

Military Culture and Civilian Victimization: The Allied Bombing of Germany in World War II

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Abstract

What explains the breakdown of restraints on bombing civilians in World War II? More broadly, why do belligerents employ military strategies that target civilians in war? Recent studies advance the argument that states escalate the use of force against noncombatants when their militaries have cultures that prescribe punishing enemy civilians, and refrain when military cultures focus on counterforce targets. Cultural explanations, however, suffer from two significant weaknesses: (1) few states plan to attack noncombatants before wars break out, and the few that do sometimes refrain from immediately implementing such a strategy because of the enemy's ability to retaliate; (2) the vast majority of systematic targeting of noncombatants in wartime occurs when militaries' initial counterforce strategies fail to deliver a quick and decisive victory. Escalation to civilian victimization then occurs whether or not it is compatible with military culture because it is a logical response to the rising costs of battle as well as the need to achieve victory or stave off defeat. Evidence from a case study of U.S. bombing of Germany in World War II supports this "desperation" argument, showing that despite a culture of precision bombing, the U.S. Army Air Force responded to unsustainable losses in 1943 by adopting a strategy of highly inaccurate radar bombing, which experts have shown was area bombing by another name. I conclude by offering a cautionary note to those who argue that the culture of modern democratic militaries serves as a robust restraint on targeting civilians.

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World War II witnessed an astonishing breakdown of restraints on the aerial bombardment of civilian populations. Although the Axis powers were the first to unleash their bombers against civilian targets in China (1937), Poland (1939), and Great Britain (1940-41), Germany, Italy, and Japan soon reaped the whirlwind. The practice of bombing cities, portrayed before the war by the democratic powers as having “a special place in the hearts of fascists” (Sherry 1987, 71), was perfected by the British and American air forces at places like Hamburg, Dresden, and Tokyo, culminating in the atomic bombings of Hiroshima and Nagasaki in August 1945. The Allied bombing of Germany killed at least 305,000 noncombatants; another 330,000 to 900,000 perished under American bombs in Japan (Pape 1996, 272; Schaffer 1985, 148). What explains this breakdown of restraints on the war in the air and the resultant civilian carnage? More generally, why do states violate the principle of noncombatant immunity and adopt military strategies during war that target and kill enemy civilians?

Explanations based in government regime type have difficulty accounting for the similarity in patterns of bombing by democratic and non-democratic states in World War II. Similarly, arguments emphasizing racism or perceptions of the adversary’s identity as “barbaric” or “uncivilized” are consistent with the U.S. bombing of Japan—given the racist stereotypes that pervaded the war in the Pacific (Dower 1986)—but are less satisfactory for explaining the mutual targeting of civilians between Britain and Germany. Other explanations focus on the role of influential military commanders—such as Arthur “Bomber” Harris of the British Royal Air Force (RAF) and Gen. Curtis LeMay of the U.S. Army Air Forces (USAAF)—in triggering and perpetuating the bombing (Hansen 2008; Crane 1993), but these “great general” arguments neglect the reality that civilians were ultimately in charge and underplay the broader forces pushing for escalation.

Contrary to these theories, recent studies of British and German war-fighting in World War II, the army of Wilhelmine Germany, and U.S. conduct in Iraq argue that the organizational culture of states' militaries explains the propensity of states to escalate the use of force against civilians in wartime (Legro 1994, 1995, 1997; Hull 2003, 2005; Kahl 2007). Organizational culture refers to the "the pattern of assumptions, ideas, and beliefs that prescribes how a group should adapt to its external environment and manage its internal affairs" (Legro 1997, 35). The culture of an organization represents the conventional wisdom inside the organization regarding its goals and how it should go about achieving those goals. In military services, which are in the business of using force to defeat the nation's enemies, organizational culture prescribes how and with what means the service should fight in wartime. The cultures of military organizations thus dictate strategy and also shape procurements, as services will seek to build weapons that support their preferred strategy. Proponents of the organizational culture approach argue that when military services have cultures or doctrines that favor stigmatized forms of combat, such as the use of chemicals, submarines for commerce raiding, or bombers for urban area attacks, states are likely to cross the line against using these weapons in warfare (Legro 1995). Specifically, when a military's organizational culture prescribes a strategy that relies for its effect on the punishment of civilian populations, states will typically escalate to the intentional killing of noncombatants and sometimes even genocide during a war. In the case of World War II bombing, for example, Legro compares the German Luftwaffe with British Bomber Command, arguing that the former largely eschewed strategic bombing because it was influenced by the "culture of land power" that pervaded Germany's armed forces, whereas the latter embraced area bombing because of a military culture that emphasized destroying enemy civilian morale (Legro 1995, 110-16, 129-33).

In general, accounts featuring organizational culture suffer from two significant weaknesses. First, as an empirical fact, few states plan to implement policies of civilian victimization before wars break out, and even fewer military organizations formulate such strategies in peacetime.¹ Even when militaries do have strategies that call for civilian victimization, these are not automatically and immediately carried out upon the outbreak of war. The enemy's ability to retaliate against the state's own civilians also sometimes dictates a strategy that avoids noncombatants in a conflict's early phases. British Bomber Command, for example, possessed a strategy predicated on bombing urban areas but was restrained from implementing it in the war's early years because British political leaders hoped to avoid provoking German attacks on British cities.²

Second, the vast majority of systematic targeting of noncombatants in wartime occurs when militaries' initial counterforce strategies fail to deliver a quick and decisive victory. States typically begin wars by attacking an adversary's military forces or resources, only turning to strikes on noncombatants when counterforce strategies do not succeed. Escalation to civilian victimization then occurs whether or not it is compatible with military culture because it is a logical response to the rising costs of battle as well as the need to achieve victory or stave off defeat (Downes 2008). This sequence precisely describes the course of the German Luftwaffe's bombing of Britain in 1940 and 1941. Hitler initially tasked his air force to cripple British Fighter Command to pave the way for a sea-borne invasion of the British Isles; in the resulting Battle of Britain, the Luftwaffe tried to destroy British fighter aircraft on the ground and in the air by bombing RAF airfields and drawing British fighters into aerial dogfights. When the Luftwaffe failed to drive the RAF from the skies, it was eventually redirected to bomb British

cities—in a campaign infamously known as “The Blitz”—in the hope that, “everything else having failed, *Terrorangriffe* would bring the British to their senses” (Overy 1978, 160).³

In this chapter, therefore, I argue that military organizations characterized by cultures that favor escalation vis-à-vis noncombatants are neither necessary nor sufficient for policies of civilian victimization to be adopted. On the one hand, possessing a doctrine that is congruent with civilian victimization—such as the area bombing doctrine developed by British Bomber Command in the interwar period—does not automatically lead to the adoption of such a strategy. On the other hand, militaries that do not plan to kill civilians—like the German Luftwaffe and, as I demonstrate below, the USAAF—nevertheless sometimes end up doing so because of the military circumstances they face in a conflict. Specifically, when states become bogged down in wars of attrition, suffer increasingly high operational costs, or become increasingly desperate to prevail on the battlefield, even military organizations that possessed little predisposition to target noncombatants are driven to take this step to manage their losses and help win the war.

I illustrate this argument with a focused case study of the U.S. bombing of Nazi Germany in the Second World War. Often contrasted with Britain’s policy of “promiscuous bombing” of urban areas, the United States Army Air Forces entered the fray in 1942 with a precision bombing doctrine that called for the destruction of critical nodes in an adversary’s war economy, which would fatally undermine the enemy’s ability to wage war and demoralize its civilian population. Owing to a series of disastrous daylight raids in the summer and fall of 1943, however, U.S. forces implemented a policy of radar bombing through clouds that conserved U.S. aircraft but drastically increased the loss of life among German civilians. Far from seeking to minimize this “collateral damage,” the Americans capitalized on the inaccuracy of radar bombing by dropping bomb loads with high proportions of incendiary bombs, weapons

appropriate for burning homes rather than blowing up hard targets.⁴ Moreover, U.S. airmen launched about 70 self-described area raids, the descriptions of which were later altered to disguise that the intended targets were noncombatants.⁵

This case study demonstrates the limitations of an organizational culture approach to escalation in war, in this case escalation against civilians. The culture of the USAAF prescribed a precision bombing strategy at the war's outset. When U.S. air leaders encountered operational failure and potentially incapacitating losses, however, the pressures of attrition warfare led them to supplement costly precision bombing with safer radar bombing, thereby killing tens of thousands of German civilians (Davis 2003, 65-84). In this, they followed in the footsteps of the German Luftwaffe, which—although committed to a policy of bombing in support of Germany's land forces—eventually blitzed Britain in response to losses incurred in the Battle of Britain, taking 40,000 civilian lives (Downes 2008, 142-55). This is not to imply that the USAAF totally abandoned its culture: U.S. forces continued to bomb military targets visually when conditions allowed, and described their operations in terms of precision bombing. Rather, indiscriminate radar bombing coexisted with precision bombing; culture was not enough to protect German civilians in the face of adverse military circumstances. This argument sounds a cautionary note to those who contend that the cultures of militaries in today's advanced democracies bar the way to escalation against enemy civilian populations in future wars.

The paper is organized as follows. First, it fleshes out the organizational culture argument in greater detail. Second, it examines the culture of the U.S. Army Air Forces on the eve of World War II, derives predictions for how U.S. bombing should have unfolded, and briefly lays out the alternative explanation sketched above, which emphasizes the costs of fighting and expectations of victory and defeat. Third, the paper traces the course of U.S. bombing of

Germany to determine which theory better explains actual events. The conclusion applies the competing predictions of the two theories to escalation in future wars.

ORGANIZATIONAL CULTURE AND THE LOGIC OF ESCALATION

Proponents of organizational culture argue that the beliefs inside military organizations regarding the appropriate ways to fight and win wars serve as the best indicators of escalation in a given means of fighting. In a book and a series of influential articles in the mid-1990s, Jeffrey Legro examined the strategic choices of Britain and Germany in World War II in three areas of stigmatized warfare: unrestricted commerce raiding by submarines, strategic bombing of civilians or civilian areas, and chemical warfare. Legro found that states were most likely to violate normative or legal prohibitions in each of these modes of fighting when escalation fit well with the preconceived ideas and strategies of the military branch in question. States were likely to comply with these restraints, by contrast, when escalation did not mesh with the relevant organization's beliefs about how to fight (Legro 1994, 1995, 1997).

In contrast to theories based in organizations' parochial interests, the organizational culture approach allows for similarly-placed organizations to develop differing orientations and strategies depending on a variety of factors specific to the organization (Legro 1997, 35).⁶ Complex organizations generate sets of beliefs, ways of doing business, and standard operating procedures over time based on their perception of their mission or goals that guide how the organization's members define themselves, the world around them, and appropriate ways to behave. "The basic assumptions that organizations acquire, by whatever means, structure their perceptions of their own essence and purpose, of the problems they must solve, and of the ways they should solve them," writes Isabel Hull. "Culture defines, and therefore narrows, perceptions

and, by reducing the alternatives, makes it easier for individuals and organizations to define tasks and make decisions” (Hull 2005, 96). Individual members of the organization are socialized to this culture and reproduce it; those who fail to adapt do not get promoted and are often shunted out of the group. Tasks and functions that fit with the organization’s core beliefs are funded and rewarded, whereas those that do not are ignored or starved of resources.

Military organizations—just like corporations or other government bureaucracies—develop distinctive cultures over time that shape how they plan to fight wars and the means they acquire to implement their preferred strategy (Legro 1995, 28). In the late nineteenth and early twentieth century, for example, “battleship” cultures pervaded the navies of the world’s great powers, leading them to overvalue capital ships and neglect the development of submarines in the years prior to World War I. Similarly, the U.S. Army developed a concept of high intensity conventional warfare after World War II designed to fight the Soviets in Central Europe that it employed to ill effect in Vietnam (Krepinevich 1986).

Beyond arguing that the cultures or preexisting strategies of military organizations affect the way that militaries prepare for and conduct wars, proponents of organizational culture argue that these ideas best predict when a country will choose to escalate in a stigmatized form of warfare. According to Legro, “An organizational-culture perspective posits that state preferences on restraint originate in the fit between a particular means of warfare and the collective beliefs of the military services that deploy the means in question....*States will prefer mutual restraint in a particular mode of force if it is antithetical to the war-fighting culture of their military bureaucracy. States will favor escalation when the organizational cultures of their military bureaucracies are compatible with us*” (Legro 1995, 28-29; italics in original). This hypothesis, while formulated as a general proposition regarding willingness to resort to “illegitimate”

military means, can be recast more narrowly in terms of noncombatant immunity: states will target enemy civilians if the cultures of their militaries embrace strategies predicated on defeating an adversary by punishing its civilian population. States will observe noncombatant immunity and kill relatively few civilians when they have military cultures that favor counterforce targeting. As noted above, Legro (1995) argues that the contrasting organizational cultures of the Luftwaffe and Bomber Command explain the different bombing strategies adopted by Germany and Britain in World War II. Similarly, Hull argues that a culture of “pure victory of military force” pervaded the German Army under Wilhelm II, an outlook that could lead to escalation and mass civilian death (as in the Herero War of 1904) when German arms failed to deliver a quick and decisive victory (Hull 2005, 28). Colin Kahl maintains that U.S. restraint in Iraq since 2003 is explained by the U.S. military’s internalization of the law of armed conflict in the wake of Vietnam (Kahl 2007).

CULTURAL (AND OTHER) EXPLANATIONS FOR U.S. BOMBING OF GERMANY

This section first examines the organizational culture of the U.S. Army Air Forces on the eve of World War II by scrutinizing the views of air force officers, the doctrine the AAF developed and taught to its members, and key documents describing how the organization planned to wage war. It then deduces expectations for how U.S. bombing of Germany should have unfolded. Third, it briefly outlines a competing explanation, which argues that civilian victimization is largely a function of increasing costs of fighting and declining expectations of victory. This alternative view predicts that U.S. bombers should have turned increasingly against civilians as the costs of executing precision bombing became intolerable.

A CULTURE OF PRECISION STRATEGIC BOMBING

The USAAF in the interwar period developed a culture of precision strategic bombing. The strategy produced by this culture, variously called the industrial web or critical node theory, was premised on the belief that industrial economies were relatively fragile, a condition that grew worse in wartime as the system was pushed to maximum productivity. Developed and taught at the Air Corps Tactical School (ACTS) in the 1930s, the theory argued that wartime economies were deeply interdependent. Destroying one or a few critical components or nodes in the economy could bring production to a grinding halt. As a lecture at ACTS put it in 1939, “Modern warfare places an enormous load upon the economic system of a nation, which increases its sensitivity to attack manifold. Certainly a breakdown in any part of this complex interlocked organization must seriously influence the conduct of war by that nation, and greatly interfere with the social welfare and morale of its nationals” (quoted in Pape 1996, 63; see also Biddle 2002, 160).

The USAAF’s culture of precision bombing occupied a middle ground between those of the Luftwaffe and British Bomber Command. Like the Germans, the USAAF intended to strike particular targets rather than obliterate entire areas. Like the British, however, the Americans planned to use airpower independently to destroy strategic targets (industrial infrastructure), and the ultimate goal of this strategy was to bring about a collapse in enemy (civilian) morale. As Biddle points out, “In both the RAF and the Air Corps, the general objective of the bomber advocates was the same: to undermine the enemy’s will to fight—directly and efficiently—by aerial attacks on the enemy’s points of vulnerability” (Biddle 2002, 162). American air officers simply believed that morale could be eroded more efficiently by destroying an adversary’s economy than by killing its people because industrial economies—particularly in wartime—were

thought to be delicately balanced mechanisms that could be wrecked by eliminating a few key components (Shandroff 1972, 28; Sherry 1987, 57). American airmen, unlike their British contemporaries, thus largely eschewed targeting civilians directly in favor of striking an enemy's economic infrastructure.

Although the USAAF's choice not to target civilians directly was driven partially by a belief that the American public would disapprove of a doctrine that called for the massive killing of civilians, military efficiency rather than humanistic morality was the main motivation.⁷ The Gorrell Report, the Army Air Service's evaluation of Allied aerial bombing during World War I, criticized indiscriminate Allied bombing as inefficient—spreading bombs over wide areas instead of destroying particular factories or industries—rather than immoral. “Bombing for moral effect alone ... which was probably the excuse for the wide spread of bombs over a town rather than their concentration on a factory, is not a productive means of bombing,” Gorrell wrote. “The effect is legitimate and just as considerable when attained indirectly through the bombing of a factory” (quoted in Biddle 2002, 67).⁸

How exactly would destruction of an adversary's economy by precision bombing lead to the collapse of civilian morale? One objective, according to U.S. military commanders, was to produce among the civilian population misery and economic ruin. The 1934-35 Air Force Objectives section of the Air Force text, for example, stated that the goal of strategic bombing was “the dislocation of normal life to the extent that the people are willing to surrender in the hope that they can at least regain a normal mode of living” (quoted in Biddle 2002, 159). A second rationalization, however, relied on the fear of violent death that strategic bombing of economic objectives would instill in the population. Major Muir S. Fairchild, an ACTS instructor, described the goals of the air corps' economic strategy in a 1940 document entitled

“Air Force: National Economic Structure” as follows: “Obviously we cannot and do not intend to actually kill or injure *all* the people. Therefore our intention in deciding upon this method of attack must be to so reduce the morale of the enemy civilian population through fear—fear of death or injury for themselves and their loved ones—that they would prefer our terms of peace to continuing the struggle, and would force their government to capitulate” (quoted in Schaffer 1985, 31; italics in original document). Clearly, American bombing would not be antiseptic or blood-free, and civilians would surely suffer, but targeting noncombatants directly was not a major part of U.S. doctrine.

The USAAF’s plan for a potential war with Germany written in 1941 by a group of mid-ranking air officers—known as AWP/1—provides a good statement of American bombing doctrine, and also illuminates the conditions under which U.S. bombers might be sent at civilian targets.⁹ This document “planned to apply airpower ‘for the breakdown of the industrial and economic structure of Germany’ by destroying ‘a system of objectives vital to the German war effort’: primarily power, transportation, and oil industries” (quoted in Crane 1993, 26). The authors of AWP/1, however—among whom were officers who would later become prominent wartime commanders, such as Haywood Hansell and Laurence Kuter—did not neglect the possibility that concentrated attacks on the civilian population could prove decisive when the time was right. “If the morale of the people is already low because of sustained suffering and deprivation and because the people are losing faith in the ability of the armed forces to win a favorable decision, then heavy and sustained bombing of cities may crush that morale entirely.” Specifically, in the case of Germany, “immediately after some very apparent results of air attack on the material objectives listed above or immediately after some set-back of the German ground forces, it may become highly profitable to deliver a large scale, all-out attack on the civil

population of Berlin. In this event, any or all the bombardment forces may be diverted for this mission” (quoted in Pape 1996, 262).

These eventualities aside, however, adherence to the culture of precision bombing within the USAAF dominated doctrine, guided procurement choices, and determined advancement within the organization. Like the British, American air leaders pursued the development of heavy bombers, but also the tools they thought necessary to achieve precision, such as a dedication to bombing in daylight as well as the Norden Mark IV bombsight. The strategic bombing culture also led AAF officers to deprecate the ability of enemy defenses to stop bombers. American doctrine, for example, assumed that, as former British Prime Minister Stanley Baldwin put it in 1932, “the bomber would always get through” (quoted in Hastings 1979, 43). This implied—in line with former RAF chief Hugh Trenchard’s thinking—that strategic air warfare bombing was an offense-dominant form of warfare (Biddle 2002, 69-81). The Americans at least recognized the possibility of defense against intruding bombers presented by enemy fighters and anti-aircraft artillery, but were convinced that bombers armed with multiple machine guns flying at high altitudes and high speeds could defeat the adversary’s defense. Evidence to the contrary from the Spanish Civil War was dismissed, as were fighter advocates within the air corps, such as Claire Chennault, who retired in 1937 after failing to make a dent in the orthodox bomber-invincibility school within the USAAF (Corum 1998). Its faith in the offensive power of self-defending bombers also led the USAAF to neglect long-range fighter escorts, an oversight that would later prove disastrous.

In sum, the organizational culture of the USAAF in the years before World War II prescribed precision strategic bombing of an adversary’s industrial base in order to cause war production and civilian support for the war effort to collapse. Only when the enemy was

teetering on the brink of defeat did U.S. air leaders contemplate direct strikes on the civilian population. If organizational culture was the main factor that explains the pattern of U.S. bombing of Germany, we would thus expect that U.S. aircraft would have refrained from targeting civilians directly and observed—to the extent that it was possible given prevailing technology—the principle of noncombatant immunity. If the USAAF did at some point target civilians intentionally, organizational culture would lead us to expect that this would not have occurred until the morale of the German people was near collapse or the defeat of the Third Reich's military forces appeared imminent.

DESPERATION AND CIVILIAN VICTIMIZATION

A competing explanation argues that American bombing of civilians escalated and became more direct as the costs of precision bombing rose. This perspective maintains that states turn to counter-civilian strategies when they become desperate to win or to reduce the losses on their own side. When the cost of a counterforce strategy rises and its efficacy declines, states tend to turn their firepower on civilians because doing so reduces their own casualties while still allowing them to coerce the enemy. Belligerents, in other words, update their beliefs about the progress and costs of the war in response to new information from the battlefield. When this new information causes belligerents to conclude that they are fighting a costly war of attrition or that their chances of victory are in decline, the probability increases that states will adopt a policy of targeting civilians to manage those costs and increase their coercive leverage on the adversary (Downes 2008). This logic leads to an alternative expectation, that is, if new information indicates the costs of fighting have unexpectedly increased or the prospects for victory have decreased, belligerents become more likely to target civilians. In the case of the U.S. bombing of

Germany, the desperation explanation directs our attention to U.S. costs and perceptions of success and failure. As opposed to the organizational culture argument, which predicts that the U.S. would shift to civilian victimization following a German defeat, the desperation argument maintains that what matters are American setbacks and defeats.

THE U.S. BOMBING OF GERMANY IN WORLD WAR II

American strategic bombing of Germany has long been differentiated from that carried out by Britain. According to this perspective, U.S. airpower aimed at industrial targets such as aircraft production, oil production and refineries, and transportation. The goal of this campaign was to destroy Germany's ability to make war. Although civilians died as a consequence of the inherent inaccuracy of high altitude bombing at this point in history, they were never targeted intentionally. British Bomber Command, on the contrary, attempted to burn down residential areas of German industrial cities in order to kill German workers and lower the morale of the survivors, inducing them to demand that their government end the war (for recent statements of this view, see Grayling 2006; Hansen 2008).

These descriptions—while fairly accurate representations of the interwar doctrines of the two organizations—did not survive first contact with the enemy. For the first two years of the war the British were deterred from implementing their city bombing doctrine by the Luftwaffe's numerical superiority and the threat of overwhelming German retaliation. The Luftwaffe was also better positioned geographically to bomb London and other British cities because it could utilize bases in captured territory in Western Europe, whereas British bombers had to traverse far more hostile airspace before arriving over German cities. Despite their faith that the bomber would always get through, moreover, the British failed to build them in adequate numbers, and

thus their ability to conduct large bombing raids was limited. As a result, Bomber Command shied away from initiating a counter-city slugging match with the Third Reich, instead attempting daylight precision bombing of naval and industrial objectives (Hastings 1979, 54). Only after this proved inordinately costly did the British start flying at night; momentum for the incendiary campaign began to build, finally becoming official policy in February 1942.

The Americans, too, attempted precision bombing, and eventually saw their operations become less and less discriminate over time. The U.S. Eighth Air Force ended up conducting almost 70 outright urban area raids on German cities, and dropped about half of their total bomb tonnage by radar through clouds, the functional equivalent of British night area bombing. Especially suspect is the large number of missions conducted against “railroad marshalling yards” but with bomb-loads heavy on incendiary munitions, good for burning down homes, not blowing up railroads or other hardened structures (Davis 1995). This combination of open and veiled area bombing qualifies as a strategy of civilian victimization, and thus contradicts the strong version of the cultural argument.

The change in U.S. strategy, moreover, contrary to the prediction of the more conditional version of the organizational culture explanation, was not implemented to capitalize on German defeats or crumbling German morale. Rather, U.S. leaders turned to area bombing in response to the debilitating losses suffered by its air forces in the second half of 1943 owing to the defensive advantage that prevailed in the skies over Germany. Poor weather over northern Europe severely limited opportunities for precision bombing: pervasively cloudy conditions restricted visual bombing to a few days per month. On the days that American bombers were able to take to the skies, furthermore, German air defenses had a distinct advantage over unescorted American B-17s and B-24s, inflicting heavy losses. These costs, suffered in the context of a protracted war of

attrition, caused American air officers to turn to increasingly indiscriminate methods, and the need to do anything to win the war led American political leaders to sanction this shift.

THE DISASTERS OF AUGUST AND OCTOBER 1943

Although the U.S. Eighth Air Force began operations from airfields in Great Britain in June 1942, U.S. aircrews mounted relatively few missions in 1942 and early 1943. The Americans struggled to amass sufficient forces to bomb in earnest. Pervasive cloud cover over north-central Europe further hampered American operations, sharply curtailing the number of days with sufficient visibility to bomb visually.¹⁰ The POINTBLANK directive, a product of the Casablanca conference in January 1943, decreed that the objective of the Combined Bomber Offensive would be “the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their capacity for armed resistance is fatally weakened” (quoted in Schaffer 1985, 38). This directive essentially allowed each air force to proceed with its own strategy. “In the end,” as Biddle puts it, “despite some optimistic and high-sounding rhetoric about ‘round the clock’ bombing, each side gave the other one the freedom to go its own way, and the resulting bombing directive was an agreement to disagree” (Biddle 2002, 215). Arthur “Bomber” Harris, chief of RAF’s Bomber Command, managed to find enough leeway in the plan to continue burning down German cities, while Eighth Air Force prioritized the destruction of the German aircraft industry.

Each of these campaigns swung into high gear by the summer of 1943. While Bomber Command set about destroying Hamburg by night in July, Eighth Air Force launched its largest independent operation of the war on August 17, 1943: twin raids against the Messerschmitt aircraft works in Regensburg and the ball-bearing plants in Schweinfurt. These missions, while

inflicting heavy damage on the targets, were a calamity for the Eighth. Even before the disastrous losses of August 17, evidence was accruing that the theory of the self-defending bomber was seriously flawed. A mid-April raid on the Focke-Wulf aircraft plant in Bremen, for example, resulted in the loss of sixteen of the attacking bomber force of 115 (Biddle 2002, 223). Twenty-six more aircraft were lost in raids on Kiel and Bremen on June 13 (Craven and Cate 1983, 2: 670-71). Missions in July cost 100 American bombers and 1,000 flyers, mostly in the last week of the month in a series of raids against several cities (Craven and Cate 1983, 2: 677-81; Schaffer 1985, 64-65). The pre-war belief that bombers flying in tight formations at high altitudes could defend themselves caused American airmen to spurn long-range fighter escorts. On August 17 they discovered just how costly this mistake was.

The force that flew to Regensburg, led by an up-and-coming young officer named Curtis LeMay, counted 146 B-17s. The mission plan called for the aircraft to unload their bombs on the aircraft works in the town and then fly on to airfields in North Africa. Once the bombers' short-range escorts turned back for England, however, German fighters moved in and exacted a heavy toll, especially from the rear echelons of the formation. Twenty-four B-17s were shot down, and twenty more that made it to North Africa were damaged so severely that they would never fly again. Fully 30 percent of the attacking aircraft, therefore, were destroyed. Similarly, 63 of the 230 aircraft that left for Schweinfurt (27 percent) either did not return or never flew another mission; a further 122 bombers were damaged (Coffey 1977, 76, 78, 88). A stunning 80 percent of the Schweinfurt force was thus either destroyed or damaged. Overall, 550 U.S. crewmen were killed or captured by the Germans on August 17. Eighth Air Force did not launch another major mission until September 6; even then the bombers avoided Germany, striking instead at targets in France and the Low Countries.

In spite of these debilitating losses, the Eighth regrouped and made a second daylight attempt to bomb targets deep in Germany without fighter escort. The fact that this series of raids in the second week of October 1943 became known as “Black Week” foreshadows the results. Over the course of six days, Eighth Air Force lost 148 bombers shot down, culminating in the return mission to the Schweinfurt ball-bearing works, from which 60 of the 291 aircraft dispatched (21 percent) did not return (Coffey 1977, 325). Actually, U.S. losses during Black Week were significantly higher than the number of aircraft shot down would indicate because many planes, as shown in Table 1, were damaged so badly that they had to be scrapped.

[Table 1 about here]

These extreme losses were unsustainable. The upper limit for aircraft losses in sustained bomber operations was thought to be five percent. Biddle points out that “the Americans had finally found inescapable a conclusion they had earlier refused to confront despite British warnings: unescorted raids deep into Germany were prohibitively costly” (Biddle 2002, 225). Unbeknownst to AAF leaders, writes Kenneth Werrell, “two developments shifted the advantage away from the offense to the defense. The first was the appearance of the modern fighter. Advances in aviation technology had finally reached and given fighters flying performance superior to that of bombers” (Werrell 1996, 24). The other boost for the defense came from the invention of radar, which allowed operators on the ground to detect incoming bomber formations and vector fighters into their path. “Along with the modern fighter,” Werrell argues, “this system [radar] shifted the advantage away from the bomber and the offense to the fighter and the defense” (Werrell 1996, 25). According to Biddle, “The Americans were facing a crucial choice: either they would have to change targets, as the British had earlier in the war, or change tactics”

(Biddle 2002, 225). In the meantime, Eighth Air Force discontinued its daylight precision forays into Germany.

In sum, by late autumn 1943, U.S. air commanders faced a dual dilemma. On the one hand, persistent cloud cover limited the number of days on which Eighth Bomber Command's aircraft could attempt precision bombing. As one historian notes, "Even in the summer months cloud cover over Germany averaged fifty to eighty percent....The weather was so consistently bad throughout 1943 that visual bombardment was all but impossible" (Shandroff 1972, 90-91). When they did get in the air for such missions, on the other hand, U.S. bombers suffered unacceptable losses owing to the strength of German defenses and their own lack of a long-range fighter escort. Biddle writes, "it is hardly an overstatement to argue that, in the winter of 1943-44, the entire Combined Bomber Offensive ... hung in the balance" (Biddle 2002, 225).

SOLUTIONS: LONG-RANGE ESCORTS AND RADAR BOMBING

American air leaders needed a way to increase the sortie rate of their bombers and simultaneously reduce losses. They arrived at two solutions that exploited technological innovations. First, their illusions regarding self-defending bombers shattered, airmen finally prioritized procurement of long-range fighter escorts. What was needed was a way of extending the distances fighters could fly before they needed to refuel. The answer, it turned out, was close at hand: the jettisonable auxiliary fuel tank, already in development in 1943. These tanks extended the range of U.S. fighters and enabled them to escort bombers all the way to the target and back. Problems with production slowed the rate of delivery of these tanks through the summer and fall of 1943; only in December did they begin to be built in sufficient numbers to have an impact. Moreover, the new P-51B Mustang, heretofore used mostly in a reconnaissance

role, was converted to duty as a long-range fighter (Biddle 2002, 227). These twin developments led to a war of attrition between American and Luftwaffe fighters for air superiority over the Reich (Hansen 2008, 176). The German day-fighter force, unable to replace its losses in aircraft and experienced pilots as quickly as the Americans, eventually conceded defeat in April 1944.

The second way American airmen sought to increase their sortie rate and lower losses was by adopting the practice of radar or “blind” bombing through clouds.¹¹ The British had experimented with a variety of rudimentary radar devices in the early years of the war, such as Gee, Oboe, and H2S. As W. Hays Parks describes it, H2S was a “ground-mapping radar, an unlimited range device that used the echo of radar waves to show the target area on a scope inside the bomber” (Parks 1995, 152). American commanders installed several H2S sets in U.S. aircraft in March 1943, and then developed their own version of the device—known as H2X—that summer. The Eighth’s first radar operation—using H2S against Emden—took place on September 27, 1943, followed a month later by its first H2X raid on Wilhelmshaven.

From the time H2X was introduced in autumn 1943, bombs dropped by radar took up an increasing share of total tonnage dropped by American bombers. Estimates vary, but radar bombing made up about half of the total U.S. bombing effort against Germany (Shandroff 1972, 105; see also Sherry 1987, 261).¹² Indeed, when the tonnage of bombs dropped by radar is compared to the tonnage delivered visually on targets in five of the most heavily bombed cities in Germany, the results—as shown in Table 2—are heavily skewed in favor of radar bombing. As the table demonstrates, the proportion of bombs dropped by radar on these cities ranged between 67 and 90 percent; overall, ordnance delivered by radar accounts for 79 percent of the total bombs dropped on these five towns.

[Table 2 about here]

RADAR BOMBING WAS AREA BOMBING

The scholarly consensus on radar bombing is that it was the functional equivalent of British night area bombing. According to Shandroff, for example, “Although radar bombing was introduced as a means of enabling the Air Force to continue its daylight precision bombing campaign, its increasing use metamorphosed the offensive into one very much like the British nighttime area campaign. The differences were matters of intention, not result” (Shandroff 1972, 102). Hays Parks concurs: “Given American blind bombing accuracy, it is difficult to distinguish between Bomber Command’s general area offensive and USAAF’s blind (area) bombing of selective targets” (Parks 1995, 162). A third expert on radar bombing agrees with these assessments: “Under non-visual bombing conditions, however, the points of attack and the bomb loadings of the RAF and the AAF were indistinguishable, as were the results” (Davis 1995, 60; see also Schaffer 1985, 67; Sherry 1987, 162, 261).

Table 3 demonstrates the relationship between cloud cover and accuracy, and also reveals that the largest portion of bombs was dropped in the worst visual conditions: Eighth Air Force delivered fully half of its total tonnage in the last quarter of 1944 in conditions of 80 percent cloud cover or worse, when less than 30 percent of bombs fell within a mile of the target.

[Table 3 about here]

Early radar, H2X included, was sensitive enough to pick out large built-up areas, such as cities, but could not pick out individual factories or buildings within urban areas. In fact, the best targets for radar bombing were those situated on the coast, because H2X picked up the difference between water and land quite distinctly. The success of the early radar mission at Wilhelmshaven on November 3, 1943, for example, which misled air planners into believing that H2X could achieve acceptable accuracy, was due to the target’s proximity to water. The truth about H2X,

however, was that it was woefully inadequate. Assessments of blind bombing in late 1943 and early 1944, for example, concluded that only between 5 and 20 percent of U.S. aircraft on such missions dropped their bombs within five miles of the aim point (Parks 1995, 156). As Parks notes, this record was “worse than that recorded for [British] Bomber Command in the Butt Report” of 1941, which found that only one in five British aircraft delivered their ordnance within the same radius of the target (Parks 1995, 156).

American air leaders were well aware that radar bombing was wildly inaccurate, yet chose to devote over half of their effort to it. Assistant Secretary of War Robert Lovett, for example, described radar bombing as “area bombing” in a memo to Eaker in 1943, yet urged the Eighth’s commander to undertake such raids (Schaffer 1985, 67). As Shandroff notes, “While it was realized that radar bombing, as the only means of circumventing the weather, was equivalent in effect to area raids, General Spaatz decided upon its full employment for the thousands of bombers under his command” (Shandroff 1972, 104-05). According to the official Air Force historians, although “slightly more than half the blind missions [as of November, 1944] ... were near failures or worse, and [although] Spaatz was fully aware that radar bombing was conspicuously less effective than visual attacks ... radar bombing was better than no bombing” (Craven and Cate 1983, 2: 667-68).

Understanding that radar-guided raids would result in wide bomb dispersion, USAAF commanders decided to exploit this inaccuracy by including high proportions of incendiary munitions in the bomb-loads of aircraft on blind missions. The most common targets of such missions were German railroad marshalling yards, but, as Richard Davis points out, incendiaries were of little or no use against such targets because they “had no blast or fragmentation effects.” “These bombs,” Davis continues, “had but one function—the destruction by fire of soft targets,

such as barracks, houses, commercial buildings, and administrative or government offices” (Davis 1995, 49).

Radar bombing attacks took two forms. First, like the bulk of Bomber Command’s attacks, U.S. aircraft sometimes deliberately struck urban areas. According to the official postwar record of Eighth Air Force, “The Eighth Air Force Target Summary,” American bombers did not conduct a single area raid against a German city. By examining the Eighth’s Monthly Operations Summaries, however, which list the missions as they were described at the time, Davis found that the unit conducted a minimum of 67 self-described city area attacks between October 1943 and April 1945, dropping 52,000 tons of bombs on German cities.¹³ The designation of each of these raids, listed at the time as striking “a city area,” was changed after the war to attacks on “marshalling yards,” “ports,” “industrial” areas, or “Military & Civil Government Area” when downtown Berlin was the target (Davis 1995, 51).

Second, radar attacks doubled as city area raids by striking railroad marshalling yards with bomb-loads heavily laced with incendiaries.¹⁴ Missions explicitly directed at city areas (described in the previous paragraph) comprised a relatively small proportion of total U.S. bomber raids and tonnage dropped: 67 out of 968 in the former category, and 52,000 out of 690,000 tons in the latter. American bombers, on the other hand, delivered 315,000 tons against rail yards, the bulk of it by radar.¹⁵ In the last three months of 1944, for instance, Eighth Air Force dropped 54,000 tons of bombs on German marshalling yards, more than 80 percent of them by radar. Similarly, in the first four months of 1945, 75 percent of the 38 raids on German marshalling yards were radar guided; only five (13 percent) were conducted using purely visual techniques (figures are from Davis 1995, 55, 57). Thomas Searle remarks that “everyone involved understood that there was little difference between city areas and radar-guided raids on

rail yards in terms of planning, execution, or results.” U.S. commanders, Searle continues, “essentially acknowledged this fact by using a large percentage of incendiary bombs (the preferred weapon against cities) on these raids even though such bombs were ineffective against rail yards, the official targets” (Searle 2002, 109). As Davis concludes, “the Eighth’s employment of incendiary bombs and radar sighting techniques in its marshalling yard attacks implied a policy of deliberate bombing of the Reich’s population centers” (Davis 1995, 60). By comparison, U.S. aircraft relied on radar to deliver only 10 percent of their munitions on marshalling yards in France and the Low Countries in the months before D-Day; incendiaries accounted for a mere three-tenths of one percent of these bombs (Davis 1995, 54). Similarly, incendiaries composed a tiny fraction (four-hundredths of one percent) of bombs dropped during Operation CLARION, which struck at rail targets in less populous German towns in February 1945 (Davis 1995, 58).

Some have argued, however, that calling radar bombing “area bombing” goes too far (Crane 1993, 74-76).¹⁶ The point of my analysis is not to equate American bombing strategy with that of the British. There is no doubt that different theories motivated RAF and AAF bombing in Germany. Bomber Command’s clear strategy from February 1942 forward was to burn down cities and kill German civilians, a task from which it was diverted only when placed under Eisenhower’s command to support the D-Day landings.¹⁷ Conversely, in clear weather the USAAF attempted precision bombing and, although accuracy was never good on visual missions, these raids sometimes achieved devastating results. Unfortunately, poor weather conditions over Germany precluded precision bombing most of the time. Almost all historians who have studied radar bombing conclude that it was an inherently indiscriminate form of attack. Furthermore, U.S. air commanders capitalized on the inaccuracy of blind bombing by relying

heavily on incendiary bombs when attacking targets (usually rail yards) located in cities to maximize the amount of civilian destruction inflicted. American bombers even launched a significant number of fire raids explicitly aimed at city areas. The weight of the historical evidence thus confirms that radar bombing was indeed the equivalent of urban area bombing.

RADAR BOMBING REDUCED BOMBER LOSSES

The adoption of radar bombing techniques quickly reduced U.S. bomber losses. Shandroff notes of the November 3, 1943, mission to Wilhelmshaven, for example, that “of the 539 bombers which took part in the raid, only 7 were lost to fighter interception and antiaircraft fire. There was no doubt that the clouds which prevented visual bombardment also were protecting the bombers from German interception” (Shandroff 1972, 97). Along the same lines, an unpublished Air Force study of the Combined Bomber Offensive written in 1946 concluded that “[l]osses to enemy aircraft on blind bombing missions were about one-third the figure for visual missions against similar targets. Flak damage was considerably less on blind bombing missions, and damage to bombers by enemy fighters occurred three to four times as often on visual as on blind bombing raids” (quoted in Shandroff 1972, 98).

EXPLAINING THE SHIFT TO RADAR BOMBING

The Eighth Air Force’s debilitating losses over Germany in mid-to-late 1943, combined with Bomber Command’s annihilation of Hamburg in July, made a deep impression on American air leaders, leading to a radical change in the way in which the Eighth conducted its missions. “Their combined lesson,” notes Schaffer, “appeared to be that sometimes urban area raids could be more fruitful and a lot less costly than precision attacks....After Regensburg-Schweinfurt,

American officers considered using the British method of aiming at residential districts to make their bombing more effective and less costly to the AAF” (Schaffer 1985, 66). Similarly, Parks (1995, 153) argues that “the results of the combined attacks on Hamburg in late July 1943 and the disastrous losses suffered by Eighth Air Force in its 17 August attack on Schweinfurt-Regensburg” generated enthusiasm for “area attacks on city centers...at all levels of command. Further heavy losses in the 14 October return to Schweinfurt-Regensburg and the anticipation of winter nudged decision-makers closer to RAF Bomber Command’s area bombing philosophy.”

American commanders in Europe discovered in 1943 that although their theory posited that clouds of bombers armed with several machine guns each could protect each other and ward off enemy fighters, “It turned out that the B-17s and B-24s could not fight their way through German defenses without suffering crushing losses” (Searle 2002, 108). These losses caused a change in strategy, or rather the addition of a second strategy: blind bombing became standard operating procedure when precision raids were not possible. No matter how they described it, “the simple fact was that the USAAF was resorting to area bombing” (Biddle 2002, 229). The arrival of large numbers of long-distance escort fighters in theater during the winter of 1943-44 allowed U.S. forces to destroy the threat posed by German interceptors, which greatly reduced bomber losses, but no number of fighters could improve the weather over Germany. If strategic bombing was to make any significant impact on the course of the war, some way had to be found to increase the tempo of operations without simultaneously multiplying losses. Radar bombing held the answer, but at the price of making the bulk of U.S. bombing indiscriminate, and some of it intentionally directed at civilians.

CONCLUSION

Proponents of organizational culture argue that military culture is the key variable determining whether armed services cross the line of noncombatant immunity and employ military strategies that target and kill enemy civilians. When a military branch is characterized by a culture that prescribes putting noncombatants in the cross-hairs, states eventually adopt such strategies in wartime because the military service in question will recommend it and because past procurement choices—guided by culture—narrow the range of strategic choices open to the government. By contrast, when a military organization’s culture eschews the targeting of civilians in favor of a counterforce doctrine, states tend to exercise restraint and direct their attacks against an adversary’s military forces and war production, largely sparing the civilians.

This argument, however, fails to withstand close scrutiny. By focusing on only a handful of cases, proponents of the cultural argument miss many instances in which militaries with strong counterforce cultures nevertheless turned to strategies that inflicted tremendous amounts of damage on noncombatants. Indeed, even a supposedly strong case in favor of culturally-driven restraint—the Luftwaffe’s sparing of civilians in the Battle of Britain—follows this escalatory logic, ending in the Blitz, nine months of night city bombing that killed 40,000 people. The American case examined in this paper similarly shows an organization with a strong culture of precision bombing turning to highly inaccurate radar bombing upon encountering unexpected conditions that produced substantial combat losses. Indeed, it appears that military organizations—no matter what sort of culture they possess—almost always commence wars with counterforce strategies because these are the only strategies that have the potential to inflict a quick and decisive defeat on the enemy. This is as true of air and naval warfare as it is of land

warfare. Only when the initial counterforce strategies fail to produce the expected speedy victory do states turn to civilian victimization.

This finding is particularly important because of the implications it has for current and future warfighting practice. Some scholars have observed that the military organizations of modern liberal democracies have developed strong cultures of aversion to inflicting civilian casualties (Kahl 2007). United States Army units, for example, are now accompanied by military lawyers who render on-the-spot judgments for officers regarding the legality of striking particular targets. Targets for aerial bombardment by the U.S. Air Force are also closely vetted by legal advisers, who make recommendations regarding the angle of attack and the weapons that should be used so as to minimize collateral damage. In short, according to this view, the norm of noncombatant immunity has become an integral part of the culture of the contemporary American military, implying that in future wars the United States will refrain from intentional killing of noncombatants, and will work hard to minimize inadvertent civilian damage as well.

The argument and evidence of this chapter, however, indicate that caution is warranted before declaring the era of civilian targeting by advanced democracies to be over. Military cultures favorable to attacking noncombatants are neither necessary nor sufficient for large-scale killing of civilians to occur in war. A military that believes in attacking noncombatants may not actually do so unless the war becomes protracted, and even in wars of attrition the threat of retaliation can at least delay civilian victimization. More importantly, military organizations with cultures that are incompatible with targeting noncombatants—that is, the vast majority—still sometimes arrive eventually at policies of civilian targeting. Key causes of escalation include rising battlefield losses and the need to reduce those losses, and increasing levels of desperation to pull victory from the jaws of defeat. Occasionally good old-fashioned organizational interests

reinforce these dynamics: military services escalate their level of violence in order to make a decisive contribution to winning the war and thus obtain a greater chunk of the peacetime military budget. In short, organizational culture, while undoubtedly a real and important phenomenon, is often overridden in wartime by other powerful factors.

The implication of this argument is that peacetime military culture—or even the conduct of short, victorious wars—is not always the best guide to what may happen in a protracted war of attrition, like a potential conflict with China over Taiwan. President Bush remarked in 2002 that “Targeting innocent civilians for murder is always and everywhere wrong,” and fighting fair is what distinguishes the U.S. from rogue states, terrorists, and barbarians (Bush 2002a, 2002b). But we have heard this before: when war broke out in Europe in September 1939, for example, President Roosevelt issued a plea to all sides to abstain from “the ruthless bombing from the air of civilians in unfortified centers of population [that] has sickened the hearts of every civilized man and woman, and has profoundly shocked the conscience of humanity” (quoted in Crane 1993, 31-32). Should Americans again die on the scale of a World War II, however, it is not clear that military culture, humanitarian norms, or any other type of moralistic restraint would keep the United States from targeting civilians in an attempt to achieve victory and preserve the lives of American soldiers.

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TABLES

Table 1. U.S. Bomber Losses over Germany, October 8-14, 1943

Targets	Date	Size Of Force	Shot Down	Major Damage	Minor Damage	Total Lost	Percent Lost
Bremen and Vegesack	Oct. 8	399	30	26	75% of 1 st Bombardment Division; 60% of 3 rd Division	56	14
Gdynia, Danzig, Marienburg, Anklam	Oct. 9	378	28	NA	NA	28	7
Münster	Oct. 10	236	30	NA	NA	30	13
Schweinfurt	Oct. 14	291	60	17	121	77	26
Total		1,304	148	43		191	15

Note: Figures are from Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, Vol. 2, *Europe: Torch to Pointblank, August 1942 to December 1943* (Washington, D.C.: Office of Air Force History, 1983), 695-706, 850.

Table 2. Total Tonnage of Bombs Dropped Upon Targets Located Within Five of the Most Heavily Bombed German Cities

	Berlin	Cologne	Frankfurt	Hamburg	Munich
Radar	17,535.5	13,513.3	10,021.8	12,561.1	7,664.7
Visual	4,197.8	1,484.7	2,174.5	4,543.5	3,805.7
Total	21,733.3	14,998.0	12,196.3	17,104.6	11,470.4
Percentage Dropped by Radar	80.7	90.1	82.2	73.4	66.8

Note: Figures are from a table with the same title in Gary Shandroff, "The Evolution of Area Bombing in American Doctrine and Practice," Ph. D. diss., New York University, 1972, 106.

Table 3. The Relationship between H2X Bombing Accuracy and Cloud Cover, September 1-December 31, 1944

<i>Estimated percentage of bombs within standard distances around assigned aiming point</i>						
Reported Cloud Cover	1,000 Feet	½ Mile	1 Mile	3 Miles	5 Miles	Percentage of Total Eighth Air Force
10/10	0.2	1.2	5.6	39.8	58.5	35
8-9/10	1.0	7.3	22.5	67.4	82.0	15
6-7/10	2.0	12.5	36.5	84.0	90.5	5
4-5/10	4.4	22.8	48.5	89.1	96.0	3

Note: Figures are from a table of the same title in Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Center for Air Force History, 1993), 505.

NOTES

¹ There are, of course, famous exceptions—Hitler’s Kommissar Order for the invasion of the Soviet Union in 1941 is an example of a genocidal state policy promulgated before a war—but these examples are relatively rare.

² Also contrary to the organizational culture story, Bomber Command was starved of resources relative to Fighter Command in the late 1930s. On the eve of war, the RAF possessed only 536 poor quality bombers, far too few to implement its planned city-busting strategy (Biddle 2002, 183).

³ Even though the Blitz violated Luftwaffe strategic culture, Overy argues that it “was forced on the Luftwaffe because of the high combat attrition suffered through daylight raids” (Overy 1978, 160). Indeed, the cultural argument cannot account for the fact that the Luftwaffe engaged in an extended campaign of indiscriminate night bombing of British cities from September 1940 to May 1941, killing 40,000 British civilians (Titmuss 1971, 559-60). Moreover, and also contrary to the organizational culture account, those individuals most imbued with the Luftwaffe’s military culture—including Luftwaffe Chief of Staff Hans Jeschonnek and commander of Luftflotte 2 Albert Kesselring—became the most vocal advocates of bombing London as the Battle of Britain wore on (Townsend 1970, 297-98, 391; Boog 1992, 390).

⁴ Indeed, the term “collateral damage” in this context is a misnomer: the goal of these raids was not merely the destruction of military targets, but rather to “demoralize, punish, and deter the civilian population” (Gross 2008, 11). As Gross (2008, 11) further notes, attacks like these are “not disproportionate force, but...intentionally harsh means against those who might influence an end to the war.”

⁵ Although I am unable to discuss it owing to space constraints, the U.S. incendiary bombing of Japan in 1945 represented a wholesale abandonment of USAAF organizational culture. Interest in incendiary bombing in the Pacific theater developed well before any sustained U.S. bombing occurred, largely in response to awareness of the vulnerability of Japan's wood and paper cities to fire and the costly war of attrition being waged on Pacific islands. The USAAF began its assault on Japan with precision attacks on specific industrial targets in 1944, but this was a temporary measure that was used only until sufficient B-29 bombers were available to launch massed incendiary raids on Japanese cities. This was obviously a complete departure from a culture of precision bombing. See Downes (2008, 116-36).

⁶ Arguments based in the parochial interests of organizations contend that all organizations have similar interests—autonomy from outside oversight, control over their own affairs, greater levels of prestige and resources—and thus similar organizations across different countries or different issue areas should behave similarly (Snyder 1984).

⁷ Even those who stress the effect of morality acknowledge that beliefs about the efficacy of precision bombing were predominant (Crane 1993, 19-20; Hansen 2008, 39-40).

⁸ The prohibition on bombing civilians inherent in U.S. doctrine, however, was relatively fragile. Ronald Schaffer notes that although USAAF doctrine “modified the Douhetian principle of all-out attacks on cities, it did so on the pragmatic ground of efficiency, not a promising basis for insulating civilians from air attack” (Schaffer 1985, 33).

⁹ AWPD is short for Air War Plans Division.

¹⁰ On average in 1943 there were between six and ten days per month when cloud cover over the target area was less than three-tenths, the minimum thought necessary to bomb visually; for

perfectly clear conditions, the airmen could hope for about three days per month (Shandroff 1972, 91).

¹¹ Chief of Staff of the USAAF, Gen. Henry “Hap” Arnold, “ordered heavy bomber forces to execute area attacks against selective targets when visual bombing was not possible” on November 1, 1943 (Parks 1995, 153).

¹² Werrell (1996, 29) puts the figure slightly lower (44 percent), whereas Parks (1995, 156) places it somewhat higher (61 percent).

¹³ This total does not include area bombing raids on Germany’s Balkan allies Bulgaria, Romania, and Hungary. On these raids, see Schaffer (1985, 54-59).

¹⁴ According to Davis (1995, 49), “The loading of a high percentage of incendiaries (over 20 percent of the total bomb load or more than 200 tons of incendiaries) for a mission employing H2X sighting, against a target located within a city, gives that mission the practical effect of a city area raid.”

¹⁵ Reclassifying only one-third of this tonnage as being delivered on city areas would make them the second most-bombed target behind marshalling yards (Davis 1995, 60).

¹⁶ Other accounts (e.g., Grayling 2006, Hansen 2008) largely ignore radar bombing.

¹⁷ Arthur Harris, Bomber Command’s leader during the area raids, was adamant on this point, deriding objectives such as oil and transportation as “panacea targets.”