A Forgotten Holocaust: US Bombing Strategy, the Destruction of Japanese Cities & the American Way of War from World War II to Iraq

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World War II was a landmark in the development and deployment of technologies of mass destruction associated with air power, notably the B-29 bomber, napalm and the atomic bomb. An estimated 50 to 70 million people lay dead in its wake. In a sharp reversal of the pattern of World War I and of most earlier wars, a substantial majority of the dead were noncombatants. [1] The air war, which reached peak intensity with the area bombing, including atomic bombing, of major European and Japanese cities in its final year, had a devastating impact on noncombatant populations.

What is the logic and what have been the consequences—for its victims, for subsequent global patterns of warfare and for international law—of new technologies of mass destruction and their application associated with the rise of air power and bombing technology in World War II and after? Above all, how have these experiences shaped the American way of war over six decades in which the United States has been a major actor in important wars? The issues have particular salience in an epoch whose central international discourse centers on terror and the War on Terror, one in which the terror inflicted on noncombatants by the major powers is frequently neglected.

Strategic Bombing and International Law

Bombs had been dropped from the air as early as 1849 on Venice (from balloons) and 1911 in Libya (from planes).

A nineteenth century balloon

Major European powers attempted to use them in newly founded air forces during World War I. If the impact on the outcomes was marginal, the advance of air power alerted all nations to the potential significance of airpower in future wars. [2] A series of international conferences at the Hague beginning in 1899 set out principles for limiting air war and securing the protection of noncombatants from bombing and other
attacks. The 1923 Hague conference crafted a sixty-two article “Rules of Aerial Warfare,” which prohibited “Aerial bombardment for the purpose of terrorizing the civilian population, of destroying or damaging private property not of a military character, or of injuring non-combatants.” It specifically limited bombardment to military objectives, prohibited “indiscriminate bombardment of the civilian population,” and held violators liable to pay compensation. [3] Securing consensus and enforcing limits, however, proved extraordinarily elusive then and since.

Throughout the long twentieth century, and particularly during and in the immediate aftermath of World War II, the inexorable advance of weapons technology went hand in hand with international efforts to place limits on killing and barbarism associated with war, particularly the killing of noncombatants in strategic or indiscriminate bombing raids. [4] This article considers the interplay of the development of powerful weapons and delivery systems associated with bombing and attempts to create international standards to curb the uses of bombing against noncombatants, with particular reference to the United States.

The strategic and ethical implications of the nuclear bombing of Hiroshima and Nagasaki have generated a vast contentious literature, as have German and Japanese war crimes and atrocities. By contrast, the US destruction of more than sixty Japanese cities prior to Hiroshima has been slighted both in the scholarly literatures in English and Japanese and in popular consciousness in both Japan and the US. It has been overshadowed by the atomic bombing and by heroic narratives of American conduct in the “Good War”, an outcome not unrelated to the emergence of the US as a superpower. [5] Arguably, however, the central technological, strategic and ethical breakthroughs that would leave their stamp on subsequent wars occurred in area bombing of noncombatants prior to the atomic bombing of Hiroshima and Nagasaki. A.C. Grayling explains the different responses to firebombing and atomic bombing this way: “... the frisson of dread created by the thought of what atomic weaponry can do affects those who contemplate it more than those who actually suffer from it; for whether it is an atom bomb rather than tons of high explosives and incendiaries that does the damage, not a jot of suffering is added to its victims that the burned and buried, the dismembered and blinded, the dying and bereaved of Dresden or Hamburg did not feel.” [6]

If others, notably Germany, England and Japan led the way in area bombing, the targeting for destruction of entire cities with conventional weapons emerged in 1944-45 as the centerpiece of US warfare. It was an approach that combined technological predominance with minimization of US casualties in ways that would become the hallmark of the American way of war in campaigns from Korea and Indochina to the Gulf and Iraq Wars and, indeed define the trajectory of major wars since the 1940s.
The result would be the decimation of noncombatant populations and extraordinary “kill ratios” favoring the US military. Yet for the US, victory would prove extraordinary elusive. This is one important reason why, six decades on, World War II retains its aura for Americans as the “Good War”, and why Americans have yet to effectively come to grips with questions of ethics and international law associated with their area bombing of Germany and Japan.

The twentieth century was notable for the contradiction between international attempts to place limits on the destructiveness of war and to hold nations and their military leaders responsible for violations of international laws of war (Nuremberg and Tokyo Tribunals and successive Geneva conventions, particularly the 1949 convention protecting civilians and POWs) and the systematic violation of those principles by the major powers. [7] For example, while the Nuremberg and Tokyo Tribunals clearly articulated the principle of universality, the Tribunals, both held in cities that had been obliterated by Allied bombing, famously shielded the victorious powers, above all the US, from responsibility for war crimes and crimes against humanity. Telford Taylor, chief counsel for war crimes prosecution at Nuremberg, made the point with specific reference to the bombing of cities a quarter century later: [8]

Since both sides had played the terrible game of urban destruction—the Allies far more successfully—there was no basis for criminal charges against Germans or Japanese, and in fact no such charges were brought. . . . Aerial bombardment had been used so extensively and ruthlessly on the Allied side as well as the Axis side that neither at Nuremberg nor Tokyo was the issue made a part of the trials.

From 1932 to the early years of World War II the United States was an outspoken critic of city bombing, notably but not exclusively German and Japanese bombing. President Franklin Roosevelt appealed to the warring nations in 1939 on the first day of World War II “under no circumstances [to] undertake the bombardment from the air of civilian populations or of unfortified cities.” [9] Britain, France and Germany agreed to limit bombing to strictly military objectives, but in May 1940 German bombardment of Rotterdam exacted 40,000 civilian lives and forced the Dutch surrender. Up to this point, bombing of cities had been isolated, sporadic and for the most part confined to the axis powers. Then in August 1940, after German bombers bombed London, Churchill ordered an attack on Berlin. The steady escalation of bombing targeting cities and their noncombatant populations followed. [10]

**Strategic Bombing of Europe**

After entering the war following Pearl Harbor, the US continued to claim the moral high ground by abjuring civilian
bomber. This stance was consistent with the prevailing view in the Air Force high command that the most efficient bombing strategies were those that pinpointed destruction of enemy forces and installations, factories, and railroads, not those designed to terrorize or kill noncombatants. Nevertheless, the US collaborated with indiscriminate bombing at Casablanca in 1943, when a US-British division of labor emerged in which the British conducted the indiscriminate bombing of cities and the US sought to destroy military and industrial targets.

[11] In the final years of the war, Max Hastings observed that Churchill and his bomber commander Arthur Harris set out to concentrate “all available forces for the progressive, systematic destruction of the urban areas of the Reich, city block by city block, factory by factory, until the enemy became a nation of troglodytes, scratching in the ruins.” [12] British strategists were convinced that the destruction of cities by night area bombing attacks would break the morale of German civilians while crippling war production. From 1942 with the bombing of Lubeck followed by Cologne, Hamburg and others, Harris pursued this strategy. The perfection of onslaught from the air, or what should be understood as terror bombing, is better understood, however, as a British-American joint venture.

On February 13-14, 1945 British bombers with US planes following up destroyed Dresden, a historic cultural center with no significant military industry or bases. By conservative estimate, 35,000 people were incinerated in a single raid led by.

[13] The American writer Kurt Vonnegut, then a young POW in Dresden, penned the classic account: [14]

They burnt the whole damn town down.... Every day we walked into the city and dug into basements and shelters to get the corpses out, as a sanitary measure. When we went into them, a typical shelter, an ordinary basement usually, looked like a streetcar full of people who’d simultaneously had heart failure. Just people sitting there in their chairs, all dead. A fire
storm is an amazing thing. It doesn’t occur in nature. It’s fed by the tornadoes that occur in the midst of it and there isn’t a damned thing to breathe.

“Along with the Nazi extermination camps, the killing of Soviet and American prisoners, and other enemy atrocities,” Ronald Schaffer observes, “Dresden became one of the moral causes célèbres of World War II.” [15] Although far worse was in the offing in Japan, Dresden provoked the last significant public discussion of the bombing of women and children to take place during World War II, and the city became synonymous with terror bombing by the US and Britain. Coming in the wake of both the Hamburg and Munich bombings, the British government faced sharp questioning in parliament. [16] In the United States, debate was largely provoked not by the destruction wrought by the raids, but by an Associated Press report widely published in the US and Britain stating explicitly that “the Allied air commanders have made the long-awaited decision to adopt deliberate terror bombing of the great German population centers as a ruthless expedient to hasten Hitler’s doom.” American officials quickly acted to neutralize the report by pointing to the widely publicized great cathedral of Cologne, left standing after US bombing as a symbol of American humanity, and by reiterating US adherence to principles restricting attacks to military targets. Secretary of War Henry Stimson stated that “Our policy never has been to inflict terror bombing on civilian populations,” claiming that Dresden, as a major transportation hub, was of military significance. [17] In fact, US public discussion, not to speak of protest, was minimal; in Britain there was more impassioned discussion, but with the smell of victory in the air, the government easily quieted the storm. The bombing continued. Strategic bombing had passed its sternest test in the realm of public reaction in Britain and the United States.

Strategic Bombing of Japan

But it was in the Pacific theatre, and specifically in Japan, that the full brunt of air power would be felt. Between 1932 and 1945, Japan had bombed Shanghai, Nanjing, Chongqing and other cities, testing chemical weapons in Ningbo and throughout Zhejiang province. [18] In the early months of 1945, the United States shifted its attention to the Pacific as it gained the capacity to attack Japan from newly captured bases in Tinian and Guam. While the US continued to proclaim adherence to tactical bombing, tests of firebombing options against Japanese homes throughout 1943-44 demonstrated that M-69 bombs were highly effective against the densely packed wooden structures of Japanese cities. [19] In the final six months of the war, the US threw the full weight of its air power into campaigns to burn whole Japanese cities to the ground and terrorize, incapacitate and kill their largely defenseless residents in an effort
to force surrender.

As Michael Sherry and Cary Karacas have pointed out for the US and Japan respectively, prophecy preceded practice in the destruction of Japanese cities, and well before US planners undertook strategic bombing. Thus Sherry observes that “Walt Disney imagined an orgiastic destruction of Japan by air in his 1943 animated feature Victory Through Air Power (based on Alexander P. De Seversky’s 1942 book),” while Karacas notes that the best-selling Japanese writer Unna Juzo, beginning in his early 1930s “air-defense novels”, anticipated the destruction of Tokyo by bombing. [20] Both reached mass audiences in the US and Japan, in important senses anticipating the events to follow.

Curtis LeMay was appointed commander of the 21st Bomber Command in the Pacific on January 20, 1945. Capture of the Marianas, including Guam, Tinian and Saipan in summer 1944 had placed Japanese cities within effective range of the B-29 “Superfortress” bombers, while Japan’s depleted air and naval power left it virtually defenseless against sustained air attack.

LeMay was the primary architect, a strategic innovator, and most quotable spokesman for US policies of putting enemy cities, and later villages and forests, to the torch from Japan to Korea to Vietnam. In this, he was emblematic of the American way of war that emerged from World War II. Viewed from another angle, however, he was but a link in a chain of command that had begun to conduct area bombing in Europe. That chain of command extended upward through the Joint Chiefs to the president who authorized what would become the centerpiece of US warfare. [22]

The US resumed bombing of Japan after a two-year lull following the 1942 Doolittle raids in fall 1944. The goal of the bombing assault that destroyed Japan’s major cities in the period between May and August 1945, the US Strategic Bombing Survey explained, was “either to bring overwhelming pressure on her to surrender, or to reduce her capability of resisting invasion. . . . [by destroying] the basic economic and social fabric of the country.” [23] A proposal by the Chief of Staff of the Twentieth Air Force to target the imperial palace was rejected, but in the wake of successive failures to eliminate such key strategic targets as Japan’s Nakajima Aircraft Factory west of Tokyo, the area bombing of Japanese cities was approved. [24]

The full fury of firebombing and napalm was unleashed on the night of March 9-10, 1945 when LeMay sent 334 B-29s low over Tokyo from the Marianas. Their mission was to reduce the city to rubble, kill its citizens, and instill terror in the survivors, with jellied gasoline and napalm that would create a sea of flames. Stripped of their guns to make more room for bombs, and flying at altitudes averaging 7,000 feet to evade detection, the bombers, which had been designed for high-altitude precision attacks, carried two kinds of incendiaries: M47s, 100-pound oil gel bombs, 182 per aircraft, each capable of starting a major
fire, followed by M69s, 6-pound gelled-gasoline bombs, 1,520 per aircraft in addition to a few high explosives to deter firefighters. [25] The attack on an area that the US Strategic Bombing Survey estimated to be 84.7 percent residential succeeded beyond the wildest dreams of air force planners. Whipped by fierce winds, flames detonated by the bombs leaped across a fifteen square mile area of Tokyo generating immense firestorms that engulfed and killed scores of thousands of residents.

Tokyo bombing along the Sumida River

In contrast with Vonnegut’s “wax museum” description of Dresden victims, accounts from inside the inferno that engulfed Tokyo chronicle scenes of utter carnage. We have come to measure the efficacy of bombing by throw weights and kill ratios, eliding the perspectives of their victims. But what of those who felt the wrath of the bombs?

Police cameraman Ishikawa Koyo described the streets of Tokyo as “rivers of fire . . . flaming pieces of furniture exploding in the heat, while the people themselves blazed like ‘matchsticks’ as their wood and paper homes exploded in flames. Under the wind and the gigantic breath of the fire, immense incandescent vortices rose in a number of places, swirling, flattening, sucking whole blocks of houses into their maelstrom of fire.”

Father Flaujac, a French cleric, compared the firebombing to the Tokyo earthquake twenty-two years earlier, an event whose massive destruction, another form of prophecy, had alerted both Japanese science fiction writers and some of the original planners of the Tokyo holocaust: [26]

In September 1923, during the great earthquake, I saw Tokyo burning for 5 days. I saw in Honjo a heap of 33,000 corpses of people who burned or suffocated at the beginning of the bombardment . . . After the first quake there were 20-odd centers of fire, enough to destroy the capital. How could the conflagration be stopped when incendiary bombs in the dozens of thousands now dropped over the four corners of the district and with Japanese houses which are only match boxes? . . . Where could one fly? The fire was everywhere.

Nature reinforced man's handiwork in the form of akakaze, the red wind that swept with hurricane force across the Tokyo plain and propelled firestorms across the city with terrifying speed and intensity. The wind drove temperatures up to eighteen hundred degrees Fahrenheit, creating superheated vapors that advanced ahead of the flames, killing or incapacitating their victims. "The mechanisms of death were so multiple and simultaneous—oxygen deficiency and carbon monoxide poisoning, radiant heat and direct flames, debris and the trampling feet of stampeding crowds—that causes of death were later hard to ascertain . . .” [27]
The Strategic Bombing Survey, whose formation a few months earlier provided an important signal of Roosevelt’s support for strategic bombing, provided a technical description of the firestorm and its effects on Tokyo:

The chief characteristic of the conflagration . . . was the presence of a fire front, an extended wall of fire moving to leeward, preceded by a mass of pre-heated, turbid, burning vapors . . . . The 28-mile-per-hour wind, measured a mile from the fire, increased to an estimated 55 miles at the perimeter, and probably more within. An extended fire swept over 15 square miles in 6 hours . . . . The area of the fire was nearly 100 percent burned; no structure or its contents escaped damage.

The survey concluded—plausibly, but only for events prior to August 6, 1945—that

“probably more persons lost their lives by fire at Tokyo in a 6-hour period than at any time in the history of man. People died from extreme heat, from oxygen deficiency, from carbon monoxide asphyxiation, from being trampled beneath the feet of stampeding crowds, and from drowning. The largest number of victims were the most vulnerable: women, children and the elderly.”

How many people died on the night of March 9-10 in what flight commander Gen. Thomas Power termed “the greatest single disaster incurred by any enemy in military history?” The Strategic Bombing Survey estimated that 87,793 people died in the raid, 40,918 were injured, and 1,008,005 people lost their homes. Robert Rhodes, estimating the dead at more than 100,000 men, women and children, suggested that probably a million more were injured and another million were left homeless. The Tokyo Fire Department estimated 97,000 killed and 125,000 wounded. The Tokyo Police offered a figure of 124,711 killed and wounded and 286,358 building and homes destroyed. The figure of roughly 100,000 deaths, provided by Japanese and American authorities, both of whom may have had reasons of their own for minimizing the death toll, seems to me arguably low in light of population density, wind conditions, and survivors’ accounts. [28] With an average of 103,000 inhabitants per square mile and peak levels as high as 135,000 per square mile, the highest density of any industrial city in the world, and with firefighting measures ludicrously inadequate to the task, 15.8 square miles of Tokyo were destroyed on a night when fierce winds whipped the flames and walls of fire blocked tens of thousands fleeing for their lives. An estimated 1.5 million people lived in the burned out areas. Given a near total inability to fight fires of the magnitude produced by the bombs, it is possible to imagine that casualties may have been several times higher than the figures presented on both sides of the conflict. The single effective Japanese government measure taken to reduce the slaughter of US bombing was the 1944 evacuation to the countryside of 400,000 children from major cities, 225, 000 of
them from Tokyo. [29]

Following the attack, LeMay, never one to mince words, said that he wanted Tokyo “burned down—wiped right off the map” to “shorten the war.” Tokyo did burn. Subsequent raids brought the devastated area of Tokyo to more than 56 square miles, provoking the flight of millions of refugees.

Curtis LeMay in the 1940s

No previous or subsequent conventional bombing raid ever came close to generating the toll in death and destruction of the great Tokyo raid of March 9-10. The airborne assault on Tokyo and other Japanese cities ground on relentlessly. According to Japanese police statistics, the 65 raids on Tokyo between December 6, 1944 and August 13, 1945 resulted in 137,582 casualties, 787,145 homes and buildings destroyed, and 2,625,279 people displaced. [30]

Following the Tokyo raid of March 9-10, the firebombing was extended nationwide. In the ten-day period beginning on March 9, 9,373 tons of bombs destroyed 31 square miles of Tokyo, Nagoya, Osaka and Kobe. Overall, bombing strikes destroyed 40 percent of the 66 Japanese cities targeted, with total tonnage dropped on Japan increasing from 13,800 tons in March to 42,700 tons in July. [31] If the bombing of Dresden produced a ripple of public debate in Europe, no discernible wave of revulsion, not to speak of protest, took place in the US or Europe in the wake of the far greater destruction of Japanese cities and the slaughter of civilian populations on a scale that had no parallel in the history of bombing.

In July, US planes blanketed the few remaining Japanese cities that had been spared firebombing with an “Appeal to the People.” “As you know,” it read, “America which stands for humanity, does not wish to injure the innocent people, so you had better evacuate these cities.” Half the leafleted cities were firebombed within days of the warning. US planes ruled the skies. Overall, by one calculation, the US firebombing campaign destroyed 180 square miles of 67 cities, killed more than 300,000 people and injured an additional 400,000, figures that exclude the atomic bombing of Hiroshima and Nagasaki. [32]

Between January and July 1945, the US firebombed and destroyed all but five Japanese cities, deliberately sparing Kyoto, the ancient imperial capital, and four others. The extent of the destruction was impressive ranging from 50 to 60% of the urban area destroyed in cities including Kobe, Yokohama and Tokyo, to 60 to 88% in seventeen cities, to 98.6% in the case of Toyama. [33] In the end, the Atomic Bomb Selection Committee chose Hiroshima, Kokura, Niigata, and Nagasaki as the pristine targets to display the awesome power of the atomic bomb to Japan and the world in the event that would both bring to a spectacular end the costliest war in human history and send a powerful message to the Soviet Union.
Michael Sherry has compellingly described the triumph of technological fanaticism as the hallmark of the air war that quintessentially shaped the American way of fighting and heavily stamped remembrances of the War ever after:

The shared mentality of the fanatics of air war was their dedication to assembling and perfecting their methods of destruction, and . . . doing so overshadowed the original purposes justifying destruction . . . . The lack of a proclaimed intent to destroy, the sense of being driven by the twin demands of bureaucracy and technology, distinguished America’s technological fanaticism from its enemies’ ideological fanaticism.

Technological fanaticism served to conceal the larger purposes of power both from military planners and the public. This suggestive formulation, however, conceals core ideological patterns at the heart of American strategic thought. Wartime technological fanaticism in my view is best understood as a means of operationalizing national goals. Taken for granted were the legitimacy and benevolence of American global power and a perception of the Japanese as both uniquely brutal and inherently inferior. Technology was harnessed to the driving force of American nationalism, which repeatedly came to the fore in times of war, and was fashioned under wartime conditions, beginning with the conquest of the Philippines in 1898 and running through successive wars and police actions in Latin America and Asia that spanned the long twentieth century. In other words, technological fanaticism is inseparable from American nationalism and conceptions of a benevolent American-dominated global order. In contrast to British, Japanese and other nationalisms associated with expansive powers, the American approach to the postwar order lay not in a vision centered on the acquisition of colonies but in a global network of military bases and naval and air power that only in recent years has begun to be understood as the American way of empire. [34]

Throughout the spring and summer of 1945 the US air war in Japan reached an intensity that is still perhaps unrivaled in the magnitude of human slaughter. [35] That moment was a product of the combination of technological breakthroughs, American nationalism, and the erosion of moral and political scruples pertaining to the killing of civilians, perhaps intensified by the racism that crystallized in the Pacific theatre. [36]

The targeting for destruction of entire populations, whether indigenous peoples, religious infidels, or others deemed inferior or evil, may be as old as human history, but the forms it takes are as new as the latest technologies of destruction and strategic innovation, of which air power, firebombing and nuclear weapons are particularly notable. [37] The most important way in which World War II
shaped the moral and technological tenor of mass destruction was the erosion in the course of war of the stigma associated with the systematic targeting of civilian populations from the air, and elimination of the constraints, which for some years had restrained certain air powers from area bombing. What was new was both the scale of killing made possible by the new technologies and the routinization of mass killing or state terrorism. If area bombing remained controversial throughout much of World War II, something to be concealed or denied by its practitioners, by the end of the conflagration it would become the acknowledged centerpiece of war making, emblematic above all of the American way of war even as the nature of the targets and the weapons were transformed by new technologies and confronted new forms of resistance. Indeed, for six decades the US (and those fighting under its umbrella) has been virtually alone in fighting wars and police actions notable for their reliance on airpower in general and the deliberate targeting for destruction of civilians, and the infrastructure that makes possible their survival, in particular. Certainly in this epoch no others have bombed on a scale approaching that of the US. The US would conceal the deliberate annihilation of noncombatants with the figleaf that Sahr Conway-Lanz describes as the myth of collateral damage, that is the claim, however systematic the bombing, that the intent was elimination of military targets, not the slaughter of noncombatants.

Concerted efforts to protect civilians from the ravages of war reached a peak in the aftermath of World War II in the founding of the United Nations, German and Japanese War Crimes Tribunals, and the 1949 Geneva Accords and its 1977 Protocol. The Nuremberg Indictment defined “crimes against humanity” as “murder, extermination, enslavement, deportation, and other inhumane acts committed against any civilian population, before or during the war,” language that resonated powerfully with the area bombing campaigns not only of Japan and Germany but of Britain and the US. [38] These efforts appear to have done little to stay the hand of power. Indeed, while the atomic bomb would leave a deep imprint on the collective consciousness of the twentieth century, memory of the area bombings and firebombing of major cities soon disappeared from the consciousness of all but the victims.

Prime Minister Tojo Hideki at Tokyo Trial

The ability to destroy an entire city and annihilate its population in a single bombing campaign was not only far more “efficient” and less costly for the attacker than previous methods of warfare, it also sanitized slaughter. Air power distanced executioners from victims, transforming the visual and tactile experience of killing. The bombardier never looks squarely into the eyes of the victim, nor does the act of destruction have the physical immediacy for the perpetrator of
decapitation by sword or even shooting with a machine gun. This may be particularly important when the principal targets are women, children and the elderly.

The atomic bombing of Hiroshima and Nagasaki was the pinnacle of the process of annihilation of civilian populations in the pursuit of military victory. While President Truman claimed that the Hiroshima bomb targeted a naval base, the decision to detonate the bomb in the skies above Hiroshima and Nagasaki was taken to maximize the killing of their inhabitants and the destruction of the built environment. It was also calculated to demonstrate to the Japanese government and people, to the authorities in the Soviet Union and other potential challengers of American preeminence, and to the people of the world, the omnipotence of American power and the certain destruction that would be visited on any who defied the United States. The debate over the use of the atomic bomb at Hiroshima and Nagasaki has reverberated throughout the postwar era, centered on the killing of noncombatants and on its significance in ending World War II and shaping the subsequent US-Soviet conflict that defined postwar geopolitics. [39] In a sense, however, the very focus of that debate on the atomic bomb, and later on the development of the hydrogen bomb, may have contributed to the silencing of the no less pressing issues associated with the killing of noncombatants with ever more powerful 'conventional' weapons.

The US did not drop atomic bombs again in the six decades since the end of World War II, although it repeatedly threatened their use in Korea, in Vietnam and elsewhere. But it incorporated annihilation of noncombatants in the bombing programs that have been integral to the successive “conventional wars” that it has waged subsequently. With area bombing at the core of its strategic agenda, US attacks on cities and noncombatants would run the gamut from firebombing, napalming, cluster bombing, and atomic bombing to the use of chemical defoliants and depleted uranium weapons and bunker buster bombs in an ever expanding circle of destruction. [40] Indiscriminate bombing of noncombatants has been responsible for the most massive destruction and loss of life throughout this epoch, even while the US staunchly maintains that it does not deliberately kill civilians, thereby hewing to Conway-Lanz’s collateral damage principle to protect it not only from political criticism in the US, but also from international criticisms.

World War II remains unrivaled in the annals of war by important measures such as the number of people killed and the scale of mass destruction. In that war, it was not the bombing of cities but Nazi genocide against Jews, Catholics, Romany, homosexuals and other Germans as well as Poles, the German invasion of the Soviet Union, and Japanese slaughter of Asian noncombatants that exacted the heaviest price in human lives. Each of these examples had its unique character and
historical and ideological origins. All rested on dehumanizing assumptions concerning the “other” and produced large-scale slaughter of noncombatant populations. Japan’s China war produced notable cases of atrocities that, then and later, captured world attention. They included the Nanjing Massacre, the bombings of Shanghai, Nanjing, Hankou, Chongqing and other cities, the enslavement of the comfort women, and the vivisection experiments and biowarfare bombs of Unit 731. Less noted then and since were the systematic barbarities perpetrated against resistant villagers, though this produced the largest number of the estimated ten to thirty million Chinese who lost their lives in the war, a number that far surpasses the half million or more Japanese noncombatants who died at the hands of US bombing, and may have exceeded Soviet losses to Nazi invasion conventionally estimated at 20 million lives. [41] In that and subsequent wars it would be the signature barbarities such as the Nanjing Massacre, the Bataan Death March, and the massacres at Nogunri and My Lai rather than the quotidian events that defined the systematic daily and hourly killing, which have attracted sustained attention, sparked bitter controversy, and shaped historical memory.

Maruki Iri and Maruki Toshi's Nanjing Massacre Mural

The war dead in Europe alone in World War II, including the Soviet Union, have been estimated in the range of 30 to 40 million, fifty percent more than the toll in World War I. To this we must add 25 to 35 million Asian victims in the fifteen-year resistance war in China (1931-45), approximately three million Japanese, and millions more in Southeast Asia. Among the important instances of the killing of noncombatants in World War II, the US destruction of Japanese cities is perhaps least known and least controversial. In contrast to the fierce and continuing debate over the atomic bombing of Hiroshima and Nagasaki, the Nazi extermination of Jews and others, and the far smaller-scale allied bombings of Dresden and Hamburg, and such Japanese atrocities as the Nanjing Massacre and the vivisection experiments of Unit 731, the US firebombing of Japanese cities has virtually disappeared from international and even American and Japanese historical memory of the war.

In World War I, ninety percent of the fatalities directly attributable to the war were military, nearly all of them Europeans and Americans. Most estimates place World War II casualties in Europe in the range of 50-60 percent noncombatants. In the case of Asia, when war-induced famine casualties are included, the noncombatant death toll was almost certainly substantially higher in both absolute and percentage terms. [42] The United States, its homeland untouched by war, suffered approximately 100,000 deaths in the entire Asian theater, a figure lower than that for the single Tokyo air raid of
March 10, 1945, and well below the death toll at Hiroshima or in the Battle of Okinawa. Japan's three million war dead, while thirty times the number of US dead, was still only a small fraction of the toll suffered by the Chinese who resisted the Japanese military juggernaut. These are numbers of relative casualties that the US, by fighting no war on its own soil since the Civil War, and by adapting strategies that maximize its technological and economic strength and minimize its own casualties, would replicate to even greater numerical advantage in subsequent wars.

World War II remains indelibly engraved in American memory as the “Good War” and in important respects it was. In confronting the war machines of Nazi Germany and Imperial Japan, the United States played a large role in defeating aggressors and opening the way for a wave of decolonization that swept the globe in subsequent decades. It was also a war that catapulted the United States to global supremacy and established the institutional foundations for the global projection of American power in a network of military bases and unrivaled technological supremacy.

For most Americans, in retrospect World War II seemed a “Good War” in another sense: the US entered and exited the war buoyed by absolute moral certainty borne of a mission to punish aggression in the form of a genocidal Nazi fascism and Japanese imperialism run amok. Moreover, Americans remember the generosity of US aid not only to war torn allies, but to rebuild the societies of former adversaries, Germany and Japan. Such an interpretation masks the extent to which Americans shared with their adversaries an abiding nationalism and expansionist urges. In contrast to earlier territorial empires, this took the form of new regional and global structures facilitating the exercise of American power. The victory, which propelled the US to a hegemonic position which carried authority to condemn and punish war crimes committed by defeated nations, remains a major obstacle to a thoroughgoing reassessment of the wartime conduct of the US in general, and issues of mass destruction carried out by its forces in particular.

World War II, building on and extending atavistic impulses deeply rooted in earlier civilizations and combining them with more destructive technologies, produced new forms of human depravity. German and Japanese crimes have long been subjected to international criticism from the war crimes tribunals of the 1940s to the present. [43] At Nuremberg and subsequent trials, more than 1,800 Germans were convicted of war crimes and 294 were executed. At the Tokyo Trials, 28 were indicted and seven were sentenced to death. At subsequent A and B class trials conducted by the allied powers between 1945 and 1951, 5,700 Japanese, Koreans and Taiwanese were indicted. 984 were initially sentenced to death (the sentences of 50 of these were commuted); 475 received life sentences, and 2,944 received limited prison terms. The result of military defeat, occupation, and war crimes tribunals has been
protracted and profound reflection and self-criticism by significant groups within both countries. In the case of Germany—but not yet Japan—there has been meaningful official recognition of the criminal conduct of genocidal and other barbaric policies as well as appropriate restitution to victims in the form of public apology and substantial official reparations. For its part, the Japanese state continues to reject official reparations claims to such war victims as Korean and Chinese forced laborers and the military comfort women (sexual slaves), while the war remains a fiercely contested intellectual-political issue as demonstrated by the decades long conflicts over textbook treatments of colonialism and war, the Yasukuni shrine (the symbol of emperor-centered nationalism, empire and war), the military comfort women, and the Nanjing Massacre controversies. [44]

In contrast to these responses to the war in Germany and Japan, and even to the ongoing debate in the US about the uses of the atomic bomb, there has been virtually no awareness of, not to speak of critical reflection on, the US bombing of Japanese civilians in the months prior to Hiroshima. The systematic bombing of Japanese noncombatants in the course of the destruction of Japanese cities must be added to a list of the horrific legacies of the war that includes Nazi genocide and a host of Japanese war crimes against Asian peoples. Only by engaging the issues, and above all the impact of this approach to the massive killing of noncombatants that has been central to all subsequent US wars, can Americans begin to approach the Nuremberg ideal that holds victors as well as vanquished to the same standards with respect to crimes against humanity, or the standard of the 1949 Geneva Accord which requires the protection of civilians in time of war. This is the principle of universality enshrined at Nuremberg and violated in practice by the US and others beginning with the 1946 trials, which declared US immunity from prosecution for war crimes.

In his opening address to the tribunal, Chief Prosecutor for the United States, Justice Robert Jackson, Chief of Counsel for the United States, spoke eloquently, and memorably, on the principle of universality. “If certain acts of violation of treaties are crimes,” he said, “they are crimes whether the United States does them or whether Germany does them, and we are not prepared to lay down a rule of criminal conduct against others which we would not be willing to have invoked against us....We must never forget that the record on which we judge these defendants is the record on which history will judge us tomorrow. To pass these defendants a poisoned chalice is to put it to our own lips as well.” [45]

Every US president from Roosevelt to George W. Bush has endorsed in practice an approach to warfare that targets entire populations for annihilation, one that eliminates all vestiges of distinction between combatant and noncombatant, with deadly consequences. The awesome power of the atomic bomb has obscured the fact that this strategy came of age in
the firebombing of Tokyo and became the centerpiece of US war making from that time forward.

That poisoned chalice was put to American lips in the 1945 trials and all the more so in subsequent wars. Sahr Conway-Lanz rightly points to the deep divisions among Americans seeking to strike an appropriate balance between combat and atrocity, and between war and genocide. [46] But with absolute American preponderance of technological power and the threat of enemies from Communists to terrorists magnified by government and the media, in practice, there were few restraints on the annihilation of noncombatants in the succession of US wars that have exacted such a heavy toll in lives. American self-conceptions of benevolence and justice have remained fixed not on the reality of the killing of noncombatants but on the combination of American intentions in combat and generosity in charting postwar recovery in all wars since 1945.

**Epilogue: Korea, Vietnam, Iraq and the Uses of Airpower to Target Noncombatants**

The centrality of the wholesale killing of noncombatants through the myriad uses of air power runs like a red line from the bombings of 1944-45 through the Korean and Indochinese wars to the Gulf, Afghanistan and Iraq wars. In the course of six decades since the firebombing and atomic bombing of Japan, while important continuities are observable, such as the firebombing and napalming of cities, new, more powerful and versatile aircraft and weapons would be deployed in the course of successive American wars fought predominantly in Asia.

General Curtis LeMay, the primary architect of the firebombing and atomic bombing strategy applied to Japan in 1945 played a comparable role in Korea and Vietnam. Never one to pull punches, or to minimize the claimed impact of bombing, LeMay recalled of Korea:

> We slipped a note kind of under the door into the Pentagon and said, “Look, let us go up there...and burn down five of the biggest towns in North Korea - and they’re not very big - and that ought to stop it.” Well, the answer to that was four or five screams - “You’ll kill a lot of non-combatants,” and “It’s too horrible.” Yet over a period three years or so...we burned down every town in North Korea and South Korea, too... Now, over a period of three years this is palatable, but to kill a few people to stop this from happening - a lot of people can’t stomach it.” [47]

In the course of three years, US/UN forces in Korea flew 1,040,708 sorties and dropped 386,037 tons of bombs and 32,357 tons of napalm. Counting all types of air borne ordnance, including rockets and machine-gun ammunition, the total tonnage comes to 698,000 tons. Marilyn Young estimates the death toll in Korea, most of it noncombatants, at two to four million, and in the South alone, more than five million people had been
displaced, according to UN estimates. [48]

One striking feature of these wars has been the extension of bombing from a predominantly urban phenomenon to the uses of airpower directed against rural areas of Korea and Vietnam, leading the United States to breach another of international principles that had sought to curtail indiscriminate attacks on noncombatants. Beginning in Korea, US bombing was extended from cities to the countryside with devastating effects. In what Bruce Cumings has called the “final act of this barbaric air war,” in spring 1953 North Korea’s main irrigation dams were destroyed shortly after the rice had been transplanted. [49]

Here we consider one particularly important element of American bombing of Vietnam. Franklin Roosevelt, in 1943 issued a statement that long stood as the clearest expression of US policy on the use of chemical and biological weapons. In response to reports of Axis plans to use poison gases, Roosevelt warned that “use of such weapons has been outlawed by the general opinion of civilized mankind. This country has not used them, and I hope that we never will be compelled to use them. I state categorically that we shall under no circumstances resort to the use of such weapons unless they are first used by our enemies.” [50] This principle, incorporated in US Army Field Manual 27-10, Law of Land Warfare, issued in 1954, affirmed the principle of no first use of gas warfare and bacteriological warfare. By 1956, that provision had disappeared, replaced by the assertion that the US was party to no treaty in force “that prohibits or restricts the use in warfare of toxic or nontoxic gases, or smoke or incendiary materials or of bacteriological warfare.” US CBW research and procurement efforts, that began in the early 1950s and culminated in the Kennedy administration in the early 1960s, resulted in the use of chemical and biological weapons both against Vietnamese forces and nature, specifically extending from the destruction of forest cover to the destruction of crops. As Seymour Hersh documents, the US CBW program in Vietnam “gradually escalated from the use of leaf-killing defoliants to rice-killing herbicides and nausea-producing gases.” [51]

How widespread were US gas attacks in Vietnam? A 1967 Japanese study of US anticrop and defoliation attacks prepared by the head of the Agronomy Section of the Japan Science Council concluded that more than 3.8 million acres of arable land in South Vietnam was ruined and more than 1,000 peasants and 13,000 livestock were killed. [52] In the face of US military claims that the gases were benign, Dr. Pham Duc Nam told Japanese investigators that a three-day attack near Da Nang from February 25 to 27, 1966 had poisoned both livestock and people, some of whom died. “Pregnant women gave birth to still-born or premature children. Most of the affected cattle died from serious diarrhea, and river fish floated on the surface of the water belly up, soon after the chemicals were spread.” [53]

Before turning to Iraq, it is worth recalling President Nixon’s comments on
the bombing of Cambodia as preserved in the Kissinger tapes released in May 2004. In a burst of anger on Dec. 9, 1970, when Nixon railed over what he saw as the Air Force’s lackluster bombing campaign in Cambodia. Kissinger responded: “The Air Force is designed to fight an air battle against the Soviet Union. They are not designed for this war.” Nixon then exploded: “I want them to hit everything. I want them to use the big planes, the small planes, everything they can that will help out there, and let’s start giving them a little shock.” Here was an early warning signal of the “Shock and Awe” strategy of a generation later. Kissinger relayed the order: “A massive bombing campaign in Cambodia. Anything that flies on anything that moves.” [54] In the course of the Vietnam War the US embraced chemical and biological weapons of mass destruction as integral parts of its arsenal.

Another story of indiscriminate bombing in Cambodia came to light thirty six years after the events. The new evidence makes clear that Cambodia was bombed far more heavily than was previously known, and that, unbeknownst to the American public or the world, it began not with Nixon in 1970 but on October 4, 1965. During a fall 2000 visit to Vietnam, President Clinton made available detailed Air Force records to help the Vietnamese, Cambodian and Laotian governments to uncover the remains of two thousand missing American soldiers. The records provided specific data on place and scale of bombing. The incomplete data reveal that October 4, 1965, to August 15, 1973, the United States dropped far more ordnance on Cambodia than was previously believed: 2,756,941 tons’ worth, dropped in 230,516 sorties on 113,716 sites. The consequences go far beyond the dead, the injured, and the continued dangers of unexploded ordinance. As Taylor Owen and Ben Kiernan argue persuasively, “Civilian casualties in Cambodia drove an enraged populace into the arms of an insurgency that had enjoyed relatively little support until the bombing began, setting in motion the expansion of the Vietnam War deeper into Cambodia, a coup d’état in 1970, the rapid rise of the Khmer Rouge, and ultimately the Cambodian genocide.” [55]

It is notable, by contrast to the preceding six decades of American warfare, that the centrality of the image of airpower and the bomb as the summa of destructive might, has shifted dramatically in the Iraq War: Americans remember World War II above all as the crowning achievement of air power, symbolized and mythologized by the atomic bombing of Hiroshima and Nagasaki; they remember the era of US-Soviet confrontation above all as one of nuclear standoff; and they remember both Korea and Vietnam in no small part through images of American predominance in the air, as in the bombing of Hanoi and North Vietnam as well as the defoliation using Agent Orange, air power. But, as Michael Sherry observes, air power has largely receded from consciousness in the wake of the collapse of the Soviet Union and the shift in target from the other
superpower to faceless terrorists associated with Al-Qaeda and Islamic militants. Sherry concludes that a sea change has occurred, a shift from prophecy to memory in which air power declines in American consciousness: "Bombers attacking Baghdad, B-52s over Belgrade, Russian planes hitting Grozny, rulers bombing their own peoples—the scale of those operations (however devastating for the locals) and the fact that they involved such unequal forces did not stir Americans' apocalyptic fears and fantasies." Where air power did appear in American consciousness, he finds, "American bombing came across on U.S. television screens more as a fascinating video game than as a devastating onslaught." More importantly, he concludes, because of the attack on New York's Twin Towers and the Pentagon on 9/11, and because of the horrific images that it conjured, in contrast to the heroic images of air power in World War II, the prophecy associated with it "did not seem to last long or run deep." [56]

In thinking about the Iraq War and contemporary American consciousness, I would like to suggest an alternative scenario. First, I believe that 9/11 and the Twin Towers in flames remains the iconic image of our times in American consciousness. It is the central mobilizing image for US war making and the primal impulse that drives American fears of the future. Second, as Seymour Hersh and others have observed, the US military, while continuing to pursue massive bombing of Iraqi neighborhoods, above all in the destruction of Falluja but even in Baghdad, has chosen to throw a cloak of silence over the air war. The major media have faithfully honored official dicta in this as in so many other ways. [57] Finally, among the George W. Bush administration's major initiatives have been the efforts to seize control of space as the centerpiece of global domination in an era that is slated to replace the bomber as the primary delivery weapon of mass destruction. [58] Air power remains among the major causes of death, destruction, dislocation and division in contemporary Iraq in a war that had taken approximately 655,000 lives by the summer of 2006 in the most authoritative study to date, that of The Lancet) and created more than two million refugees abroad and an equal number displaced internally (one in seven Iraqis are displaced). Largely unreported in the US mainstream press, and invisible in US television news and reportage, this is the central reality that confronts the Iraq people. US strategy has produced the explosive social divisions that promise to lead to permanent warfare in Iraq and throughout the region. Despite the unchallenged air supremacy that the US has wielded in Iraq since 1991 and especially since 2003, there is no end in sight to US warfare and civil war in Iraq and throughout the region. [59]

Falluja under US bombardment, 2004

We have shown the decisive impact of the final year of World War II in setting in
place the preeminence of strategic bombing as quintessential to the US way of war, one that would characterize subsequent major wars that have wreaked yet greater devastation on noncombatant populations. Yet for all the power unleashed by US bombers, for all the millions of victims, in the six decades since 1945, victory against successive, predominantly Asian foes, has proved extraordinary elusive for the United States.

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Notes

* The author thanks Noam Chomsky, Bruce Cumings, John Dower, Laura Hein, Gavan McCormack, and Michael Sherry for critical comments, sources and suggestions. The term holocaust used in the title draws on its original meaning. The Oxford English Dictionary provides this definition: “Complete consumption by fire; complete destruction, especially of a large number of persons; a great slaughter or massacre.”


[4] A valuable synthesis of the literature on war and the noncombatant is Sahr Conway-Lanz, Collateral Damage: Americans, Noncombatant Immunity, and Atrocity After World War II (London: Routledge, 2006). A. C. Grayling, Among the Dead Cities. The History and Moral Legacy of the WWII Bombing of Civilians in Germany and Japan (New York: Walker & Company, 2006), subjects the British and American choice of area bombing in World War II in Germany and Japan to rigorous scrutiny from the perspectives of morality, international law, and effectiveness. The terms area bombing, strategic bombing and indiscriminate bombing refer to the wholesale destruction of large areas of cities, frequently with the annihilation of the civilian population. By contrast tactical bombing is directed to discrete military and/or military-industrial targets such as military bases and airfields, bridges, and munitions factories. In practice, given technical limitations, bombs directed at military targets frequently exacted heavy civilian tolls. I address the issues of state
terrorism and the targeting of civilians by Japan and the United States in Mark Selden and Alvin So, eds., *War and State Terrorism: The United States, Japan and the Asia Pacific in the Long Twentieth Century* (Lanham: Rowman and Littlefield, 2004).

[5] A small number of works have drawn attention to US war atrocities, typically centering on the torture, killing and desecration of captured Japanese soldiers. These include Peter Schrijvers, *The GI War Against Japan. American Soldiers in Asia and the Pacific During World War II* (New York: NYU Press, 2002) and John Dower, *War Without Mercy: Race and Power in the Pacific War* (New York: Pantheon, 1986). *The Wartime Journals of Charles Lindbergh* (New York: Harcourt Brace Jovanovich, 1970) is seminal in disclosing atrocities committed against Japanese POWs. Two recent works closely assess the bombing of noncombatants and the ravaging of nature and society as a result of strategic bombing that has been ignored in much of the literature. A. C. Grayling, *Among the Dead Cities*, provides a thoroughgoing assessment of US and British strategic bombing (including atomic bombing) through the lenses of ethics and international law. Grayling’s premise is that Allied bombing which “deliberately targeted German and Japanese civilian populations” and “claimed the lives of 800,000 civilian women, children and men,” “is nowhere near equivalent in scale of moral atrocity to the Holocaust of European Jewry, or the death and destruction all over the world for which Nazi and Japanese aggression was collectively responsible,” a figure that he places at 25 million dead. He nevertheless concludes that the US and British killing of noncombatants “did in fact involve the commission of wrongs” on a very large scale. Pp 5-6; 276-77. Michael Bess, in *Choices Under Fire. Moral Dimensions of World War II* (New York: Knopf, 2006), pp. 88-110, in a chapter on “Bombing Civilian Populations,” asks this question: “did this taint the victory with an indelible stain of innocent blood?” After reviewing both strategic and ethical issues, he concludes “There can be no excuse, in the end, for the practices of large-scale area bombing and firebombing of cities; these were atrocities, pure and simple. They were atrocities because the Anglo-Americans could definitely have won the war without resorting to them.” It is necessary, in my view, to go further to inquire whether these would have constituted atrocities in circumstances in which the bombing, presumably including atomic bombing, were necessary for securing US victory.

[6] Grayling, *Among the Dead Cities*, pp. 90-91. Grayling goes on to note the different experiences of survivors of the two types of bombing, particularly as a result of radiation symptoms from the atomic bomb.


[8] The question of universality has been the centerpiece of Noam Chomsky’s critique of the conduct of the powers, above all the United States, from his earliest political writings to the


The first major British success came at Hamburg in 1943 when firebombing destroyed large parts of the city and took 44,000 lives. Grayling traces British and German shift from tactical to strategic bombing in the early years of the war, Among the Dead Cities, pp. 31-76.


[13] Sherry, Air Power, p. 260. With much U.S. bombing already relying on radar, the distinction between tactical and strategic bombing had long been violated in practice. The top brass, from George Marshall to Air Force chief Henry Arnold to Dwight Eisenhower, had all earlier given tacit approval for area bombing, yet no orders from on high spelled out a new bombing strategy.


[15] Schaffer, Wings, p. 97; see also Sherry, Air Power, pp. 260-63. Grayling makes a compelling case for the failure of area bombing of Germany to achieve its objective of breaking morale and causing heavy destruction of cities and military-related industries, thereby forcing surrender, Among the Dead Cities, pp. 106-07. Robert Pape made a similar argument for Japan, stressing other factors including naval blockade, threat of invasion, and the Soviet entry into the
war as having far greater significance than the firebombing. *Bombing to Win: Air Power and Coercion in War* (Ithaca: Cornell University Press, 1996). The extensive American debate over Japan’s surrender has paid little attention to the firebombing, concentrating on the three issues of the atomic bombs, the Russian entry into the war, and US terms with respect to Emperor Hirohito.

[16] The most eloquent criticism was the writing of Vera Brittain. Grayling, *Among the Dead Cities*, pp. 180-86. In the midst of the Dresden debate, On March 28, 1945, Churchill issued a minute questioning the area-bombing strategy and raising the question of whether tactical bombing of key objectives was not more effective. The minute was withdrawn following air force protests. Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany 1939-45* (London: HMSO, 1961), p. 112.


[20] Michael Sherry, “The United States and Strategic Bombing: From Prophecy to Memory,” forthcoming; Cary Karacas, “Imagining Air Raids on Tokyo, 1930-1945,” paper presented at the Association for Asian Studies annual meeting, Boston, March 23, 2007, pp. 2-5. Sherry traces other prophecies of nuclear bombing back to H.G. Wells 1913 novel *The World Set Free*. Sherry makes clear that prophecy has the capacity to speak forcefully not only to proponents but also to energize opponents of the envisaged future.


[22] Cf. Stewart Udall’s discussion of responsibility for the US shift to area bombing, centering on President Roosevelt, Secretary of War Henry Stimson, and Air Force Secretary Robert Lovett, and the difficulty of documenting responsibility for the policy shift. Sherry and Schaffer provide the most exhaustive study of the shift in U.S. bombing policy.


were vulnerable to attack by fighter-interceptors. However, US attacks in mid-February destroyed most of the 530 interceptors protecting the Kanto region. Karacas, “Imagining Air Raids on Tokyo,” p. 27. In Japan in spring and summer 1945, as in virtually all subsequent bombing campaigns conducted over the next six decades, the US ruled the sky with virtually no enemy capacity to destroy its bombers.


[27] Sherry, Air Power, p. 276. A detailed photographic record, including images of scores of the dead, some burnt to a crisp and distorted beyond recognition, others apparently serene in death, and of acres of the city flattened as if by an immense tornado, is found in Ishikawa Koyo, Tokyo daikushu no zenkiroku (Complete Record of the Great Tokyo Air Attack) (Tokyo, 1992); Tokyo kushu o kiroku suru kai ed., Tokyo daikushu no kiroku (Record of the Great Tokyo Air Attack) (Tokyo: Sanseido, 1982), and Dokyumento: Tokyo daikushu (Document: The Great Tokyo Air Attack) (Tokyo: Yukeisha, 1968).

[28] The Survey’s killed-to-injured ratio of better than two to one was far higher than most estimates for the atomic bombing of Hiroshima and Nagasaki where killed and wounded were approximately equal. If accurate, it is indicative of the immense difficulty in escaping for those near the center of the Tokyo firestorm on that windswept night. The Survey’s kill ratio has, however, been challenged by Japanese researchers who found much higher kill ratios at Hiroshima and Nagasaki, particularly when one includes those who died of bomb injuries months and years later. In my view, the SBS estimates both exaggerate the killed to injured ratio and understate the numbers killed in the Tokyo raid. The Committee for the Compilation of Materials on Damage Caused by the Atomic bombs in Hiroshima and Nagasaki, Hiroshima and Nagasaki: The Physical, Medical and Social Effects of the Atomic Bombing (New York: Basic Books, 1991), pp. 420-21; Cf. U.S. Strategic Bombing Survey, Field Report Covering Air Raid Protection and Allied Subjects Tokyo (n.p. 1946), pp. 3, 79. In contrast to the atomic bombing of Hiroshima and Nagasaki, which for fifty years have been the subject of intense research by Japanese, Americans and others, the most significant records of the Tokyo attack are those compiled at the time by Japanese police and fire departments. In the absence of the mystique of the atomic bomb and the ongoing national and global focus on that event, there was no compelling reason to continue to monitor the results of firebombing attacks on Japanese cities following surrender. And neither the US military nor the Japanese government produced significant records of the destruction during the occupation. The U.S. Strategic Bombing Survey study of Effects of Air Attack on Urban Complex Tokyo-Kawasaki-Yokohama (n.p. 1947), p. 8, observes that Japanese police estimates of 93,076 killed and 72,840 injured in Tokyo air raids make no mention of the numbers of people missing. Surely, too, many classified as injured died subsequently of their wounds. In contrast to the monitoring of atomic bomb deaths over the subsequent six decades, the Tokyo casualty figures at best record deaths and injuries within days of the bombing at a time when the capacity of the Tokyo military and police to compile records had been overwhelmed. Many more certainly died in the following weeks and months. The bombing of Tokyo and other Japanese cities has attracted little scholarly attention either in Japan (with the exception of local museums and local
and more.


[40] Bombing would also be extended from cities to the countryside, as in the Agent Orange defoliation attacks that destroyed the forest cover and poisoned residents of sprayed areas of Vietnam.


[46] *Collateral Damage*, pp. 18-19. Conway-Lanz traces major US debates since 1945 centered on noncombatant deaths to show that the question of intention, not the scale of noncombatant deaths caused by American actions, repeatedly trumped counter arguments in policy debates over atomic and hydrogen bombs and the targeting of cities and villages for destruction.


[48] Young, “Total War.”


[52] Hersh, *Chemical and Biological Warfare*, pp. 131-33. Hersh notes that the $60 million worth of defoliants and herbicides in the 1967 Pentagon budget would have been sufficient to defoliate 3.6 million acres if all were used optimally.

[53] Hersh, *Chemical and Biological Warfare*, pp. 134, 156-57. Canadian Dr.
Alje Vennema described the symptoms of gas victims at Quang Ngai hospital where he worked in 1967, including two children and one adult who died.


