the control and defoliation of woody plants in temperate zones," stated one government report on herbicide use in South Vietnam. "Information was available regarding which herbicides were most effective, what rates should be used, and when treatments should be made. But no one could extrapolate that information to a tropical evergreen forest with any degree of assurance."¹⁸

The situation was even more confused than the report admitted. Not only did botanists not understand herbicides nearly as well as the report assumed, but the characterization of sprayed areas as "tropical evergreen forest" was also largely inaccurate. The U Minh forest, a center of revolutionary strength in the south, was not a stereotypical tropical jungle, in environmental historian David Biggs' account. Instead, "U Minh's environmental past more closely resembled that of bogs, fens, and marshes, than lush, tropical forest ecosystems typically depicted in colonial (and present-day)

¹⁶ "Delta Mobility", Taylor Report, November 3, 1961, Tab 8, 5, National Security Files, Countries, Vietnam, Subjects, Taylor Report, Box 203, JFKL.

¹⁷ Buckingham, 47-50.

¹⁸ U.S. Congress, House, Research Subcommittee on Science and Development of the Committee on Science and Astronautics, *A Technology Assessment of the Vietnam Defoliant Matter: A Case History*, 14.

literature.”¹⁹ In fact, the area contains the Mekong Delta’s only peat swamp forests and, in the words of ecologists, “the resulting environment [from the formation of peat] is low in oxygen, poor in nutrients, and highly acidic.”²⁰

The first systematic government research into what exactly was growing in Southeast Asia took place in late 1963, almost two years after spraying operations had begun. Fred Tschirley, from the Crops Research Division of the Department of Agriculture, toured Thailand. According to a Congressional history of Ranch Hand, “The purpose of this first reconnaissance was to identify the characteristic types of foliage growing in wooded areas.”²¹

Delivering the chemical spray and killing the targeted plants was difficult enough. In addition, there was still a great deal of uncertainty about what defoliation could accomplish, even if spraying was accurate and effective. Administration officials had often asserted the depth of their knowledge about the revolutionary movement in South Vietnam. This was not the case. Even the Taylor Mission Report acknowledged how many gaps still remained. “Enemy strength is not based on ‘hard facts’”, it admits. “This is speculative and estimates vary greatly....Intelligence on the location of

¹⁹ David Biggs, "Managing a Rebel Landscape: Conservation, Pioneers, and the Revolutionary Past in the U Minh Forest, Vietnam," *Environmental History* 10, no. 3 (July 2005): 449.

²⁰ Eleanor Jane Sterling, Martha Maud Hurley, and Le Duc Minh, *Vietnam: A Natural History* (New Haven: Yale University Press, 2006), 272.

²¹ U.S. Congress, House, Research Subcommittee on Science and Development of the Committee on Science and Astronautics, *A Technology Assessment of the Vietnam Defoliant Matter: A Case History*, 13.

infiltration routes is not 'hard' intelligence...."²² It is difficult to understand exactly how spraying missions could have succeeded, considering how challenging it was to determine the targets, let alone hit them.

To complicate the problem further, there was no agreement that stopping infiltration, whether by Ranch Hand or by other means, was the most urgent problem faced in South Vietnam. The role of infiltration in fueling the revolution in the south was the subject of continuing debate within the administration. Not everyone agreed that, if incursions from the north could only be stopped, the situation in South Vietnam would stabilize. In response to a May 9 report by National Security Council Staff Member Bob Komer, George McGhee, the Chairman of the State Department's Policy Planning council, offered, "We think that far more than a mop-up job would be required in South Viet-Nam even if its borders could be sealed."²³ Even if Ranch Hand was effective in discouraging North Vietnamese from moving south, the preservation of the southern government was by no means assured.

Crop destruction posed even more difficult problems than defoliation, among them target selection. Ostensibly, the only crops to be destroyed were those belonging to the Viet Cong. However, from a practical standpoint, this was almost impossible to determine, particularly since the target selectors knew so little about the area. William Buckingham, in the official United States Air Force history of Ranch Hand, pointed out

²² Taylor Report – WR working copy, Tab II, National Security Files, Countries, Vietnam, Box 203, 7gg-7hh, JFKL.

²³ Memorandum from George McGhee to Walt Rostow, "Security in Southeast Asia", July 28, 1961, National Security Files, Regional Security, Southeast Asia, General, 7/25/61-7/28/61, Box 231, Doc 9a, 5, JFKL.

the problems in this approach. In order not to kill the crops of potentially sympathetic rural South Vietnamese, “information would be needed about the individual owners of every field, their past actions, and their political loyalties. Although more discriminating, this latter approach would have been impossible to implement because of the lack of detailed information about the Vietnamese countryside.”²⁴

Early Ranch Hand tests hinted at the problems to come. The first flight, a “functional pretest” was a failure. “The effect of the spray was later rated as poor, probably because the spray deposit was sublethal. The purple herbicide [50% n-Butyl ester 2,4,-D; 30% n-butyl ester 2,4,5-T; 20% isobutyl ester 2,4,5-T], however, did dissolve the rubber seals in the spray system.”²⁵ The propellers on the aircraft also interfered with spraying, particularly in unsettled weather conditions. Instead of spraying in two neat plumes, the chemicals would be caught in an updraft and dissipate in the air.²⁶

The bureaucratic machinery was also unreliable. An administration that avoided formal organizational structures soon found itself mired in them. A new, unconventional weapons system had no established oversight or control; it had to be improvised. The result was a tangle of acronyms and ad hoc committees, much like the administration’s overall efforts in South Vietnam. Paul Cecil, a historian and Ranch Hand veteran, gives some indication of just how complicated it was; there were multiple

²⁴ Buckingham, 71.

²⁵ Ibid., 33.

²⁶ J.W. Brown, *Vegetational Spray Tests in South Vietnam* (Fort Detrick, MD: U.S. Army Chemical Corps, Biological Laboratories, 1962), 23.

layers of command over Ranch Hand, generals serving in more than one role, and units with names such as TAC AF Transron Prov 1.²⁷

Ranch Hand itself stirred up another cloud of bureaucracy. Two separate chains of command, that of the South Vietnamese Army and the United States Military Assistance Command – Vietnam (MACV) approved targets for possible herbicide use. In addition to Kennedy, who initially approved each proposed spraying mission, both militaries needed to sign off on specific targets for operations to begin. Furthermore, both the Defense and State Departments advocated strongly that control of the program be broadened even further. “Carrying out of the operation will be carefully planned and coordinated between State, Defense, USIA [United States Information Agency], CINCPAC [Commander in Chief – Pacific], the Country team, and the GVN.”²⁸ This thicket of acronyms was not confined to Washington’s control of Ranch Hand. In South Vietnam, Ranch Hand had five different overseeing entities – Tactical Air Command (TAC); 2nd Advance Echelon (ADVON), the Air Force command then in South Vietnam, MAAG, and later its successor organization, MACV; the 13th Air Force, and Pacific Air Forces (PACAF), the Pacific Air Force command – “but none who effectively supervised” Ranch Hand pilots and crews themselves.”²⁹

Communications among all of these entities, deemed necessary because of Ranch Hand’s novelty, quickly became knotted. The day after Rusk suggested the

²⁷ Cecil, 28.

²⁸ Dean Rusk memorandum to John Kennedy, “Defoliant Operations in Viet-Nam”, November 24, 1961, National Security Files, Countries, Vietnam, General, Memos and Reports, 11/17/61-11/30/61, Box 195, Document 7, JFKL.

²⁹ Buckingham, 38.

involvement of six different organizations in coordinating Ranch Hand, he received a disgruntled cable from United States Ambassador Frederick Nolting complaining he had not received critical information. Nolting had resented what he perceived to be the cliquishness of the Kennedy White House, and the appointment of Major General Rollen H. “Buck” Anthis as the senior Air Force representative in South Vietnam only confirmed this.³⁰ Days before formal approval of Ranch Hand, he hinted at his anger. “I have high regard for General Anthis....I nevertheless find it incomprehensible that new US military headquarters would be established in this country without consultation with me....”³¹ Outside of the embassy, the problems were equally evident. As one journalist remarked, “So many different officers are criss-crossing the country from different commands: CINC PAC, 5th AF, 13th AF, Okinawa Command, Japan, Honolulu; that no one seems to have a clear idea of who’s doing what to whom. Said Col. Leyton, head of Special Forces, ‘Every time I turn around a full bird colonel falls out of a nearby tree.’”³²

These snarls were not limited to tactical and military organizations. Less than six months into the administration, the task forces dealing with South Vietnam were rapidly becoming duplicative, if not competitive. Bob Johnson, a member of the National Security Council staff, worried to Deputy National Security Advisor Walt

³⁰ See Chapter 2 for more on this problem.

³¹ Telegram from Frederick Nolting to Dean Rusk, #704, November 25, 1961, National Security Files, Countries – Vietnam, General, 11/24/61-11/25/61, Box 195, Document 14, JFKL.

³² Howard Sochurek, Excerpts from March 1962 “Report from Vietnam”, Presidents Office Files, Countries, Vietnam, General, 1962, Box 128a, Document 4b, 11, JFKL.

Rostow about the creation of a Southeast Asia Task Force, specifically how that might affect the existing Viet Nam Task Force. “[a consideration] that must be given some weight...is the effect upon morale of people working on Viet Nam of the outright dissolution of the Task Force so soon after it was created.” A margin note, probably written by Rostow, commented tartly, “The fact that Nolting has created a parallel task force in Saigon is also a consideration.”³³

Even before Kennedy had issued NSAM 115, there were bureaucratic skirmishes over the Combat Development and Testing Center, the organization charged with developing and refining new tactics and weapons for use in South Vietnam. The Taylor Report goes so far as to suggest that the Commander in Chief of Pacific Forces (CINCPAC), based in Honolulu, establish a separate research and development arm “in order that he may be kept more fully and accurately informed of R&D matters....” Taylor did not believe that General Lionel McGarr, the head of the Military Assistance and Advisory Group (MAAG), was properly supportive of the efforts in South Vietnam. “There has been a tendency,” the report complains, “to utilize CDTC [Combat Development and Testing Center] for endless paper support of non-R&D staff work.”³⁴

One of the clearest examples of how baroque communications had become were the monthly Honolulu briefing meetings, in which officials from Sài Gòn and Washington could actually meet in person. Attendees quickly learned to dread them.

³³ Memorandum from Bob Johnson to Walt Rostow, July 5, 1961, “The Creation of a Southeast Asia Task Force”, National Security Files, Regional Security, Southeast Asia, General, 6/1/61-7/20/61, Box 231, Document 3, 1, JFKL.

³⁴ Taylor Report – WR working copy, Tab 8, National Security Files, Countries, Vietnam, Box 203, 5, JFKL.

“From what I gather,” complained National Security Council staff member Michael Forrestal to McGeorge Bundy,

the Honolulu Meeting is shaping up into a replica of its predecessors, i.e., an eight-hour briefing conducted in the usual military manner. In the past this has meant about 100 people in the CINCPAC Conference Room, who are treated to a dazzling display of maps and charts, punctuated with some impressive intellectual fireworks from Bob McNamara....In short, this will be a circus.³⁵

Bundy shared Forrestal’s frustration, as did McNamara. “None of us,” McNamara recalled later, “was ever satisfied with the information we received from Vietnam”, so Kennedy and his senior foreign team instituted the regular Honolulu meetings.³⁶ After one contentious session, McNamara remembered, “[Bundy] told a staff member upon our return [from a 1963 meeting]: ‘The briefings of McNamara tend to be sessions where people try to fool him, and he tries to convince them they cannot.’” Perhaps this was unfair to the military, but it did reflect the difficulty we faced in getting a clear picture of the situation and our prospects in Vietnam.”³⁷

These barrages of data included Ranch Hand. Evaluation of crop destruction operations were, by necessity, based on stylized information. An evaluation of the first efforts in Phước Long Province, as quoted in a briefing from the December 1962 conference: “At this point an assessment of the operation might be attempted on the assumption that the herbicide will give expected results and that the H-34’s sprayed in accordance with prescribed procedures.” Since neither the results of spraying nor the

³⁵ Michael Forrestal memorandum for McGeorge Bundy, November 13, 1963, National Security Files, Countries, Vietnam, Subjects, Box 204, Honolulu Briefing Book, 11/20/63 – Part I, Doc 1a, JFKL.

³⁶ McNamara and VanDeMark, 43.

³⁷ Ibid., 86.

procedures had been standardized in the United States, it was unlikely that these benchmarks were available for South Vietnam. Nonetheless, the evaluation continued. “A total 745 acres (estimate) of crops was sprayed. Local agricultural data indicates that yield per acre is approximately 2000 pounds. Therefore, (745x2000) approximately 1.5 million pounds of foodstuffs will have been denied the enemy. Assuming that one person would consume two pounds of crop food per day, 745,000 man days of food, would be destroyed. Stating it in a different manner, 2000 people in the area would be denied crop food from the sprayed area for over a year.”³⁸ Given the all of the uncertainties in Ranch Hand, from target selection to equipment operation, these numbers are strangely precise.

One of the most significant problems with such chaotic organization is what sociologist Diane Vaughan terms “structural secrecy...the way that obstacles to understanding are systematically structured into information exchange in organizations.”³⁹ The complexities inherent in Ranch Hand, combined with the efforts of officials in both Sài Gòn and Washington to control it, made information exchange both particularly important and especially difficult.

Those outside the administration had an even harder time getting the facts about Ranch Hand. Keeping outside observers quiescent about the use of chemicals in South Vietnam was an explicit goal in planning Ranch Hand operations. However, this proved

³⁸ Excerpt from “Discussion on Vietnam at Pacific Command Headquarters, December 17 and 18, 1962.” National Security Files, Countries, Vietnam, General, 12/62, Box 197, Doc 19, 38-9, 41, JFKL.

³⁹ Vaughan, 242.

more difficult than the administration had anticipated. The stubbornness of the International Control Commission [ICC] in investigating potential violations persisted into 1962. One tactic used was a carefully orchestrated release of information. A report prepared by Policy Planning Council member William Jorden, *A Threat to the Peace: North Viet-Nam's Effort to Conquer South Viet-Nam*, gave detailed evidence of North Vietnamese depredations.⁴⁰ The administration believed that the report would give incontrovertible backing to South Vietnamese, and United States, efforts to beat back the Communist menace to South Vietnam and justify the importation of military equipment, regardless of what was agreed to in Geneva. The audience for the report was both the UN and the ICC; neither organization was convinced. Averell Harriman, by now Assistant Secretary of State for Far Eastern Affairs, complained that "The ICC should now direct its attention to the question of whether or not our increased aid is justified by a DRV effort to overthrow the GVN by force," rather than concerning itself with possible United States violations.⁴¹ The ICC also raised concerns about the importation of Ranch Hand-related equipment, specifically C-123s and helicopters.⁴²

⁴⁰ Department of State, *A Threat to the Peace: North Viet-Nam's Effort to Conquer South Viet-Nam*, by William Jorden. (Washington DC: United States Government Printing Office, 1961.)

⁴¹ Harriman's observation was in response to ICC disapproval of the arrival of a United States aircraft carrier, the USS *Core*, carrying helicopters into South Vietnam. This was particularly obvious violation. See Prochnau, 21. Memorandum from L.D. Battle to McGeorge Bundy, "Memorandum for Mr. McGeorge Bundy", February 15, 1962, National Security Files, Countries, Vietnam, Subjects, Status Reports, 1/4/62-4/4/62, Box 203, Document 28, 1, JFKL.

⁴² Telegram #339 from Sài Gòn Embassy to CINCPAC et al. February 15, 1962, Vietnam, Saigon Embassy, General Records, 1956-1963, International Conferences and Organizations, RG 84, Box 7, Folder 310, NARA.

Media perceptions of Ranch Hand were on the minds of its planners from the start. The administration anticipated charges from Communist newspapers. What it did not foresee was the level of outrage in international media outside of Communist countries. The North Vietnamese were quick to take advantage of these protests. The Hà Nội-published collection, *American Use of Gases and World Public Opinion* used excerpts from newspapers, predominantly but not exclusively Communist, to make its case against the United States.⁴³ Two non-Communist newspapers raised particularly sensitive issues. The West German *Frankfurter Allgemeine Zeitung* asked “Who could forget, be it for a moment, that ‘gas’ was the best means under the Third Reich to exterminate the Jews and the gypsies. The U.S.A. cannot ignore that besides physical effects, the use of gases has also a moral effect which does not limit itself on battlefields.” The Japanese *Economic Weekly* was even more pointed, “In Japan there seems to be some racial feeling connected with the Vietnam issue, since many Japanese recall that the atomic bombs which were used against Japan were aimed at Asians and that, similarly, the chemicals now being used in Vietnam are aimed at Asians.”⁴⁴

The American media, too, quickly became suspicious and critical of Ranch Hand, not least because the administration had taken great pains to hide United States involvement in the missions while protesting that the use of defoliants and herbicides were unremarkable. In briefings on this new weapon, the administration tried to

⁴³ *American Use of Gases and World Public Opinion*, (Hanoi: Foreign Languages Publishing House, 1966). The selections also shrewdly highlighted the racial implications of chemical use in South Vietnam. The impact of racialized conceptions of rural South Vietnamese will be discussed in Chapter 8.

⁴⁴ *Ibid.*, 16, 19.

preserve Ranch Hand's secrecy. As a result of Brigadier General Edward Lansdale's and Secretary of the Air Force Eugene Zuckert's misgivings about how Ranch Hand might reflect on both Diệm and the United States, the Administration had established, according to Buckingham, "a central point of authority for developing cover stories for U.S. operations in South Vietnam."⁴⁵ Despite administration protests to the contrary, the Republic of Vietnam Air Force (RVNAF) was not performing Ranch Hand missions, and officials in both Washington and Sài Gòn knew it. "Authority and capability [to] carry out [crop destruction operations] really provided by us," confided a November 1962 telegram from Nolting.⁴⁶

As Ranch Hand expanded, and became public, the growing potential for both international outrage and domestic unease complicated the administration's press strategy considerably. Edward R. Murrow, the head of the United States Information Agency, proposed a plan that was complex, if not actually unworkable. It was based on a contradiction: "Mission itself should conduct briefing on non-attribution basis....neither the US nor GVN has anything to hide about this."⁴⁷

The press in Sài Gòn thought otherwise; the March 20, 1963 briefing on the subject drew an "overflow throng," the largest press gathering since the institution of GVN briefings. The State Department's established strategy for press relations did not fool journalists. After the briefing, David Halberstam, among others, was suspicious.

⁴⁵ Buckingham, 28-9.

⁴⁶ Telegram #497 from Nolting to Rusk, November 9, 1962, National Security Files, Countries, Vietnam, General, 11/1/62-11/10/62, Box 197, Doc 14, JFKL.

⁴⁷ Telegram #235, Murrow to Nolting, March 11, 1963, National Security Files, Countries, Vietnam, General, 3/1/62-3/17/63, Box 197, Document 12, 1,2, JFKL.

“Halberstam concluded it ‘seemed almost too good to be true that U.S. [was] not behind the scenes somehow.’”⁴⁸ He was right.

The American media was beginning to highlight the damage Ranch Hand missions caused and to raise questions about what exactly herbicides were accomplishing. A short account in the *Chicago Daily Tribune* describes the effects of the defoliation that, according to the paper, was taking place on the Laotian and Cambodian borders. “The herbicides, dropped from the air, generated great heat and destroyed almost all the vegetation.”⁴⁹ A later account in the *Washington Post* observed that Ranch Hand was generating “world-wide publicity – most of it hostile....Project Ranch Hand has not been a great success.” Almost all reports assumed that Ranch Hand was in the words of the *Post*, the United States Air Force’s “pet project” rather than a South Vietnamese effort.⁵⁰

Congress, too, was starting to get restive. As Ranch Hand operations received more coverage in United States newspapers, some members of Congress began raising concerns about the United States and the use of chemical weapons in South Vietnam. A letter from Rep. Bob Kastenmeier (D-WI) to Kennedy asked questions fundamental not only to Ranch Hand but also to the entire United States effort in South Vietnam.

We did not use chemicals to destroy the Japanese rice crop in 1944. Today we are using chemical means to destroy rice crops in South Vietnam. Yet we are

⁴⁸ Telegram #832 from Nolting to Rusk, March 20, 1963, National Security Files, Countries, Vietnam, General, 3/20/63-3/29/63, Box 197, Document 3, JFKL.

⁴⁹ "Test Herbicide to Kill Communists' Crops," *Chicago Daily Tribune*, January 6 1962, 8.

⁵⁰ John Stirling, "Viet-Nam Becomes Lab for Warfare of Today," *The Washington Post*, June 7 1963, A19.

not officially at war with the Viet Cong. Moreover, by the nature of the confused war being waged in that country, we cannot be sure that only the food supply of the Viet Cong is being destroyed; it is hard to separate our friends from our opponents along the shadowy battle lines that mark the Vietnamese war....It is a fair question to ask if the continued existence of the Diem regime is worth the compromise of this nation's moral principals. Mr. President, the American people and the world should know where we as a nation stand on the question of the first use of chemical and biological weapons.”⁵¹

To Kastenmeier, unlike Diem's government, these were not simple tools of victory.

The administration's response was unequivocal, if misleading. “The compromise of moral principals has not been at issue” in the use of chemicals in Vietnam, wrote Assistant Secretary of Defense William Bundy. “There has been no U.S. participation in crop destruction operations, except in providing weed killers.” There was nothing unusual, according to Bundy, about Ranch Hand. “The chemicals that have been used are weed-killers of the same types...used – especially by farmers – in the United States and other countries...They are not injurious to man, animals, or the soil....Denial of food and ambush is a wholly normal procedure in counter-insurgency warfare, as in other forms of warfare.” Chemical spraying, according to Bundy, had become a “wholly normal procedure.”⁵²

Kastenmeier's letter, which included quotations from mainstream newspapers such as the *New York Times*, and the *Washington Evening Star*, questioning the morality of chemical use, and Bundy's response illustrate what Vaughan terms the normalization of deviance. According to Vaughan, this developed at NASA when “engineers and

⁵¹ Letter from Bob Kastenmeier to President Kennedy, March 7, 1963, White House Central Subject Files, Box 636, Folder ND 19/, 3, JFKL.

⁵² Letter from William Bundy to Robert Kastenmeier, March 16, 1963, White House Central Files, Subject File, Box 636, Folder ND 19/, Document 3, 1, JFKL.

managers together developed a definition of the situation that allowed them to carry on as if nothing was wrong when they continually faced evidence that something *was* wrong.”⁵³ A weapons system that had been under presidential oversight and was the topic of heated debate had become unremarkable and routine. Control had moved from Kennedy to lower-level officials, even in face of public outcry and evidence the chemicals themselves could not be controlled.

The administration’s “incremental descent into poor judgment,” as Vaughan describes it, happened gradually but inexorably.⁵⁴ Kennedy approved the use of herbicides for defoliation in November 1961; 11 months later, Ranch Hand had expanded to include crop destruction operations. There are hints that Kennedy did, in fact, view Ranch Hand as a kind of chemical warfare. The Armed Forces Doctrine for Chemical and Biological Weapons Employment and Defense stated explicitly that field commanders could make the decision whether and where to use defoliants.⁵⁵ Chemical weapons were a very different matter. “The President of the United States makes the decision to employ CB [chemical and biological] weapons.”⁵⁶ In NSAM 115 Kennedy made clear his intention to control Ranch Hand, field commanders would not have the autonomy to choose target or carry out operations. “There should be prior consideration

⁵³ Vaughan, 68. Italics Vaughan’s.

⁵⁴ Ibid., xiii.

⁵⁵ Departments of the Army Navy and Air Force, *All-Service Manual of Armed Forces Doctrine for Chemical and Biological Weapons Employment and Defense* 1964. 3. As quoted in U.S. Congress, House, Research Subcommittee on Science and Development of the Committee on Science and Astronautics, *A Technology Assessment of the Vietnam Defoliant Matter: A Case History*, 18.

⁵⁶ Ibid.

and authorization by Washington of any plans developed by CINCPAC and the country team under this authority before such plans are executed.”⁵⁷ Furthermore, in an administration characterized by a sense of urgency, Kennedy was, by issuing this restriction, slowing Ranch Hand down. These signals that Ranch Hand was somehow different were ambiguous, however, and did little to communicate exactly how the President viewed Ranch Hand.

By early 1962, Kennedy’s control over Ranch Hand began to be undermined. Although the president had not yet made the decision to use chemicals for crop destruction, the senior United States officials in Sài Gòn were “true believers”, in the words of David Halberstam.⁵⁸ Kennedy’s careful restrictions on crop destruction came under pressure from officials in both Washington and Sài Gòn soon after NSAM 115, which approved only defoliation operations. Only a few weeks after NSAM 115, with its high hurdles for crop destruction approval, diplomatic telegrams commented that crop destruction had been “approved in principle.”⁵⁹

Military ambitions for Ranch Hand had already become apparent. General Paul Harkins, named to the MACV command on January 1, 1962, was incorrigibly optimistic about United States efforts, as evidenced in the “Headway Reports” he regularly sent to Washington detailing the progress made against the Viet Cong. He

⁵⁷ National Security Action Memorandum 115, “Defoliant Operations in Viet Nam”, November 30, 1961.

⁵⁸ Halberstam, *The Best and the Brightest*, 212.

⁵⁹ Airgram #A-198 from Kenneth Young to Rusk, January 5, 1962, National Security Files, Countries, Vietnam, General, Box 195a, Document 19, 1/6-1/12/62, JFKL.

was also an early and constant supporter of Ranch Hand.⁶⁰ The Joint Chiefs of Staff continued to push the boundaries of aerial spraying past defoliation. In Project “Beef Up” reports, detailing the military progress in South Vietnam, Ranch Hand had its own section, headed “Defoliation and Crop Destruction”; targeting rice and manioc was, by implication, only a matter of time.⁶¹ As of December 26, 1961, less than a month after Kennedy authorized defoliation, six C-123s designated for Ranch Hand were in South Vietnam, and the military had begun demanding additional stocks of chemicals. One of the actions “required” for Ranch Hand missions was “SECDEF approval of 270,000 additional gallons of butyl in addition to the 128,000 gallons already shipped for key route operations.”⁶² A preliminary 1962 budget for Ranch Hand proposes that Operation & Maintenance (O&M) for 16 C-123s and defoliants would make up over half of the total requested Air Force O&M.⁶³

Initial problems with Ranch Hand quickly surfaced, and were just as quickly dismissed. In response to concerns that the Cambodian government might object to spraying so close to its border, the Department of State developed a carefully measured combination of denial and reassurance. “[E]xplain defoliants harmless to man, animals

⁶⁰ Halberstam, *The Best and the Brightest*, 211.

⁶¹ See, for example, Project “Beef Up” Status Report, January 10, 1962, Operations Directorate, J-3, Joint Chiefs of Staff, National Security Files, Countries, Vietnam, General, Box 195a, Document 8, 6, JFKL.

⁶² Project “Beef Up” Status Report, December 26, 1961, Operations Directorate, J-3, Joint Chiefs of Staff, National Security Files, Countries, Vietnam, General, Box 195a, Document 1, 16, JFKL.

⁶³ Project “Beef Up” Status Report, December 26, 1961, Operations Directorate, J-3, Joint Chiefs of Staff, National Security Files, Countries, Vietnam, General, Box 195a, Document 1, 49, JFKL.

and soil, are weed killers in wide use throughout world...Should stress no possibility incursion Cambodian territory, no use in cultivated areas, no injury to soil or people....Should emphasize all defoliant operations will be conducted at least three miles from Cambodian border.”⁶⁴ Herbicidal sprays could, in fact, drift much farther than three miles. A telegram in reply confirmed that “no test closer than thirty miles Cambodian border.” Depending on wind and weather conditions, this still may not have been far enough.⁶⁵

Unfortunately for those who promoted Ranch Hand’s expansion, initial operations showed few signs of doing what advocates believed they would do. Early reports were disappointing. “Ground reconnaissance by US advisors revealed that little or no military advantage has yet been obtained,” admitted a “Beef Up” report. “CHMAAG report that it is too early to make a realistic appraisal of the effectiveness of defoliate on as a means of combatting the VC.”⁶⁶ Nonetheless, Ranch Hand’s failures did not slow down planning for its expansion. In the next paragraph after noting the failure of the first Ranch Hand missions, the Beef Up status reported “Crop warfare targets in the II Corps area are being selected for possible test purposes.”⁶⁷

⁶⁴ Telegram 732, Rusk to Nolting et al., January 8, 1962, National Security Files, Countries, Vietnam, General, 1/6-1/12/62, Box 195a, Document 9, 1-2, JFKL.

⁶⁵ Telegram 905, Trueheart to Rusk, January 10, 1962, National Security Files, Countries, Vietnam, General, 1/6-1/12/62, Box 195a, Doc 16, JFKL.

⁶⁶ Project “Beef Up” Status Report, February 21, 1962, Operations Directorate, J-3, Joint Chiefs of Staff, Presidents Office Files, Vietnam Security 1962, Box 128a Folder 3, Document 10, 5, JFKL.

⁶⁷ Project “Beef Up” Status Report, February 21, 1962, Operations Directorate, J-3, Joint Chiefs of Staff, Presidents Office Files, Vietnam Security 1962, Box 128a Folder 3, Document 10, 5, JFKL.

Nolting continued his campaign for crop destruction through 1962. However Harriman, whom Nolting blamed for continued North Vietnamese infiltration, had the bureaucratic power to argue successfully against the request “because of the effect on Asian opinion.”⁶⁸ Harriman was not the only one to voice reservations about depriving peasants of food. As Murrow warned McGeorge Bundy, “No matter how reasonable our case may be, I am convinced that we cannot persuade the world—particularly that large part of it which does not get enough to eat—that defoliation ‘is good for you.’”⁶⁹ Nolting, purportedly the administration’s permanent civilian representative in South Vietnam, did not share the dread of adverse publicity from Ranch Hand.

By the summer of 1962, Ranch Hand was no longer a secret, but the ambivalence and controversy surrounding it remained. “We have a tradition in this country,” Murrow reminded Bundy, “of not using food as a weapon of war. Chemical and biological warfare are subjects which arouse emotional reactions at least as intense as those aroused by nuclear warfare.”⁷⁰ Given this climate, minimizing United States involvement was an understandable, if not a realistic, choice.

Nonetheless, Ranch Hand operations continued to expand. On August 9, 1962, Kennedy reaffirmed that he would control the scope of Ranch Hand and that it still did not include crop destruction. National Security Action Memorandum (NSAM) 178 approved the beginning of spraying operations in the mangrove swamps in the Mekong

⁶⁸ Task Force South East Asia, July 11, 1962 Status Report, National Security Files, Countries, Vietnam, Subjects, Status Reports, 4/4-7/11/62, Box 203, Document 25, 4, JFKL.

⁶⁹ Memorandum from Murrow to Bundy, August 16, 1962, in *State*, 590.

⁷⁰ Memorandum from Murrow to Rostow, August 16, 1962, in *ibid*.

Delta area. The memorandum goes on to remind its readers that “The President’s approval is limited to the herbicide operations described...and he has asked that every effort be made to avoid accidental destruction of the food crops in the areas to be sprayed.”⁷¹

These limitations were short-lived. Although NSAM 115 had been much narrower than Diệm’s request, he was not deterred. In a meeting with Kennedy on September 25, 1962, South Vietnamese Defense Minister Nguyễn Đình Thuận tried to convince Kennedy that the resettlement program mandated in NSAM 115 was not necessary for crop destruction to begin. Kennedy was unconvinced, according to one observer.

The President again inquired how it was possible to differentiate between Viet Cong crops and Montagnard [mountain farmers whose support the United States considered crucial] crops. Mr. Thuan replied that the Montagnards habitually build a hut in the middle of their rice fields. The President replied that the Viet Cong could easily build huts in their fields.⁷²

Notwithstanding, after review by McNamara, Rusk, and Kennedy, the administration authorized Nolting’s proposed crop destruction program on October 2, 1962.⁷³ Approving crop destruction operations would placate both a restive military - Kennedy’s rationale, according to one National Security Council member was “that you

⁷¹ National Security Action Memorandum 178 from McGeorge Bundy to Rusk and McNamara, “Destruction of Mangrove Swamps in South Vietnam,” August 9, 1962, <http://www.jfklibrary.org/Asset-Viewer/zxPZFxg9CEiCUPqNlrUICA.aspx> (accessed February 12, 2010).

⁷² Memorandum of Conversation, September 25, 1962, National Security Files, Countries, Vietnam, General, 10/7/61 – 10/17/62, Box 197, Document 12a, JFKL.

⁷³ Cecil, 38. Memorandum for the Record, “Crop Destruction”, Michael Forrestal, October 2, 1962, National Security Files, Countries, Vietnam, General, 10/1/62-10/6/62, Box 197, Document 4, JFKL.

cannot say no to your military advisers all the time” - and an increasingly demanding ally.⁷⁴

Almost as soon as Kennedy’s authorization reached Nolting, he telegraphed Rusk with his plans. These did not include the details of target selection or resettlement nor did the telegram discuss the possible effects of crop destruction on the Vietnamese living in Phước Long, the first area slated for crop destruction. Instead, the telegram was devoted to discussion of how best to evade United States responsibility in the press. Despite the public assurances that crop destruction would be a GVN operation, Nolting did not think this would be credible. “Since operation will be GVN’s, latter ideally should field any press questions. Realistically, however, journalists will come to us if they learn of operation and presumably will understand that authority for operation and capability [to] carry it out really provided by us.”⁷⁵ Rusk, however, believed that, along with so much else, the administration could keep United States involvement in crop destruction a secret. “It is most important that this program be understood as GVN inspired and operated,” no matter how implausible this might appear.⁷⁶

Meanwhile, as plans for crop destruction continued to take shape, Kennedy began to receive reports about the mangrove spraying he had authorized on August 9, 1962. Not surprisingly, the assessment from General Harkins was upbeat. He termed the results “excellent” and reported that Ranch Hand missions had been “90-95%”

⁷⁴ Dallek, 528.

⁷⁵ Telegram #497 from Nolting to Rusk, November 9, 1962, National Security Files, Countries, Vietnam, General, 11/162-11/10/62, Box 197, Document 14, JFKL.

⁷⁶ Telegram #516 from Rusk to Nolting, November 14, 1962, National Security Files, Countries, Vietnam, General, 11/11/62-11/25/62, Box 197, Document 1, JFKL.

effective against mangrove forest. The vagueness of this metric – the definition of effectiveness is not given – apparently did not diminish its importance. Harkins’s percentages appear in the first paragraph of McNamara’s report to Kennedy.⁷⁷

Encouraged by this purported success, the military argued for more control over Ranch Hand. “The Joint Chiefs of Staff and CINCPAC have recommended that general authority be granted to General Harkins to plan and conduct future operations to achieve specific military objectives by use of herbicides, without reference of each detailed plan to Washington for approval. The authority proposed would not extend to crop destruction....Plans and arrangements for each operation would be reviewed and approved both by the United States Ambassador to Vietnam and by the Commander of the United States Military Assistance Command, Vietnam.”⁷⁸ McNamara agreed that Nolting and Harkins should be able to approve defoliation missions, and, according to McNamara, Rusk thought so as well. Kennedy acquiesced on November 27, less than a year after he issued NSAM 115. The president did place some restrictions on Nolting and Harkins: “such operations will not involve crop destruction and will be limited to clearing roadsides, power lines, railroads and other lines of communications, and the

⁷⁷ Memorandum from McNamara to Kennedy “Defoliant/Herbicide Program in South Vietnam”, November 16, 1962, National Security Files, Countries, Vietnam, General, 11/11/62-11/25/62, Box 197, Document 6, 1, JFKL.

⁷⁸ Memorandum from McNamara to Kennedy “Defoliant/Herbicide Program in South Vietnam”, November 16, 1962, National Security Files, Countries, Vietnam, General, 11/11/62-11/25/62, Box 197, Document 6, 1, 2, JFKL.

areas adjacent to depots, airfields and other field installations.”⁷⁹ What in November 1961 required presidential approval was now under the authority of an ambassador and a regional commander, despite persistent and unanswered questions.

This was not enough for Nolting. “Gen. Harkins and I strongly recommend that we be given discretionary authority to approve [crop destruction] operation,” he argued to Rusk.⁸⁰ The same day, perhaps not coincidentally, Nolting sent a separate telegram to Rusk detailing the successful crop destruction operation in Phuoc Long, the first to have been authorized. This report was studded with numbers, the accuracy of which was questionable. “On basis estimated 3,000 lbs. yield per acre of rice, operation should deny VC over 1,000 tons of rice.”⁸¹

As Ranch Hand continued with ambiguous success, the rationale for continuing the program changed. The burden of proof no longer rested on those advocating the use of chemicals but rather on those who wished it to stop. The criteria for continuing the program began to shift to its impact on Communist media rather than its demonstrated military effectiveness. In an April 22, 1963 memorandum to Kennedy, Forrestal argued for continuing the program, despite absence of clear evidence that it was helping to defend South Vietnam. “Having started on this type of operation, we have already reaped the propaganda whirlwind....If we stop now the propaganda will probably

⁷⁹ Memorandum from Kennedy to McNamara, “Defoliant/Herbicide Operations in South Vietnam”, National Security Files, Countries, Vietnam, General, 11/26-11/30/62, Box 197, Doc 10, JFKL.

⁸⁰ Telegram #545 from Nolting to Rusk, November 26, 1962, National Security Files, Countries, Vietnam General, 11/16/62-11/30/62, Box 197, Document 2, 2, JFKL.

⁸¹ Telegram #547 from Nolting to Rusk, November 26, 1962, National Security Files, Countries, Vietnam, General, 11/26-11/30/62, Box 197, Document 4, 2, JFKL.

continue, and we would be denying ourselves whatever military effect the use of herbicides have.” In support of this recommendation, Forrestal attached a State Department assessment of Ranch Hand. According to Forrestal, “A prime consideration in this evaluation is that the Communist propaganda will almost certainly be continued regardless of whether or not the herbicide programs are continued....halting herbicide operations now would tend to confirm [Communist] Bloc charges and invite further such campaigns...against us.”⁸² Although Hilsman and others pointed to the difficulties of executing a successful crop destruction campaign, they did not mention its potential effects on the South Vietnamese nor did they suggest that such a campaign be avoided.

Criteria for measuring Ranch Hand’s success were changing, too. There was no longer any conviction, even from Nolting, about the accuracy of quantitative data concerning spraying missions. “As for military effectiveness defoliation,” he advised Rusk in March 1963, “would prefer see it described as appearing have general impact on security situation although no statistical results can be isolated. Again, with crop destruction, evidence of military effectiveness may never be conclusive in wholly measurable terms.”⁸³ This lack of information did not weaken Nolting’s conviction,

⁸² Memorandum from Michael Forrestal to Kennedy, April 22, 1963, “Chemical Defoliation and Crop Destruction”, in Department of State, *Foreign Relations of the United States, 1961-1963: Volume III - Vietnam, January-August 1963* (Washington DC: United States Government Printing Office, 1991), 246.

⁸³ Telegram from the Embassy in Vietnam to the Department of State, March 20, 1963 in *ibid.*, 164-5.

however. The momentum behind Ranch Hand had already built to such a level that the lack of evidence it was working was largely beside the point.

During periods of high uncertainty, accuracy and correspondence with reality become less important. What starts to matter more, according to sociologist Karl Weick, is “plausibility, pragmatics, coherence, reasonableness, creation, invention, and instrumentality... accounts that are socially acceptable and credible.”⁸⁴ The concept of sensemaking, the term used to describe the process of constructing these accounts, helps to explain why Ranch Hand was such an attractive tactic for use in South Vietnam, despite the significant, and unsolved, problems associated with it. Ranch Hand, given the preferences and beliefs of the administration, was credible. United States innovation would conquer the wilderness of South Vietnam, quickly thwart North Vietnamese infiltration, and deny food to anti-Diệm forces, thus preserving South Vietnam from the threat of Communist expansion.

Over a year after the start of Ranch Hand, its usefulness was still not apparent. In March 1963, Nolting confessed that his belief in Ranch Hand’s effectiveness was not based on how well it was working. “We must rely on judgments and to some extent our conclusions have had to be based more on absence adverse evidence rather than on positive evidence.”⁸⁵ Rusk admitted that “military effectiveness [of defoliation] unclear....statistics suggest VC activity curtailed as result [of] spraying, but evidence

⁸⁴ Weick, 57, 61.

⁸⁵ Telegram from Nolting to Rusk, March 20, 1963 in Department of State, *Foreign Relations of the United States, 1961-1963: Volume III - Vietnam, January-August 1963*, 163.

inconclusive.” Regarding crop destruction, “evidence not yet conclusive.” His assessment continues: “Despite Communist propaganda effort, political effects negligible to date so far as can be determined.”⁸⁶

Nolting and Rusk were wrong. Ranch Hand was having significant effects, but these were not the ones tracked or monitored by the administration. The core problems with Ranch Hand were not the challenges in spraying chemicals from C-123s or managing the media fallout. Ranch Hand’s effects on the South Vietnamese environment, and on the South Vietnamese themselves, were what undermined the project.

⁸⁶ Telegram #872 From Rusk to Nolting, March 15, 1963, National Security Files, Countries, Vietnam, General, 3/1/63-3/19/63, Box 197, Document 19, 1,2, JFKL.

CHAPTER 8: TRUE PROBLEM IS PEASANTS' HOSTILITY

Equipment failure and bureaucratic dysfunction undermined Ranch Hand, but they were not decisive in its failure. The profound misunderstanding of rural South Vietnam by both the American and South Vietnamese governments was the most important factor. Schisms within South Vietnam contributed to a climate of suspicion and contempt, which Ranch Hand operations only exacerbated.

Furthermore, Ranch Hand failed to achieve its goals. Defoliation did not deprive insurgents of cover. To make matters worse, the species that invaded defoliated forests were often as much of a handicap as the forests themselves. Crop destruction proved to be of limited use and came with unintended consequences that were even harder to control. Because of the complicated relationship between the South Vietnamese government and its people, crop destruction would quickly prove counterproductive. Ranch Hand's shortcomings became apparent relatively soon after its beginning, but policymakers did not appreciate how the dynamics of the South Vietnamese environment and the antipathy of rural South Vietnamese contributed to them.

The goals of defoliation and crop destruction were logically sound given the administration's beliefs. Despite Congressional questioning, and the reservations of some in the executive branch, the administration's official stance was that revolutionary support was not indigenous but was infecting South Vietnam through infiltration from the north. At least one member of the Senate Foreign Relations Committee contested

this assessment, but the administration's message was clear:

Senator [Albert] Gore [Sr. D-TN]: ...And recently, a United States official, who not long ago was in South Vietnam, told me in my office that there was a tendency in South Vietnam on the part of the President and others to brand as Viet Cong or Communist anyone who was opposed to President Diem.... It was this gentleman's opinion that most of the opposition was from citizens of South Vietnam who have lived there all their lives.

Secretary McNamara. No sir.... all of the evidence I have supports my conclusion that the majority of the Viet Cong have been infiltrated from North Vietnam.¹

Given this view, defoliation should be a useful tool in exposing and deterring further movement. The belief that Communist sympathizers were from the North, and were not indigenous, not only affirmed the decision to use herbicides, it sidestepped awkward questions about South Vietnamese antipathy for their own government. McNamara, however, was wrong. This error would have calamitous results for the United States effort in South Vietnam.

Crop destruction was also based on a rational, if flawed, argument. North Vietnam was, after all, recovering from a widespread famine as a result of the Japanese occupation. Over 2 million people were killed during the Great Famine of 1944-45, almost all in the north.² Depriving already hungry soldiers of food might limit their ability to fight, either through demoralization or starvation.

The administration's limited understanding of South Vietnam caused Ranch Hand to do far more harm than good. The underlying objective of defoliation and crop

¹ Testimony of Secretary of Defense Robert S. McNamara, in *Executive Sessions of the Senate Foreign Relations Committee*, 87th Cong., 1st sess., 115.

² Pham, 91.

destruction – to thwart infiltration from the north in order to preserve the southern government – was, to a great degree, beside the point. Vietnam had a longer history as a unified nation than Germany; its division at the conference table in Geneva came in the face of centuries of history. South Vietnam was a country that had never existed before 1954. As was the case with East and West Germany, citizens of both states recognized the artificiality of the division.³ The goal of many Vietnamese, in both the north and the south, was reunification, not the formation of two separate states.

Even the Diệm government, according to Southeast Asia specialist George Kahin, wanted reunification. “For Diem and his coterie, as for southerners in general, the idea that Vietnam should be divided was quite incompatible with their own nationalist feelings. Adherence to the principle of a unified Vietnam was common to almost all Vietnamese; where they differed was under what authority it should be reunited.”⁴ As Assistant Secretary of Defense Paul Warnke realized while traveling in South Vietnam, “The people I talked to didn't seem to have any feeling about South Vietnam as a country. We fought the war for a separate South Vietnam, but there wasn't any South and there never was one.”⁵ The shared experience of Japanese and French occupation had helped to forge nationalist bonds that the Geneva conference could not break.

An advantage that the revolutionaries had, and one that Ranch Hand could not mitigate, was their place in the larger history of resistance and rebellion in Vietnam.

³ See, for example, Wolfgang Becker's film, *Goodbye, Lenin!* (2003).

⁴ Kahin, 103.

⁵ As quoted in Appy, 279.

The revolutionary forces could align themselves with the history of Vietnam; the southern government could not. As Eric Bergerud wrote in his study of Hậu Nghĩa province, the revolutionary forces could link their efforts to previous struggles against the Japanese and the French. “Furthermore,” argued Bergerud, “the insurgents, with their pure nationalist credentials, could identify their work with the great military efforts in the distant Vietnamese past.”⁶ The Army of the Republic of Vietnam (ARVN) simply could not offer a comparable record; there had been no such entity until only a few years before. The motif of throwing off foreign occupation runs for thousands of years of Vietnamese history, but only one side could draw on this during the Vietnam War.

The appeal of the anti-government forces rested on more than national history. Their strength in rural Vietnam came also from their ability to recognize and address the more prosaic concerns of peasants. Since the vast majority of South Vietnamese lived in hamlets or villages, rather than in more urban areas, this was an important and valuable constituency. Most rural Vietnamese were the equivalent of American sharecroppers, working land that they did not own and paying usurious rent for the right to do so. This, according to one historian, led some rural Vietnamese to be “haunted by a fear that they would not be able to escape...the drudgery of rural life” and servitude.⁷ According to historian Seth Jacobs, “Almost the entire [Mekong] Delta was owned by

⁶ Bergerud, 24.

⁷ David Hunt, “Taking Notice of the Everyday,” in *Making Sense of the Vietnam Wars: Local, National, and Transnational Perspectives*, ed. Mark Philip Bradley and Marilyn B. Young (New York: Oxford University Press, 2008), 191.

absentee landlords and worked by tenant farmers. Although tenancy was less prevalent in central and northern Vietnam, far more Vietnamese farmers rented their land than owned it. Tenants often gave up between 50 and 70 percent of their crop in rent, and were in near-constant debt.”⁸

Part of what made the NLF program so attractive was the almost immediate redistribution of land. During the struggle against the French, many landlords had abandoned or were forced to surrender their holdings. The post-1955 goals of the South Vietnamese government concerned restoring land to the landlords. In contrast, the first efforts that the NLF made to woo the peasants focused on widening land distribution.⁹ This was more than just an economic benefit. South Vietnamese landlords were, as Frances Fitzgerald wrote, “more like a government” and “exercised almost total authority over the people who worked in their domains.”¹⁰ As a local South Vietnamese leader explained, “[Land is a life and death issue [to the rural South Vietnamese], inextricably tied to their own interests. Although sometimes their taxes to the Party are five or seven times those to the government, they nevertheless pay them: in the time of the French, when their parents had no land, their life was extremely harsh. Now they have land, and they are willing to pay and to send their sons into the army to preserve it.”¹¹

⁸ Jacobs, *America's Miracle Man in Vietnam: Ngo Dinh Diem, Religion, Race, and U.S. Intervention in Southeast Asia*, 93.

⁹ Pham, 69; Race, 166

¹⁰ Fitzgerald, 153.

¹¹ Race, 129. Ironically, the depth of connection between settlers and their land was one lesson from the American West that the administration did not apply to South Vietnam.

The South Vietnamese government could not, or at least did not, compete for the peasants' loyalty on these terms. The government's conception of how to gain its citizens' allegiance was very different. Diệm misunderstood, as did many in Washington, what the revolutionaries were offering the South Vietnamese. In the government's assessment of the problem, the anti-government forces offered no positive inducements. The most important factor in the success of anti-government forces was not that rural Vietnamese believed their interests were better served. Instead, according to South Vietnamese government documents, it was "Thành thạo phương-pháp phá-hoại." ("Skills and methods of sabotage"). The next leading cause of anti-government strength was "Khai-thác được mọi sơ hở của ta" ("Able to exploit all of our weaknesses").¹²

Like their American allies, the South Vietnamese leaders ascribed NLF strength to the reach of global Communism instead of to the NLF's willingness and ability to respond to local conditions that warranted attention. "Đây là sở trường của hầu hết các Đảng Cộng-sản, nhứt là cộng-sản ở Á-Châu. Đúc kết những kinh-nghiệm quốc-tế bọn tay sai Kominform xưa nay vốn nổi tiếng trên thế-giới về phương-pháp làm 'ung thối' một quốc-gia, một ruộng, một chế-độ...." ("[Sabotage] is an advantage of almost all Communist parties, such as the Communists in Asia. In summary, international

¹² "Nhận - định tổng-quát" ("Comprehensive Assessment" developed by the Government of Viet Nam) 1963, 29, National Archives II, Hồ Chí Minh City, Vietnam. This assessment was written by the Diệm government.

experiences with this gang of world famous Cominform lackeys always follow the method of ‘decay’ of a country, .., a system...”¹³

More ominously, the role of the Công An, the government’s repressive internal security force, could be justified with similar reasoning. “Tổng-thống yêu cầu Ông Bộ-Trưởng Nội-Vụ xem tổ-chức đặt lưới Công-An, tình báo trong dân-chúng để thu lượm mau lẹ tin-tức của đối-phương hầu đồ phó kịp thời hoặc ngăn ngừa âm mưu phó hoại của chúng.” (“The President asks the Interior Minister to supervise the Cong An network, the intelligence within the people, in order to collect quickly news of the adversary so we can either cope in a timely way with or prevent their destructive schemes.”)¹⁴

Even without the revolutionary forces, relations between the peasants and the Diệm regime would likely have been strained. Regional differences also influenced how the government interacted with its citizens. The Ngô family had for generations lived in Huế, an ancient and powerful city that had been the national capital until 1945. Huế and its surroundings have a strong local culture and accent; if southern Vietnamese is like American English, with elided consonants, and the northern dialect is more enunciated, like British English, then the language of Huế is like a thick Scottish burr, incomprehensible even to other native speakers. Diệm’s lack of communication with his citizens was not only figurative; it was literal as well. To compound the

¹³ “Nhận - định tổng-quát” (“Comprehensive Assessment” developed by the Government of Viet Nam) 1963, 29, National Archives II, Hồ Chí Minh City, Vietnam.

¹⁴ Cabinet Meeting Minutes, February 2, 1960, 46 PTTg, 2 National Archives II, Hồ Chí Minh City, Vietnam.

misunderstanding, natives of Huế viewed southerners as, in the words of political scientist Jeffrey Race, “lazy, undisciplined, and hopelessly corrupted by foreign influences.”¹⁵

Descriptions of Diệm as “a Cold War Mandarin” are accurate in highlighting his belief in his role as teacher and model to those less able.¹⁶ In Diệm’s case, however, this devolved into something more destructive. “The best that can be said of government practice” in Long An province, according to Race, “is that its underlying attitude - with some notable exceptions - was that the people were objects of distrust (i.e., “simple” and “easily deceived”), to be manipulated at will.”¹⁷ Not only were these conceptions inaccurate, they were self-reinforcing. As political scientist Robert Jervis has observed, “people perceive what they expect to be present.”¹⁸ These inaccurate beliefs and assumptions about South Vietnam itself quickly became foundational to decisions about chemical spraying.

This was particularly true in the case of the Montagnards. “Montagnard” is a French term for the ethnic groups living in the higher elevations north and west of Sài Gòn. Diệm’s contempt for them handicapped not only United States strategy but also his own government’s efforts to defeat the NLF. According to *Time*’s Howard Sochurek, a “great mistake of the Diem government was in its dealing with the MONTAGNARDS [sic], the 700,000 hill people in the high plateau that covers a third

¹⁵ Race, 45.

¹⁶ See, for example, Jacobs, *Cold War Mandarin: Ngo Dinh Diem and the Origins of America's War in Vietnam, 1950-1963*.

¹⁷ Race, 170.

¹⁸ Jervis, *Perception and Misperception in International Politics*, 68.

of Vietnam's land area, is mostly in heavy jungle, and has become an almost impenetrable redoubt for the Viet Cong... Their land was arbitrarily seized for resettlement of northern refugees and they were referred to as 'MOI', or primitives, closer translation would be ape. Now over 90% are support the ... Viet Cong who have heavily infiltrated the Montagnard areas."¹⁹

Like the Montagnards, other South Vietnamese also bitterly resented the treatment they received from their government. Some viewed "Mỹ - Diệm" ("American Diem") as little more than another foreign occupier. Thong Van Pham, a South Vietnamese veteran and former prisoner of war, remembered his Uncle Ha. "Like many fighters of his generation who joined Viet Minh [sic], [he] was more a patriot than a Communist. Many high-ranking officials and party member of his age were not hardcore Communists. They had joined Ho's government to defeat a common enemy."²⁰

Others rebelled because of their own mistreatment by government officials. One hamlet chief interviewed by Race understood how this cruelty benefitted the enemy.

The Viet Cong were very smart. If they knew that Binh's family had been ill-treated by the government, they would work on that weak point. Perhaps Binh had had money extorted by an official - in his heart he had to feel resentment. So they would come by from time to time and say 'You see how bad the government is, it calls itself nationalist, but in the end it steals your money.... Are you just going to do nothing?...[Gives more examples] This is how the VC gained the people's support. They simply built on the opportunity we gave them.'²¹

¹⁹ Howard Sochurek, Excerpts from March 1962 "Report from Vietnam", Presidents Office Files, Countries, Vietnam, General, 1962, Box 128a, Document 4b, 5, JFKL.

²⁰ Pham, 282.

²¹ Race, 73.

Defoliation and crop destruction provided another compelling argument for those who wanted to turn rural Vietnamese away from their government. Chemical spraying was yet another example of government oppression of poor farmers.

These racial, ethnic, and class divisions within South Vietnam are more relevant in explaining the punitive aspects of Ranch Hand than are United States racial attitudes. The role of race in United States foreign policy in Asia has been well-documented.²² Less than 20 years after the defeat of imperial Japan, and less than 10 years after the Korean armistice, the nation was again involved in hostilities against Asians. The perceptual problems this engendered during the Cold War did not go unnoticed. As Allen Dulles, Director of the Central Intelligence Agency (CIA) discussed with the Senate Foreign Relations Committee in January 1960, the specter of colonialism that confronted the United States all over the world.

“Senator [Theodore F.] Green [D-RI] Wouldn’t you say that as a rule the natives as a whole identify us with the other European powers?

Mr. Dulles: To some extent they do, yes; there is no doubt of that.

Senator Green: Isn’t that unfortunate?

Mr. Dulles: It is, but I don’t know how one can help it. Our skin is of a certain color, and that is hard to prevent....”²³

²² For a particularly broad and thoughtful exploration, John Dower, *War without Mercy: Race and Power in the Pacific War* (New York: Pantheon Books, 1987). Other important works on this issue include Thomas Borstelmann, *The Cold War and the Color Line: American Race Relations in the Global Arena* (Cambridge: Harvard University Press, 1984). Mary Renda, *Taking Haiti: Military Occupation and the Culture of U.S. Imperialism* (Chapel Hill: University of North Carolina Press, 2001).

²³ Briefing on the World Situation, Monday January 18, 1960 – Allen Dulles, Director, CIA, testimony in *Executive Sessions of the Senate Foreign Relations Committee*. 86th Cong., 2nd sess., Vol. XII, pt 2., (Washington DC: United States Government Printing Office, 1982), 49.

United States rhetoric describing the “Viet Cong”, itself a pejorative term, was racially loaded. Insurgents were little more than animals; “prowling...slithering...they dive like otters...Once he’s flushed from cover, [Americans and South Vietnamese] must keep hounding him.”²⁴ However, United States descriptions of the South Vietnamese were different in tone. Rural peasants were unthreatening. “Naïve and illiterate,” pronounced *TIME*.²⁵ “Unsophisticated Vietnamese” were, according to Nolting, “most likely to believe such charges [about the effects of spraying] least likely to be affected by scientific arguments.”²⁶ As jarring as these descriptions now sound, they were not markedly worse than contemporary characterizations of other groups, both within and outside of the United States, that were not subject to chemical spraying. The administration’s contempt was reserved for the VC. One of the tragedies of Ranch Hand was the continued rationalization that only the VC would be affected, even in the face of mounting evidence to the contrary. This not only led to the inadvertent spraying of civilian crops but also contributed to the increasing estrangement of the rural South Vietnamese from the Diệm government.

Issues of identity and racism that underpinned the struggle in South Vietnam could not, of course, be ameliorated by chemical herbicides. In fact, defoliation and

²⁴ Martin, 14-16.

²⁵ "South Vietnam: The Firing Line," *Time*, August 4 1961. <http://0-web.ebscohost.com.library.lausys.georgetown.edu/ehost/detail?sid=9a4b5881-fcea-471e-be0b-ac046d9e3991%40sessionmgr4&vid=5&hid=25&bdata=JnNpdGU9ZWZWhvc3QtbGl2ZQ%3d%3d#db=aph&AN=54205464> (accessed October 13, 2009).

²⁶ Telegram #907, Nolting to Rusk, April 12, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 24, JFKL.

crop destruction could not achieve even the more limited goals set for them.

Defoliation did not work as its advocates had hoped. When flying over sprayed forests, Roger Hilsman, Director of the State Department's Bureau of Intelligence and Research, could not see the benefits of defoliation. "As for removing the cover for ambushes, while in Vietnam I had flown down a stretch of road that had been used for a test and found that the results were not very impressive.... Later, the senior Australian military representative in Sài Gòn, Colonel [F. P. "Ted"] Serong, also pointed out that defoliation actually aided the ambushers ...when [vegetation] was removed the guerrillas had a better field of fire."²⁷

According to Defense Department scientist J. W. Brown, expectations for defoliation were usually unrealistic; Hilsman may well have seen one of the best efforts. "Remember....," Brown warned, "that the greatest effect achievable or to be expected under any circumstances as a result of chemical sprays may be roughly compared with the condition of a US hardwood deciduous forest in winter."²⁸ Brown described an ideal outcome; spraying conditions were often far from ideal.

By the spring of 1963, the administration had spent almost 2 years testing and using chemical defoliants, and the results were still not encouraging. In a meeting with British Ambassador David Ormsby Gore and Sir Robert G.K. Thompson, the head of the British Advisory Mission to Vietnam, President Kennedy learned that defoliation did not in fact hinder revolutionary activity. "Even when the foliage was dead,"

²⁷ Hilsman, 442-3.

²⁸ Brown, *Vegetational Spray Tests in South Vietnam*, 28.

reported Thompson, “sufficient branches and twigs remained to provide hiding places for the Viet Cong.”²⁹ The State Department also became pessimistic about the effectiveness of spraying. Nolting’s support remained unwavering, but he was forced to resort to subjective arguments. “Sài Gòn reports that these trials appear to have had a general impact on the security situation, but no statistical results can be isolated.”³⁰

To make matters worse, defoliation was, from the start, practically impossible to control. Vietnam’s rubber industry, a major source of revenue since French colonization, suffered collateral damage. *Hevea brasiliensis*, the most common species in the rubber plantations, is particularly sensitive to 2,4,5-T.³¹ Rubber plantations were not deliberately sprayed during the war. Nonetheless, drifting defoliants still damaged these valuable, and slow-maturing, plants. As Brown reported in 1962,

....on 17 January (after sprays by the C-123 equipment on 14 and 15 January) a VN letter of protest was received from a rubber plantation claiming that 60,000 rubber trees had been killed.... (In this connection, it definitely appears from the evidence available that the plantation was not directly sprayed, but the concentration of vapors from the chemicals was sufficiently high to affect the

²⁹ Memorandum of Conversation, “Situation in Vietnam”, April 4, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 20, 1, JFKL. Thompson had a good relationship with Kennedy, although he warned that solving the crisis in South Vietnam would require much more time and patience than the administration anticipated. For a thorough exploration of Thompson’s career and the difficult comparisons between Malaya and South Vietnam, see George M. Brooke, III, “A Matter of Will: Sir Robert Thompson, Malaya, and the Failure of American Strategy in Vietnam” (Georgetown University, 2004).

³⁰ Memorandum from the Department of State to McGeorge Bundy, “Herbicide Operations in South Viet-Nam”, April 18, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 29a, 1, JFKL. Nolting’s contemporary support for Ranch Hand contrasts sharply with his views as set out in his memoir. See Nolting, 38.

³¹ Gordon H. Orians and E. W. Pfeiffer, “Ecological Effects of the War in Vietnam,” *Science*, May 1 1970, 544.

rubber trees when the prevailing wind reversed direction some four or five hours after spraying.)³²

Even in cases where drift did not kill trees, the loss in production was substantial because of leaf loss and the resulting limited latex production by the affected plant.³³

Drift quickly became a political as well as a logistical problem for American spraying in South Vietnam. The fears of spray drifting into neutral Cambodia, so quickly dismissed by Rusk, came true. In May 1963, the American Ambassador to Phnom Penh, Phillip Sprouse, sent Rusk a telegram reporting “rumors” of chemical drift across the border. Cambodian officials were taking no chances. “Local campaign against use of ‘noxious chemicals’ in SVN...has taken sudden leap forward... Ministry agriculture officials scheduled accompany USAID counterparts to border province of Svay Rieng yesterday called off trip on grounds food grown in province seriously contaminated by defoliant spray drifting across border and food imports from SVN dangerous.”³⁴ The reaction from Nolting, who by this time was taking a greater and greater role in spraying operations, was unequivocal. “Distances from border and manner conducting spraying operations preclude any possibility Cambodian crops could have been affected.”³⁵

³² Brown, *Vegetational Spray Tests in South Vietnam*, 32-3.

³³ Orians and Pfeiffer, 550.

³⁴ Telegram #875 from Sprouse to Rusk, May 18, 1963 National Security Files, Countries, Vietnam, General, 5/18-5/30/63, Box 197a, Doc 2, 1, JFKL.

³⁵ Telegram #1042 from Nolting to Rusk, May 19, 1963, National Security Files, Countries, Vietnam, General, 5/18-5/30/63, Box 197a, Doc 6, JFKL. In the delta region, the Vietnam-Cambodia border is flat and almost featureless; it is easy to see how spray might have been improperly aimed or have drifted into Cambodia.

Nolting had missed the point. Given the necessity of keeping the Cambodian government at least neutral in its support of the factions in South Vietnam, the United States could ill afford to risk any disruption to relations with the Cambodian government. Any perception that the United States was harming Cambodians, even indirectly, was sure to increase tensions in a relationship already characterized by what Cambodia specialist Philip Short described as “mutual incomprehension.”³⁶

The unintended consequences of spraying targeted plants were also severe. A particularly sensitive type of plant, and one that was specifically sprayed, was the mangrove. Defoliation operations were frequent and intense in the Rừng Sát (“Jungle of Death”) region, between Sài Gòn and the Cambodian border. The Rung Sat Special Zone spanned the Nhe Be River (Sông Nhà Bè), a major shipping channel to Sài Gòn. The river was lined with mangroves.

Like spraying operations in United States, missions in South Vietnam continued despite unanswered questions about how exactly these chemicals killed plants and what the longer-term effects might be. According to an American Association for the Advancement of Science (AAAS) report, “For some unknown reason, virtually the entire [mangrove] plant community is killed outright by a single spraying... Furthermore, again for an unknown reason, herbicide attack appears to prevent the reestablishment of any new plant community.”³⁷ The death of a mangrove forest would

³⁶ Philip Short, *Pol Pot: Anatomy of a Nightmare* (New York: Henry Holt and Company, 2004), 77.

³⁷ Philip M. Boffey, “Herbicides in Vietnam: Aaas Study Finds Widespread Devastation,” *Science*, January 8 1971, 46.

be particularly devastating. Not only did the trees serve as a home for fish, shellfish, and birds, they controlled soil erosion, and served as a fuel source for local residents.³⁸ One reason for the pervasive and persistent effects of chemicals on mangroves might be the chemical composition of the soil in mangrove forests, according to biologists Gordon Orians and E. W. Pfeiffer. This “may result in a failure of the herbicides to be decomposed. If the molecules remain bound to the soil particles they might influence seed germination for a long time.”³⁹

In the case of the Rừng Sát mangroves, the damage would take years to mitigate. Fred Tschirley, Assistant Chief of the Crops Protection Research Branch, Crops Research Division, Agricultural Research Service, Department of Agriculture, observed in 1968 that “In the mangrove areas treated in 1962, trees of the colonizing species were not yet discernable from 600 meters on the all the treated area.... 20 years may be a reasonable estimate of the time needed for this forest to return to its original condition.”⁴⁰

Another target of chemical spraying, particularly northwest of Sài Gòn, were the upland, semi-deciduous forests. This ecosystem, like that of the mangrove forests, was complex and presented challenges that United States ‘crop dusters’ never had to face. “The difficulty of a botanic description,” wrote Tschirley, “may be appreciated with the knowledge that about 1500 woody species occur in RVN.”⁴¹

³⁸ Sterling, Hurley, and Minh, 92.

³⁹ Orians and Pfeiffer, 546.

⁴⁰ Fred H. Tschirley, "Defoliation in Vietnam," *Science*, February 21 1969, 782.

⁴¹ *Ibid.*, 784.

A single spraying was not enough to do long-term damage to a forest; two sprayings, however, according to scientists who visited South Vietnam, “may kill approximately 50 percent of commercially valuable timber.... These areas are being invaded by grasses which are resistant to forest defoliants and which may arrest succession by preventing the reestablishment of tree seedlings for a long time.”⁴²

These grasses would also prevent defoliation operations from doing what they were designed to do. As Brown realized during the testing of defoliants in South Vietnam, defoliation was far from sufficient to improve visibility over the long term. Even killing the targeted plants outright would be at best a temporary solution, “because of seeds giving rise to new plants and because understory species that received sublethal quantities of spray are capable of growth to fill in areas formerly dominated by the killed trees.”⁴³

One of the plants that moved into defoliated forests was bamboo. This invasion slowed forest regeneration markedly. Botanist K. J. Ahmed warned, “A bamboo will be the first member to colonize on a new site in a seed year and will be the last to leave it. Once established on a soil it is difficult to eradicate it.”⁴⁴ Tschirley also reported the pervasiveness of bamboo in damaged forests.⁴⁵ Not only were these plants invasive, but they provided the cover and screening that defoliation was designed to deny to anti-

⁴² Orians and Pfeiffer, 547.

⁴³ Brown, *Vegetational Spray Tests in South Vietnam*, 28.

⁴⁴ K. J. Ahmed, “Methods of Increasing Growth and Obtaining Natural Regeneration of Bamboo Types in Asia,” in *Fourth World Forestry Conference, Dehra Dun*, Tropical Silviculture (Delhi: Manager of Publications, Government of India, 1957), 287.

⁴⁵ Tschirley, 785.

government forces. Furthermore, by preventing the regrowth of timber, bamboo further deprived the government of needed revenues from timber export.

Another of the encroaching grasses was Cogon or American Grass (*Imperata cylindrical*). This, too, practically erased any gains in mobility or visibility that might have resulted from defoliation. The United States Department of Agriculture classifies this plant as a Federal Noxious Weed, with stringent reporting requirements to track infestations. "Cogongrass (*Imperata cylindrica*) is an aggressive invader of natural and disturbed areas..." according to the University of Georgia. "It disrupts ecosystem functions, reduces wildlife habitat, decreases tree seedling growth and establishment success, and alters fire regimes and intensity."⁴⁶ Cogongrass can quickly reach 6 feet in height, obscuring sight lines for all but the tallest United States soldiers and providing more than adequate cover for Vietnamese troops, who were generally shorter than their American counterparts. Defoliating a forest only to have bamboo and Cogongrass invade would be counterproductive, particularly since these grasses were typically immune to 2,4-D.⁴⁷

⁴⁶ Brent Sellers, Jason Ferrell, and Greg MacDonald, "Cogongrass Control in Pastures and Fencerows", University of Florida Range Cattle Research and Education Center (accessed February 24 2012). <http://www.cogongrass.org/cogongrassid.pdf> (accessed February 24, 2012).

⁴⁷ On eradication of invasive grasses, see C. W. Evans and others, *Field Guide to the Identification of Cogongrass: With Comparisons to Other Commonly Found Grass Species in the Southeast* (Tifton, GA: The University of Georgia Bugwood Network, 2006); Sterling, Hurley, and Minh, 42. On bamboo eradication see Becky Koepke-Hill and others, "Invasive Weeds of the Appalachia Region", University of Tennessee (accessed February 24 2012). <http://hortweeds.tennessee.edu/webapp/weedguide/allpages.pdf>; on Cogongrass, see

Crop destruction also did not have the desired effects and also had deleterious consequences. One review of Ranch Hand indicated that "It has been argued that the destruction of food reserves in Vietnam, by defoliation and other means, afflicts chiefly the aged, the infirm, pregnant and lactating women, and children under five years of age. The use of starvation as a weapon has not been very effective militarily inasmuch as soldiers can generally forage for themselves at the expense of the civilian population."⁴⁸ This population already held grievances against the government; weapons that targeted the weakest citizens, even unintentionally, would only further fuel resentment.

In 1967, research done by the Research and Development (RAND) Corporation uncovered similar patterns and their predictable consequences. The RAND project focused on crop destruction, and was performed at the request of the Defense Department. RAND's findings were unequivocal. Based on interviews conducted from August 1964 through the report's publication, "the data consistently suggest that the crop destruction program has not in any major sense denied food to the VC.... The indications are that very negative feelings toward the US/GVN are aroused as a consequence of the spray, and a number of subjects speak of increased support for the VC resulting from such operations."⁴⁹

Sellers, Ferrell, and MacDonald. <http://rcrec-ona.ifas.ufl.edu/in-focus/IF1-24-06.shtml> (accessed February 24, 2012).

⁴⁸ J. B. Neilands, "Vietnam: Progress of the Chemical War," *Asian Survey* 10, no. 3 (March 1970): 220.

⁴⁹ In fact, RAND conducted about 2400 interviews with captured insurgents and defectors in connection with its research on North and South Vietnamese motivation and morale. Betts and Denton, iii, xi-xii.

The narrow definition of who deserved protection doomed crop destruction efforts. At the same time, it made them more morally palatable. Richard Price and Nina Tannenwald highlight this type of thinking in their analysis of the chemical and nuclear weapons taboos. Targets of chemical weapons are by definition uncivilized. "The symbolic connection of CW [chemical weapons] with standards of civilized conduct has made it more difficult for advanced nations to employ these weapons against each other as just another unremarkable, unpoliticized, and standard means of warfare. At the same time, however, it has also played a part in undermining the taboo in 'uncivilized' areas."⁵⁰

Nolting, for one, adopted a similarly reductive view of who exactly lived in South Vietnam. When endorsing a South Vietnamese request to expand crop destruction operations into Zone D, an area slightly north and east of Sài Gòn, he observed, "Khanh's proposal makes good sense as Zone D is hardest of hard core VC areas and everyone living in Zone D is considered to be VC.... Crops of course VC grown and VC consumed."⁵¹ To his credit, the State Department was not willing to accept such a blanket assessment. "Believe it unwise," Rusk chided Nolting, "[to]

⁵⁰ Richard Price and Nina Tannenwald, "Norms and Deterrence: The Nuclear and Chemical Weapons Taboos," in *The Culture of National Security: Norms and Identity in World Politics*, ed. Peter J. Katzenstein (New York: Columbia University Press, 1996), 131.

⁵¹ Telegram #545 from Nolting to Rusk, November 26, 1962, National Security Files, Countries, Vietnam General, 11/16/62-11/30/62, Box 197, Document 2, 1-2, JFKL.

assume all inhabitants are VC, therefore TF/Saigon must ensure there is maximum, not minimum, psywar and rehabilitation effort.”⁵²

Given Diệm’s assessment of the challenge his government faced, and given his views of rural South Vietnamese, it is perhaps not surprising that the maximum rehabilitation effort never happened. The issue of restitution and resettlement, to which Kennedy alluded in NSAM 115, was never resolved. It continued to undermine Ranch Hand operations and undoubtedly contributed to the resentment Ranch Hand engendered. From the start of Ranch Hand, the White House relied on Diệm to inoculate the United States against adverse publicity by aiding those civilians affected by chemical spraying. In instructions to the United States embassies in Vietnam and Cambodia, the State Department suggested that the South Vietnamese government take the lead in resettlement and food distribution.⁵³ Senior State Department officials, however, were not sanguine about Diệm’s ability, or willingness, to do this. “[Food denial] should begin only after development of a careful program of resettling the innocent populations of the areas and assurance that they have adequate replacement food supplies. So far as we can tell, Diem has no such plans....”⁵⁴

⁵² Telegram #546 from Rusk to Nolting, November 27, 1962, National Security Files, Countries, Vietnam General, 11/16/62-11/30/62, Box 197, Document 9, JFKL.

⁵³ Airgram from Department of State to US Embassies in Vietnam and Cambodia, December 8, 1961, National Security Files, Countries – Vietnam, General, 12/8/61-12/10/61, Box 195a, Document 13, JFKL.

⁵⁴ Roswell Gilpatric to John F. Kennedy, November 21, 1961 as found on <http://www.jfklibrary.org>, March 2005; site discontinued and relaunched in March 2006.

These fears were warranted. The Diệm government gave minimal, if any compensation to South Vietnamese who had lost crops in spraying operations. According to one assessment by Task Force Sài Gòn's Herbicide Evaluation Team, "A total of 5 million piasters were budgeted in CY 1963 as part of the RVNAF Military Civic Action Plan for indemnification of claims arising out of military operations, including herbicide damage. To date, only a small amount has been paid from this fund, none for herbicide damage."⁵⁵ A State Department report confirmed this: "The GVN has set up a mechanism for compensating peasants whose crops are inadvertently destroyed. We do not have much information on the results of the compensation program, but there are indications that it was not properly carried out."⁵⁶

RAND's interview subjects gave much the same account. When asked, "Did the GVN compensate the families whose crops were destroyed by giving them rice or money?", one teenaged defector replied "No GVN officials have set foot in that area."⁵⁷ In addition, according to RAND, "nearly half of the few GVN aid cases consisted of aid to the rich only," confirmed what many peasants believed about whom their government was protecting. From the United States' standpoint, the GVN's lack of action was even more damaging. In several cases, "the villagers were told that

⁵⁵ Peter G. Olenchuk, *Evaluation of Herbicide Operations in the Republic of Vietnam (September 1962-September 1963)* (Alexandria, VA: Defense Technical Information Center, 1963), 15.

⁵⁶ Memorandum from the Department of State to McGeorge Bundy, "Herbicide Operations in South Viet-Nam", April 18, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 29a, 4, JFKL.

⁵⁷ February 1965 interview, Thua Thien Province, Alvin L. Young Collection on Agent Orange, National Agricultural Library, Beltsville, MD.

because the Americans had conducted the spray operations, the GVN had no responsibility and could do nothing.”⁵⁸

Other studies found similar patterns. As biologists Gordon Orians and E.W. Pfeiffer reported in 1970, “It is evident that the defoliation program has had tremendous psychological impact upon the Vietnamese people and has profoundly affected their attitude toward Americans. A farmer whose entire crop has been destroyed by herbicides, whose fruit trees do not bear fruit for 3 years, will inevitably be resentful.” To make matters worse, according to Orians and Pfeiffer, even those who filed claims were threatened or ignored.⁵⁹

As might be expected, the NLF did not let this situation go unexploited. In addition to incorporating these failings into its propaganda efforts, it sought to fill the urgent gaps. About 30 percent of the RAND interviewees reported getting some form of aid from the NLF. The South Vietnamese government was much less responsive.⁶⁰

One resettlement program that the South Vietnamese government did undertake engendered enormous ill will. At the same time that Ranch Hand was getting started, the Diệm government, with United States support, was embarking on the strategic hamlet program. Part of what made the program so controversial was its connection with defoliation and herbicide use. The formation of strategic hamlets, designed ostensibly to protect rural South Vietnamese from marauding Communists and to introduce them to the benefits of modern agriculture, often required that peasants leave

⁵⁸ Betts and Denton, 18.

⁵⁹ Orians and Pfeiffer, 553.

⁶⁰ Betts and Denton, 18.

their lands and move into a newly-created collection of houses ringed with fences and barbed wire. There is no evidence that the United States advocated crop destruction as part of the relocation of South Vietnamese people into strategic hamlets. However, contemporary observers connected the two programs. According to *The Saturday Evening Post*,

In setting up the first of these resettlement villages the government discovered it had to move the people by force. It then burned their houses and destroyed their rice crops to deny them to the Viet Cong. The result was as might have been expected. When the families were finally bedded down in the bleak new village, all the young men of fighting age had disappeared, presumably to join the guerrillas. Those who moved were the old folks and the children, who now stand in the doorways and glower sullenly as government officials proudly show off the new project to visitors.⁶¹

Whether or not the two projects were connected, the coincidence provided the anti-government forces with a clear propaganda message. According to one ex-Viet Minh soldier, “[The cadres] said [crop destruction] was because the Nationalists wanted to concentrate the people into the New Life Hamlets...Because the people had resisted the Nationalists’ inducements to move, they sprayed poison to destroy the people’s crops and thus force the people to leave their hamlets and villages.”⁶² Aerial spraying operations were a boon to the revolutionary forces, just as many in the administration feared. As RAND research found, “For the individual Vietnamese, the almost total US/GVN failure to warn, to advise, to explain the purpose of crop spraying does not go

⁶¹ Martin, 16.

⁶² February 1966 interview, RAND interviews, Alvin L. Young Collection on Agent Orange, National Agricultural Library, Beltsville, MD.

unnoticed. In sharp contrast, Viet Cong propaganda often sounds like good sense and, in view of one's own personal experience, has the ring of truth."⁶³

Although there was continued discussion and increasing concern about Diệm's adversarial relationship with his own people, the administration failed to grasp that this was largely why Ranch Hand was failing. Defoliation, even if it had been effective, would not have stopped the growth in revolutionary strength; it was coming not from the north but from the villages. Crop destruction was alienating the Montagnards and those southerners whose manioc and rice were destroyed.

Days after Kennedy's election, Eldridge Durbrow, the United States Ambassador to South Vietnam and Nolting's predecessor, warned "State Department experts must realize problem in SVN less military than political, since currently 300,000 troops unable subdue small VC force. True problem is peasants' hostility aroused by GVN refusal recognize and solve their problems, also by lack of democracy and absence contact with officials."⁶⁴ Ranch Hand would exacerbate this difficult situation and further alienate the peasants. Later reviews of Ranch Hand's progress would not address this growing problem.

In the administration's counterinsurgency planning, the Montagnards were to play an important role. At a Honolulu briefing, the management of these "less sophisticated elements" was on the agenda. Marine Corps General Victor "Brute"

⁶³ Betts and Denton, 20.

⁶⁴ Memorandum from the Ambassador to Members of the Country Team, "American Position During Recent Coup Attempt", November 17, 1960, RG 59, C0092, Confidential U.S. State Department Files Vietnam: Internal and Foreign Affairs, 1960-1963, NARA.

Krulak, the Joint Chiefs' Special Assistant for Counterinsurgency and Special Activities, reported to McNamara that "the GVN, for many reasons, has done less than they might have to care for these people, despite the great importance of their good will and their potential usefulness as combatants."⁶⁵ Left unstated were the potential effects of crop destruction on the Montagnards, which Kennedy tried to explore with the South Vietnamese defense minister Nguyễn Đình Thuận.⁶⁶ From the initial stages of planning Ranch Hand, Kennedy had required that the South Vietnamese government resettle the Montagnards before spraying crops; this did not happen.

Kennedy was not the only one concerned with the effect of crop destruction on the Montagnards. A memorandum of an August 1962 discussion recounts in sanitized language what was likely a heated debate between General Lyman Lemnitzer, Chairman of the Joint Chiefs of Staff and U. Alexis Johnson, Deputy Undersecretary of State for Political Affairs. "Mr. Johnson said it was doubtful that we could destroy VC crops without destroying Montagnard crops at the same time. The crops are in the same area and are not readily identifiable as belonging to one or the other of the two groups. General Lemnitzer said that this is not a problem because the VC have driven the Montagnards out of the area and thus all crops will be harvested and consumed by the VC. Mr. Johnson said that the crops were not planted and raised by the VC but by the

⁶⁵ Memorandum from Krulak to McNamara, July 30, 1962 in State, 564.

⁶⁶ The South Vietnamese government did not have separate State and Defense Departments; Thuận's official title was Assistant Secretary of State for National Defense.

Montagnards.”⁶⁷ Earlier in the year Kenneth Young, the United States Ambassador to Thailand, warned Rusk that crop destruction might spark an “adverse reaction” from Thais but that an effective herbicide campaign against the Communists would convince Thais of the program’s merit. “Not so sure however,” Young wrote, “impact would be so favorable in other Asian countries.”⁶⁸

Spraying operations went ahead. One reason was that the burden of proof was now on those who wanted to contain the program. The questions inherent in spraying the crops of a potential ally remained unanswered. “In...the central plateau and mountain regions, food denial tactics are clearly in order,” the State Department recommended.⁶⁹ The population of this area was largely Montagnards, the same ethnic group that the South Vietnamese government had termed savages. One report on Ranch Hand, in fact, implies that this contempt influenced the choice of target selection by the South Vietnamese. The American Academy for the Advancement of Science (AAAS) found that “The anti-crop spraying has largely been confined to the food-scarce Central Highlands, which has a population of only about 1 million, mostly Montagnards, a tribal

⁶⁷ Memorandum of the Substance of Discussion at a Department of State-Joint Chiefs of Staff Meeting, August 24, 1962, in State, 610.

⁶⁸ Airgram #A-198, January 5, 1962, from Kenneth Young to Rusk, National Security Files, Countries, Vietnam, General, 1/6/62-1/12-62, Box 195a, Document 19, 1-2, JFKL.

⁶⁹ Memorandum from the Department of State to McGeorge Bundy, “Herbicide Operations in South Viet-Nam”, April 18, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 29a, 2, JFKL.

people disliked by the lowland Vietnamese who are active in helping to plan the spraying missions.”⁷⁰

Another reason for the United States to destroy South Vietnamese crops, according to the State Department, was to prevent the Diệm government from taking control of the program. If that were to happen, the scope of the program would be wider than anything the United States might sanction. As debate about crop destruction continued in 1962, the schism between the Diệm government and the South Vietnamese people became more and more apparent. Rusk advised Kennedy, “I recommend that we ask that [Nolting] seek to dissuade President Diem from now embarking independently on a crop-destruction program which would be at least premature” and at worst would alienate the very people the United States, and the South Vietnamese government, needed to prevail in their struggle against the revolutionaries.⁷¹ Hilsman, too, had serious reservations about involving Diệm and his government too deeply. “This whole business could blow up in any number of horrendous ways,” given the South Vietnamese Government’s propensity to use air power “on the basis of the flimsiest kind of intelligence.”⁷²

⁷⁰ Boffey, 45.

⁷¹ Memorandum from Rusk to Kennedy, “Project for Crop Destruction”, August 23, 1962 in State, 609.

⁷² Memorandum for the Record, March 19, 1962, Roger Hilsman Papers, Countries, Vietnam, 3/1/62-7/27/62, Box 3, Folder 8, Document 2, 1, JFKL.

By April 1963, second thoughts about Ranch Hand were surfacing. “Our use of defoliant chemicals may have been premature,” the State Department confessed.⁷³ There were no comprehensive plans to aid South Vietnamese whose crops had been sprayed. Furthermore, Ranch Hand missions appeared impotent to stop infiltration and deny food supplies. They had pervasive negative consequences for the environment and people of South Vietnam, and thus for United States efforts to prop up the Diem government and stop Communist advances.

Despite these things, the missions continued. The effects of Ranch Hand on United States credibility, not its effects on the South Vietnamese, were the chief concern. “Halting herbicide operations now would tend to confirm Bloc charges [of chemical warfare] and invite further such campaigns because of their proven effectiveness against us.”⁷⁴ Thus, the State Department recommended to National Security Advisor McGeorge Bundy that Ranch Hand continue. The effects of operations on rural Vietnamese were not discussed.⁷⁵

The Joint Chiefs of Staff also supported continuation and expansion of defoliation and crop destruction; they, too, ignored the implications for the South Vietnamese. In their report to McNamara, dated the day before the State Department

⁷³ Memorandum from the Department of State to McGeorge Bundy, “Herbicide Operations in South Viet-Nam”, April 18, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 29a, 6, JFKL.

⁷⁴ Memorandum from the Department of State to McGeorge Bundy, “Herbicide Operations in South Viet-Nam”, April 18, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 29a, 7, JFKL.

⁷⁵ Memorandum from the Department of State to McGeorge Bundy, “Herbicide Operations in South Viet-Nam”, April 18, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Doc 29a, 1, JFKL.

report, there were subjective assessments of Ranch Hand similar to those offered by the State Department. The neat columns of numbers that Ranch Hand initially promised had not materialized. The situation in South Vietnam did not allow it. "...a precise statistical determination of the military effectiveness of defoliant operations in terms of enemy losses or as a deterrent to his operations is difficult," admitted the memorandum. Crop destruction operations were easier to quantify, but even these numbers could be only approximate. "Crop destruction operation in Phước Long Province adjacent to Viet Cong War Zone D is estimated to have resulted in the destruction of over 700,000 pounds of rice or roughly enough to feed 1,000 Viet Cong for one year."⁷⁶

A key consideration, as it was for the State Department, was the tenor of propaganda. According to the Joint Chiefs, adverse propaganda was an indicator of success; its persuasiveness was beside the point. "In any event, stepped-up Bloc propaganda efforts should be regarded primarily as a barometric reading of the degree of success being achieved rather than as a reason for terminating or decreasing the defoliation and crop destruction effort."⁷⁷ As in the State Department report, the effect of the program on rural Vietnamese was not a consideration nor was the increasing credibility of "Bloc propaganda efforts" as a consequence of spraying.

The criteria for continuing Ranch Hand had changed dramatically from what Kennedy first endorsed in NSAM 115. Crop destruction had been approved, although

⁷⁶ Memorandum from the Joints Chiefs of Staff to McNamara, April 17, 1963 in Department of State, *Foreign Relations of the United States, 1961-1963: Volume III - Vietnam, January-August 1963*, 230.

⁷⁷ Memorandum from the Joint Chiefs of Staff to McNamara, "Defoliation and Crop Destruction in South Vietnam", April 18, 1963, in *ibid.*, 231.

neither the United States nor South Vietnam was providing the mandated restitution or resettlement. Control of Ranch Hand no longer rested in Washington but in Sài Gòn. The military benefits were subjective at best, negligible at worst.

Meanwhile, relations between Diệm and the South Vietnamese population continued to deteriorate. One reason why ideas about national history and peasant resentment did not appear in the administration's briefing books and memoranda is because they were largely excluded from communication about South Vietnam. Quantitative, positivist cultures like the Kennedy administration tended to devalue information that did not fit into these frameworks. Diane Vaughan recognized this phenomenon at NASA: "No observational data, engineering hunches or intuitions could be expressed; this standard was reinforced by informal sanctions that stigmatized the person who made them as a person given to 'emotional' or 'subjective' arguments."⁷⁸

Shortly after Kennedy's death, Deputy Assistant Secretary of Defense for International Security Affairs William Bundy admitted, "I don't think we realized then how the situation was eroding, both in terms of the increased efforts from the North or the decline in Diem's hold on his people and on the key individuals who were necessary to make an effective government. I don't think we gave it the attention it deserved....I don't think we focused anywhere near as hard as we should have done."⁷⁹ This lack of

⁷⁸ Diane Vaughan, "The Role of the Organization in the Production of Techno-Scientific Knowledge," *Social Studies of Science* 29, no. 6 (December 1999): 929. Vaughan does not address the issue of gender, but this exacerbated the problem within administration discussions

⁷⁹ William Bundy Interview, November 12, 1964, 11, JFKL.

focus on Ranch Hand, and on Diệm's relationships with his citizens, would have long-lived and tragic effects for both South Vietnamese and Americans.

Before its end in 1971, Ranch Hand's effects would be felt throughout South Vietnam and by generations of Americans and Vietnamese. In part because of the debate and controversy surrounding its start, stopping Ranch Hand operations would be particularly difficult. As Robert Jervis observed, "People not only seek what they want, but also often come to want what they have gained.... acting can accustom the person to the behavior and the values it embodies and can lead to its continuation if not intensification."⁸⁰ What had seemed alien and antithetical to United States values had become entrenched. Decision-makers abandoned their faith in science as questions about Ranch Hand grew among botanists, ecologists, and epidemiologists. No scientist could provide the certainty that proponents of Ranch Hand could offer, and it was ultimately this reassurance that was more valuable even than scientific rigor.

⁸⁰ Jervis, *System Effects: Complexity in Political and Social Life*, 53.

CHAPTER 9: CONCLUSION: WHAT KIND OF EVIDENCE DO THEY WANT

In the end, it was not rationality, data, or science that drove decisions about Ranch Hand; it was fear. Ranch Hand promised certainty in an increasingly uncertain and frightening situation. For political reasons, Kennedy believed he could not introduce United States ground troops into South Vietnam. Nor could he allow the Communist forces to destroy the South Vietnamese government, repressive and unstable though it was. Political solutions were out of the question; the only options for Kennedy were military. Spraying chemicals was also a way to take action; defoliating mangroves and destroying rice paddies would surely mitigate the growing threat against South Vietnam. Science, as it had so often before, would provide decisive answers to difficult problems.

Ranch Hand could neither provide the reassurance the administration craved nor deter the revolutionaries' advance against the government. In fact, the use of herbicides bound the United States even more closely to the Diệm government and to the fate of South Vietnam. As Ranch Hand's futility became clear, the administration revised the criteria for success. In 1961, the burden of proof rested on those advocating for defoliation and crop destruction. Two years later, it fell on those who wanted to end Ranch Hand. Halting Ranch Hand operations would give the Communists a propaganda victory; that became reason enough for continuing. Science could not provide certainty about Ranch Hand's effects. Rather than wrestling with the questions raised by botanists and ecologists and confronting the ineffectiveness of military technology in South Vietnam, administration officials ceded authority over Ranch Hand

to the military, whose assertions about Ranch Hand's were both unequivocal and comforting. In doing so, they gave the military more responsibility for stopping the rise of Communism in South Vietnam. A problem that was fundamentally political thus became more and more under the authority of the armed forces.

Ranch Hand did not end with Kennedy's death in November 1963. In fact, the use of chemicals escalated dramatically until 1967 and continued at high levels until 1970. The debate about chemical spraying changed as Ranch Hand missions became more frequent and as its effects became more pronounced. At its inception, aerial spraying seemed to be a novel way to use an innovative weapon to combat the otherwise nearly insoluble problems of insurgent infiltration and sustenance. Herbicides, however, could do nothing to address the fundamental questions about legitimacy that plagued Diệm from the start of his rule. In fact, by using chemicals against the South Vietnamese themselves, Diệm and his United States supporters only undermined what little rural support they had.

The image of science as definitive and unambiguous gave chemical herbicides an aura of predictability and reliability. As Ranch Hand grew, this aura began to fade. Beginning in 1964, research cast doubts on the usefulness and raise alarms about the environmental impact of herbicides but could not definitively answer questions about Ranch Hand's harmful effects. The scientific process could give only qualified results; these appeared muddled and ambiguous compared to decision-makers' beliefs about the certainty science could provide.

As a result, the justifications for continuing Ranch Hand were based less on science and more on precedent and credibility. When science no longer offered certainty, decision-makers looked for it elsewhere. Far more convincing and reassuring were arguments by the United States military that chemicals were perfectly safe. These were based not on scientific evidence but on the organization's own authority, which appeared far less equivocal. Following the military's recommendations also removed the need to change course and at least implicitly acknowledge that Ranch Hand had not worked. The admission that Ranch Hand was failing to deter anti-government forces would raise questions about the necessity for ground troops or, alternatively, the very nature of the problems in South Vietnam. The Kennedy administration would do all it could, including escalating Ranch Hand, to avoid these debates.

After the war, the military's assertions about the effectiveness of Ranch Hand were shown to have been false. There was continued debate about the extent of the damage from Ranch Hand and what the role of science should be in determining it. The controversies were no longer focused on the South Vietnamese environment but on the health of returning veterans. Beginning in the late 1970s, veterans exposed to herbicides began to make public claims that the exposure had caused severe, and in some cases fatal, health problems. The limitations of science were again apparent in the post-war controversy about veterans' exposure to dioxin, a highly toxic by-product of 2,4,5-T, and its consequences.

The central issue is the lasting effects of dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin). Dioxin is a by-product of 2,4,5-T and is extremely toxic and teratogenic in

laboratory animals. Much about dioxin remained contested or misunderstood. Dioxin levels in 2,4,5-T can be as low as 0.01 parts per million (ppm). In 1980, a Congressional Research Service (CRS) report stated that the 2,4,5-T sprayed in South Vietnam averaged 2.0 ppm, or 200 times higher than the levels possible with proper manufacturing.¹ Later academic research revised this level substantially upward, claiming that “an average value of 13 p.p.m. may be more realistic.”²

2,4,5-T was present not only in Agent Orange, but in Agents Pink, Purple, and Green. Despite the close identification of Agent Orange with environmental damage in South Vietnam, the chemicals used during the Kennedy Administration, Agents Pink, Purple, and Green, were more toxic. Although they were not as widely used as Orange, they were considerably higher in dioxin. About 40% of the dioxin in South Vietnam was attributed to these formulas; the other 60% came from Orange.³

Spraying is only one means by which dioxin can be released. Dioxin forms when 2,4-D and 2,4,5-T are heated. Clearing operations during Ranch Hand often

¹ Geraldine M. Carr and Jo-Ann McNally, *Agent Orange: Veterans' Complaints Concerning Exposure to Herbicides in South Vietnam* (Washington DC: Congression Research Service, 1980), 2.

² Stellman et al., 684.

³ Given the uncertainties surrounding dioxin and South Vietnam, these numbers should be considered only approximate; however, the contribution of pre-1965 operations is significant. The total volume of Agents Pink, Purple and Green recorded in procurement records for Ranch Hand was about 2.4 million liters; the total volume of Orange was 49.3 million liters. Jeanne Mager Stellman and others, "The Extent and Patterns of Usage of Agent Orange and Other Herbicides in Vietnam," *Nature* 422, no. 6933 (2003): 682. The actual number of liters sprayed remains unknown. Orange was introduced in 1965, the same year that United States ground troops arrived in South Vietnam. Agents Pink, Purple and Green were not used after 1965. Carr and McNally, 4.

involved burning previously defoliated lands to rid them of any remaining obstacles. Defoliated areas were also frequently the targets of conventional bombing. In addition, South Vietnamese used dead and defoliated trees for firewood. The frequency with which sprayed trees were heated, for whatever reason, increased dioxin production considerably.⁴

As harmful as Ranch Hand may have proved to United States servicemen, the effects on the South Vietnamese have been even greater. In this case, too, scientific proofs about the damage caused by dioxin are simply not available, given the limitations of what is known about exposure levels, and the reluctance of the United States government to admit that spraying caused such devastating and long-lasting harm.

Initially, the role of science in Ranch Hand seemed an unalloyed good. The work of American agricultural chemists promised to provide a significant advantage in the early days of the war. New technologies like phenoxy herbicides would therefore be an important tool in South Vietnam. In the initial planning stages, Ranch Hand appeared easy to implement; the chemicals and spray equipment were already in wide use in the United States. As National Security Council staff member Robert Komer remembered, "Looking back, one is struck by how often we Americans in particular did the thing that we had the most readily available capability to do, whether or not it was

⁴ Stanford Biology Study Group, "The Destruction of Indochina," *Bulletin of the Atomic Scientists*, May 1971, 39.

the most relevant" or useful.⁵ The capability the United States had in using chemicals was illusory. Botanists and plant physiologists still did not know exactly how the chemicals worked or how best to control their application. One of the ironies of Ranch Hand was that even the chemicals themselves were not nearly as well-understood by scientists as the Kennedy administration assumed and in fact did substantial damage to both American veterans and to South Vietnam.

From its inception, Ranch Hand's usefulness appeared somewhat uncertain. There were signs that aerial spraying would not succeed in deterring infiltration nor would it deprive revolutionaries of food. Once the initial decisions for Ranch Hand were made, however, there was little appetite to revisit them. Events moved so quickly during the last year of Kennedy's presidency as the Diệm government tottered and finally fell that reopening a settled issue would simply take too much time and attention. As sociologist Diane Vaughan describes, "The organization has limited abilities to search for information and solutions to problems; individuals have limited knowledge of alternatives, access to and ability to absorb and understand information, and computational capacity; the decision-making process is influenced by deadlines, limited participation, and the number of problems under consideration."⁶

Even as Ranch Hand expanded, the United States still grappled with the same underlying problems in South Vietnam. Defoliation and crop destruction had not

⁵ Komer, 14.

⁶ Diane Vaughan, "Rational Choice, Situated Action, and the Social Control of Organizations," *Law & Society Review* 32, no. 1 (1998): 30.

mended the relationship between the South Vietnamese government and its citizens. After the November 1963 coup and murder of Diệm and Nhu, the government's connection to rural South Vietnam continued to weaken. This was partly a function of the worsening security system, but this decay both contributed to and resulted from the government's lack of legitimacy. As Undersecretary of State George Ball stated bluntly in his 1965 "Cutting Our Losses in South Viet-Nam" memorandum, "Hanoi has a government and a purpose and a discipline. The 'government' in Saigon is a travesty. In a very real sense, South Vietnam is a country with an army and no government."⁷ No amount of herbicide use would solve that problem. In fact, the use of chemicals, particularly in crop destruction, weakened the government's position still further. Civilian resentment about spraying aided the revolutionaries, and the strengthening insurgency made aerial spraying seem that much more necessary.⁸ As more and more areas became "solidly Viet Cong...where food denial tactics are certain to bring effective pressure", crop destruction became easier and easier to justify.⁹

Determining if in fact Ranch Hand was slowing infiltration or depriving the revolutionaries of food was practically impossible. Thus, the definition of 'success' in

⁷ "Cutting Our Losses in South Viet-Nam", from George Ball to Rusk, McNamara, McGeorge Bundy, and John McNaughton, June 29, 1965 in Department of Defense, *The Pentagon Papers: The Defense Department History of United States Decisionmaking on Vietnam*, Senator Gravel ed., vol. 4 (Boston: Beacon Press, 1972), 23. As excerpted in Komer, 18.

⁸ The findings of the 1967 RAND report demonstrate the resentment and anger generated among South Vietnamese by the spraying program. Betts and Denton.

⁹ For one example of this argument, see "Herbicide Operations in South Viet-Nam", Memorandum from the Department of State to McGeorge Bundy, April 18, 1963, National Security Files, Countries, Vietnam, General, 4/1/63-4/18/63, Box 197a, Document 29a, 7, JFKL.

evaluating Ranch Hand operations was both poorly-defined and malleable.

Assessments of Ranch Hand came to rest largely on the credibility of the United States military. General Paul Harkins' "Headway Reports" and the relentless optimism of the Military Assistance Command – Vietnam (MACV) contributed to the sense that United States tactics were working. Sometimes believing is seeing; Harkins' confidence was contagious among those in Washington desperate for good news from South Vietnam.¹⁰ Pictures of defoliated trees and data about man-days of food supplies destroyed implied that Ranch Hand was succeeding in slowing infiltration and cutting off the revolutionaries' food supply.

The failure of defoliation and crop destruction to stem the movement of insurgents started to become clear; the unrest in South Vietnam was growing during 1962 and 1963. By this time Ranch Hand had begun to serve other important purposes for the military, albeit ones unrelated to its original goals. Its escalation was based on factors other than evidence of its effectiveness. Defoliation and crop destruction missions gave the impression that the United States was taking effective action against an elusive enemy. Ranch Hand was a way to relieve some of the mounting tensions of the Vietnam War. As Embassy Counselor for Public Affairs John Mecklin remembered, "Frustrated, humiliated, and often disgusted, unit commanders tended to lean on their new American equipment like a crutch, just as the French had, hoping that machines and gadgets would bring easy victories with minimum danger and physical

¹⁰ Snook, 76. The parallels between the French and American experiences in Vietnam grew ever more obvious, which also contributed to United States fear and frustration.

hardship.” American advisors also took comfort in these displays, a “commitment of American power and prestige.”¹¹

In addition, the competition for resources also drove the increase. Ornithologists Gordon Orians and E. W. Pfeiffer found that “the defoliation crews would be kept busy for years by the present backlog [of Ranch Hand missions planned]. The current extent of the defoliation program is not determined by military demand...but solely by competition for equipment and personnel.”¹² As Komer described, “bureaucracies run a competition with their own programs and measure success by the degree to which they fulfill their own norms, without being in a position to judge whether the norms made any sense to begin with.”¹³ One of the tragedies of Ranch Hand was that the military’s norms were not questioned in time.

Like any other department within the government, it was not going to surrender institutional power by giving up resources at its disposal. “What commander isn’t going to use all the air support he has?” asked Komer. The same question could be asked of the Air Force regarding its willingness to give up an important role in an active theater. Furthermore, “In the absence of sufficient hard intelligence on the results of their activities, artillery and air unit commanders tended to be evaluated largely on the ammo expenditures or sortie rates of their units.”¹⁴ Under these criteria, Ranch Hand operations would almost certainly go forward.

¹¹ Mecklin, 91.

¹² Orians and Pfeiffer, 553.

¹³ Komer, 17.

¹⁴ Ibid., 53.

The marked increase in Ranch Hand missions also reflected the escalation of the military effort overall, and the increasing reliance on military power in fending off the revolutionaries in South Vietnam. David Halberstam had seen this evolution with Ranch Hand and with the war overall. "The military's political power of course increases enormously once it gets its foot in the door...It has expertise, it controls the intelligence coming back.... It always seems to deal in hard facts and its opponents are inevitably on the defensive; they must talk in vague terms and vague doubts while the military talks in tangible figures."¹⁵ Gridded maps of missions and charts of acres defoliated and tons of food destroyed tended to overwhelm questions about, for example, how anyone could be sure whose food it was. The military was able to offer what appeared to be definitive statements; those who had doubts about Ranch Hand could not.

The military's certainty, combined with the prestige of the institution, made it very difficult for civilians to disagree with its assessments. There was, after all, no conclusive proof to the contrary. Kennedy understood this dynamic, even as Ranch Hand slipped from his control. Arthur Schlesinger, Jr. remembered Kennedy's reluctance to question military judgments. "If someone comes in to tell me this or that about the minimum wage bill,' Kennedy said to me later, 'I have no hesitation in overruling them. But you always assume that the military and intelligence people have some secret skill not available to ordinary mortals.'"¹⁶ The president made this remark

¹⁵ Halberstam, "The Very Expensive Education of Mc George Bundy," 52.

¹⁶ Schlesinger, 258.

after the Bay of Pigs debacle; the assumption would prove hard to overcome in the case of Ranch Hand.

Lyndon Johnson, who succeeded Kennedy in 1963 under the most difficult circumstances, retained Kennedy's senior foreign policy team. These were the same men who had already invested so much time, energy, and credibility in expanding United States involvement in South Vietnam, and who favored certainty. As Paul Warnke recalled, "I remember one time a reporter asked [Secretary of State Dean] Rusk, 'Why are we still in the Vietnam War?' and Rusk said, 'We're in it because of a billion Chinese armed with nuclear weapons.' That's really the way he saw it. Another time he said, 'It's not as though we're the French. We're the United States of America and when we push on something, it gives.'"¹⁷

One Johnson official summed up the shortcomings in Kennedy's senior advisors, who became Johnson's. "All of these men around Johnson were representatives of the successful areas of American life. That's how they got those jobs. They never had worked in any of the areas of American failure."¹⁸ These were men who had little experience with changing direction in the face of uncertainty, or of admitting that a problem was more complex than they thought. These ingrained habits of thought, combined with an increasingly unsettled and urgent situation in South

¹⁷ Paul Warnke as quoted in Appy, 280.

¹⁸ Halberstam, "The Very Expensive Education of Mc George Bundy," 32.

Vietnam, meant that decision-makers would likely fall back on familiar ways of looking at the world and avoid revisiting choices that had already been made.¹⁹

The military's advocacy of Ranch Hand, and the inability of dissenters to offer compelling contrary evidence, became apparent only a few years after Ranch Hand started, as the first analyses of its effects were underway. In 1964, RAND began a study of North Vietnamese defectors in part to understand more completely the motivation and morale of defectors. The study had been commissioned by the Defense Department. RAND's position as a center for rational, rigorous analysis had been largely unchallenged. Its initial findings about the role of crop destruction in the war quickly became controversial. Based in part on RAND's conclusions, General Maxwell Taylor, by then the United States Ambassador to South Vietnam, began to have doubts about the effectiveness of crop destruction. In relaying the findings to Rusk, he warned that the "report states that spraying of crops belonging to civilians and popular belief that sprays are harmful to humans have had "significant adverse effect' on population's attitude toward GVN and US."²⁰

In contrast, the attitude of MACV toward the RAND findings was dismissive. As Taylor informed Rusk, "MACV, however, points out that Rand [sic] findings are based on comparatively small sampling and that other intelligence sources do not support conclusion that adverse effect of chemical crop destruction has been sufficiently

¹⁹ Diane Vaughan, "Rational Choice, Situated Action, and the Social Control of Organizations": 46

²⁰ Telegram #123 from Taylor to Rusk, July 13, 1965 in Department of State, *Foreign Relations of the United States, 1964-68: Volume III: Vietnam, June-December 1965* (Washington DC: United States Government Printing Office, 1996), 141.

extensive to be described as significant.” MACV was undermining RAND’s findings using the language of science. Given RAND’s credibility in this area, MACV’s stance may seem presumptuous. It does, however, indicate how ingrained the belief in Ranch Hand’s usefulness had become and how reluctant MACV was to entertain doubts about Ranch Hand. In recommending that crop destruction be expanded into more populated areas, MACV offered no competing analysis or alternative plan, merely an assertion that expanding crop destruction would result in “major VC food denial.”²¹ This was enough. Ranch Hand operations continued to expand.

Arguments in favor of continuing Ranch Hand strengthened considerably with Johnson’s 1965 decision to introduce ground troops. This had the unintended consequence of bolstering support for Ranch Hand. Now chemical spraying would do more than simply deprive the insurgents of cover and food; Ranch Hand would now be saving the lives of American soldiers. This statement could not be proven, but it did not need to be. The standards of scientific evidence applied only to those who believed that chemicals were harmful, not to those who wanted to continue or expand the program.

While Ranch Hand operations were expanding, scientific debate about its effects was also increasing. In 1967, the Midwest Research Institute (MRI) published its study, *Assessment of Ecological Effects of Extensive or Repeated Use of Herbicides*. The work had been funded by the Advanced Research Projects Agency (ARPA), the same part of the Defense Department that initially developed herbicides for use in South Vietnam in part to address some of these concerns.

²¹ Telegram #123 from Taylor to Rusk, July 13, 1965 in *ibid*.

The military, perhaps not surprisingly, found justification for continuing Ranch Hand in the report. The report found that “the possibility of lethal toxicity to humans...is highly unlikely and should not be a matter of deep concern.”²² This finding was of crucial importance, since Ranch Hand operations were reaching their peak and the number of United States troops in South Vietnam was also growing substantially.

MRI’s acknowledgements of environmental impact were quite narrow in scope, avoiding issues like civilian crop destruction and invasive grasses. According to *TIME*, the MRI study pointed out that chemical spraying “could threaten the existence of some animal species that depend on foliage for food and concealment and are already close to extinction. One of these is the douc langur, a colorful monkey that lives almost entirely on leaves. Also endangered are the Indo-Chinese gibbon and the rare kouprey, a remnant of a mid-Miocene ancestor of modern cattle.” These findings were what buttressed arguments about the costs and benefits of aerial spraying. The Pentagon continued to argue that increasing visibility and interdicting food saved American lives. The plight of the douc langur was not a compelling counterargument.²³

Many other scientists found the report to be much too limited to assess accurately what was actually happening in South Vietnam. The contemporary reception to the findings was lukewarm among others who had worked on Ranch Hand. Fred Tschirley, who had conducted research in Thailand to facilitate defoliation efforts,

²² W.B. House, L. H. Goodson, and H. M. Gadberry, *Assessment of Ecological Effects of Extensive or Repeated Use of Herbicides* (Kansas City, MO: Midwest Research Institute, 1967). As quoted in Meyers: 165.

²³ "Defoliating Viet Nam," *TIME*, February 23 1968, 84.

found the MRI study less than compelling. “The MRI report does not answer satisfactorily many of questions raised about extensive or repeated use of herbicides in Vietnam,” despite the promise of the title. “In summary, the MRI report is a literature review of a subject for which there is a great deal of literature relating to temperate zones, but little relating to tropical vegetation.”²⁴

By the late 1960s, questions persisted about how effective Ranch Hand really was, particularly given the increasingly worrisome effects on both the South Vietnamese environment and the South Vietnamese themselves. However, the Pentagon continued to argue that defoliation and crop destruction saved American lives. “‘What’s the difference between denying the Viet Cong rice by destroying it from the air or by sending in large numbers of ground forces to prevent the enemy from getting it?’, a Defense Department official asked. “The end result’s the same; only the first method takes far less men,” and thus put fewer troops at risk.²⁵

Not only did the military continue to claim that aerial spraying saved lives, but their own assessment of the chemicals’ safety remained reassuring and unqualified, even as the use of chemicals began to escalate. Unnamed military officials told *Oil, Paint, and Drug Reporter* “[the compounds] are not harmful to people, animals, soil or water”, boilerplate language was used throughout the course of Ranch Hand.²⁶ No

²⁴ Fred H. Tschirley, " Ecological Effects of Extensive or Repeated Use of Herbicides," *Ecology* 49, no. 6 (November 1968): 1211-1212.

²⁵ As quoted in Jean Mayer, "Starvation as a Weapon: Herbicides in Vietnam, I," *Scientist and Citizen*, August/September 1967, 120.

²⁶ "Herbicides: Viet Weapon," *Oil, Paint, and Drug Reporter*, April 5 1965, 3, 59. For a repetition by Assistant Secretary of Defense Dixon Donnelly, see Arthur Galston,

proof was offered, only an assertion based on the credibility of the military and on the absence of definitive scientific evidence to the contrary.²⁷

Even as the military continued to assert the safety and efficacy of herbicides, the agricultural chemical industry itself was becoming increasingly ambivalent about their use. Trade publications worried about the consequences of using herbicides during war. According to *Agricultural Chemicals*, “‘I didn’t raise my pesticide to be a soldier’ could be adapted as the theme of the pesticide industry, and with just cause. The widely-publicized use of herbicides in South Vietnam...seems to be back-firing.... It might be well in the future for a country planning to use pesticides as a weapon of war to consider the side effects and the very good chance there will be adverse publicity.”²⁸ Far from being a booster for continued application of herbicides, and continued sales for domestic manufacturers, the magazine questioned the long-term effects of Ranch Hand and the safety of its military use.

Critics of Ranch Hand also pointed out that the Pentagon’s statements about product safety were more unequivocal than those made by the manufacturers themselves. Dow Chemical made a version of 2,4-D, Formula 40 R, for the domestic market, with a warning label listing the dangers of exposure: “Causes irritation of skin

"Changing the Environment: Herbicides in Vietnam, I I," *Scientist and Citizen*, August/September 1967, 123.

²⁷ British sociologists Harry Collins and Trevor Pinch make a similar point in their discussion of the purported success of Patriot missiles during the first Gulf War. “It would be wrong to draw any conclusions for science and technology in general from wartime statements; wartime claims...reflect the demands of war rather than the demands of truth.” Harry Collins and Trevor Pinch, *The Golem at Large: What You Should Know About Technology* (Cambridge: Cambridge University Press, 2006), 10.

²⁸ "Tale Ends," *Agricultural Chemicals*, March 1962, 120

and eyes...In case of contact, flush eyes with plenty of water for at least 15 minutes and get medical attention; wash skin with soap and plenty of water. Remove and wash contaminated clothing before re-use. Do not wear contaminated shoes.”²⁹ These extensive precautions were for doses far below what the plants – and people – of South Vietnam received. Rather than deferring to the expertise of manufacturers, the military set its own standards for herbicide use. These were based not on knowledge of herbicides but on the organization’s perceived need and its institutional authority.

Herbicide manufacturers tried to distance themselves from the increasingly alarming images of blighted fields and skeletal trees and from the pointed questions being asked by scientists in the wake of the MRI report. “We will engage in *no* debate on the general issue of defoliation,” declared a corporate communications executive at Dow Chemical in 1968. “This is the problem of the Department of Defense.... We must be prepared to protect any of our products that are attacked as a result of the arguments over the defoliation issue. However, it is imperative that we support them on a ‘positive benefit’ basis and not as weaponry.”³⁰ After the war, as the consequences of spraying became more and more public, Dow again contrasted its restrictions on 2,4,5-T manufacturing and application with the military’s more profligate use. The company took pains to remind American consumers that the product, used as directed, was

²⁹ Galston, 125.

³⁰ Memo from James C. Hansen, Communications Department, Pharmaceutical, Agricultural, and Consumer Products, Dow Chemical to Keith Barrons, et al. “Tordon Controversy – Policy and Program” November 29, 1968, File No 00112 Herbicides in Vietnam, Box Napalm 00112 thru Napalm 00121, Chemical Heritage Foundation, Philadelphia, PA. Tordon is a commercial name for picloram, a component of Agent White. Agent White was not used until 1965.

harmless. “Unlike the Air Force chemical,” Dow claimed, “the farm herbicide 2,4,5-T is used carefully in limited controlled quantities and in accordance with EPA-approved label instructions.”³¹ The ambiguities and conditional statements of science had diverged significantly from the military’s blanket assertions about safety and effectiveness.

The scope of Ranch Hand was staggering. According to experts on the environmental impact of the war, “Over 72 million liters of herbicides destroyed roughly ten percent of southern Vietnam’s valuable forests, including nearly one-third of the coastal mangroves....”³² Ninety-eight percent of Ranch Hand operations were conducted in South Vietnam. Of the approximately 70.6 million liters used in South Vietnam, about 86% were intended to defoliate areas; the remaining 14% were sprayed to destroy crops. Given the difficulties of controlling the chemicals, some defoliation operations may have inadvertently included crop destruction, and vice versa.³³ Ranch Hand missions in South Vietnam were in practice very different from aerial spraying in the United States. This was evident from the earliest mechanical failures, which hinted at the enormous gap between domestic “crop dusting” and the blanketing of South Vietnam with defoliants and herbicides.

³¹ “The 2,4,5-T Rumble – What is it all about?” in *A Closer Look at the Pesticide Question for Those Who Want the Facts* (1976), 23, Dow Publications: Health Concerns, Collection 0011, Chemical Heritage Foundation, Philadelphia, PA.

³² Arthur H. Westing and others, “Long-Term Consequences of the Vietnam War: Ecosystems,” in *Environmental Conference on Cambodia/Laos/Vietnam* (Stockholm: Foerningen Levande Framtid, 2002), 1.

³³ *Ibid.*, 3.

Military and civilian versions of proof continued to diverge as President Nixon was ending Ranch Hand in 1970 and 1971. On April 15, 1970 the Department of Defense announced that it was ending the use of Agent Orange after 5 years of spraying the formula in South Vietnam. The announcement came on the same day that the Departments of Agriculture, Health, Education, and Welfare (HEW), and the Interior issued a joint statement suspending certain domestic uses of 2,4,5-T.³⁴ This decision was a response to pressures coming from multiple directions: scientists, mainstream media, returning soldiers, and the United States Congress. Furthermore, as Secretary of State William Rogers noted, “the military value of spraying herbicides over wide areas was not clearly established,” even after almost a decade of use.³⁵ The United States Army did not give much credibility to these opinions. As late as August 1970, it continued to use 2,4,5-T in its operations.³⁶

Throughout Ranch Hand, one of the most compelling arguments in its favor was that defoliation and crop destruction saved American lives, not only because of their effects but because aerial application required fewer men be at risk in carrying out the missions. In one of Ranch Hand’s many unintended consequences, returning service personnel charged that exposure to Agent Orange had, in fact, been fatal. In the words

³⁴ Blackman et al., 1.

³⁵ Meyers: 162.

³⁶ Stanford Biology Study Group, 36.

of one veteran who succumbed to cancer in 1979, “I died in Vietnam and I didn’t know it.”³⁷

The role and limits of science were central to arguments over what damage chemical spraying had caused and who, if anyone, was responsible for the veterans’ deaths. The safety of Ranch Hand personnel had long been in doubt. There were few certainties, however, only anecdotal evidence. For example, poorly-functioning spraying equipment led to leaks, according to one USAF study. “Within the aircraft it was not uncommon to have herbicide leakage from around the numerous hose connections joining the spray tank and pumps with the wing and aft spray booms.” Furthermore, in hot weather, the distinctive odor of 2,4-D became quite noticeable in the plane, suggesting that troops were inhaling the vapors.³⁸ Powerful though these stories might be, they also indicate the difficulty of precisely determining veterans’ exposure levels, a problem that would loom large after the war. One frustrated American veteran questioned the validity of science in answering the most important questions. ““Give me enough money and researchers and I can discredit practically any study on anything.... What kind of evidence do they want before they realize it’s a serious problem?”³⁹

³⁷ Paul Reutershan, as quoted in Martin Gottlieb, "The Vietnam War That's Still Being Fought," *New York*, October 25 1982, 16.

³⁸ Dow officials joked about the fishy odor of 2,4-D. Speech by Bill Ward, 50th Anniversary Celebration of 2,4-D Transcript (1998), 6, Agricultural Chemical Books, Box 3, Folder 92 – VII Archival Source Documents, Keith Barrons Papers, Post Street Archives, Chemical Heritage Foundation, Philadelphia, PA.

³⁹ Frank McCarthy, as quoted in Gottlieb, 19. The literature on the plight of those exposed to Agent Orange is limited but growing. Recent works include Charles Waugh

One epidemiologist tried to explain. In an article in the *Journal of Law and Policy*, Irva Hertz-Picciotto reviewed the different standards of proof and causality in science versus law. Rather than affirming or disproving a link between veterans' suffering and their exposure to chemical herbicides, studies undertaken by the Institute of Medicine (IOM) used terms like "suggestive evidence" or "inadequate evidence. Furthermore, the limited information on individual exposures was, in Hertz-Picciotto's words, "an enormous obstacle."⁴⁰ Reports of defoliant spilling out of loose seals, for example, were not enough to determine exposure as precisely as a scientific study would require.

According to Hertz-Picciotto, evidence collected by the IOM demonstrates "sufficient" evidence of a link between dioxin exposure and non-Hodgkin's lymphoma. However, she qualifies all of the published findings on the effects of Agent Orange. "The evidence about health effects of herbicides...was slow to accumulate, partially because a concerted effort to study the veterans longitudinally, beginning from the time of their return to the United States, was not undertaken..."⁴¹ It is likely some of the sickest veterans died before they could be enrolled in any of the studies undertaken,

and Huy Lien, eds., *Family of Fallen Leaves: Stories of Agent Orange by Vietnamese Writers* (Athens: University of Georgia Press, 2010); Fred Wilcox, *Waiting for an Army to Die: The Tragedy of Agent Orange*, 2nd ed. (New York: Seven Stories Press, 1983, 2011). David Zierler's recent work demonstrates the galvanizing effect of herbicide damage on American scientists. David Zierler, *The Invention of Ecocide: Agent Orange, Vietnam, and the Scientists Who Changed the Way We Think About the Environment* (Athens, GA: University of Georgia Press, 2011).

⁴⁰ Irva Hertz-Picciotto, "How Scientists View Causality and Assess Evidence: A Study of the Institute of Medicine's Evaluation of Health Effects in Vietnam Veterans and Agent Orange," *Journal of Law and Policy* 13 (2005): 561.

⁴¹ *Ibid.*, 560-581.

thus making the links between exposure and illness appear less robust. Unlike the military, the veterans could not simply assert facts about chemical herbicides. The standard of proof continued to be much higher.

Other scientific studies have not provided definitive answers either. The Air Force Health Study (AHFS), commissioned in response to the 1991 Agent Orange Act, attempted to determine what, if any diseases were more prevalent in Ranch Hand veterans than in other Air Force veterans. This was a longitudinal study of almost one thousand Ranch Hand veterans paired with a control group, but it too had an important limit to its scope, according to authors in the *Journal of the American Medical Association*. “The fixed size of the Ranch Hand cohort limits the ability of the study to detect group differences for rare diseases or conditions.”⁴² The study did not make reference to the incidence of birth defects in the children of exposed veterans. Early findings of the AFHS indication that “there was insufficient scientific evidence to implicate a causal relationship between herbicide exposure and adverse health in the Ranch Hand group.” This is not to say the relationship does not exist, only that it was not found.

The uncertainties inherent in scientific research were likely not a surprise to those within the field. To those outside, however, the lack of definitive answers is unexpected and seems to undermine the validity of findings. “What is striking” in the relationship between scientists and the public, according to sociologist Brian Wynne,

⁴² William H. Wolfe, et al., “Health Status of Air Force Veterans Occupationally Exposed to Herbicides in Vietnam,” *Journal of the American Medical Association* 264, no. 14 (October 10, 1990): 1827.

“is the huge contradiction between the neat and tidy public image, and the messier reality which routinely confronts practitioners on the 'inside' of the technological system.”⁴³ Wynne’s observation has held true throughout Ranch Hand and in its aftermath.

Arguably, South Vietnamese peasants sustained the worst damage from defoliation, more than the mangroves or perhaps even most United States soldiers. The environmental damage caused by the war, including Ranch Hand, contributed to a refugee crisis in South Vietnam. Farming families that had lived in rural South Vietnam were forced away from their lands and into cities that could not support them.⁴⁴ The urban refugee camps were havens for disease and malnutrition. United States and South Vietnamese officials moved others into strategic hamlets, “squalid settlements” in the words of one South Vietnamese army veteran.⁴⁵ These population movements, and the disastrous health effects of such forced migrations, made questions of exposure and causality even harder to answer with certainty.

It is difficult, if not impossible, to separate the effects of herbicide use from the other environmental wounds suffered by South Vietnam, such as conventional bombing, landmines, napalm, and ‘Rome plows’ (armored bulldozers used to clear land). As *Newsweek* pointed out in 1972, “In Vietnam, on a scale unprecedented in the history of

⁴³ Wynne: 150.

⁴⁴ Sài Gòn had not yet assimilated the flow of refugees, largely Catholic, who fled the North after the French defeat in 1954. Duong Van Mai Elliott, *The Sacred Willow: Four Generations in the Life of a Vietnamese Family* (New York: Oxford University Press, 1999), 243-256.

⁴⁵ Pham, 113.

warfare, the landscape itself has become an enemy subjected to systematic destruction.”⁴⁶ The South Vietnamese environment had proved considerably harder for the United States to tame than the American West. As a result, the concept of ‘limited war’ in South Vietnam did not extend to the mangroves or jungles themselves.⁴⁷

Ranch Hand played a major role in uprooting the South Vietnamese from their villages and turning them into refugees. The presence of dioxin in the soil, if in fact it was persisting, was only one part of the ecological damage caused by Ranch Hand. Chemical spraying leads to clear and harmful short-term consequences as well, in the opinion of forestry professor Thomas Perry: “a lot of leaves, trees, rice plants, and other vegetation are dead or dying; and a lot of insects, birds, animal, and a few humans have either migrated or died of starvation.”⁴⁸

Widespread defoliation, and the resultant damage to plants, contributed to the run-off of valuable soil nutrients that would otherwise be captured in plant roots.⁴⁹ South Vietnam’s rainy season can wash away a great deal of soil that is not held in place by vegetation. Ornithologist Vo Quy observed, “to plant thousands of hectares of forest is not a simple matter in areas where the soil has been leached and compacted, and where the former life-giving microclimate has been altered by loss of tree cover.”⁵⁰

⁴⁶ "When the Landscape Is the Enemy," *Newsweek*, August 7 1972, 24.

⁴⁷ For more on the idea of war against the environment, see the introduction to Richard P. Tucker and Edmund Russell, eds., *Natural Enemy, Natural Ally: Toward an Environmental History of War* (Covallis: Oregon State University Press, 2004).

⁴⁸ Thomas O. Perry, "Vietnam: Truths of Defoliation," *Science*, May 10 1968, 601.

⁴⁹ Neilands, "Vietnam: Progress of the Chemical War," 223.

⁵⁰ Westing and others, 8.

South Vietnam's agricultural production suffered substantially from crop destruction operations. Rubber production fell 30%; workers in the labor-intensive rubber plantations were forced to find other work.⁵¹ Many South Vietnamese, not only revolutionaries, suffered food shortages. The so-called "Rice Bowl" of Vietnam went from exporting 246 thousand tons of rice in 1959 to importing 850 thousand tons of rice, much of it American, in 1968.⁵² Farmers, especially Montagnards, whose crops had been sprayed with chemicals were often reluctant to replant, leaving fertile land unproductive.⁵³ The lack of food, and the fear of staying on potentially toxic land, led to migration into the cities.

During the war, the Department of Defense continued to maintain, based on little evidence, that "the Vietcong and any innocent persons in the area are warned of planned [crop destruction] action. They are asked to leave the area. They are promised food and good treatment.... Those who have moved from Vietcong territory for this reason have been fed and cared for."⁵⁴ This assessment was likely far too optimistic. As the war went on, security in the rural areas became more and more tenuous; even if the South Vietnamese government had developed a resettlement and restitution plan, its implementation would have been difficult, if not impossible.

In part because there was no plan for aiding citizens affected by chemicals, despite the military's assertions, and because the war itself was escalating rapidly, the

⁵¹ Stanford Biology Study Group, 40.

⁵² Data from other sources corroborates this assessment. See, for example, Orians and Pfeiffer, 551.

⁵³ Boffey, 40.

⁵⁴ Department of Defense, "The Use of Defoliants in Vietnam" n.d. as quoted in *ibid.*

refugee crisis in the south quickly grew to unmanageable levels. What *Newsweek* called “the fury of the war...has forced millions of peasants to abandon their rural heritage and to move into the nation’s squalid cities. Social scientists say these people will never be the same....”⁵⁵ As a result of being forced off the land, the refugees’ economic losses were substantial and, in the words of historian Gabriel Kolko, “their psychic loss was incalculable.”⁵⁶ By the end of 1966, the *New York Times* reported that there were a million refugees in South Vietnam, and the total was growing at a rate of 70,000 per month.⁵⁷ According to Kolko, “the most conservative estimates are that at least half of the peasants were pushed into refugee camps or urban settings one or more times, many repeatedly.”⁵⁸ Jean Mayer, the nutritionist who wrote a widely-read article on the refugee crisis, concluded, “from a military viewpoint, the attempt to starve the Viet Cong can be expected to have little or no effect. What it can be expected to do is to add to the flow of refugees already far beyond the capacity of the program designed to care for them.”⁵⁹

The flow of refugees was far beyond the capacity of the South Vietnamese government to accommodate. Sài Gòn went from being a relatively serene city of 250,000 to a teeming 3 million in 10 years. Its population density was over twice that

⁵⁵ "When the Landscape Is the Enemy," 26.

⁵⁶ Gabriel Kolko, *Anatomy of a War: Vietnam, the United States, and the Modern Historical Experience* (New York: The New Press, 1985, 1994), 201.

⁵⁷ *New York Times* October 9, 1966 as cited in U.S. Congress, House, Research Subcommittee on Science and Development of the Committee on Science and Astronautics, *A Technology Assessment of the Vietnam Defoliant Matter: A Case History*, 18.

⁵⁸ Kolko, 201.

⁵⁹ Mayer, 117.

of Tokyo's. The city's infrastructure was stretched beyond its capacity.⁶⁰ Under these circumstances, even without the specter of dioxin, the health of refugees would be fragile.

The enormous movement of refugees compounded the difficulties in determining what the effects of herbicide exposure might have been. If, for example, hospitals in Sài Gòn have an unusually high number of babies born with severe birth defects, researchers will have to determine each location where the mother has lived or traveled to determine the extent of her exposure to herbicides. The same information would likely have to be gathered for the babies' fathers. This is a formidable epidemiological challenge, and one that might preclude any definitive answer about the extent of injuries suffered from defoliant and herbicide use.

Recent explorations of the plight of the South Vietnamese have moved away from discussing standards of proof and instead frame the problem as a moral issue. In 2006, journalist Christopher Hitchens brought the issue to the pages of *Vanity Fair*. His photoessay on the catastrophic birth defects attributed to Agent Orange asks, "When will it stop? A rain of hell began falling about 40 years ago. Unto how many unborn generations?"⁶¹ He points to the experience of exposed American veterans, whose

⁶⁰ Ferd E. Anderson, Jr., "Is the Use of Herbicides in Limited War Justified?," USAW Research Element (Carlisle Barracks, PA: United States Army War College, 1970), 9. See also Samuel Huntington, "The Bases of Accommodation," *Foreign Affairs* 46, no. 4 (July 1968): 648. In Huntington's view, this 'forced-draft urbanization' was helpful to the South Vietnamese government, since it brought more citizens to urban areas, in which government control was firmer than in the countryside.

⁶¹ Christopher Hitchens, "The Vietnam Syndrome," *Vanity Fair*, August 2006, 110. There has been anecdotal evidence of similar birth defects in the children of United

litigation is still wending its way through the courts, and asks his readers, "If you desire even a faint idea of the distance between justice and a Vietnamese peasant family, take a look at how long it took for the American victims of this evil substance to get a hearing."⁶² Science could not prove that the harrowing images in Hitchens' article were the result of dioxin exposure, as it cannot prove with absolute certainty that veterans exposed to herbicides were at higher risk of cancer and neurological disease. For Hitchens, the limitations of science are beside the point.

A year later, writer Walter Isaacson, in more measured prose, took a similar stance. "Scientists have not been able to prove a direct link between Agent Orange and the disabilities...efforts to resolve the issue will remain paralyzed if both sides insist on waiting for scientific proof. A practical and sensible resolution is possible. The U.S. should help immediately to contain and then clean up the contaminated sites. After all, we made the mess."⁶³ In making these arguments, both Hitchens and Isaacson try to leave the debate about what can be proven and appeal to readers' ethics. Regardless of whether chemical herbicides led to the damaged children in Sài Gòn, the United States has a moral obligation to them. Arguments based on morality, rather than those based on scientific research, are gaining acceptance as reasons to remediate the South Vietnamese environment and take care of those affected by spraying. This is a very different type of debate, one not predicated on Kennedy-style rationality and objectivity

States soldiers exposed to herbicides. Jacob V. Lamar, Jr., Timothy Loughran, and Peter Stoler, "Winning Peace with Honor," *TIME* 1984, 39.

⁶² Hitchens, 111.

⁶³ Walter Isaacson, "In Vietnam, the U.S. Still Has One Battle Left to Fight," *TIME*, March 12 2007, 31.

or on the military's credibility.

As one United States government report stated, "Virtually every aspect of the effects of Agent Orange on Vietnam is infused with uncertainty and/or controversy."⁶⁴ This statement applies to Operation Ranch Hand as a whole. A weapons system that was to be tightly controlled and carefully monitored slipped so far out of control that basic questions about its use are still being asked decades later. For example, in 2003, a team of epidemiologists published a study of Ranch Hand missions that found the military had been understating the amount of chemical sprayed by more than 7 million liters (or nearly 2 million gallons).⁶⁵ An innovation designed to enhance the safety of American troops has purportedly killed thousands. An operation that was to have skillfully managed publicity remains an international symbol of the devastating effects of what Vietnamese call "the American War."

The limits of science, and the distorted view of science held by many laypeople, were apparent from the start of Ranch Hand. The columns of numbers and precise reports disseminated by the Kennedy Administration did not capture the growing alienation of South Vietnamese farmers. Defoliation and crop destruction did little to ameliorate the intractable political problems of South Vietnam; in fact, they likely widened the schism between the South Vietnamese and their government. The data generated by Ranch Hand gave a false sense of certainty and of scientific proof. In

⁶⁴ Wolfe et al.: 1827.

⁶⁵ Stellman et al.: 681.

reality, the science behind Ranch Hand was more ambiguous and contested. This level of uncertainty, however, was too difficult for the United States to bear.

One response to this uncertainty was to continue Ranch Hand operations, despite increasing evidence that the project did more harm than good. Botanists and other scientists were increasingly outspoken during the late 1960s about Ranch Hand's effects on the South Vietnamese environment. The RAND study questioned the wisdom of a weapon that targeted civilians. After the war, affected populations linked deadly diseases to chemical exposure. However, as Ranch Hand escalated, the burden of proof on those opposed to it became greater and greater and the momentum for continuing practically unstoppable.

The normalization of deviance in Ranch Hand operations became so pronounced that neither RAND, nor the scientific community, nor the chemical manufacturers themselves could dissuade the Kennedy and Johnson administrations from using herbicides. Assertions about the safety and usefulness of Ranch Hand drowned out more equivocal findings. Admitting that Ranch Hand was, in fact, hurting United States efforts to protect and to stabilize the Diệm government would call into question not just herbicide use but the premises on which American intervention was based. If Ranch Hand did not work, then either an increased military commitment was required or the underlying problems were not, in fact, military in nature. Neither possibility was palatable.

The search for something to rely upon in the midst of an increasingly uncertain and unstable situation led decision-makers to science, specifically to chemical

herbicides. Moreover, the science of phenoxy herbicides would itself prove contested and controversial. Certainty would need to come from other sources, and the American military provided the reassurance that Ranch Hand was safe and effective. The need for certainty, and the desire to believe that the United States would prevail in South Vietnam, contributed to Ranch Hand's beginning, its eventual expansion, and its devastating consequences.

Kennedy's decision to begin and to expand defoliation and crop destruction in South Vietnam was one important step in a long descent into what would become known as the Vietnam War.⁶⁶ Chemical spraying did not achieve its intended effects. Bare foliage did not deter insurgent attacks, nor did Communist troops and allies suffer significantly from food shortages. Ranch Hand alienated many rural South Vietnamese from not only the Americans but from their own government. In addition, the effects on American veterans, the South Vietnamese and the environment of South Vietnam were incalculable and are still being felt.

At the time of its approval, Ranch Hand seemed a relatively benign response to some intractable problems. From the start, Kennedy's administration faced enormous obstacles, some of which were of its own making. The relative inexperience of his foreign policy team, coupled with an environment that rewarded action and punished tentativeness, led to quick decisions and facile judgments. The urgency and number of

⁶⁶ This, of course, is the American name and usually includes only the years of overt United States military involvement. The Vietnamese term the period the American War. More recently, historians have termed the period from 1954 to 1975 the Second Indochina War. This is a more inclusive and accurate name for the entire conflict.

foreign policy crises facing the administration also made quick, straightforward solutions seem particularly attractive. The most difficult dilemma concerned South Vietnam itself. If the administration conceived of the country's problems as fundamentally political, then the very legitimacy of President Ngô Đình Diệm would be immediately in question. If the problem was military, then it would need to be solved with military solutions, but without the politically suicidal introduction of ground troops. The use of chemical defoliants and herbicides allowed the administration to sidestep both of these issues while still taking action.

Ranch Hand seemed to answer these challenges. Implementation would be relatively simple. The chemicals used in Ranch Hand had, after all, been in wide domestic use and had already demonstrated their safety and usefulness. Millions of acres of highways, fields, and lawns had been cleared with commercially available herbicides. Using these chemicals in South Vietnam would prove much more complicated.

The wishes, assumptions, and fears that led the Kennedy administration into Ranch Hand did not disappear with the president's death or with Ranch Hand's end. The use of unmanned aerial vehicles (UAVs, or, more commonly, "drones") in Afghanistan and in Pakistan bears disturbing similarities to the defoliation and crop destruction operations of the early 1960s.

First, as phenoxy herbicides were, weaponized drones are a relatively new technology, less than fifteen years old.⁶⁷ These “hunter-killers” require specialized development, training, and maintenance and are far more intricate even than the customized spray equipment that Ranch Hand crews used. This greater complexity introduces significant room for error. As was the case with chemical herbicides, however, the public perception of drones is often that they are straightforward to operation; the most common image is that of a particularly elaborate video game.⁶⁸ This unwarranted level of comfort echoes the willingness of suburban homeowners to pick up a can of 2,4,5-T at the local hardware store.

UAVs also promise to perform delicate and difficult chores without the use of United States ground forces. For example, locating and killing enemy leaders, whatever the efficacy of such a tactic, can now be done remotely.⁶⁹ Sending in aircraft to a remote valley in western Pakistan is far less costly than deploying troops. This reduces not only the casualty rate of forces in the field, but also the expense of sending troops to a foreign theater. Now, as well as in the early 1960s, expense and safety, both physical and political, are primary concerns.

⁶⁷ Caitlin Harrington, "Briefing: Unmanned Unbound," *Jane's Defence Weekly*, August 16 2010. http://www4.janes.com.ezp-prod1.hul.harvard.edu/subscribe/jdw/doc_view.jsp (accessed July 18, 2012).

⁶⁸ A drone pilot addresses this perception directly. Marc Pitzke, "Interview with a Drone Pilot: "It Is Not a Video Game"," *Der Spiegel*, March 12 2010. <http://www.spiegel.de/international/world/interview-with-a-drone-pilot-it-is-not-a-video-game-a-682842.html> (accessed July 17, 2012).

⁶⁹ For a cautionary analysis of this tactic, see Hosmer.

Furthermore, the perceived precision of air power plays an important role in the adoption of UAVs, as they did in Ranch Hand. The names of the planes, such as Stalker, Reaper, and Predator, imply a dangerous and implacable foe.⁷⁰ The assumptions that drones are accurate and controllable persist, even in the wake of inadvertent attacks on wedding parties or sleeping households. As was the case with herbicides, however, the value of drone strikes is by no means assured and depends on the intelligence and expertise of those planning the strikes. This is a challenge, as it was for policymakers during the early 1960s, and for similar reasons. It is becoming apparent that a surfeit of information plagues drone operations, just as a flood of data overwhelmed planners during the Kennedy administration.⁷¹

It is not yet clear what the environmental impact of drone warfare will be. The image of UAVs as sanitary weapons is powerful and possibly misguided. Herbicides, at least in the administration's assertions, were similarly benign.

The Kennedy administration's descent into Ranch Hand is thus not just a story of Cold War fear and early 1960s hubris. Rather, the dynamics that led to Ranch Hand's adoption, and thus the increased commitment of the United States to the fate of South Vietnam, remain alive and intact. This is not to say, of course, that the United States' involvement in Afghanistan or in any other country will take the same course as the war in South Vietnam. It is to argue that technological solutions can provide a false

⁷⁰ For a discussion of the power of names to define and make meaning, see Elaine Scarry, *The Body in Pain: The Making and Unmaking of the World* (New York: Oxford University Press, 1987).

⁷¹ Christopher Drew, "Military Is Awash in Data from Drones," *New York Times*, January 10 2010.

sense of security; the use of new technology can raise new sets of problems even as it commits the United States more firmly to a course of action.

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