2

BIOPOWER IN VIETNAM

Michael Clodfelter, an author and historian, is also a veteran of the Vietnam War. In his book *Mad Minutes and Vietnam Months*, Clodfelter (1988) captures the dehumanizing aspects of war and the immorality of violently induced mortality. After one firefight, for example, Clodfelter (p. 105) describes his reaction to viewing the bodies of two young Vietnamese soldiers:

> Both wore ironic expressions of contentment on their young faces. Though caking, scarlet pockets of bullet wounds and vacantly staring eyes were the only indications that these men were dead instead of dreaming, they already seemed somehow less human to me. I could not allow myself the awareness then that I could have easily been lying there in my death posture; my life's experiences, hopes, memories, all suddenly terminated as were those of the young men whom I could not now grace with the quality of humanity for fear of its implications of my own mortality.

Elsewhere, Clodfelter (1995: 121) describes the registration of death: the body counts. "Nineteen bodies were found in expressions of death in their vast green sarcophagus," he writes. "The only acknowledgment of our execution of those men would be an entry in the neat, fine print of official battle reports, the military's record book that neither bled nor carried the stench of death." In stark detail, Clodfelter writes of the Othering of war, of what the Nobel laureate Wole Soyinka describes as a "spiral of antihumanism." Clodfelter recalls, from his combat experi-

ences, that "violent death still brought grief when a friend fell, but the death of a Vietnamese, any Vietnamese, not just the enemy, was looked upon with no more pity than a hunter gives his prey. . . . " For Clodfelter, "Killing a dink had become different from killing a human being, and even if a bit of remorse remained, war excused and vindicated killing and exonerated the souls of men who murdered but yet refused to consider themselves as murderers." Acknowledging the downward slide to antihumanism, and the existence of a culture of impunity, Clodfelter (p. 149) concludes that "war was working insane logic on us. We were learning to deny the enemy's humanity, and because it was so difficult to distinguish the enemy from those who merely hated us, it had become easier to kill both."

The political geographer Colin Flint (2005: 3) asks "What is war?" His question has occupied the attention of political scientists, political geographers, and philosophers. Less so have population geographers confronted so starkly the question of war, and yet I maintain that war *should* be fundamental to the study of population. Acknowledging the many "forms" of war, Flint, for example, argues that one aspect of war is universal across space and time. War, Flint concludes, is tyranny. He elaborates (p. 3) that this statement refers to the "processes by which people who did not initiate war become cogs in a fighting machine mobilized to defend territory, values, and collective identities from aggression." Furthermore, for Flint, geography provides a number of themes through which war may be approached. These include, among others, territoriality, borders, place, and scale. Ultimately, Flint (p. 6) proposes that war "is a political process that has as its purpose the control of territory to enable subsequent projections of power."

This is all very good, but we should also consider the demographics of war, and especially a corporatist, industrial form of warfare as it has evolved throughout the 20th century (cf. Adas, 2006; Hossein-Zadeh, 2006). The control of territory—frequently a crucial aspect of military strategy—arises from the discipline of bodies and the control of populations. This control is often predicated on the capture or killing of large numbers of people. Indeed, Arthur Westing (1982: 261) notes that of the hundreds of wars that have ravaged the globe in the 20th century, 45 of these conflicts can be considered "high fatality," defined as contributing to over 30,000 fatalities. The impact of these wars can be further grasped by considering global population trends. In 1900 the world's

population stood at approximately 1.6 billion persons; eight decades later the population surpassed 4.7 billion. In the interim, Westing (1980: 1982) concludes, approximately 86 million fatalities resulted from these high-fatality wars. In other words, these wars resulted in a premature death for 1.4 percent of all peoples living during the period.

Such catastrophic loss of life has precipitated much interest in the notion of "just" wars (Walzer, 1977). Within population geography, however, minimal attention has focused on the *population geographies* of warfare. To be sure, there are numerous accounts of the demographic losses attributable to wars—although many of these studies are conducted by nongeographers, and certainly not by population geographers (Carlton-Ford, Hamill, and Houston, 2000; Heuveline, 1998; Hirschman, Preston, and Loi, 1995; Horne, 2002; Reza et al., 2001; Westing, 1980, 1982; Winter, 1998).

An engagement with warfare by population geographers will contribute to an antiwar ontology and thus to the building of peace through education. As the historian Howard Zinn (2005: 37) writes, the idea of a just war is a flawed belief. He explains that "a cause may be just, an injustice may have taken place, but that doesn't mean that the use of war to remedy that injustice is itself just." Zinn (p. 38) is blunt in his assessment: "War … is the massive and indiscriminate killing of human beings." And Zinn's qualifier "indiscriminate" is as deliberate as are the deaths of which he writes. The majority of war-related deaths, especially throughout the 20th century, have been civilians. Of those who perished in the wars in Vietnam, Afghanistan, and Iraq, for example, over 90 percent were civilians. And the trend in increased civilian deaths has not been accidental. Indeed, the indiscriminate targeting of "enemy" populations has resulted from a combination of changing political–military strategies and technological advances in the conduct of war. This is seen most clearly in the increased use of aerial bombardment. As Horne (2002: 482) finds, from 1915 onward, airship and bomber raids on cities and countrysides brought about an awareness of the potential of air warfare as a strategic arm that could bring combat directly to enemy populations. During World War II, as a case in point, the government of Nazi Germany authorized the bombing of civilian targets. In response, Britain embarked on its own strategic bombing campaign. With the entry of the United States into the war, American forces conducted intensive bombing campaigns over the skies of Europe

and Japan. In total, aerial bombardments during World War II claimed over 1 million civilian lives throughout Europe and Japan.

Following World War II, military strategies continued to target civilian populations. In many respects, no other conflict symbolizes the wanton disregard for human life as the American-led war on Vietnam (1954–1975). During this conflict American officials embarked on a systematic campaign to discipline bodies and regulate populations for political–industrial purposes. As Clodfelter (1995: 236) writes, "A great many of the civilian victims of American arms died as a result of the way the Americans chose to wage war." It was about killing bodies in an attempt to regulate populations. Men like Robert McNamara and Walt Rostow, for all their sophisticated models, theories, and statistics, were woefully ignorant of, or simply uncaring about, the local conditions and peoples of Vietnam. And men like President Richard M. Nixon, Henry Kissinger, and General William Westmoreland were cavalier toward humanity in their pursuit of realpolitik. Indeed, it was Westmoreland who explained, in Peter Davis's Oscar-winning documentary *Hearts and Minds* (1974), that "the Oriental doesn't put the same high price on life as does a Westerner. Life is plentiful. Life is cheap in the Orient." Such a callous disregard for the value of human life epitomizes the dehumanizing practices that accompany warfare.

Violent acts and atrocities, of course, occurred on both sides during the war. This in no way excuses the violence perpetrated by the Communist Democratic Republic of Vietnam (DRV) and their South Vietnamese compatriots, the National Liberation Front (NLF). However, two things stand out. First, the United States and its allies invaded and occupied Vietnam as that country attempted to liberate itself from French colonial rule. In mapping their own imaginative geography, American policymakers attempted to transform a colonial war into a civil war through the creation of South Vietnam. Concurrently, American military strategists, politicians, and civilian advisors (with few exceptions) conducted a war founded on explicit strategies to kill Vietnamese regardless of any perceived "innocence."

Jonathan Neale (2003: 77) maintains that America was a corporate industrial power and it fought a corporate industrial war. New and "improved" methods were devised to kill *people*—not soldiers, not guerrilla fighters—but *people*: Vietnamese people. Scientists refined the use of cluster bombs and napalm; researchers studied the most

effective way to explode human flesh. The efficiency and efficacy of their scholarship was measured in lives. In Vietnam, the war claimed an estimated one to three million persons. These grim statistics alone do not fully capture the devastation. Clodfelter (1995: 257) further reports that in South Vietnam alone, by 1975, there were 83,000 amputees, 8,000 paraplegics, 30,000 blinded, 10,000 deafened, and 50,000 other disabled persons. To these figures we can add approximately 800,000 orphans.

Part and parcel of the loss of life is the environmental destruction meted on Vietnam. Population geographers and other social scientists have long addressed the interconnections of population and the environment. Often, these discussions have highlighted the deleterious effects on the environment resultant from human activities. To this end, scholars have debated the root causes of various ecological problems, such as global warming, deforestation, and the pollution of our atmosphere, oceans, rivers, and soils. Related to these discussions are concerns over the supply of food for human populations. As early as the 18th century, for example, Thomas Malthus questioned the balance between population size and the availability of food. Consequently, social scientists have examined, among other things, trends in food production, the geographic distribution of food supplies, and the ability to increase yields on cultivated lands. Missing from most of these accounts, however, is the *deliberate* destruction of both the environment and food supplies as a means of controlling populations. Indeed, a reconstituted population geography must engage more explicitly with the topic of environmental warfare. Defined by Paul Cecil (1986: 3) as the "destruction of housing, forced relocations of populations, destruction of food supplies, elimination of concealment and forest sanctuary, and driving the enemy into inhospitable terrain unsuitable to agricultural support," environmental warfare is inseparable from the traditional domains of population geography. The American-led military campaign in Vietnam included napalm, defoliants, wetland drainage, crop destruction, and a bombing campaign of "historic intensity"; in all, these techniques of power helped "create a continuing legacy of ecological and health problems" that plagues Vietnam to this day (Cecil, 1986).

In this chapter I present not a history of the Vietnam War, but rather a population geography of the war. My intent is not to highlight the firepower, but rather to emphasize the biopower involved in the

military campaigns of the war, and to encourage others to think critically about population issues in the context of war.

THE CONTEXT OF THE VIETNAM WAR

Accessibility to the lucrative China trade was the primary lure. Vietnam was viewed as a means to that end. Beginning in 1859 Vietnamese sovereignty was steadily reduced by French colonial efforts. In that year a French naval expedition seized Saigon and within 3 years the Vietnamese emperor, Tu Duc, conceded to the French Saigon and three surrounding provinces. France initially was attracted to Vietnam because of the presence, in the north, of the Red River. French authorities hoped that the river would lead directly to the heart of China and its attendant riches. Over time it became clear that the Red River was not the riverine path to riches. Vietnam, nevertheless, contained valuable mineral deposits and other agricultural products for export and profit.

By the end of the 19th century France had acquired all of Vietnam. Vietnam disappeared off the map and was replaced by an imaginative geography called *Indochina*. Administratively, the former Vietnam was divided into three parts. Cochin China, located in the far south and centered on Saigon, was ruled as a French colony; Annam, the central region, based at Hue, and Tonkin, in the north, centered on Hanoi, were both officially "protectorates," but in actuality were ruled as colonies. To these three divisions were added neighboring Laos and Cambodia.

For the first four decades of the 20th century France governed Indochina. Throughout these years, resistance to French rule was widespread but sporadic, and did not solidify until the 1920s (SarDesai, 2005). A number of popular movements emerged, many of which were religious-based. Still other movements were modeled after revolutionary parties outside of Indochina. In 1927, for example, the Viet Nam Quoc Dan Dang (VNQDD) was established, based on China's Kuomintang. Most significant, however, was the foundation in 1930 of the Indochina Communist Party (ICP). Formed by a young nationalist named Ho Chi Minh, the ICP was not, as yet, a threat to French colonial rule.

During World War II Indochina was occupied by the Japanese. However, a Japanese agreement with the Vichy regime in France per-

mitted French colonial authorities to remain in power until the waning days of the war. As was the case throughout Southeast Asia, the defeat of French forces by the Japanese added impetus to the growing nationalist movements within Indochina.

In 1941 the Vietminh (Viet Nam Doc Lap Dong Minh, or League for the Independence of Vietnam) had been established as a front organization for the ICP. Throughout the war the Vietminh—frequently with the help of American and other allied forces—waged a guerrilla campaign against the Japanese. Following Japan's surrender, members of the Vietminh assumed that they would take control of the government.

The principle wartime allies of the United States, Britain and the Soviet Union, considered events in Southeast Asia secondary to the defeat of the Axis powers. Nevertheless, as the war progressed, the Allied powers, including France and the nationalist government of Chiang Kai-shek in China, began to develop plans for the future of Southeast Asia. Churchill, for example, insisted that France should keep its colonies in Indochina; he was dedicated to retaining the British Empire, and was worried that Indochinese independence from France would strengthen the case for Indian and African independence from Britain (Neale, 2003: 25). In contrast, American officials desired a more open strategy, one that would facilitate greater economic integration of the region into U.S. plans. The American position on postwar Indochina initially reflected President Roosevelt's antipathy to renewed European colonialism. Indeed, Roosevelt hoped to establish a liberal capitalist world system based on the principle of equal commercial opportunity (Hearden, 2005: 22). Colonialism was anathema to such a vision. Roosevelt preferred instead the establishment of trusteeships for colonial areas. In 1943, for example, Roosevelt mused that France had "milked it [Indochina] for one hundred years" and had left its people "worse off than they were at the beginning" (Karnow, 1983: 136).

Following the defeat of Japan, and pursuant to the Potsdam Agreements of July 1945, British troops occupied Vietnam south of the 16th parallel while Chinese Nationalist forces occupied the lands north of the partition line. The French were initially excluded from the postwar occupation. However, the French were committed to restoring their power over all of Indochina. By February 28, 1946, the French did secure, through the Franco–Chinese Accords, a Chinese withdrawal from the north in return for yielding concessions in China. French

officials subsequently reached an agreement with British officials that acknowledged France's position in southern Vietnam.

Vietnamese forces, however, continued to push for independence. On September 2, 1945, Ho Chi Minh declared the end of French rule, the reunification of Tonkin, Annam, and Cochin China, and the formation of the Democratic Republic of Vietnam (DRV). Citing the American Declaration of Independence and the French Revolution's Declaration of the Rights of Man, Ho believed that he could muster support from the United States for a free and independent Vietnam. However, his appeals to American officials went unheeded. Publicly, American policymakers spoke about high moral principles and ideals. In practice, however, economic considerations—and especially those favorable to the United States—most often outweighed the rhetoric of liberty, democracy, and freedom. American officials asserted, for example, that communist control of Indochina threatened 70 percent of the world's natural rubber and 50 percent of the world's tin supply (Schulzinger, 1997: 54).

On March 6, 1946, a Preliminary Convention was signed in Hanoi. The French promised to recognize the government of the DRV as a free state within the French Union. Vietnam, consequently, would have its own parliament, army, and finances, and would be part of an Indochinese Federation that included Cambodia and Laos. A referendum, furthermore, was scheduled in three parts (Tonkin, Annam, and Cochin China) to determine the final political status of Vietnam. This arrangement, however, preserved a French presence and left unclear the question of whether Vietnam would remain a single country or possible three republics (Schulzinger, 1997: 26). Ho, for his part, desired a Vietnam that reunited Cochin China, Annam, and Tonkin and adamantly opposed the severing of Cochin China from the greater Vietnamese state. With no apparent diplomatic recourse possible, the Vietminh turned to armed conflict. On December 19, 1946, the Franco–Vietminh war began. Lasting 8 years, the conflict resulted in 172,708 casualties for the French and their allies; Vietminh losses were probably three times as high. An estimated 150,000 Vietnamese civilians were killed throughout the conflict (Tucker, 1999: 78).

Cold war ideologies hardened throughout the Indochinese conflict. In January 1950 both the Union of Soviet Socialist Republics (USSR) and the newly formed People's Republic of China (PRC) recognized Ho's DRV. In response, the United States, in part as a result of the defeat

of Chiang Kai-shek's nationalist forces in China, recognized the hastily established puppet government of Bao Dai in South Vietnam the following month. In so doing, the Truman administration was able to immediately provide military and economic assistance to the State of Vietnam through French channels. By the spring of 1950 the United States began a policy of direct political, economic, and military support. Gradually, the United States assumed the lion's share of the financial and military burdens of supporting French colonialism in Vietnam. By 1953, the United States was supplying most of the French arms and ammunition and was paying about two-thirds of the cost of the war (Neale, 2003: 61).

THE DEMOGRAPHICS OF STATE BUILDING

By the spring of 1953 it was clear to most observers that a French military victory was a chimera. Moreover, concerns grew among the great powers that the Indochinese conflict might rapidly spiral out of control. The United States, the Soviet Union, Great Britain, and France decided that a diplomatic solution to the war was necessary. An international convention was held in Geneva between May 8 and July 21, 1954, to determine the fate of Indochina. In attendance were delegates from Great Britain, the United States, the Soviet Union, the People's Republic of China, France, India, Laos, Cambodia, the (French-backed) State of Vietnam, and the (Communist) Democratic Republic of Vietnam. Significantly, the outcome of the Geneva Convention highlights the salience of population geography for international politics.

Following the Geneva Accords, two military zones were established and administered by two civilian governments. To the north was the DRV and to the south the State of Vietnam Among the various conditions of the accords was a cease-fire throughout Vietnam, to be accompanied by troop withdrawals of French forces from the north and Vietminh forces from the south. Most importantly, free elections were scheduled for 1956, with the goal of reunification of northern and southern Vietnam. The United States declined to sign the accords but did, in principle, agree with the outcome.

Convinced that the fall of Vietnam to communism would lead to the loss of all of Southeast Asia, the administration of President

Dwight Eisenhower in late 1954 began to create in southern Vietnam a state that could stand as a bulwark against communist expansion and serve as a proving ground for democracy in Asia (Herring, 1996: 47). It was hoped that the 2-year interim period—until the scheduled 1956 elections could be held—would provide time to build a viable non-communist government, replete with a self-sufficient military force, in southern Vietnam.

South Vietnam, however, was ill-defined from the start. On paper, it was ruled by Emperor Bao Dai—the last emperor of Annam who had served both the French and the Japanese—and Prime Minister Ngo Dinh Diem. A Catholic, Diem enjoyed the support of many high-ranking American officials, including Chief Justice of the Supreme Court William Douglas and Senators John F. Kennedy and Mike Mansfield. Diem convinced these officials, along with others, that he alone was the only viable nationalist alternative who could withstand the onslaught of communist aggression.

America's strategy toward Vietnam, and its initial support of Diem, constitutes a tragic example of how policymakers fell into a "territorial trap." According to John Agnew and Stuart Corbridge (1995: 83–84), policymakers commonly make the erroneous assumption that territorial states constitute the geographical essence of international relations. More specifically, state territories are frequently reified as set or fixed units of sovereign space, and these states are viewed as existing prior to and as a container of society. Within the context of Vietnam, military planners and civilian advisors—having "constructed" the State of Vietnam—continuously viewed the state as being a fixed territorial entity. Through such a metageographical construct, deliberate military strategies were set in motion that dictated the course of the war. Such geographic myopia would have a devastating effect on the population and environment of Vietnam.

An early example of this thinking is found in America's demographic accounting of the DRV (North Vietnam) and the State of Vietnam (later renamed the Republic of Vietnam). Following the signing of the Geneva Accords, and the mandate for *statewide* elections to be held in 1956, American officials were well aware of population differences between the two entities. Given the more populous North, Ho's government was believed to have a distinct demographic advantage in determining the outcome of *national* elections. One individual determined to

change this situation was Colonel Edward Lansdale, a noted authority on counterinsurgency techniques. For Lansdale, an early determinant of America's strategy was found within the Geneva Accords: "any civilians … who wish to go and live in the zone assigned to the other party shall be permitted and helped to do so" (quoted in Currey, 1988: 155).

Lansdale had recently arrived in South Vietnam as chief of the Military Assistance and Advisory Group (MAAG). A graduate of the University of California at Los Angeles, Lansdale had served as both a U.S. Air Force officer and an agent for the Central Intelligence Agency. His initial assignment in Vietnam was to plan, coordinate, and execute a psychological warfare campaign in North Vietnam. He drew on past personal experiences, including the conduct of counterinsurgency operations in the Philippines during the so-called Huk Rebellion. In the Philippines, American officials worked to uphold the landed elite within the Philippines, and to engage and support forces to suppress the peasants. Lansdale was critical in constructing the rebellion as communist-led (it was, in fact, an agrarian uprising dating to the 1930s; see Tyner, 2007). In March 1946 Lansdale alleged to his superiors that the Hukbalahap leaders were "Communist-inspired" and "like all true disciples of Karl Marx" believed

> fully in revolution instead of evolution. They have made their boast that once their membership reaches 500,000 their revolution will start. Meanwhile, in the provinces of Pampanga, Nueva Ecija, Tarlac, Bulacan, and Pangasinan, they are establishing or have established a reign of terror. So ironclad is their grip and so feared is their power that the peasants dare not oppose them in many localities. Upon liberation, their members were about 50,000; sources now report some 150,000 tribute-paying members.… [The rebellion is now organized] into trigger men, castor oil boys, and just big strong … ruffians to keep the more meek in line. (quoted in Kerkvliet, 1977: 147)

After having suppressed the rebellion in the Philippines, Lansdale was asked to replicate his success in Vietnam. His new assignment was to stimulate a refugee exodus of the Vietnamese from the North to the South (Maclear, 1981). Consequently, a pivotal aspect of Lansdale's approach was a massive population relocation strategy.

Lansdale's strategy can best be described as one of state-induced

terror. To construct and facilitate a massive refugee flow, one that could significantly alter the demographic balance of Vietnam, Lansdale required a program to portray the DRV as an untenable place to live. Initially, he employed rumor campaigns. His team distributed leaflets in North Vietnam, spreading disinformation about new economic and monetary regulations. This helped cause panic among many affluent residents. Rumors were also spread of rampaging Chinese communist troops who would occupy the North and rape the women (Young, 1991: 45); other rumors included the sentiment that Christ had moved south. In addition, Lansdale hired astrologers who predicted imminent disasters certain to befall Vietminh leaders and who forecast a long period of prosperous unity for those in the South (Currey, 1988: 158).

It is one thing to strike fear in a populace and to encourage people to flee their homes. It is quite another to physically carry out such plans. To this end, and encouraged by the Catholic hierarchy, entire parishes were carried south on American ships. Within weeks approximately 850,000 Vietnamese began the trek south. Most were Catholics and/or small landowners (Maclear, 1981: 51). Subsequently, highly publicized accounts of refugee flows were used to support and legitimize America's growing involvement in Vietnam. Officials, for example, utilized the fabricated refugee flow as an indicator of the threat of communism (these lessons would be applied again during America's war against the Sandanistas in Nicaragua during the 1980s). An editorial appearing in the journal *America*, for example, explained that 1.2 million Catholics lived in the area north of the 17th parallel, which was to be sealed off by another "Iron Curtain." The same editorial stated that the migrants would play a "major role in the area south of the 17th parallel, if that part of Vietnam which still remains free is to be strengthened against Communist infiltration." The American Friends for Vietnam, a lobbying group, used the plight of the refugees to garner support for Diem's government and to denounce the activities of Ho Chi Minh. As Young (1991: 45) concludes, the usefulness of the refugee population did not end with their much-photographed arrival in the South. Photo-spreads of confused, tired women and children appeared in the *New York Times Magazine* and other highly visible outlets.

Perhaps not surprisingly, given the cold war political climate, the scheduled 1956 elections for the possible national reunification of Vietnam were not held—a decision originating with Diem and backed by

his American supporters. Instead, Diem called for a national (meaning southern) referendum to determine whether the ineffective Bao Dai would remain as emperor or if Diem himself would lead the republic. Diem, not surprisingly given the level of corruption in his government, won 98 percent of the vote. Bao Dai was removed from power and the Republic of Vietnam (RVN) was established on October 26, 1956, with Diem as president.

In light of Diem's political maneuvering, Ho permitted the southern communists to engage in limited military actions. This decision paved the way for the formation, on December 20, 1960, of the National Liberation Front (NLF) of South Vietnam. The purpose of the NLF—derisively termed "Viet Cong" by Diem—was to provoke a general uprising and to bring about a communist revolution in the South.

The NLF was a semiautonomous organization. Despite claims to the contrary, notably by American officials such as Rostow, the NLF was neither a puppet of the Soviet Union nor of the DRV. Rather, "the founders of the Front were independent professionals, architects, lawyers, doctors, school teachers, along with members of the Communist Party, Buddhists, and one or two Catholics. They framed a set of demands that would appeal to all sectors of southern society that had been hurt by the Diem regime" (Young, 1991: 70). Both politically and militarily, they worked toward the eventual reunification of Vietnam.

POPULATION AND THE ROSTOW DOCTRINE OF WAR

> I suddenly thought of my dear ones in both parts of the country, And told myself, Death is so simple! We can only wait for bombs and artillery shells to rain down and tear the small forest apart.
>
> —Dang Thuy Tram[1]

America's overt military involvement in Vietnam was gradual, reflecting an ignorance and uncertainty over policy. From the signing of the Geneva Accords in 1954 to 1960 only a few hundred military advisors of the U.S. Military Assistance Advisory Group (USMAAG) were stationed in South Vietnam. The election of Kennedy to the White House, however, paved the way for an enlarged U.S. commitment to Vietnam

and the greater Southeast Asia region. In many respects, the Kennedy administration "set the tone for the beginning of a bold American policy" (Hearden, 2005: 67). Schulzinger (1997: 97) concurs, noting that "Kennedy, along with most foreign affairs experts of the late 1950s and early 1960s, believed that the Cold War was a global struggle: events were interconnected, and weakness in the face of communist adversaries' moves encouraged aggression elsewhere." Moreover, "Kennedy and his principal foreign affairs advisers considered the communist–nationalist insurrection in South Vietnam part of this global competition."

Kennedy entered the White House with a cadre of intellectuals who were determined to advance their own personal theories, models, and ambitions as much as they would American foreign policy. His advisors were not politicians per se, but rather corporate executives and leaders from the realms of academia and finance. Robert McNamara, as secretary of defense, was one such individual. McNamara began his professional career as a professor at the Harvard Business School. Later, during World War II, he was recruited to work in the Statistical Control Office (SCO), under General Curtis LeMay, of the U.S. Army Air Corps. In that position McNamara utilized a suite of mathematical models to plan the logistics of bombing raids in German and, later, Japan (Edwards, 1996).

Following the war McNamara enlisted nine of his coworkers to apply their quantitative skills to industrial productivity. These former SCO analysts were employed at Ford Motor Company and subsequently introduced various military techniques into business management. It was at Ford that McNamara—named president in 1960—and his associates became known as the "whiz kids." Edwards (1996: 126) explains that "like many other intellectually oriented managers of the 1950s, McNamara found mathematical modeling techniques far superior to traditional wisdom or intuitive approaches to management based on shop-floor experience." He would bring this same approach to the Defense Department.

As former president of Ford Motors, McNamara stressed efficiency in his management of foreign policy. Dazzled by numbers, computers, and statistics, McNamara was part of a quantitative revolution in foreign policy. Neale (2003: 89) writes that McNamara "ran the war like the Ford Motor Company. You had the capital, you had the hardware,

and you had the men—they were just labor." Capturing this element of the conduct of war, Clodfelter (1988: 91) laments his experiences as a combat soldier: "As the value of Vietnamese life went down in your estimation, so too did the realizations start to sink in that your body and your life was really of very little importance to the men and the machines who ran the war.… "

At the Department of Defense, McNamara—along with RAND economist Charles Hitch—established the Office of Systems Analysis (OSA). Hitch subsequently chose another RAND economist, Alain Enthoven, to direct the OSA. (In 1971 Enthoven and another OSA employee, K. Wayne Smith, wrote a book on the activities of the OSA.) In time, this group of Pentagon analysts would be christened the "whiz kids," like McNamara's team at Ford Motor Company.

The OSA, a predominantly civilian group, was created to work full-time on military-related projects defined and delineated by McNamara. Among its various functions was the analysis and review of quantitative requirements in the areas of force structures (for example, troop deployments), weapons systems (for example, bombs, torpedoes, ships, ammunition), transportation, and information and communication systems (Enthoven and Smith, 1971: 77). In addition, members of the OSA prepared cost-effective studies on these areas, all with the aim of providing empirical data to support McNamara's assessment of the war's progress.

The whiz kids ran the OSA like the business managers and economists they were. As a whole, the OSA rejected both experience and history as guides, believing instead in the infallibility of analytical techniques and computer-generated "facts." During the early years of military buildup, McNamara and his aides "churned out situation reports and position papers based on the reels and reels of computerized data that had been processed on their mainframes" (Adas, 2006: 295). Adas (p. 295) continues by noting that McNamara's newly created OSA "performed cost–benefit analyses for tasks as diverse as weapons procurement, streamlining the defense bureaucracy, and responding to the volatile situation in Vietnam. When they argued for widening the war, they prided themselves on using scientific procedures and verifiable (that is, wherever possible, statistical) data, which they believed made their decisions far more objective than the recommendations of the critics of escalation." When other officials questioned Ameri-

ca's increasing involvement in Vietnam, McNamara and his analysts deflected such concerns with "a surfeit of statistics and elaborate computer projections."

The geographic knowledge produced by the OSA and other units was decidedly biased in favor of quantitative mathematical understanding. Alain Enthoven, for example, could not conceive of a meaningful way to factor historical experience (which could not be quantified) into planning for high-tech military forces (Adas, 2006: 294–295). In his defense of computer modeling, Enthoven explained that "computers are replacing military judgement" and that "computers are running the wars of the future" (quoted in Edwards, 1996: 133). Adas (2006: 295) explains further that "in the buildup to what in effect was the recolonization of Vietnam in the mid-1960s, none of the many government agencies involved undertook systematic investigations of local social systems, the Saigon regime, or even the history of the Vietnamese civil war." He continues by pointing out that "as the sorry history of American interventions in Vietnam would make clear, social science programs and cost–benefit analyses could not compensate for the policymakers' woeful ignorance of the history of the refined and deeply rooted societies and cultures of Indochina" (p. 296).

McNamara and his whiz kids were managers; they were not creators. As Milne (2007: 186) explains, McNamara was a brilliant manager of facts and data, but no innovator. He took his ideas from others, subjected them to a searching quantitative critique, and if the numbers worked, he made his decision. It was left to others to provide a compelling rationale for escalation in Vietnam and a blueprint for victory (Milne, 2007: 173; see also Milne, 2008).

Among the many analysts formulating ideas and providing the theories of how America should respond to the communist threat in Vietnam, none stood out more than Walt Whitman Rostow. Geography students have long been familiar with *some* ideas of Rostow, namely, his five-stage model of economic growth. Fewer students, however, are aware of the remarkable contributions he made toward the destruction of the Vietnamese people. Indeed, David Milne (2007: 169) describes Rostow as "the most aggressive civilian member of the John F. Kennedy and Lyndon B. Johnson administration." The career of Rostow, especially as a civilian advisor, vividly illustrates the confluence of

geographic knowledge and military pursuits. Furthermore, Rostow embodies the many U.S. policymakers who viewed Vietnam as

> a superb arena in which to test American approaches to development and to demonstrate the advantages of capitalist democracy over communist alternatives. No other contested site in the "Third World" seemed better suited to impress upon the global community America's technological superiority over its communist rivals and thus its incomparable capacity to deliver economic and technical assistance to developing countries. (Adas, 2006: 289)

For Rostow and like-minded presidential advisors, in the early stages of U.S. involvement, "American-style development was more than just a way to inoculate emerging societies against the 'disease' of communism. It was also the key to the American mission of fostering industrialization and democracy in developing nations without disrupting global financial institutions and trade networks" (Adas, 2006: 303).

Born of a Russian immigrant father and an American-born mother, Rostow grew up in New Haven, Connecticut. His father, a metallurgical engineer, was both an idealist and a socialist and, ironically, named his children after the socialist visionaries Walt Whitman, Eugene Debs, and Ralph Waldo Emerson (Pearce, 2001: 12). As Walt Rostow grew and matured, he developed into the antithesis of his father's heroes. Indeed, Rostow was a military hawk and ardent cold warrior, one who promoted the use of massive military firepower even as American presidents and other planners counseled moderation.

Academically, Rostow received both a BA and a PhD (1940) in economics from Yale; he later was granted MAs from Oxford and Cambridge in 1946 and 1949, respectively. For a brief period (1940–1941) Rostow taught economics at Columbia University. With the onset of World War II, however, Rostow enlisted for military service. Serving in the Office of Strategic Services, Rostow worked with the British Air Ministry, helping to select bombing targets in Europe. Pearce (2001: 12) contends that "Rostow's time in the military was formative in directing him toward a career in government service, economic diplomacy, and policy planning." Indeed, Rostow would later serve as McGeorge Bundy's deputy at the National Security Council (January–November

1961), as chairman of the Policy Planning Council at the State Department (November 1961–March 1966), and as President Johnson's national security advisor (April 1966–January 1969).

After World War II, Rostow assumed a 1-year post in the State Department as assistant chief of the German–Austrian Economic Division. In this position Rostow contributed to the development of Germany's economic reconstruction. He later returned to academia in 1946 as professor of American history at Oxford and, eventually, the Massachusetts Institute of Technology (MIT). While at MIT Rostow cofounded, with his friend Max Millikan, the Center for International Studies (CENIS). This academic institution was funded by both the Ford and Rockefeller Foundations, as well as by the CIA.

Between 1958 and 1959, while on a sabbatical from CENIS and visiting Cambridge, England, Rostow delivered a series of eight lectures that would form the basis of his highly influential 1960 book *The Stages of Economic Growth: A Non-Communist Manifesto*. In what would become known as the "Rostow doctrine," Rostow developed the idea that all nations pass through five stages of economic growth. And true to form, Rostow emphasized that communism was not the final stage of economic development. Communism, for Rostow, was merely (albeit dangerously) a "disease" that impairs economic growth.

In the beginning, Rostow argued, there existed *traditional societies*. In this stage, societies were primitive and characterized by rigid social structures. The economies of traditional societies were dominated by subsistence agriculture. These societies, moreover, were resistant to technological innovation, thus exhibiting an ideological antipathy toward modernization. At some point, however, societies evolve into Rostow's second stage, as evidenced by the prevalence of key *preconditions* for takeoff. During this stage, certain leaders in the society moved the nation toward greater economic flexibility, openness, and diversification. The reasons why some societies moved into the second stage were varied; Rostow suggested, among others factors, national prestige and personal profit. Having begun the path toward modernization, societies were then presumed to enter into a third *takeoff* stage. Here, the society demonstrates its full embrace of modernization. Growth is commonplace and expected by the population. The fourth is marked by a *drive to maturity*. At this point, technology is widespread and industrial production is highly diversified. Lastly, societies complete their

stages of economic growth when they arrive at a point Rostow termed the *age of high mass consumption*.

In the development of his model, Rostow argued that all nations passed naturally through these same phases of development. One consequence was that his arguments convinced U.S. policymakers to homogenize their methods of economic interventionism in the third world (Pearce, 2001: 77). A second consequence was that Rostow's thesis formed the basis of the Rostow doctrine, an ideology that proved highly influential—and misguided—in America's conduct of the Vietnam War. Through CENIS, Rostow "began a phase of his academic and political life in which his theory of the stages of economic growth would be disseminated throughout the foreign aid policy community" (Pearce, 2001: 13). It was through CENIS, likewise, that Rostow was able to serve as foreign policy advisor in the administrations of Eisenhower, Kennedy, and Johnson.

As Milne (2007: 170) identifies, "Rostow's 'stages of growth' were little more than Marx's dynamic of historical materialism with a happier, capitalist ending" in that his model was similarly informed by economic determinism. Central to Rostow's thesis and his whole doctrine was a series of presuppositions. First, he maintained that the driving force of history was the aspiration of poorer countries to attain the levels of wealth enjoyed by those in the West. Second, he believed that the leaders of nations view the health of their economies as their overwhelming preoccupation in peace and war. Consequently, any threat to a nation's economy would constitute coercion of the highest order (Milne, 2007: 171). Falling into his own territorial trap, Rostow argued that the NLF insurgency in South Vietnam (supposedly a sovereign state) was manipulated by North Vietnam (the "enemy" sovereign state). Plainly put, therefore, the Rostow doctrine held that if the United States bombed—or even threatened to bomb—the North, then the leaders of North Vietnam would be compelled to relinquish their support of the southern insurgency. Moreover, given that the North's resources and military personnel would be tied up protecting the North's industrial economic base, North Vietnam would be in no position to provide any assistance to the NLF forces in the South.

Rostow's rationale, of course, assumed that the priorities of North Vietnam's leaders, such as Ho Chi Minh, were the same as his own, namely, that the pursuit of economic growth was the overwhelming

consideration in peace and war (Milne, 2007: 171). Rostow, however, was not a military strategist—although he viewed himself as one. He failed to consider the historical development of Vietnam, as well as the complex and dynamic geopolitical relationships between China, Vietnam, and the Soviet Union. Perhaps most damning, however, was his failure to adequately consider the cultural and national nuances of the Vietnamese people.

Such geographic ignorance is not wholly unexpected from Rostow. His stages-of-growth model was built on his reading of British industrialism, which he assumed served as the model for all other societies. Moreover, as Marilyn Young (1991: 77) suggests, Rostow was "an economic and anti-Communist polemicist" who offered the third world a "non-Communist manifesto" as a guide to its development. Rostow was staunchly opposed to communism and argued that material deprivation (poverty) made individuals more receptive to communism. Therefore, economic growth was seen as a weapon against communism. More specifically, American economic growth and its subsequent promotion of growth in the third world was viewed as a corrective to the seductions of communism. Tragically, however, while wedded to development strategies dependent on market expansion, U.S. policymakers such as Rostow "overlooked the extent to which most Vietnamese associated capitalism with colonial exploitation" (Adas, 2006: 298).

There is an additional component of the Rostow thesis/doctrine that bears mentioning, one that is thoroughly connected to the population geography of the Vietnam War. Within his *Stages of Economic Growth*, Rostow provides a lengthy discussion on the place of war in modern history. He identifies three kinds of war, namely, colonial wars, wars of regional aggression, and wars over the Eurasian balance. These latter wars, interestingly, harken to the "heartland thesis" advocated by British geopolitician Halford Mackinder. What I find most intriguing about Rostow's discussion of war within the context of economic growth and development, however, is his understanding of sovereignty. This concept, of course, dates to the 17th century and the Treaty of Westphalia. Understood as the crucial element in the formation of the nation-state concept, sovereignty over territorial space in a world fragmented into other, discrete territorial states is presumed to give the state its most powerful justification (Agnew and Corbridge, 1995). Indeed, as Agnew and Corbridge (p. 84) argue, "Without [sovereignty] a state would be

just another organization. Its claim to sovereignty is what distinguishes the state."

Earlier I indicated the territorial trap of assuming the existence of North and South Vietnam as being fixed, sovereign states. Here I introduce Rostow's conception of sovereignty. For Rostow, this political concept was born in traditional societies; current understandings of sovereignty are thus inherited from earlier, precapitalist societies. This, he claims, is a simple historical fact. More specifically, however, Rostow (1960: 107; emphasis added) explains that "Nation sovereignty means that nations retain the ultimate right—a right sanctioned by law, custom, and what decent men judge to be *legitimacy—the right to kill people of other nations in defense or pursuit of what they judge to be their national interest*." To the extent that Rostow was, in Milne's (2007: 186) words, "the prophet of American victory in the Vietnam War," we must continually remind ourselves that the Rostow doctrine was undergirded by a basic premise: that killing is an acceptable strategy for states in the pursuit of national goals and objectives.

ROSTOW'S AIR CAMPAIGN OF TERROR

> Still, the airplanes scream overhead, a series of bombs raining down with each pass, the explosions deafening.… Who is burned in that fire and smoke? In those heaven-shaking explosions, whose bodies are annihilated in the bomb craters? The old lady sitting by me stares at the hamlet and says, 'That's where Hung's mother-in-law lives.
>
> —Dang Thuy Tram[2]

Throughout December 1960 and January 1961 Lansdale toured Vietnam. His travels, however, were not to visit historic sites nor to enjoy new cuisines. Rather, his objective was to assess the current political climate of Vietnam and to provide recommendations for Kennedy. Based on his experiences, Lansdale prepared a bleak assessment on the viability of the Diem government. Ever vigilant, and determined to shape the course of events, Rostow presented Lansdale's report to Kennedy. Initially, however, Kennedy was preoccupied with events elsewhere in the world (for example, Cuba, Europe), but at Rostow's insistence, he took a closer look. Lansdale's warning struck a cord; Kennedy, ever sensitive

to the charges that brought another president down—specifically, Truman having "lost" China to the communist sphere—made a decision. And Rostow, working at the National Security Council, assumed point on the Vietnam problem.

Over the next few months Rostow issued repeated memoranda advocating a vigorous military response to defend South Vietnam. Initially, his ideas were in line with other conventional counterinsurgency approaches advocated by advisors such as Lansdale. Early on, as the war was escalating, Rostow told Kennedy that "it is somehow wrong to be developing these capabilities [helicopters and the newly created Green Berets] but not applying them in a crucial theater" (quoted in Herring, 1996: 87). In time, however, Rostow began to more clearly apply his own economic reading of history to the deteriorating situation in Vietnam. No longer did Rostow support a campaign of pacification (see below); instead, he promoted a more aggressive campaign that centered on air power.

Concerned with raising troop levels, in October 1961 Kennedy dispatched his special military advisor Maxwell Taylor, along with Rostow, to gauge conditions in South Vietnam. Not unexpectedly, they confirmed the pessimistic reports concerning the Diem government that Kennedy was receiving. According to the Taylor–Rostow report, the Diem government was weak and ineffective; morale among South Vietnamese troops was low; and the peasants were increasingly supporting the communist insurgents. Rostow, however, developed his own theory of why communism held appeal in the South. He maintained that the Vietnamese people had been suddenly confronted with "modernization"; as malleable, naive, and restive children, they were confused and unsure of what to do. Rostow conveniently downplayed any talk of nationalism, colonialism, or economic exploitation and oppression (Milne, 2007: 179).

Taylor and Rostow recommended a significant expansion of American aid, equipment, and advisors, including the sending of approximately 8,000 ground forces. Only with a more overt American presence, they argued, could U.S. objectives be realized in South Vietnam. Rostow, however, also presented another recommendation, based on his own doctrine, that the United States should bomb, or at least threaten to bomb, North Vietnam. He was ever more convinced that a threat to the North's industrial base was the key to victory. He would later advocate

bombing the dikes of North Vietnam and the principle cities of Hanoi and Haiphong, as well as invading Laos and North Vietnam. How far these ideas at the time would be carried out remains unclear; the obstinate Rostow gradually fell out of favor within the White House and he was reassigned to the Policy Planning Council at the State Department (Milne, 2007: 183). Kennedy did, however, secretly deploy additional advisors; by October 1963 there were over 16,000 Americans serving in South Vietnam.

As events seemed to *draw* the United States inexorably into war—in reality, of course, individuals such as Rostow *led* the United States into war—Johnson, having assumed the office of the presidency following Kennedy's assassination, was faced with limited options. By 1964 Vietnam had become a symbol of American foreign policy. It was claimed by the highest echelons of U.S. policymakers that America's ability to influence, if not dominate, the global world order hinged on the stance taken in Vietnam. How to proceed was less clear.

The joint chiefs of staff (JCS) advocated an aggressive military response to the continued NLF insurgency in South Vietnam. Curtis E. LeMay, the Air Force chief of staff, for example, supported a no-holds-barred use of airborne force. His "data" suggested that a punishing series of attacks against the North would compel the communists to give up all assistance to the NLF and agree to the existence of a sovereign (and pro-Western) Republic of Vietnam. To this end, LeMay had his staff draw up a list of 94 targets in the North. He estimated that all targets could be destroyed within 16 days. Conversely, Rostow, initially, disagreed with the heavy-handed tactics of LeMay. For Rostow, simply the threat of an aerial bombardment of the North would be sufficient. In an elaboration of his thesis, Rostow surmised that any threat to a nation's economy would prove decisive in itself (Milne, 2007: 184).

Johnson had a difficult choice to make. The year 1964 was an election year and Johnson was concerned about public reaction. To the sitting president, LeMay's plan seemed frightening. Rostow's plan, in comparison, was more palatable, politically speaking. Such reasoning led Johnson, on March 17, 1964, to approved National Security Action Memorandum 288, which reaffirmed the U.S. commitment to the existence of South Vietnam. The objective, at this point, was to "win the war in the South" and not to "liberate" the North. The strategy, as it developed, and consistent with the Rostow doctrine, was to destroy mili-

tary bases, supply depots, and infiltration routes in southern Vietnam, while conducting punishing air attacks against the North's industrial base. Northern targets, in particular, would include industrial sites, and especially the petroleum-production facilities located in and around the Hanoi–Haiphong region. According to Adas (2006: 325), "Rostow's faith in air power had been instilled by his service in the air force during the Second World War." Rostow, in his analysis, consciously drew comparisons between the Allied bombings in World War II and Vietnam. Both a recognized and self-proclaimed expert on development, Rostow maintained that "a carefully calibrated escalation of precision bombing against North Vietnam would at some (undetermined) time force its leaders to give up the expansionist designs that motivated their support for the insurgency in the South." Rostow (quoted in Young, 1991: 122–123) explained that "Ho has an industrial complex to protect; he is no longer a guerrilla fighter with nothing to lose." Such devastation would, in theory, compel Ho Chi Minh to agree to the existence of a noncommunist Republic of Vietnam.

Sustained bombing campaigns of the North began in mid-February 1965 with Operation Rolling Thunder. In April alone U.S. and South Vietnamese air force and navy planes flew 3,600 sorties against fuel depots, bridges, munitions factories, and power plants in the North. Rostow, by the end of May, argued that total victory was possible—indeed, that it was nearer than anyone could imagine (Kolko, 1994: 166).

Repeated sorties, however, failed to deliver the expected results. And as each phase of the bombing failed to produce the results predicted by Rostow's doctrine, Johnson gradually expanded the list of targets and the number of strikes throughout Vietnam. Sorties against North Vietnam increased from 25,000 in 1965, to 79,000 in 1966, and to 108,000 in 1967; bomb tonnage increased from 63,000 to 136,000 to 226,000 over the same period (Herring, 1996: 161). By the end of the war, the United States and its allies would drop nearly 8 million tons of bombs on Vietnam and its neighbors—more than twice the tonnage dropped by the Allies in all of World War II (Tucker, 1999).

Casualty rates likewise continued to spiral upward. Vietnamese civilian and military casualties nearly doubled from 13,000 in 1965 to approximately 24,000 in 1966 (Schulzinger, 1997: 213). In 1967 alone, the CIA estimated that Vietnamese casualties ran as high as 2,800 per

month; the figures, the CIA admitted, where heavily weighted with civilians (Herring, 1996: 162).

Aside from the cost of life, the near-indiscriminate bombing of a country was not cheap either. According to Herring (1996: 165), the direct cost of the air war in Vietnam, including operation of the aircraft, munitions, and replacement of planes, was estimated at more than US$1.7 billion during 1965 and 1966. Studies indicated that for each $1 of damage inflicted on North Vietnam, the United States spent $9.60. And the money—from the point of view of men like Rostow and Johnson—was not being well spent. Despite its costs and severity, the air campaign was not effective. Most of North Vietnam's military targets were destroyed by 1967 and yet, contrary to Rostow's belief, the North Vietnamese leaders refused to capitulate. Indeed, many reports contradicted Rostow's hawkish strategy. Early reports prepared by a joint CIA–Defense Department team, for example, indicated that the bombing campaigns had produced only minimal results; this was not surprising, the report concluded, given that only about 12 percent of North Vietnam's economy could be considered "industrial"; the DRV, unlike Germany, was primarily a rural, agrarian-based economy (Schulzinger, 1997: 207). Furthermore, the continued bombings did nothing to prevent the North's support of the NLF. In fact, official American estimates concluded that infiltration increased from about 35,000 men in 1965 to as many as 90,000 men in 1967 (Herring, 1996: 165).

Up to this point, North Vietnam failed to follow Rostow's theory. Events were refusing to conform to his thesis that limited bombing and the threat of more to come would compel the north to cease its aggression. So Rostow gradually shifted to the JCS position that destruction—not diplomacy backed by threats—was the crucial determinant for American victory (Milne, 2007: 188). Faced with diminishing returns, the air campaign steadily resulted in the wanton and indiscriminate killing of Vietnamese.

Research and development teams in the United States were ready to provide the military with new and improved means of killing bodies. As Krepon (1974: 595) notes, "In design and in its practical deployment, the most indiscriminate antipersonnel weapon used in the Vietnam War was almost certainly the so-called Cluster Bomb Unit (CBU)." In military parlance, cluster bombs are usually described as "flak suppression" weapons. These munitions are supposedly used against antiaircraft

artillery installations to protect pilots flying over to bomb other targets. However, cluster bombs are also described as "area denial munitions" and "antipersonnel weapons"; they are, in fact, fragmentation munitions that are effective primarily or solely against human beings.

Fragmentation bombs were initially developed during World War II and later improved during the Korean War. Early munitions were rather unsophisticated, however, and scientists working at the Development Center at China Lake, California, and at Eglin Air Force Base, Florida, made substantial progress in terms of *controlled* fragmentation (Krepon, 1974: 597). The principle behind fragmentation bombs is fairly straightforward. When an explosive inside a metal case is detonated, the explosive is rapidly converted to a hot gas. Under the pressure of the expanding gas, the bomb's outer case swells momentarily and then ruptures. The fragments of the case are propelled outward at a very high velocity, shredding any objects in their path. This is known as "natural" fragmentation. Military strategists during and after World War II recognized the sporadic and inefficient use of natural fragmentation. The explosion of World War II artillery shells, for example, produced a range of fragments, some large, but others so small that they were generally ineffective in maiming or killing the enemy. Consequently, scientists began to work on ways to narrow the range of fragments to be most effective. It was determined, for example, that fragments weighing less than 1 gram could cause severe wounds if they struck a human body with sufficient force (Prokosch, 1976: 345).

"Controlled" fragmentation bombs, as the name implies, attempt to reduce the random factor in the dispersal of casing fragments. Scientists discovered news ways in which the size and shape of fragments can be predetermined by scoring or grooving the case. In addition, scientists developed new means of affecting the areal coverage of fragmentation. Depending on the dispensing system, as well as the height of detonation, bombs could be designed to disperse fragments in various patterns: oval, linear, or figure eights. A more lethal discovery, however, was the insertion of preformed fragments within the case. This is the basis of the modern cluster bomb.

Today's cluster bombs, in general, consist of metal cases containing approximately 640–670 bomblets, known as bomb live units (BLUs). Each BLU, roughly the size of a tennis ball and weighing on the order of 1 pound, contains approximately 300 metal fragments. Dropped from a

fighter or bomber aircraft, the dispenser splits apart, releasing its contents. The small bomblets are grooved in such a way as to fragment before, during, or after impact, depending on the fuse employed. The casing of the BLU, likewise, is designed to fragment into small pieces. If all of the bomblets detonate from a single CBU, some 200,000 metallic fragments are propelled outward.

By the end of the Vietnam War, the U.S. Air Force was believed to have 30 varieties of CBUs, although the CBU-24 was the most widely used cluster bomb in Vietnam. Nicknamed "guavas" by the North Vietnamese, CBU-24s contained more fragments than earlier series; these also provided greater areal coverage. Aside from metal pellets, other cluster bombs were filled with napalm, land mines, sarin nerve gas, or nail-like fleschettes. The WDU-4, for example, contained 6,000 barbed metal darts that could literally nail victims to the ground. Fiberglass flechettes were also used. Fiberglass shrapnel, it was discovered, was invisible to x-rays and thus was harder and more painful to remove (Neale, 2003: 78).

The killing range of CBUs was (and remains) remarkable. Estimates made by observers in Vietnam suggest that a single CBU dropped in a linear pattern and detonated at an altitude of 600 feet was able to disperse its fragments so as to kill or wound people at an effective range of 300 meters by 1,000 meters. Other estimates suggest that a single fighter aircraft carrying CBUs could cover an area anywhere from 1 to 15 square kilometers. The ordnance package for a single F4 Phantom jet, it should be noted, included eight CBUs or, with special racks, as many as 15–20 (Krepon, 1974: 598).

The shower of fragments may be effective against light military targets (as a flak suppressant) but, for the most part, the CBU is effectively only against human beings (Krepon, 1974: 596). In fact, most of the barbed metal darts or fiberglass arrows would be highly ineffective against antiaircraft installations. And even the hundreds of steel balls contained in the CBU-24 were too small to perforate steel or concrete (Prokosch, 1976: 341). CBUs were therefore used principally to kill people and to instill terror in the populace. Consider, for example, the CBU-29, also widely employed in Vietnam. This cluster bomb contained bomblets that had random delay fuses that would explode sometime *after* the initial attack (Prokosch, p. 344). These were clearly not designed as flak suppressants, nor as weapons against attacking

armies. Rather, these were designed expressly to kill people, indiscriminately, at random times. Studies conducted during the war found that death rates from pellet bombs were highest among women and children (Prokosch, p. 342).

And how did people die? When a high-velocity projectile, such as a steel pellet from a CBU, passes through the body, it pushes aside the soft tissues in its immediate path. These tissues, in turn, impart velocity to tissues further away. A "temporary" cavity, several times the size of the wound track, is formed. This expansion of the cavity crushes tissues and organs, fractures bone, and damages nerves. Within a fraction of a second the cavity closes, but the damage has been done. The controlled fragmentation device literally explodes—through sheer force—within the body (Prokosch, 1976: 349). Many scientists contributed to detailed understandings and relationships between bombs and bodies. Wartime studies of the mathematical relationship of wounding, for example, concluded that the volume of the temporary cavity is directly proportional to the amount of kinetic energy lost by a missile as it passes through the body. A general rule of thumb among weapons designers is that the severity of the wound is proportional to the kinetic energy lost in the body by the wounding missile (Prokosch, p. 350).

The use of CBUs within the Vietnam War were part and parcel of the punishment that advisors such as Rostow and LeMay sought to inflict. Throughout the war CBUs were used primarily in North Vietnam and against the trail complexes in eastern Laos. CBUs were also employed in B-52 raids against supply areas and suspected NLF strongholds in the south. It was estimated that by 1973 approximately 29 percent of the U.S. Air Force's procurement budget went to purchase controlled fragmentation munitions (Krepon, 1974: 604). Overall, approximately 285 million submunitions were dropped on Cambodia, Vietnam, and Laos during the war.

Despite the use of cluster bombs and other munitions, the North Vietnamese refused to conform with the Rostow doctrine. Even within the Johnson administration, a number of analysts began to express reservations. By the fall of 1967, for example, McNamara—who would resign in November—abandoned hope that the war could be won simply through intensive and sustained bombing campaigns. His changed position, however, stood in stark contrast to that of Rostow, Taylor, and the new secretary of defense, Clark Clifford, who replaced McNamara.

These individuals opposed any thought of withdrawal from Vietnam and, indeed, advocated for an expansion of the war into neighboring Cambodia (Schulzinger, 1997). For hawks such as Rostow, therefore, the presidential victory of Richard M. Nixon in 1968 was heaven-sent. For the Vietnamese—and the Cambodians—the election was grievous. Nixon's primary concern—one that echoed that of his newly appointed national security advisor Henry Kissinger—was to end the war while retaining American credibility in Southeast Asia. The goal was, first, to retain America's prestige, and second, perhaps, to still pull victory from the jaws of defeat. Consequently, Nixon sought to expand the conflict to "win" the peace. This would translate into an intensified effort not to capture territory, but to inflict maximum damage on the Vietnamese population.

(DE)POPULATION FORECASTING

> What joy can there be when daily sufferings and death still weigh heavily on our lives? Just yesterday, in a mopping-up operation, the enemy killed five people. Every afternoon they bomb the hamlets.
>
> —Dang Thuy Tram[3]

The Vietnam War has been described as a war without fronts. It was a war without territorial objectives: no capitals to capture, no areas to secure. Consequently, other indicators were required to mark the war's progress. As such, the Vietnam War became a war of population geography.

It is commonplace for any population (geography) text book to begin with a discussion of the "basic demographic equation." Gary Peters and Robert Larkin (1999: 9), for example, explain that "the most fundamental characteristic of any population is its size. An area's population may be increased either by a birth within the area or by the migration into the area of a person from another area. Similarly, the population may be decreased either by the death of someone within the area or by the migration of someone from the area out to another area."

Such demographic logic enters into the strategies of warfare. Indeed, the above definition may be rewritten as: An enemy's popula-

tion may be increased either by births or by the addition of new recruits, either from the area or beyond. Likewise, the enemy's population may be decreased either by the death of enemy populations or the removal of enemies (for example, via prisoner of war camps). Such a demographic reductive understanding of war prompts two principle techniques of warfare: (1) deny the enemy an ability to reproduce its numbers—either through the control of fertility or of recruitment strategies—and (2) kill off the enemy faster than the enemy is able to reproduce itself.

Never was a war so clearly a technique of depopulation as was the war in Vietnam.

Johnson's strategic aim was to simply compel North Vietnam to agree to the existence of South Vietnam. Johnson and Westmoreland's strategy, therefore, following the Rostow doctrine, was based on the central assumption that if the northern communists sustained enough military punishment they would relent. Consequently, American advisors continuously sought the "Holy Grail," the breaking point of North Vietnam.

Military strategists and civilian planners recognized that bombing campaigns were not sufficient in themselves. General William Westmoreland, for example, was firmly convinced of the benefits of a "big war" approach. He advocated a strategy designed to tempt the Vietnamese forces into "big unit" confrontations that would play into American strengths. Underpinning his approach to the conflict, Westmoreland advocated attrition warfare, based on the demographic assumption that the communists could not sustain large-unit fighting. He believed that although the DRV might constantly rebuild their military units with fresh recruits, these newer soldiers would progressively be less adequately trained and hence easier to defeat on the battlefield. Given America's technological and industrial superiority, Westmoreland assumed that the United States could inflict intolerable losses on the enemy while keeping its own losses within acceptable bounds (Herring, 1996: 171). The American strategy, as Neale (2003: 85) bluntly states, was to kill the Vietnamese until they gave up.

A crucial component of Westmoreland's attrition strategy was to locate and eliminate NLF and North Vietnamese Army (NVA) regular units (Herring, 1996: 166). In time, this approach would be known as "search and destroy."[4] This grim phrase, coined in 1965 by Westmoreland's own staff, referred to specific missions aimed at flushing

the enemy out of hiding. Contrary to popular belief, the term (at least initially) did not mean "aimless searches in the jungle and random destruction of villages and property." Rather, the general had directed his advisors to find "expressive terms" to serve as a common terminology among the South Vietnamese and their American advisors. This term, in particular, indicated "operations to hold, fix in place, fight and destroy … enemy forces and their base areas and supply caches" (Young, 1991: 163).

By saturating the Vietnamese countryside with patrols of American ground forces on search and destroy (S&D) missions, military strategists hoped to entice NLF and NVA forces into set-piece battles, whereby American firepower could then be brought to bear. One such operation was code-named MASHER/White Wing. It was conducted in late January 1966 in Binh Dinh province, an area considered to be an NLF stronghold. The operation itself consisted of combined amphibious and airborne assaults; approximately 20,000 ARVN (Army of the Republic of Vietnam), South Korean, and American troops were involved. By the end of the first week, an estimated 600 "enemy bodies" and 119 "allied bodies" were killed; no one bothered to count the civilians who perished, although 15 hamlets were destroyed in the fighting (Young, 1991: 163). Following the operation, American and allied forces departed. Nothing permanent was achieved; it was simply an operation to kill the enemy and move on. David Halberstam, writing in 1967, captured the dehumanizing essence of a war of attrition: "You simply grind out a terribly punishing war, year after year, using that immense American firepower, crushing the enemy and a good deal of the population, until finally there has been so much death and destruction that the enemy will stumble out of the forest, as stunned and numb as the rest of the Vietnamese population" (quoted in Mueller, 1980: 503).

Westmoreland's approach to war was a textbook example of the demography of violence. Sustained and (often) indiscriminate killings should, according to individuals like Westmoreland, produce one of the following responses. First, it was assumed (or hoped) that the enemy forces would lose more people than they could replace. Second, Westmoreland and his aides maintained that high death tolls would demoralize the enemy, therefore forcing them to sue for peace. And third, it was believed that such an aggressive campaign would buy time for South Vietnam to consolidate its power and military capabili-

ties (Appy, 1993). As throughout the war, however, North Vietnamese forces refused to comply with American planning. Both the NLF and the NVA, by and large, refused to commit large units in battle—unless it was a battle of their own choosing. U.S. forces, consequently, were unable to police the entire country. Such a context required a steadily increasing commitment of American ground forces: 450,000 by the end of 1966, over 500,000 by 1967.

S&D operations included two other techniques: "clearing" operations, in which large enemy units were driven from populated areas in preparation for pacification of the area; and "securing" operations, undertaken to protect "friendly" Vietnamese, wipe out remaining local guerrillas, and "uproot" the enemy's secret political infrastructure (Young, 1991: 162–163). Many such missions were supplemented with advances in sophisticated technology. To locate an ever-elusive enemy, for example, the U.S. military used small, portable radar units and "people sniffers" that picked up the odor of human urine; IBM 1430 computers were also programmed to predict likely times and places of enemy attacks (Herring, 1996: 168).

In a war without front lines or territorial objectives, in a war of attrition where killing the enemy was the major goal, the body count became the preferred index of progress. Indeed, no measure of success was as important to the military command as the enemy "body count" (Appy, 1993: 156; Herring, 1996: 170). Cable (1991: 174) explains that "General Westmoreland and the Joint Chiefs, having defined the war in Vietnam as a struggle of attrition, would have been expected to focus upon the number of enemy killed and the ability of the North Vietnamese and Viet Cong to replace casualties as an excellent measure of the American progress toward victory." Cable (p. 174) concludes that although "only one of many statistical measures of results reported by military commands and intelligence agencies throughout the war, the body count and the exchange rates rose to the forefront as a result of the ever lengthening list of American dead through 1966."

The use of body counts—although a concept ingrained in our geographical imagination of the Vietnam War—did not originate with Vietnam. This grim statistic of mortality was widely employed in earlier conflicts, most notably the Korean War (Gartner and Myers, 1995). Under President Harry Truman's watch, for example, the U.S. Army adopted the body count as its dominant indicator of strategic assess-

ment. And herein lies an interesting, albeit morbid, angle to population geography and war. The military campaigns in Korea and Vietnam were, in many respects, unlike those of World War II: no front lines, no capturing and securing of territory. Military conditions "did not lend themselves to traditional military measurement of ground warfare" (Gartner and Myers, 1995: 379). And yet military strategists required some means to measure success. Demographic accounting techniques provided one such measure. (De)population forecasts, in the guise of numbers of people killed, appeared to provide one rational and empirical method to gauge the success of a conflict.

With Vietnam, however, the use of body counts readily fit with McNamara's scientific management of the war. The Pentagon demanded statistics, deadly data that the whiz kids of McNamara were only too happy to provide. In some rear units of Saigon, officers would compile lists of cumulative kills on chalkboards (Neale, 2003: 85) and in Washington some of the most important pilot studies done by the OSA dealt with the strategy of attrition (Enthoven and Smith, 1971: 295). As James Gibson (1986: 124) explains:

> The production system with its precise reports of how many bodies were found on operations created the appearance of highly rational, scientific warfare. Body counts, weapons/kill ratios, charts of patrols conducted, helicopter and jet plane missions flown, and artillery rounds fired—all the indices of war production created at various command levels—presented Vietnam as a war managed by rational men basing their decisions on scientific knowledge. Statistics helped make war-managers appear legitimate to the American public.

Apart from gauging whether the war was being won or lost, these statistics were also instrumental in the actual conduct of the war. In particular, estimates of kill ratios influenced requests for additional troop buildups. Westmoreland, for example, promoted a ratio of 12 enemy soldiers killed for every American death; such thinking influenced the demand for troop buildups. After the battle for the Ia Drang Valley, for example, Westmoreland explained to the Pentagon that the buildup for the North Vietnamese was double that of the American forces; he required, therefore, additional U.S. troops (Schulzinger, 1997: 188).

Counting war dead, however, is not an easy demographic task. Soldiers are not census takers. It is one thing to engage in a firefight; it is quite another to have to traverse the battlefield in search of bodies. For one thing, not all bodies could be found. Furthermore, even if a dead body was found, it was not always possible to ascertain whether the corpse in front of you was, in fact, the enemy. A corpse was only evidence that *someone* had been killed. Enthoven and Smith (1971: 295), both of whom worked in the OSA, confirm that the concept of the body count did not mean that every enemy corpse was viewed by a foot patrol at close range and recorded. Rather, the "regulations provided only for counting 'males of fighting age' and others, male or female, known to have carried arms." Indeed, unless the body was found in association with a weapon, military equipment, or appropriate identification, it was impossible to be certain that he [or she] had been an enemy and not merely a civilian unfortunate enough to have been in the wrong place at the wrong time (Cable, 1991: 175).

The ever-present demand for empirical results, however, worked to produce favorable body counts. Officers, for example, were rewarded for producing high numbers (Schulzinger, 1997: 183). Competitions, likewise, were held between American units to produce the highest "box score" of enemy KIAs (killed in action) or the best "kill ratio" (defined as the most enemy killed in relation to American casualties) (Appy, 1993: 156). Enthoven and Smith (1971: 295) acknowledge that "errors could and did frequently creep in through double-counting, counting civilians (either bystanders or impressed porters), or counting graves, or through ignoring the rules because of the pressures to exaggerate enemy losses or the hazards of trying to count bodies while the enemy was still in the area." Herring (1996: 171) suggests that, given the heavy pressure to produce favorable body counts, casualty figures were probably inflated by as much as 30 percent.

Obtaining body counts was one thing; using these as empirical data was quite another. As Enthoven and Smith (1971: 295) caution, "The extreme emphasis on the body count as *the* measure of success led to various attempts to lend credence to the reported data." They explain that body counts, even if believed to be reliable, had to be tied to NLF and NVA replacement capabilities in order to be meaningful. In other words, did high body counts correspond to a decrease in the enemy's ability to reproduce soldiers? To make this assessment, Enthoven

and Smith (p. 296) relate that "enemy manpower resources had to be estimated by census techniques and models applied to the North and South Vietnam populations, of which we knew very little."

The "war of attrition" coincided with Rostow's doctrine of a threat to the North's economic base. Both the air campaign and attrition were envisioned to punish the DRV, and thereby deny the NLF insurgents external support. Both strategies, however, failed to understand the Vietnamese situation—a fact that continues to mislead scholars of the conflict. Mueller (1980: 499), for example, argues that the war "was simply a matter of convincing the north that the war in the south was not worth the cost." He elaborates that "sufficiently punished, the Communists could reasonably be expected to relent, at least temporarily, in their effort to extend their area of control." Confronted with the loss of too many soldiers and resources, the North would be more vulnerable, and thus would give up their attempt to reunify the country and, ultimately, they would permit the existence of a pro-American state in the south. But herein lies a territorial trap that ensnared both American policymakers and subsequent historians. Mueller (1980: 499), for example, argues that the North Vietnamese were not fighting for the survival of their state (as were the Germans and Japanese in World War II). His sentiments effectively capture those of Rostow, Westmoreland, and others wherein American officials, by and large, believed that they were engaged in a civil war between the North and the South. However, the Vietnamese, from their perspective, viewed themselves as engaging in an anticolonial war against an illegal occupying force. From the North Vietnamese point of view, national survival was most certainly at stake. Mueller, however, falls into a territorial trap in that he presumes that both the DRV and the RVN were fixed, essentialized states, and that there was some primordial difference between the two.

Having fallen into a territorial trap, Mueller (like the military strategists of the Vietnam War) subsequently finds it easier to further dehumanize the Vietnamese in their "acceptance" of high casualty rates. Mueller (1980: 509; emphasis added) writes, for example, that "only occasionally in the last 160 years has a power absorbed battle deaths in an international war in the proportions *accepted* by the North Vietnamese." Mueller (p. 509) suggests that "American decision makers were on sound historical ground when they hoped and expected that, at some acceptable cost, they could break the 'will' of the North Viet-

namese." Hence, he cautions that the argument is "not so much how the Americans could have made such a foolish miscalculation, but why the Vietnamese communists were willing to accept virtually unprecedented losses for the sake of a military goal that was far from central to their survival as a nation." But therein lies Mueller's own miscalculation. From the Vietnamese standpoint, particularly leaders such as Ho Chi Minh, the survival of a *unified* Vietnam was at stake.

And yet Mueller finds it easier, as did Westmoreland and other policymakers, to construct and accept an inherently cruel and fanatical enemy in the Vietnamese. Mueller describes the "enemy" as being "able to enforce upon itself an almost religious devotion to duty, sacrifice, loyalty, and fatalistic patience" (1980: 514). Note the underlying attitude, that the North Vietnamese accepted such losses. They could have refused by surrendering to the Americans. Hence, it is their own fault that so many people died. But let us rewrite Mueller's sentence: Only occasionally in the last 160 years has a military machine inflicted so many deaths in a war as did the United States in Vietnam. Viewed from this perspective, the United States unleashed an unprecedented killing campaign against people seeking to end colonial rule (first against the French, later against the United States) and to determine their own government structure.

POPULATION AND (THE DESTRUCTION OF) THE ENVIRONMENT (PART I)

> The war is extremely cruel. This morning, they bring me a wounded soldier. A phosphorous bomb has burned his entire body. An hour after being hit, he is still burning, smoke rising from his body. This is Khanh, a twenty-year-old man.…
> Nobody recognizes him as the cheerful, handsome man he once was. Today his smiling joyful black eyes have been reduced to two little holes—the yellowish eyelids are cooked. The reeking burn of phosphorous smoke still rises from his body. He looks as if he has been roasted in an oven.… His mother weeps. Her trembling hands touch her son's body; pieces of his skin fall off, curled up like crumbling sheets of rice cracker.
>
> —Dang Thuy Tram[5]

A few select images have come to symbolize the violence that was the Vietnam War. One thinks of Eddie Adams's 1969 photograph of a South

Vietnamese colonel executing an NLF prisoner on the streets of Saigon, or of Chick Harrity's 1973 photograph of a baby Vietnamese girl, Tran Thie Het Nhanny, lying in a cardboard box next to her brother, also on the streets of Saigon. Arguably, though, the most compelling horrific photograph of the Vietnam War was Nick Ut's shot of Kim Phuc, a 9-year-old Vietnamese girl running naked down a road near Trang Bang after a napalm attack. On June 8, 1972, Kim was a resident of Trang Bang when South Vietnamese planes dropped a napalm bomb on the village. As Kim attempted to flee the carnage with other villagers, her clothes were burnt off and she suffered third-degree burns over half her body. In the aftermath, she endured 17 operations over many years of burn therapy procedures. The story of Kim and of Ut's haunting photograph serves as a reminder of the suffering of innocents and innocence in times of war. Her body—or, more precisely, the burned flesh that she can never shed—also speaks of the dehumanizing corporatization of warfare as manifested in the development and deployment of napalm.

Napalm, as J. B. Neilands (1970: 213) bluntly attests, is "a purely American invention." Napalm was developed during World War II by Louis Fieser, a professor at Harvard University. As originally formulated, napalm was compounded from metallic soaps gelled with gasoline; it would later be reformulated (and called Napalm B) using 50 percent polystyrene mixed with gasoline and benzene. As a weapon, napalm is particularly insidious. It is a sticky, incendiary gel that burns flesh and bone. When used in bombs, the resultant explosion deoxygenates the air and creates large amounts of carbon monoxide, thus suffocating those who are in proximity of the bombing.

Napalm was first used in July 1944 to bomb a fuel depot in France. Napalm was also widely used in bombing attacks against Japanese cities—leading to untold civilian deaths in that country—and as a flammable liquid used in flamethrowers against Japanese soldiers throughout the Pacific theater of operations. Later, during the Korean War, napalm was widely employed; in the 3 years of overt military action across the Korean peninsula, over 32,000 tons of napalm was dropped (Neilands, 1970: 213).

Vietnam witnessed an escalation in the use of napalm. Throughout the conflict U.S. and South Vietnamese aircraft dropped 400,000 tons of napalm—constituting 10 percent of all munitions expended by

fighter-bomber sorties during the war. This figure compares with the 14,000 tons dropped by American aircraft in World War II (Clodfelter, 1995: 236). According to various reports, American pilots were "given a square mile on a map and told to hit every hamlet within the area" with napalm bombs (Neilands, 1970: 213). Here is how one journalist who participated on a bombing mission over Vietnam described the experience:

> We flattened out over the target … and I had a glimpse of three thatched huts burning along the edge of some water. Then I closed my eyes and could not open them again until we were several thousand feet up. Below, the trees and huts were blotted out by a cloud of nauseous black smoke.… On the second run I managed to hold my eyes open. As we pulled out through the smoke, I saw the second napalm bomb a couple of seconds after it had burst. A ball of brilliant flame was rolling out across more than 200 feet, swelling like a giant orange cauliflower.… I asked the commander about the target.… "Well, we don't rightly know for sure," he said.… "You can't rightly see much at those speeds.… But most times you can reckon that whatever moves in the Delta is V.C." (quoted in Neilands, 1970: 214)

Marilyn Young (1991: 130) likewise quotes an American pilot who profusely praised the benefits of white phosphorous:

> We sure are pleased with those backroom boys at Dow [Chemical]. The original product wasn't so hot—if the gooks were quick they could scape it off. So the boys started adding polystyrene—now it sticks like shit to a blanket. But then if the gooks jumped under water it stopped burning, so they started adding Willie Peter [WP—white phosphorous] so's to make it burn better. It'll even burn under water now. And one drop is enough, it'll keep on burning right down to the bone so they die anyway from phosphorous poisoning.

The use of napalm and other chemical and biological forms of warfare certainly predates America's involvement in Vietnam. Historical accounts indicate the use of chemical-based warfare as early as the Peloponnesian War when, in 428 B.C., the Spartans burned wood saturated with pitch and sulphur under the city wall of Plateae to create

choking, poisonous chemical fumes. Over the next 2,500 years military strategists developed other, equally innovative biological or chemical techniques to incapacitate—if not outright kill—their enemies. Examples include the Roman's application of salt to sterilize the soils of the Carthaginians in 146 B.C., "provision" of diseased-infected blankets to Native Americans by British forces in 1763, and the destruction of buffalo herds during the late 19th-century Indian Wars in the United States (Cecil, 1986: 2–3).

It was not until World War I (1914–1918), however, that widespread usage of chemical and biological weapons occurred. Beginning in August 1914 French soldiers fired rifle-launched cartridges filled with an irritating and slightly suffocating chemical agent. Military planners on both sides of the conflict soon experimented with other agents and other delivery systems. By 1915 both the French and the German armies were regularly using cylinder-dispensed chlorine gas, along with phosgene, chlorine, and mustard gas. Although artillery-delivered chemical weapons eventually became the preferred method, other tactics included chemical hand grenades and trench mortars. By the end of the war, casualties resultant from chemical weapons totaled nearly 1.3 million, with more than 91,000 fatalities (Cecil, 1986: 4).

The horrors attendant upon chemical warfare led to the adoption of the 1925 Geneva Protocol, an measure that condemned the use of asphyxiating, poisonous, or other gases in the conduct of war (Neilands, 1970: 210–211). Such moral considerations as articulated in the Geneva Protocol, though, did not prevent continued experimentation with chemical weapons. The scientific development of such agents, along with the technologies to most effectively disseminate such weapons, proceeded. Successive U.S. governments, for example, consistently abided by the terms of the Geneva Protocol, although many officials in the State Department continued to read the protocol as "prohibiting only lethal gases" and thus not applicable to other forms of chemical agents (for example, "riot control" gases or herbicides) (p. 211). Consequently, military planners in the United States focused on three forms of spraying and dusting chemicals: lethal and nonlethal chemicals, screening smoke, and incendiaries. Nonlethal forms would, ostensibly, include herbicides used to remove forest cover in an attempt to deny the enemy areas of cover. Likewise, during the 1930s the U.S. Army

Air Corps developed the basic mechanisms, techniques, and tactics of aerial chemical delivery. Scientists also considered the effects of atmospheric convection, wind, and temperature on spraying techniques (Buckingham, 1982: 3).

Nor did the Geneva Protocol prevent the use of chemical weapons in warfare. Unconfirmed reports indicated the use of chemical and biological weapons during the Spanish Civil War as well as during the suppression of civil strife in northern China in the 1930s. Japan is also suspected of using chemical weapons against the Chinese in 1937 (Cecil, 1986). The first openly acknowledged use of these weapons, however, occurred in 1936 when the Italian air force delivered mustard gas in combat. Employed in Italy's annexation of Abyssinia, this usage constituted the first aerial-based act of chemical warfare. Although Italy's actions were morally condemned, strategists did note that it was an effective military technique (Buckingham, 1982: 3).

Lethal chemical sprays, according to Buckingham (1982), were apparently not used during World War II—though certainly many other equally destructive weapons were employed, not least of which was the nuclear bomb. Indeed, chemical weapons were viewed by some military officials as unethical. Admiral William Leahy, then serving as the U.S. chief of staff, considered poison gas to be a "barbarous weapon." When a proposal surfaced to employ biological weapons to destroy Japanese rice crops—a proposal foreshadowing the use of chemical agents in Vietnam—Leahy expressed the opinion that such a weapon "would violate every Christian ethic I have ever heard of and all of the known laws of war" (quoted in Neilands, 1970: 211).

Such moral condemnation was not widespread, however. Throughout the 1950s governments increasingly used chemical weapons as a means of warfare. The British military, for example, employed aerially sprayed herbicides in Malaya in an attempt to suppress a communist-based liberation movement. During this campaign the British used both helicopters and fixed-wing aircraft to eradicate food crops as part of a larger program designed to restrict food supplies which could be used, supposedly, to support insurgents (Buckingham, 1982: 5). Such a food-denial strategy, though, also had the effect of starving noninsurgents, that is, innocent civilians. The British ultimately abandoned this strategy when they recognized that food denial was counterproductive: the destruction of food crops did not distinguish between insurgents and

friendly civilians, thus potentially driving more people to the enemy ranks (Cecil, 1986: 17).

Although this form of environmental warfare was abandoned by the British in Malaya, it formed the basis for American usage in Vietnam. In April 1961, as U.S. officials began to seriously contemplate the use of herbicides as a military strategy in Vietnam, Rostow forwarded a memo on Vietnam to Kennedy in which he proposed a high-level meeting to consider "gearing up" the whole Vietnam operation. Nine specific courses of action were considered, including a recommendation that a military hardware research and development team travel to Vietnam to work with the Military Assistance Advisory Group (MAAG) in exploring the usefulness of various techniques then available or currently under development. One such technique was aerial defoliation (Buckingham, 1982: 9–10).

In 1961 Johnson (then serving as vice president) established the joint United States/Vietnamese Combat Development and Test Center (CDTC) in Vietnam, under the direction of the Defense Department's Advanced Research Projects Agency (ARPA). The mandate of the CDTC was to develop new counterinsurgency methods and weapons. The use of herbicides as a defoliation strategy was high on the list for advancement (Cecil, 1986: 23). In fact, by July 1961 specific proposals were drafted that included the use of chemical plant killers.

The time from proposed use to actual use was very short. On August 10, 1961, the first defoliation test mission over South Vietnam was conducted when a South Vietnamese Air Force H-34 helicopter equipped with a HIDAL (Helicopter Insecticide Dispersal Apparatus, Liquid) spray system released the chemical dinoxol over crops in South Vietnam, just north of Kontum. Two weeks later the first fixed-wing spray mission was conducted, with additional tests conducted in Thailand and Cambodia (Buckingham, 1982: 11; Neilands, 1970). By November 30, 1961, Kennedy authorized the explicit use of defoliants.

Initially, the use of chemical or biological weapons was to be selective and carefully controlled—though not limited in geographic coverage. Some early proposals, for example, envisioned a defoliation campaign that would eradicate 31,250 square miles—approximately half of the entire country of South Vietnam (Buckingham, 1982: 15). Defoliants would be employed to destroy foliage to remove protective cover. Designated targets would include, for example, the clearance of key trans-

portation routes. In part, reluctance on the part of Kennedy and his advisors stemmed not from a concern on the effects such a campaign would have on Vietnam or its people. Rather, concerns were expressed over the public image of chemical defoliants. McNamara, for example, preferred to disguise the defoliation campaign as purely a South Vietnamese operation. Lansdale, likewise, urged caution, reminding his colleagues that the North Koreans had charged the United States with using biological weapons during the Korean War. Any media leak would generate potential adverse publicity (Buckingham, pp. 26–27).

The overt and deliberate use of chemical warfare in Vietnam began in early January 1962.[6] Following a series of "familiarization" flights, chemical defoliants—conducted as part of Operation Ranch Hand—were released from Air Force C-123s on January 10, 1962. By the time Operation Ranch Hand was stopped—amid widespread criticism—9 years later, approximately 18 million gallons of chemicals had been sprayed on 20 percent of South Vietnam, with 4,747,587 acres of forest defoliated and 481,897 acres of cropland destroyed (Buckingham, 1982).

As the war escalated, so too did the indiscriminate use of herbicides and other chemicals. Beginning in late 1962 American military strategists began using defoliants not simply to clear jungles, but as techniques for food denial. One example is the defoliation of the 18,500-acre Boi Loi Woods. Located approximately 25 miles northwest of Saigon and 10 miles from the Cambodian border, the Boi Loi region was presumed to be a major and secure base of NLF forces. In addition, it was believed that about 100 acres of land were devoted to food crops for NLF troops. The operation, code-named Sherwood Forest, called for the use of defoliants to strip the leaves from trees, and subsequently to completely burn the forest. American advisors had first broached the idea in October 1964. On December 3 a formal request was made. Apart from exposing the potential insurgents, an additional benefit was identified: the defoliation campaign would force the civilian population to relocate to other settlements, thus denying their assistance to the communist insurgents.

The Boi Loi Woods were home to an estimated 6,000 people. Approximately 4,000 of these residents, described as "pacificistic," lived in three hamlets as farmers; another 2,000 people earned their living cutting firewood in the forest. After General Westmoreland called

for a feasibility study to be conducted, operations and intelligence specialists recommended the destruction of the forest. Final approval was given by the U.S. Embassy on January 2, 1965. The U.S. Air Force, concomitantly, requested the Boi Loi Woods be designated a "free bomb" area.

Prior to the initial wave of destruction, leaflets were dropped and messages broadcast over loudspeakers urging the population to evacuate the area. Promises of financial assistance were also made to induce evacuation. Then, between January 18 and January 20 American fighter pilots conducted 139 sorties and dropped nearly 800 tons of bombs on the forest. Some munitions were targeting bombs; most, however, were area coverage bombs. Additionally, bombs with time-delay fuses were employed. Refugees later reported that these bombs were very effective in inducing fear because they exploded at times when no aircraft were present. Lastly, riot gas was dispersed as an added incentive for the people to flee. After 2 days of an intense terror campaign, only 2,182 refugees left the Boi Loi Woods (Buckinham, 1982; Cecil, 1986).

Beginning on January 22 and lasting till February 18, the main defoliation campaign of Boi Loi was waged. Over 100 sorties delivered 83,000 gallons of herbicides on the woods. An additional 316 sorties dropped more than 372 bombs and fired 85,000 rounds of ammunition. Six weeks later American pilots attempted to ignite the woods through the dumping of thousands of gallons of diesel fuel, followed by the delivery of napalm and incendiary cluster bombs. Ironically, the attempt to completely burn the woods proved unsuccessful as monsoon rains extinguished the conflagration.

As the war progressed, the public relations fears of McNamara were slowly realized. It was widely reported, for example, that poisons that were banned in the United States were widely used on the Vietnamese population and environment. In the fall of 1969 it was reported that Agent Orange would no longer be used domestically in the United States, as studies by the Bionetics Research Laboratory indicated that the agent was teratogenic and that the offspring of laboratory animals fed 2,4,5-T showed 100 percent birth defects. U.S. officials immediately stated that the restriction would *not* apply to the use of 2,4,5-T in Vietnam. Furthermore, during the summer of 1969 a number of newspapers in Saigon disclosed a sharp rise in birth defects and linked this occurrence to the prevalence of defoliation campaigns. The newspapers

were immediately shut down by the South Vietnamese government (Neilands, 1970: 221).

Within the United States, the public outcry continued to mount. A *Washington Post* editorial "called into question the wisdom of such agents, and the sort of unselective and nondiscriminatory warfare." Moreover, the editorial cautioned that "the employment of the devices of chemical warfare even in enemy country where the inevitable hardships fall upon the enemy's civilian population is open to all sort of ethical doubts. Their employment in a civil war, where the consequences are visited upon a civilian population we are trying to defend, is folly compounded" (quoted in Buckingham, 1982: 94).

Critics of the operation were supported in their condemnation through the actions of a number of academics. Especially notable were the efforts of the scientists associated with the American Association for the Advancement of Science (AAAS). In December 1969 Harvard biologist Matthew S. Meselson presented the preliminary findings of a fact-finding report at the annual convention of the AAAS. Meselson was, at the time, head of the AAAS Herbicide Assessment Commission, tasked with investigating the military use of herbicides in Vietnam. Between August and September 1970 Meselson and other commission members conducted on-site inspections in South Vietnam; to these field surveys were added interviews held with various experts, military planners, and other officials engaged in the ongoing herbicidal campaign in Vietnam. The AAAS findings, subsequently printed in journals and reports, were disturbing at the time, and remain so today. Meselson and his colleagues determined that by 1970 "about one-seventh of the land area of South Vietnam—equivalent in size to the state of Massachusetts—had been treated with herbicides" (Boffey, 1971: 44). Most chemical applications were delivered via "low-flying C-123 cargo aircraft that made more than 19,000 individual spray flights between 1962 and 1969"; about "90 percent of the herbicide was dropped on forest land and about 10 percent on crop land" (p. 44).

The destruction uncovered by numerous scientific teams was found to be widespread, wreaking significant damage to the forest and agricultural ecosystems. In 1969, for example, Drs. E. W. Pfeiffer and G. Orians, working under the joint auspices of the Society for Social Responsibility in Science and McGraw-Hill Publications, conducted a survey on the environmental damage accruing to South Vietnam. In

their tours of defoliated areas throughout South Vietnam, they discovered no insectivorous or frigivorous birds and only a few fish-eating birds (Neilands, 1970: 223).

The destruction of Vietnam's forests would reverberate throughout South Vietnam. The AAAS team, for example, identified the "total annihilation" of mangrove forests throughout the coastal regions of South Vietnam. Moreover, early assessments—confirmed years later—indicated that the rejuvenation of the forests would take decades. Tropical hardwood forests were equally devastated. Meselson's team estimated that "more than half of the forest in three provinces" were "very severely damaged." Arthur Westing, the team's forestry expert, "concluded that about 35 percent of South Vietnam's 14 million acres of dense forest [had] been sprayed one or more times and that, as a result, 6.2 billion board feet of merchantable timber [had] thus far been killed by herbicides." This amounted to South Vietnam's entire domestic timber needs, based on then-current demand, for the next three decades. The economic effects, furthermore, would be astronomical. Westing determined that the lost timber represented approximately US$500 million in stumpage taxes that would have accrued to the South Vietnamese government (Westing, 1971, 1975). Apparently the potential revenue from forestry did not factor into Rostow's development scheme for South Vietnam. Additional studies reported that Operation Ranch Hand had a devastating effect on the economy of South Vietnam; in one year, for example, rubber production fell by 30 percent. Jack fruit, mango, manioc, and guava production was likewise reduced through herbicidal campaigns (Neilands, 1970: 223).

The AAAS scientists concluded also that the destruction of some "2000 square kilometers of land" entailed "destruction of enough food to feed 600,000 persons for a year" (Boffey, 1971: 45). Moreover, the destruction had been especially pronounced in the food-scarce Central Highlands, populated by an indigenous people known as the Montagnards. Related studies indicated that the destruction of food reserves by defoliation chiefly afflicted the aged and the infirm, pregnant and lactating women, and children under 5 years of age (Neilands, 1970: 220).

Apart from the physical destruction of the cropland, the AAAS team found contradictions between "reality" and military "assessments" of the herbicidal program. Operations in Quang Ngai province were singled out for discussion. According to military officials, this

region was (1) virtually uninhabited—defined as less than eight persons per square kilometer; (2) recently expanded in size of cultivation; and (3) exhibiting signs of terracing as a rice-growing strategy. According to military authorities, these factors amounted to one conclusion: increased village support for the provision of foodstuffs to the enemy. Indeed, it was this form of reasoning that supported the Strategic Hamlet Program. In essence, military officials argued that the region was occupied by a small number of Montagnards; however, the cultivated area was considered to be much larger than needed to support the small population. This, to the military planners, indicated the presence of "the enemy." Furthermore, it was claimed that Montagnards did not practice terracing—supposedly further evidence of an enemy presence (Boffey, 1971: 45).

Meselson and his colleagues reached a different conclusion. Aerial photographs taken by the AAAS team, combined with a map issued in 1965, indicated the presence of more than 900 dwellings in the area—a settlement size far beyond the official claim that Quang Ngai was "virtually uninhabited." Indeed, the AAAS team determined that the region actually supported a population of more than 5,000 persons, or about 180 persons per square kilometer. Moreover, comparisons between current air photos and the 1965 map suggested that the area had not experienced a rapid expansion of cultivation. They also learned—from other military sources—that the Montagnards had grown rice on terraced fields for a long time. The team's conclusion: "Our observations lead us to believe that precautions to avoid destroying the crops of indigenous civilian populations have been a failure and that nearly all the food destroyed would actually have been consumed by such populations" (Boffey, 1971: 45). Moreover, other reports corroborated that the "use of starvation as a weapon [had] not been very effective militarily inasmuch as soldiers can generally forage for themselves at the expense of the civilian population." Neilands (1970: 227) concludes:

> At Nuremberg the Allies defined as a very serious war crime the destruction of civilian food supplies as practiced by the German High Commissioner in Holland … who was responsible for the opening of dikes and the flooding of about 0.5 million acres of agricultural land. The destruction of rice and other food staples

in Vietnam, while of dubious military value, is certain to increase the misery and suffering of the civilian population.

POPULATION AND THE (DESTRUCTION OF) THE ENVIRONMENT (PART II)

> In my estimation, we have just one moral obligation—and that moral obligation is for us to develop at the earliest possible moment that agent which will kill enemy personnel most quickly and most cheaply.
>
> —Lieutenant General (retired) Jimmy Doolittle[7]

> All day and night, the sounds of bombs, jet planes, gunships, and HU-1As circling above are deafening. The forest is gouged and scarred by bombs, the remaining trees are stained yellow by toxic chemicals. We're affected by the poison, too.
>
> —Dang Thuy Tram[8]

The use of chemical defoliants constitutes just one form of ecological warfare. Indeed, as the work of the geographer Yves Lacoste has demonstrated, there are many other ways of geographically regulating (or killing) populations than with chemical weapons. Lacoste (1973: 2), explains that "ecological warfare" is best understood from a geographical perspective. He writes: "To achieve a limited number of political and military objectives there has been destruction of vegetation, the transformation of the physical characteristics of the soil, the deliberate precipitation of new erosional processes, the rupture of hydrological systems in order to change the level of the water table (so as to dry up wells and rice paddies), and also a radical change in the distribution of population." The purpose is to more effectively regulate populations to achieve political and military objectives. Lacoste (p. 2) concludes that "such forms of destruction are not simply the unintended consequences of the massive scale of lethal means available for technological and industrial warfare; they are the result of a deliberate and minutely-articulated strategy, the elements of which are scientifically coordinated in time and space."

American military strategists had contemplated the use of ecological warfare against Japanese rice crops during World War II. Crop-killing chemicals, including ammonium thiocynate, for example, had been

developed and tested. Other schemes included the placement of small incendiary bombs on Mexican free-tailed bats. These "animal bombers" would be used to burn down buildings in Japanese cities as well as to strike fear in the population. Crane (2002: 242–243) explains that after overcoming a host of technological problems—ranging from creating a light enough munition with adequate incendiary power to freezing the bats to make them quiescent enough to be armed—the project demonstrated its potential when some escaped fire-bats burned down Carlsbad Auxiliary Army Airfield. Further testing indicated that a plane full of "batbombs" could indeed start more fires than a comparable load of conventional incendiary devices. The project, however, was terminated in 1944 so that more monies could be transferred to the Manhattan Project and the development of the atomic bomb (Crane, 2002: 243).

During the Korean War and its immediate aftermath, military strategists continued to focus attention on the strategic potential of biological warfare against crops and large numbers of people (Crane, 2002: 244). By the mid-1950s, the U.S. Air Force had 5,000 tons of anticrop chemicals. Delivery systems included bombs, spray tanks, and 24,000 biological antipersonnel and 63,000 chemical nerve gas clusters waiting for fill (p. 248). It was in Vietnam, however, through the massive use of herbicides, defoliants, and strategic bombing of agricultural areas, that the biosphere was systematically assailed for military purposes (Barnaby, 1976: 40).

Between March 1967 and July 1972 the U.S. Army in Vietnam attempted to modify Vietnam's weather through rainmaking. Hundreds of operations were conducted in attempts to intensify the normal monsoon rainfall over the Ho Chi Minh Trail; clouds were seeded with silver and lead iodide from aircraft as nearly 50,000 canisters were dropped during more than 2,500 sorties (Barnaby, 1976: 41). These operations failed to produce any significant effects on Vietnam's weather. Also used were "Rome ploughs"—33-ton armored tractors, each equipped with a blade to shear and push over trees of almost any size. These vehicles were used to destroy forests and crops, and to raze villages; a company of 30 tractors could remove heavy jungle at a rate of 99 acres per day and light jungle at a rate of 395 acres per day. An estimated 803,100 acres of Vietnam's forests were cleared through this manner; in addition, thousands of acres of rubber plantations, fruit orchards, and agricultural fields, including irrigation systems, were

also destroyed (p. 43). Westing (1975: 222) found that "the extensive land clearing shown to be feasible with Rome ploughs leads to locally serious ecological debilitation. The cleared areas undergo severe site degradation and become occupied with long-lasting biotic communities of low plant and animal species diversity, reduced biomass, and diminished productivity."

More devastating was the deliberate targeting of dikes in Vietnam's northern delta.

In the summer of 1972 Lacoste conducted fieldwork in the Red River delta region of northern Vietnam. His investigations were made in conjunction with the International Commission of Inquiry into War Crimes. His purpose was to ascertain how the modification and destruction of the "geographic milieu" was being used to "obliterate those very geographical conditions which are indispensable for the lives of several million people" (Lacoste, 1973: 2). The Red River delta comprises an area of approximately 3,500 square miles. During the war some 10 million people lived and farmed in the region; in some areas, population densities exceeded 800 inhabitants per half square mile.

Geographically, the delta is divided into two parts (Lacoste, 1973: 8 passim). In the west lies the upper delta. Here, alluvium-choked rivers emerge from the mountain valleys of northwestern Vietnam. Over centuries, the rivers in the western region progressively built up a large number of alluvial cushions. Sediment is carried eastward into the lower delta and flows above natural levees that are less high. According to Lacoste (p. 8), these differences of configuration between the upper and the lower delta have important consequences for the topographical localization of villages: in the upper western part the villages have been built above easily flooded areas on top of the alluvial cushions; in the eastern part of the lower delta most of the villages are located below the level of the rivers, in areas easily flooded should a break in the dikes occur.

Analyzing bombing patterns, Lacoste (1973: 8) found that "a large majority of the bombed dikes are situated in the eastern part of the delta, where most of these easily-flooded villages are to be found." Specifically, during the period April 16 to July 31, 1972, the hydraulic installations in North Vietnam were the objective of over 150 air attacks; hits were recorded in 96 different places. Of these, 58 were situated in the Red River delta and the majority (54 out of 58) were located in the east-

ern part of the delta (p. 6). This region was the most densely populated and the most important in terms of agricultural production. Furthermore, Lacoste (p. 8) argues that "the most frequently hit points on the dikes are the ones that, at high-water, are subjected to unusually strong pressure by water." Lacoste (pp. 8–9) elaborates that the dikes had been hit in the concave part of the bends—at points where they are subjected to the perpendicular pressure of especially powerful currents.

Lacoste (p. 12 passim) likewise examined the effects of the bombing campaigns. With respect to munitions, the most frequently used bombs weighed between 500 and 1,000 pounds; the resultant explosion of these munitions produced craters from 20 to 22 feet deep and about 35 feet in diameter. In addition, the shock caused by the explosions caused a series of fractures and cracks over a radius of 50 yards. Such devastation to the physical environment could result in massive flooding, potentially resulting in the immediate drowning deaths of hundreds or thousands of people, the destruction of rice crops, and the consequent death of perhaps millions more by starvation. In conclusion, Lacoste found no evidence of "military" targets in the delta region, beyond that of killing large numbers of people via drowning or hunger.[9]

Studies in other parts of Vietnam found similar results. Westing (1975) calculated that bomb craters in South Vietnam had a combined surface area of 365,700 acres and a combined volume of 706 trillion cubic feet. He concluded:

> Each of the 66,000 bombing sorties flown against South Vietnam by the B-52s alone (the major instrument of carpet bombing) left a crater field averaging 65 hectares in size. The combined area of such disruption just from this source amounted to one-quarter of the land area of the entire country. Thus, the direct damage from conventional high-explosives to the biota of South Vietnam, both immediate and delayed, combined with the indirect damage to it via habitat destruction, has resulted in what may well be the most serious (and least recognized) long-term ecological impact of the Second Indochina War. (p. 218)

Ecological warfare via the bombing of dikes in flood-prone regions conformed with the attrition strategy favored and forwarded by U.S. military strategists. Consequently, ecological warfare emerges as a crucial technique in the discipline of bodies and the regulation of popula-

tions. As such, it is possible to draw from this example important lessons that emerge at the interface of nature, violence, and population.

Nature, as Castree (2001: 5) explains, is both a concept and all those physical things to which the concept refers. It is also a contested term and concept, fraught with different meanings and different usages. Accordingly, many geographers have approached nature as a discourse—a social construct—that is also an instrument of social power. Demeritt (2001: 32) explains that "claims about the social construction of nature might be understood as claims about the social construction of our knowledge and concepts of nature." Much of this work has been encompassed by the phrase "the production of nature," a concept that directs attention to how people have shaped nature for profit. Nature is constructed as a resource to be conserved, preserved, or exploited. In the context of warfare, the struggle for nature has emphasized one of two relationships. On the one hand, researchers have documented that resource scarcity may give rise to conflict, while, on the other hand, it has been noted that resource abundance may also facilitate conflict (le Billon, 2001). Furthermore, as Nevins (2003: 688) finds, many of these studies have conceived of violence too narrowly, "limiting it to individual physical acts or events of physical brutality." Needed in these studies is a conceptualization of violence that includes "not only acts that involve physical brutality, but also institutionalized and indirect practices that contribute to physical injury and/or create, maintain, or exacerbate social injustice" (p. 688). Nevins concludes that

> This moves us beyond a focus on the intent of the perpetrators of violence, requiring that we accept the premise that individuals and social entities are responsible for the likely or predictable consequences of their actions.… To the extent that control of, access to, and distribution of environmental resources (and their associated benefits and detriments) are institutionalized in such a way as to harm human beings in that they contribute to the denial of basic human rights (such as that to adequate food, shelter, clothing, and medical care or the right to fair and just remuneration for work), they are examples of structural violence. (p. 688)

In Vietnam, we see the "destruction of nature" as a concerted effort to deny the Vietnamese people their livelihoods and homes. The destruction of nature, from the perspective of military strategists, was a

legitimate technique of warfare, but one that had (and has) far-reaching consequences that extend beyond war itself. These spatial practices—including the denial of vegetated cover to the "enemy," the destruction of food crops, and the inducement of terror through biological and chemical agents—were designed solely to decimate populations through the annihilation of the environment. Little consideration was given to distinctions between "ally" or "enemy" because in the end the Vietnamese were simply seen as the Other. And all were morally excluded from the considerations of Rostow, Westmoreland, Nixon, and the other planners who managed the war.

THE CONTROL OF POPULATIONS

> At Mo Duc, military vehicles plowed through the hamlets. The villagers fled. Many cadres perished, crushed in their shelters by the enemy's vehicles.…
>
> —Dang Thuy Tram[10]

In 1969 the U.S. military initiated Operation Pipestone Canyon. The location of the operation was 12 miles south of Da Nang, on a small island—Go Noi—located within the meandering branches of the Ky Lam River. About 5 miles long and 2 miles wide, Go Noi was the site of at least nine U.S. Marine operations in a 4-year period, dating to 1965. The area, however, had been heavily contested for many years during the Franco–Vietminh War.

By 1969 American officials were frustrated at the continued level of insurgent activities, and of not being able to pacify this small area of rice paddies and thatched houses. Under Operation Pipestone, U.S. Marine Corps engineers leveled the island with plows and bulldozers. The inhabitants were resettled in "strategic hamlets," isolated encampments surrounded by watchtowers, barbed wire, and armed guards. Christian Appy (1993: 160) quotes an after-action report that emphasized the "positive" aspects of the operation: The island was clear, mission accomplished. He also quotes the following assessment: "Go Noi island had been converted from a densely-populated, heavily wooded area to a barren wasteland; a plowed field."

Le Ly Hayslip, author of the 1993 best-selling memoir *When Heaven and Earth Changed Places* (and the subject of Oliver Stone's 1994 film,

Heaven and Earth), was born in Ky La Hamlet on Go Noi. She (along with Pham, 2006: 146) describes her understanding of strategic hamlets:

> Instead of trading life in the lands of the ancestors for security in a new village, the unfortunate people of the countryside usually found themselves lost and forgotten by their own government, women and children tucked away like herds of animals. Instead of being measures of social welfare, the Strategic Hamlets became places to impose and ensure governmental control. Driven from their homes, the residents of the new Strategic Hamlets . . . found themselves abandoned, betrayed, jobless victims of governmental manipulation.

She (p. 151) concludes that "villagers and hamlet people were the ones who constantly came into contact with the realities of war; they were the ones who suffered the most, and who bore all of the burdens of war."

It has been described as the "other" war, the war to win "hearts and minds." In actuality, it did more harm to the people of (especially South) Vietnam than any good. It was the attempt to pacify people for political purposes. Even the term is Orwellian: to pacify, to calm, as a mother would an unruly child. But this technique of biopower was far from maternal. The pacification campaign was not simply a technique of spatial exclusion, it also served to morally exclude the Vietnamese.

The pacification effort—the war for hearts and minds—conformed with the Rostow doctrine of war. It was accepted that the North Vietnamese were supporting the NLF and that the survival of an independent South Vietnam was in jeopardy. A strategy was required therefore to stabilize areas deemed critical and to deny NVA soldiers and the NLF insurgents "safe havens" in which to operate. As Prados (1996: 242) explains, "Counterinsurgency theory suggested population resettlement." Consequently, advisors such as William Porter believed that it was incumbent on the United States to ensure that the Vietnamese population be isolated and secured (Cable, 1991: 127). The spatial strategies that emerged were practices of concentration and enclosure.

Discipline, Foucault (1979: 141) argues, proceeds from the distribution of bodies in space. He explains that when conceiving spaces of confinement, planners and strategists must consider carefully how this

distribution is produced. In particular, the spatial arrangement of confinement will not only produce a space in which individual bodies may be isolated and mapped, but also spaces in which populations may be regulated into a productive collective. Foucault (p. 143) explains:

> Each individual has his [*sic*] own place; and each place its individual. Avoid distributions in groups; break up collective dispositions; analyse confused, massive or transient pluralities. Disciplinary space tends to be divided into as many sections as there are bodies or elements to be distributed. One must eliminate the effects of imprecise distributions, the uncontrolled disappearance of individuals, their diffuse circulation, their unusable and dangerous coagulation; it was a tactic of anti-desertion, anti-vagabondage, anti-concentration. Its aim was to establish presences and absences, to know where and how to locate individuals, to set up useful communications, to interrupt others, to be able at each moment to supervise the conduct of each individual, to assess it, to judge it, to calculate its qualities or merits. It was a procedure … aimed at knowing, mastering and using. Discipline organizes an analytical space.

The spatial concentration of Vietnamese, from a Foucauldian perspective, resonates well with McNamara's and Rostow's analytical approach to the war.[11] In Vietnam, the confinement of Vietnamese civilians carried a twofold purpose. On the one hand, spaces of enclosure were to keep South Vietnamese peasants untainted from communist influence. U.S. military officials, in particular, harbored deep suspicions regarding the Vietnamese peoples' "true" loyalties and political commitments. It was argued by strategists that physically controlling the Vietnamese peasants, and keeping them confined to heavily policed encampments, would effectively neutralize the influence of the NLF. In other words, these concentration camps would prevent the "uncontrolled disappearance" of Vietnamese peasants and hinder "their diffuse circulation." Such encampments would further ensure a greater ability to "locate individuals" and to monitor their comings and goings. On the other hand, these spaces were also intended to deny NLF insurgents access to recruits, food supplies, and sanctuary from bombings. Consequently, these encampments would satisfy a key component of the demographic war of attrition: deny the enemy an ability to repro-

duce its numbers through recruitment. For Kolko (1994: 132), what was required was the physical control of the population, whose desires and needs were, for practical purposes, minimized; simply put, "It was demographic change and social transformation, not military action, that would set the critical context for the outcome of the war."

Beginning in the early 1960s American planners began experimenting with various forms of enclosure.[12] The Strategic Hamlet Program was one such project. As a counterinsurgency strategy, Vietnamese peasants were gathered together from their dispersed villages into heavily fortified hamlets. Designed to prevent interaction between the "good" peasants and the "bad" Vietcong, the hamlets were surrounded by moats, fences, and watchtowers; armed troops would stand guard. Ostensibly, the peasants would be able to take advantage of improved medical facilities, schools, and so on. The insurgents, conversely, would be denied sanctuary in the villages, as well as be denied sources of food and other supplies. In principle, from the perspective of McNamara and Rostow, the Strategic Hamlet Program would deny the NLF its ability to socially reproduce itself.

Apart from the perceived military gains, the Strategic Hamlet Program also conformed to Rostow's promotion of democracy and development in Vietnam. In effect, these programs may be seen as the Vietnamese counterpart to Johnson's "War on Poverty" in the United States. On the one hand, segregation and isolation of Vietnam's peasants would "bind" the people to the newly formed government and, through the reinstitution of village elections, contribute to the spread of democratic principles. On the other hand, the concentration of peasants in self-contained villages was thought (by Rostow, at least) to bring about a revolution in social attitudes and economic practices. With attendant programs of land reform, peasants were expected to set off on the stages of economic growth forecast by Rostow (Herring, 1996).

Rhetorically, these spaces were represented as models of land reform. As such, these were to provide viable alternatives to the grievances enunciated by the NLF. However, in practice, most U.S. officials did not believe that land-based grievances were important (Kolko, 1994: 131). Furthermore, men like Rostow refused to contemplate the idea that agrarian concerns (for example, issues of landlessness) could be a factor in the growing insurgency. According to Rostow's thesis, the insurgents—and the Vietnamese peasants in general—were simply

"confused" by their rapid engagement with modernization. Any exhibited discontent had to be the result of northern communist propaganda (Kolko, 1994). Such reasoning further justified the confinement of Vietnam's peasant population.

In March 1962 a pilot project, termed "Operation Sunrise," was conducted in the Ben Cat district of Binh Duong province. This region was considered to be an NLF stronghold. The U.S. Information Service prepared a pamphlet entitled *Toward the Good Life* for distribution in the district. The population was subsequently removed and herded together; the majority of people were forced to leave their homes at gunpoint. The resettlement site, far from ensuring a "good life," consisted of a cleared area with a few concrete administrative buildings. Their "new" home was located—deliberately—so far from the nearest market town as to ensure hardship of movement. American funds, amounting to approximately US$300,000, earmarked for the new site were withheld until the resettled families indicated that they would never leave the hamlet (Young, 1991: 82).

Over the next few months, throughout the southern delta region, once-sprawling villages dispersed along canals and natural waterways were reconcentrated toward a centralized site. Houses were bull-dozed and farmers were herded at gunpoint into supposedly more defensible areas. Corruption, moreover, was rampant. The relocated villagers, for example, were required to pay the South Vietnamese government for the building materials (which had been donated by the American government) that would be used for the construction of new houses. Villagers were even required to pay for the barbed wire that encircled their new hamlet (Young, 1991: 83).

Under the Strategic Hamlet Program, the United States invested substantial resources for the "development" and "protection" of rural Vietnam. By 1965–1966 further attempts were made to coordinate the Strategic Hamlet Program. In 1966, for example, the Office of Civil Operations (OCO), under the direction of Deputy Ambassador William Porter, was established. In May 1967 the Civil Operations, Revolutionary Development Support (CORDS) program, led by Robert Komer, was inaugurated. CORDS was a wide-reaching program designed to monitor, administer, and control the Vietnamese population. Administratively and geographically, CORDS was a matrix organization; the integration and initiation of CORDS programs took place simultane-

ously in the four military regions, 44 provinces, and 234 districts of South Vietnam (McCollum, 1983: 113). Through this approach, Komer believed, it would be possible to most effectively coordinate ongoing and planned pacification practices. For Komer, progress in pacification had to be measured, otherwise there would be no way of knowing if it was effective (McCollum, p. 114).

Once the Vietnamese civilians were confined to their isolated concentration camps (that is, strategic hamlets), American officials believed that they were in a better position to observe, manage, evaluate, and regulate the South Vietnamese population. Within these quasi-prison camps, the Vietnamese people became objects—units of analysis—utilized to measure America's progress in the war. Beginning in 1964 a basic system for monitoring hamlets was developed jointly by American and South Vietnamese officials. In 1966, however, McNamara wanted a new system to better measure the progress of pacification. Through an arrangement with American authorities in Saigon, the OSA became the official repository in Washington for a highly detailed computerized data system, known as the Hamlet Evaluation System, or HES (Enthoven and Smith, 1971: 302). Developed by Komer, the HES was touted as a "sophisticated measurement of the political control asserted by both the South Vietnamese government and the Revolutionary forces" (Appy, 1993: 158).

Under the HES, hamlets were classified and compared—not in geographic terms, but rather through a political ranking. In Vietnam, soldiers routinely spoke of their difficulties in determining "friend" from "enemy." Consequently, U.S. advisors spent an enormous amount of time and resources seeking to quantify the political affiliations of the Vietnamese people. The HES was a statistical survey composed of 18 criteria—nine each on security matters and on matters of economic and political development. These criteria would supposedly be rated by U.S. advisors on a regular basis. Subsequently, these criteria would be used to classify hamlets into one of five categories (A through E) of governmental control. Those hamlets ranked A and B were considered "secure," meaning that the South Vietnamese government was thought to have political control over the people of those hamlets. Category C was "relatively secure," and categories D and E were "contested." Evaluation was hampered, however, by the fact that most of the American data gatherers spoke little or no Vietnamese, and the compiling of such

monthly data on an average of 37 hamlets for each of them was only one of their many tasks; it was not uncommon for officers to fill out the forms without ever visiting the hamlets (Kolko, 1994: 241).

Within hamlets, individual bodies were likewise observed, classified, and controlled. Similar to the asylums, prisons, schools, and factories of which Foucault writes, strategic hamlets permitted a discipline through surveillance. These practices evolved from the advice of the noted counterinsurgency expert Robert Thompson and his experiences in Malaya. Beginning in 1962, for example, the National Police of the Republic of Vietnam initiated the Family Census Program. Strategically, a census is a basic source of intelligence in that it may reveal, for instance, who is related to whom. This is often considered an important piece of information in counterinsurgency warfare because insurgent recruiting at the village level is generally based initially on family ties. Consequently, in southern Vietnam, lists of names, coupled with photographs, were compiled and filed in police dossiers. Also included was each person's political affiliation, fingerprints, income, savings, and other information deemed relevant to the war effort. By 1965 there were 7,453 registered families (Valentine, 1990).

Just as pressure for high body counts led to gross inflation of the relevant statistics, so too did the hamlet evaluations prove farcical. Appy (1993: 159) explains that progress was defined by large numbers, hence the tendency among evaluators to inflate the numbers of "secure" areas. Consequently, populations deemed secure would include the millions of Vietnamese peasants who had been driven off their land, or people massed in the proliferating refugee camps and shantytowns. From a propaganda perspective, however, successive administrations consistently used the HES to publicly defend the efficacy of their war policies. Appy (p. 159) writes that the "statistics simply offered the illusion of progress and control. They were a surrogate for genuine understanding" in that any effort to manage the war, "to break it down into quantifiable units, seem[ed] to provide a sense of clarity and order about a war that was truly baffling and confusing." He concludes that rather "than admit their lack of real control or understanding, Americans looked for new measurements or 'improved' statistics. If the numbers did not fit, they could always be fudged. It was easier to change numbers than to change reality."

Many of these programs fell far short of expectations, doomed in part because of fundamental flaws inherent in America's dual strategy of "attrition" (that is, killing people) and "pacification" (that is, "winning hearts and minds" through confinement). Rostow and others never appeared to see the contradictions that the indiscriminate killing of people through cluster bombs and napalm was not conductive to pacification. Kolko (1994: 239) summarizes this tension: the American government "never explicitly chose between pacification in place and population displacement or between terror and material blandishments.... Ideologically incapable of defining a theory that condoned its consistent practice, it preferred justifying its enormous terror from the skies and its uprooting of a rural nation with liberal jargon"—in other words, "with the social science rhetoric of 'modernization.'" Furthermore, in theory, the Strategic Hamlet Program was intended to avoid massive relocations of peasants from their sacred ancestral lands. Such a move would no doubt serve to undermine the developing goal of winning the hearts and minds of the Vietnamese in the ideological contestation for the country. However, in the delta regions of South Vietnam, the establishment of hamlets could not be carried out without widespread displacement. The subsequent uprooting of thousands of villagers added to the already growing discontent of the people of South Vietnam. More disturbing, though, was the human cost. Land reforms were not implemented, and many peasants were left landless and jobless. And despite the American allocation of funds for the provision of health, education, and welfare services, South Vietnamese inefficiency and corruption kept most of the resources from reaching their intended destinations (Herring, 1996: 99).

EMBODIED INSTRUMENTS OF WARFARE

Discipline, in the words of Foucault (1979: 138), produces subjected and practiced bodies. More concretely, disciplinary techniques are used for specific purposes by specific institutions for specific objectives. In the context of producing docile, subjected bodies, Foucault discusses the emergence of "observatories," or locations where the techniques of disciplinary power are applied. Such observatories include military camps, prisons, schools, factories, hospitals, and the strategic hamlets designed

by American officials in Vietnam. The exercise of discipline within these spaces thus presupposes a mechanism that coerces by means of observation. The entire system is designed to monitor, to track, and to chart those confined. Within the strategic hamlets, one's political affiliation was paramount.

For Foucault (1979; see also Philo, 2001), the enclosure of bodies and populations into confined areas transforms these spaces into "functional sites." According to Foucault (p. 143), "It [is] a question of distributing individuals in space in which one might isolate them and map them; but also of articulating this distribution on a production machinery that had its own requirements." Philo (2001: 483) explains that "this means that many of the spaces should be filled with work, with organised productive activity." Within the space of strategic hamlets, a principle type of "work" was that of winning a war: bodies were to be productive in the sense of facilitating America's military mission in Vietnam. Consequently, the confinement of bodies into strategic hamlets entailed not only a political function—to (re)produce Vietnamese peasants into loyal and obedient subjects—but also a military function: subjugated bodies became embodied instruments of warfare.

Confined to strategic hamlets, the people of South Vietnam were subject to routinized evaluation and monitoring. These entrapped bodies, however, also became instruments of America's war effort. People were recruited—or coerced—to spy, inform, and sometimes murder other Vietnamese. They became instruments to pacify a people—their own people—who were waging an anticolonial war. This practice is most evident in one of the war's most controversial programs, the Phoenix Program.

In operation between 1968 and 1972, the Phoenix Program was designed to complement the ongoing pacification campaign. One element of the program was to acquire relevant information on enemy activities, including the identification of NLF cadres. A second aspect was to gain the support and cooperation of the South Vietnamese people and to reduce military and political activities deemed detrimental to the war effort. A final component was to eliminate suspected NLF infiltrators and insurgents. Facilitated through the confinement of Vietnamese peasants, U.S. military advisors and CIA agents created a network of spies and informants. The intended target of the operation was a construct labeled "VCI," or Viet Cong infrastructure. The VCI was

reportedly a "shadow government" that coordinated and directed NLF activities and provided food, intelligence, and recruits for the insurgency. The Phoenix Program sought to target and "neutralize" members of the VCI. Once suspected VCI members were identified, they were captured, interrogated, and/or executed.

Approved in June 1967 and made operational in 1968, the Phoenix Program was part of a joint civilian–military structure. Six regional offices were established and a CIA liaison office was opened in each of South Vietnam's 44 provinces. Operationally, progress of the overall program was assessed quantitatively, with a monthly quota of "VCI" assigned to the 247 district offices working under the program (Kolko, 1994: 388). A number of related demographic programs were also continued and/or expanded during the Phoenix Program, including the Hamlet Information Program (HIP).

The Phoenix Program was managed by Robert Komer and William Colby. Komer, as discussed earlier, was chief of the CORDS program. Prior to his involvement in Vietnam he worked for the CIA (1947–1960) as a Middle East expert. In 1960 he was appointed to the National Security Council and in 1965 served as deputy special assistant and, later, special assistant, to President Johnson. Colby was a former member of both the OSS and the CIA. In Vietnam, he was involved in the Strategic Hamlet Program, CORDS, and Air America. He also served as head of the CIA's Far East Division. Working under Komer and Colby were approximately 450 U.S. foreign service and army officers. Crucial to the workings of the program were the estimated 40,000 provincial reconnaissance unit (PRU) teams. Working in groups of 35–40, these were teams of Vietnamese "friendlies" who had been trained, funded, and directed by the CIA. PRU teams would collect information through any possible means, including bribery and torture, and placed suspects into one of three categories. People who were designated "A" were considered to be communist members and other enemy leaders; "B" people were cadres with considerable responsibilities; and "C" people were merely rank-and-file members. In general, those persons labeled "C" were ignored unless they took up arms. Colby believed that killing "C"-level foot soldiers contributed little if anything to the overall war effort. More important was the targeting and "neutralizing" of higher level members of the VCI (Langguth, 2000: 537).

Throughout the 4-year existence of the program, American officials claimed to have arrested 86,000 people (Kolko, 1994: 388). Government testimony before the U.S. Senate confirmed as many as 3,000 assassinations. Outside sources indicate, however, that the program was responsible for perhaps 20,000 assassinations.

Debates regarding the legality—and morality—of the Phoenix Program continue. For many critics, Phoenix was a corrupt, abusive, and brutal program. For example, subsequent studies revealed that the misidentification of South Vietnamese people was widespread. Such "mistakes" may have been deliberate, as when villagers settled old grudges by "leaking" names to the PRU operatives. Colby, in fact, attempted to respond to this acknowledged problem through tighter management. He established a rule that all suspects' files had to include three separate identifications before they could be listed as "enemies" (Langguth, 2000: 537). Others, including Colby, continue to maintain that the practice was justified. Indeed, after the war Colby explained that "they were *Communists*, those people. Just no damn good" (quoted in Langguth, 2000: 538).

CONCLUSIONS

> … Politicians, policymakers, and supporters and opponents of the Vietnam War are still arguing about who was right or wrong, who won or lost the war in Vietnam … [but] the only ones who truly lost out are the Vietnamese people.
>
> —Le Ly Hayslip and Dien Pham (2006: 155)

Colin Flint (2005: 4–5) concludes that "geography and war are the products of human activity; war creates geographies of borders, states, empires, and so on, and in turn these geographic entities are the terrain over which peace is maintained or new wars are justified." Wars, however, are also about people; more specifically, wars are about the regulation of populations through the control and elimination of bodies. Consequently, in this chapter I have attempted to raise the problem of war from the standpoint of an embodied population geography.

Population geography may facilitate a study of warfare through a focus on spatial strategies and techniques that are employed to control, regulate, and ultimately eliminate bodies and populations. Through

a focus on space, power, and knowledge, population geography may also highlight the discursive practices used to legitimate and justify particular practices that result in the destruction of people and the environment. Attention to the demographics of warfare, furthermore, may provide insight into the horrors and ugliness that are often (and deliberately) hidden from view in public discussions of "just" wars. We see in Vietnam a panoply of spatial strategies—aerial bombardment and cluster bombs, chemical defoliants and ecowarfare, confinement and enclosure—that were used to subjugate the Vietnamese population. We see also the downward spiral of policy pronouncements, the increased willingness to subject "other" bodies to more and more violence. We see, in Clodfelter's (1988) words, the "insane logic" that condoned the repeated attempts to annihilate people, their livelihoods, and their homes.

For men such as Kennedy and Rostow, McNamara and Nixon, Westmoreland and Komer, the annihilation of people through "attrition," or the regulation of people through environmental destruction, were seen as "just" practices in the face of communist aggression. Here, and elsewhere (Tyner, 2007), I argue that America's involvement was not just, that there was not acceptable justification for the direct and structural violence that was meted on the people and environment of Vietnam. For others, however, this remains a debatable issue. But this is exactly my point. It is imperative for a retheorized population geography to engage directly with question of "justness" within the context of war. If Foucault (2003: 257) is correct, if war indeed is "not simply a matter of destroying a political adversary, but of destroying the enemy race," it is incumbent upon population scholars—as teachers, as researchers, as citizens—to challenge those governmental claims that seek to legitimate and justify the "death function" that constitutes biopower.