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The Journal of Military History, Vol. 66, No. 1. (Jan., 2002), pp. 103-133.

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“It Made a Lot of Sense to Kill Skilled Workers”¹: The Firebombing of Tokyo in March 1945



Thomas R. Searle

ON the night of 9–10 March 1945, the United States Army Air Forces (USAAF) conducted the most destructive air raid in history. The target was Tokyo and, by the time the fires died out the next morning, nearly sixteen square miles of the city were destroyed, leaving at least 83,793 Japanese civilians dead, more than 40,918 injured, and over one million homeless.² The raid was a turning point in the bombing of Japan. Before 9 March, most raids were “precision raids” that used high-explosive bombs against Japanese factories, killing few Japanese civilians. After 9 March, the USAAF devoted the bulk of its effort to “area raids” that used incendiary bombs to burn down Japanese cities and to kill hundreds of thousands of Japanese civilians.

Historians have not devoted as much attention to the incendiary bombing of Japan as they have to either the World War II bombing campaign in Europe or the atomic bombing of Japan, but it has hardly been ignored.³ The literature has focused, however, on the sequence of oper-

1. U.S. Air Force Oral History Program, interview of Lt. Gen. Ira C. Eaker, 22 May 1962, K239.0512-627, Air Force Historical Research Agency, Maxwell Air Force Base, Alabama (hereafter cited as HRA).

2. These disconcertingly precise casualty figures are the official count made by the Tokyo police during the war and are almost certainly an underestimation.

3. The incendiary bombing of Japan was front-page news in U.S. newspapers during the war. Since the war, a steady stream of books that are wholly or largely devoted to the bombing of Japan has appeared, including: Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, 7 vols. (Chicago: University of Chicago Press, 1953); Martin Caidin, *A Torch to the Enemy* (New York: Ballantine, 1960); Wilbur H. Morrison, *Point of No Return: The Story of the Twentieth Air Force* (New York: Times Books, 1979); Robert Guillain, *I Saw Tokyo Burning: An Eyewit-*

ations rather than on long-classified planning documents, and this bias has led historians to misunderstand several aspects of the campaign. Historians also misunderstand the relationship between bombing tactics used against Germany and those used against Japan.

This essay will offer a new interpretation of the U.S. strategic bombing campaign against Japan. I shall argue first that the incendiary bombing of Japanese cities was not a radical departure from the way the USAAF attacked Germany in World War II; second, that the shift to area bombing was a continuation of the attack on Japanese industry and not an abandonment of attacks on industry in favor of attacking Japanese morale; and third, that the shift from precision attacks on factories to area attacks on major Japanese cities had been part of U.S. plans for years and was encouraged by some of the same factors that led the

ness Narrative from Pearl Harbor to Hiroshima, trans. William Byron (Garden City, N.Y.: Doubleday, 1981); Haywood S. Hansell, Jr., *Strategic Air War Against Japan* (Maxwell Air Force Base, Ala.: Airpower Research Institute, 1980); Haywood S. Hansell, Jr., *The Strategic Air War Against Germany and Japan: A Memoir* (Washington: Office of Air Force History, 1986); Kevin Herbert, *Maximum Effort: The B-29s Against Japan* (Manhattan, Kans.: Sunflower University Press, 1983); Hoito Edoin, *The Night Tokyo Burned: The Incendiary Campaign Against Japan, March-August, 1945* (New York: St. Martin's Press, 1987); Curtis E. LeMay and Bill Yenne, *Superfortress: The Story of the B-29 and American Air Power* (New York: McGraw-Hill, 1988); E. Bartlett Kerr, *Flames Over Tokyo: The U.S. Army Air Forces' Incendiary Campaign Against Japan, 1944-1945* (New York: Donald I. Fine, 1991); Kenneth P. Werrell, *Blankets of Fire: U.S. Bombers Over Japan During World War II* (Washington: Smithsonian Institution Press, 1996); Daniel L. Haulman, *Hitting Home: The Air Offensive Against Japan* (Washington: Air Force History and Museums Program, 1999). There are also a number of general works on strategic bombing in World War II that devote a significant part of their arguments to the bombing of Japan, including: R. J. Overy, *The Air War, 1939-1945* (Chelsea, Mich.: Scarborough House, 1980); Ronald Schaffer, *Wings of Judgment: American Bombing in World War II* (New York: Oxford University Press, 1985); Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven, Conn.: Yale University Press, 1987); Conrad C. Crane, *Bombs, Cities, and Civilians: American Airpower Strategy in World War II* (Lawrence: University Press of Kansas, 1993); Geoffrey Perret, *Winged Victory: The Army Air Forces in World War II* (New York: Random House, 1993); Benjamin Franklin Cooling, ed., *Case Studies in the Achievement of Air Superiority* (Washington: GPO, 1994); R. Cargill Hall, ed., *Case Studies in Strategic Bombardment* (Washington: GPO, 1998). Finally, biographies and autobiographies of several key leaders in the bombing of Japan include: Henry H. Arnold, *Global Mission* (New York: Harper and Brothers, 1949); Curtis E. LeMay with MacKinlay Kantor, *Mission with LeMay* (Garden City, N.Y.: Doubleday, 1965); Thomas M. Coffey, *HAP: The Story of the U.S. Air Force and the Man Who Built It, General Henry H. "Hap" Arnold* (New York: Viking, 1982); Thomas M. Coffey, *Iron Eagle: The Turbulent Life of General Curtis LeMay* (New York: Crown, 1986); Charles Griffith, *The Quest: Haywood Hansell and American Strategic Bombing in World War II* (Maxwell Air Force Base, Ala.: Air University Press, 1999); and Dik Alan Daso, *Hap Arnold and the Evolution of American Airpower* (Washington: Smithsonian Institution Press, 2000).

USAAF to conduct area incendiary bombing of German cities. I shall also show that the shift did not result from changes of command (Major General Curtis E. LeMay’s replacing Brigadier General Haywood S. Hansell). Finally, I shall demonstrate that Japanese civilian casualties were not accidental or incidental, but an explicit goal of the incendiary raids on Japanese cities. Since this argument must necessarily be imbedded in its historical context, I shall begin by reviewing the ideas behind strategic bombing, the strategic bombing campaign against Germany, and the bombing campaign against Japan before March 1945.

Strategic Bombing of Germany

When the United States entered the Second World War in December 1941, General Henry H. (Hap) Arnold, Commanding General of the USAAF, and much of his staff were committed to a concept of airpower which held that airplanes could serve as powerful “independent” tools of war that might even win wars single-handedly through “strategic bombing,” i.e., air attacks on an enemy’s heartland that would destroy his will and capability to wage war. This would be a new type of warfare, one that the U.S. Army (to which the USAAF then belonged) and the U.S. Navy were unable to conduct. If USAAF strategic bombing could make a major contribution to the war effort, it would provide a powerful argument for the service autonomy U.S. airmen had sought for decades. Thus, dramatic results from strategic bombing became the means by which the USAAF hoped not only to help win the war, but also to pursue its post-war goals.⁴

The USAAF also had a tactical doctrine for how to conduct strategic bombing: large formations of heavily armed bombers would fight their way through the enemy’s defenses and conduct very precise bombing in daylight to destroy carefully selected targets, the loss of which would cripple the enemy’s war effort quickly and efficiently. This doctrine was based on the idea that industrial economies were delicate webs of interdependent factories, power plants, and transportation links. The USAAF believed that the loss of a small number of critical plants could bring down an entire industry and the loss of a small number of industries

4. By the time the United States entered the Second World War, everyone realized that airplanes were important military weapons. What was still open to discussion was how they could best be used. Arnold and the other strategic bombing advocates believed that they had the answer to that question, and many outside the USAAF agreed. Their arguments were convincing enough that President Franklin D. Roosevelt, Secretary of War Henry L. Stimson, and Army Chief of Staff George C. Marshall—among others with nothing to gain from an independent air force—were willing to let the USAAF conduct large-scale strategic bombing campaigns.

would cripple war production and even cause a general economic collapse. When the United States entered the war, the USAAF believed its B-17 and B-24 bombers could fight their way to the heartlands of the German Reich and the Japanese Empire. In the Norden bombsight the USAAF felt that it had the aiming system necessary to hit and destroy the critical elements of the German and Japanese war economies. Before the war, however, the USAAF was not sure it would have bases close enough to Japan and Germany for B-17s and B-24s, so the USAAF began a program to develop a bomber with a much longer range: the B-29.⁵

By the time the United States recovered from the shock of the Japanese attack on Pearl Harbor and could consider offensive operations, Japan had conquered so many Pacific Islands and such a large part of the Asian mainland that it would be years before the Japanese home islands were within range of U.S. bombers. Even without the Allies' strategic decision to defeat Germany first, Germany was necessarily the first target of the USAAF because it was within range of Allied bases in Britain (from which the British had been bombing German-occupied areas for some time). British doctrine and planes, however, were different, and particularly after Air Chief Marshal Arthur T. Harris took charge of British Bomber Command in February 1942, the British pursued a policy of "area" bombing German cities at night.⁶ An area bombing raid attempted to destroy large parts of an industrial city in order to weaken the enemy by destroying the factories, government offices, and workers' homes within the target area. Whereas precision bombing attempted to destroy a small number of critical plants and industries, area bombing, in contrast, attempted to damage all industries.

In theory, precision bombing appears to be much more efficient than area bombing, but operational problems made precision bombing less effective than its advocates expected. Finding the critical point in the enemy's war industry required extremely detailed and accurate information about the nation's economy, information he was trying hard to keep secret. When the targets were in fact critical, the enemy defended them fiercely, made them harder to hit by dispersing them or putting them underground, and rebuilt them quickly when they were hit. Area bombing, on the other hand, did not require such accurate intelligence about

5. On the origins of the B-29, see Craven and Cate, *Army Air Forces*, 5: 3–32.

6. The decision to emphasize destruction of German cities did not originate with Harris, but he executed the policy with such vigor, tenacity, and success that it is widely associated with him. For a detailed comparative study of USAAF and British bombing doctrine before 1945, see Tami Davis Biddle, "Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas about Strategic Bombing, 1917–1945" (Ph.D. diss., Yale University, 1995); and also her "British and American Approaches to Strategic Bombing," *Journal of Strategic Studies* 18 (March 1995): 91–144.

the enemy, and since area targets were much larger than precision targets, area bombing could be done effectively by crews and equipment that could not hit precision targets. Area bombing could also be done under conditions such as night and bad weather that made the targets harder to hit but also made the bombers harder for the defenders to find and attack. The main operational drawback of area bombing was that a huge number of bombs had to be dropped before the general level of destruction made an appreciable impact on the enemy's war effort. Since the area targets were almost always cities, area bombing entailed significant casualties among the civilian population. Such casualties raised ethical issues that precision bombing might avoid, and when casualties were "friendly" civilians (for example, Frenchmen killed by Allied bombing of occupied France), they posed immediate political problems as well.⁷

By early 1943, the United States was finally assembling enough planes and crews in Britain to make a serious contribution to the strategic bombing of Germany but had not yet achieved much. British Prime Minister Winston Churchill was convinced that the British were on the right track with area bombing. He wanted the USAAF to abandon its plans for a daylight precision bombing campaign separate from the British night area campaign and instead join and reinforce the British campaign. Churchill said as much to President Franklin D. Roosevelt at the Casablanca Conference in January 1943, and Roosevelt tentatively agreed to this change in tactics. This agreement, in the words of the USAAF's official history, created a "crisis."⁸ The change would force the USAAF to renounce its plans and doctrine, retrain its crews, and modify its aircraft; for example, flames came out of the exhaust pipes of the B-17s, making them easy to find in the night sky. From a bureaucratic standpoint, the change was unacceptable because the USAAF, which was trying to escape the control of the U.S. Army, would then fall under the control of the Royal Air Force. General Arnold chose not to oppose the President or the Prime Minister himself and instead sent the commander of USAAF bomber forces in Britain, Major General Ira Eaker, to attempt to change the Prime Minister's mind. Eaker succeeded.⁹ One USAAF

7. For example, the Allies were very concerned about French casualties from Allied bombing, and Prime Minister Winston Churchill tried to get President Roosevelt to change General Dwight D. Eisenhower's plans for the bombing in support of the D-day landings. For a related discussion, see Richard G. Davis, "German Rail Yards and Cities: U.S. Bombing Policy, 1944-1945," *Air Power History*, Summer 1995, 53-55.

8. Craven and Cate, *Army Air Forces*, 2: 115.

9. British sources indicate that Churchill's staff had already convinced him that the USAAF had to be allowed to attempt daylight bombing, but that simply means that Eaker and the USAAF had convinced them and they convinced Churchill. For related discussion, see Charles Webster and Noble Frankland, *The Strategic Air*

planner went so far as to claim that this was “the crucial turning point in the conduct of the war in Europe.”¹⁰

Having overcome the British threat, the USAAF now had to defeat the German air force. It turned out that the B-17s and B-24s could not fight their way through German defenses without suffering crushing losses, and in late 1943, the U.S. bombers had to stop bombing targets deep inside Germany until long-range fighters were available to escort them.¹¹ With the help of fighter escorts, the USAAF was finally able to defeat the German air force in early 1944. But weather still caused problems. The Norden bombsight enabled the USAAF to bomb with impressive accuracy in clear weather, but the weather over Germany was rarely clear. Radar offered a solution. The British had developed a radar system called H2S that enabled bombers to look through the clouds and distinguish between water, land, and built-up areas, but not much else. The Radiation Laboratory at the Massachusetts Institute of Technology developed an improved version called H2X; a few were available for use in USAAF bombers by the fall of 1943, but these could not provide a clear enough picture of the ground to allow the bombardier to hit a specific factory. In the words of the official historians, this was “a type of area bombing”—a type in which only about 4 percent of the bombs landed within a mile of the aiming point.¹² With such poor accuracy, the bombers needed targets that were several miles wide. Effectively, that meant aiming at the centers of cities rather than at individual factories. In the last eighteen months of the war in Europe, the USAAF launched at least sixty-nine substantial raids (each comprised of at least one hundred heavy bombers), which dropped a total of almost sixty thousand tons of bombs on targets designated as the “city area” of twenty-five different German cities.¹³ The USAAF actually did a great deal more area bombing of German cities than these statistics suggest, under the guise of attacking German transportation. As the official historians acknowledged, with such inaccurate bombing, “the aiming point became a highly theoretical term.”¹⁴ Those with “theoretical,” ethical, or other reasons for not wanting to target German city areas could aim at German rail

Offensive Against Germany, 1939–1945 (London: HMSO, 1961), 1: 360–63; and Biddle, “Rhetoric and Reality,” 533–37. For his part, the Prime Minister encouraged Eaker to believe that his presentation had won the USAAF its reprieve and took this tack in his memoirs. Winston Churchill, *The Second World War*, 6 vols. (New York: Houghton Mifflin, 1950), 4: 678–80.

10. Hansell, *Germany and Japan*, 69–71.

11. Craven and Cate, *Army Air Forces*, 2: 705.

12. *Ibid.*, 3: 20.

13. Davis, “German Rail Yards and Cities,” 48.

14. Craven and Cate, *Army Air Forces*, 3: 20.

yards since these were typically located in the center of German cities. Although the USAAF also conducted many radar-aimed attacks against German rail yards, everyone involved understood that there was little difference between city area raids and radar-guided raids on rail yards in terms of planning, execution, or results. USAAF commanders 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.¹⁵

This did not represent an abandonment of precision bombing as a goal. Instead, the USAAF accepted that under certain weather conditions, it could not hit small precision targets. When cloud cover over Germany made precision bombing impossible (nearly half the time) the USAAF conducted area bombing rather than no bombing. Much of the literature on U.S. strategic bombing in World War II is devoted to trying to explain why the USAAF conducted area raids against Japan but did not conduct them against Germany. Since the USAAF in fact did a great deal of area bombing in Germany, these works need to be revised or abandoned entirely.¹⁶

The B-17 and B-24 were impressive aircraft and the Combined Bomber Offensive against Germany was dramatically more impressive than any previous bombing campaign. But the Allies did not defeat Germany with airpower alone; the Soviet Red Army, the Allied forces in Italy, and the D-day invasion of France, for example, proved ground combat to be far from out of date. Since Arnold and the advocates of an independent U.S. Air Force could never be sure just what they had to do to gain independence, they felt enormous pressure to do ever more with strategic bombing. This pressure was keenly felt in the B-29 program and the strategic bombing of Japan.

Operations against Japan

During the Second World War, the design, development, testing, and production of the B-29 cost over three billion dollars—half again as

15. Davis, “German Rail Yards and Cities,” *passim*. Of course rail yards were important targets in their own right, and destroying them did disrupt the German war economy, but as early as 1941, one of the reasons the British were attacking rail yards was that the bombs that missed the target would still land in German cities. For related discussion, see *The Strategic Air War Against Germany 1939-1945, Report of the British Bombing Survey Unit*, forewords by Michael Beetham and John W. Huston, introductory material by Sebastian Cox (1946; reprint, London: Frank Cass, 1998), 5.

16. This line of debate should have died when the official historians acknowledged USAAF area bombing in 1949, but somehow it lived on into the 1990s. For example, see Crane, *Bombs, Cities, and Civilians*, *passim*.

much as the two billion dollars spent on the atomic bomb—and made substantial demands on wartime resources and manpower.¹⁷ The USAAF referred to this as “the three-billion-dollar gamble” because the B-29 went into mass production before its first flight.¹⁸ Arnold and the USAAF took an enormous risk in devoting such vast resources to a plane that had not been tested, but Arnold felt that the B-29 might achieve the sort of spectacular successes that would advance his notion of strategic airpower. As he wrote to one of his subordinates, “The B-29 project is important to me because I am convinced that it is vital to the future of the Army Air Forces.”¹⁹ Rushing B-29 development almost guaranteed that the early planes would experience enormous technical problems, but it gave the USAAF the B-29 before the war ended.

By late 1943 the USAAF had decided to use the B-29 only against the Japanese because its long range was essential in the Pacific but less critical in Europe. Arnold was determined that he and the USAAF would decide how to use these bombers with as little interference as possible from the Army and Navy. To achieve this he created a unique organization called “Twentieth Air Force” to conduct B-29 operations. The Twentieth Air Force was directly subordinate to the Joint Chiefs of Staff (JCS). General Arnold acted as the executive agent for the JCS and personally commanded the Twentieth Air Force from Washington, D.C. Though the B-29s would be based in areas under the control of the theater commanders and would receive logistical support from the theaters, Twentieth Air Force was independent of all of the theater commanders and controlled all B-29 combat operations.²⁰ As a member of the JCS, Arnold could turn down requests for support from the Allied theater commanders (Admiral Louis Mountbatten, General Joseph W. Stilwell, Admiral Chester W. Nimitz, and General Douglas MacArthur)—keeping the B-29s on their independent, strategic targets—while demanding support from the theaters.²¹ One of the keys to selling this unusual command struc-

17. For the impact of the B-29 program on wartime manpower concerns, see Kent Roberts Greenfield, ed., *Command Decisions* (Washington: Center of Military History, 1990), 375.

18. Craven and Cate, *Army Air Forces*, 5: 7. The USAAF hedged its bet on the Boeing B-29 by simultaneously signing a contract with Consolidated to produce the B-32 to meet similar specifications. As it turned out, the B-32 had even worse troubles than the B-29 and made almost no contribution to the Allied war effort.

19. Arnold to LeMay, 9 December 1944, letter, Official Decimal Files 370.2, 20th AF, Box 106, p. 1, Henry H. Arnold Papers, Manuscript Division, Library of Congress, Washington, D.C.

20. The main subordinate units under the Twentieth Air Force were the XX Bomber Command, operating out of China and India, and the XXI Bomber Command, operating out of the Marianas.

21. Stilwell commanded the China-Burma-India theater, served as chief of staff to Chiang Kai-shek, and also held the position of deputy commander of the South East

ture to the JCS was the argument that the long range of the B-29 meant that it would fly from bases in several theaters against targets in Japan, which was outside all of the theaters, and that unity of command in the base areas (under the theater commanders) should be sacrificed in favor of unity of command over the target area (under Arnold).²²

Beginning in mid-1944, the USAAF based the first B-29s in India and attacked Japan from staging bases in China. Later that year larger forces began operating from bases built on the newly captured Mariana Islands (Guam, Saipan, and Tinian). The enormous logistical difficulties of operating from China (into which fuel and bombs had to be flown from India over the Himalayas) were apparent even before the first B-29s arrived. Worse yet, the most important targets in Japan could not be reached from the parts of China then under Allied control. As a result, the Air Staff saw the Marianas as the crucial base for B-29 operations against Japan even before the Twentieth Air Force was created. In fact, the main reasons for conducting operations from China were to make up for not having provided Chiang Kai-shek with more support earlier in the war and because those were the only Allied bases within range of the Japanese home islands at the time the first B-29 units were ready.²³

Operations against Japan from China began on 14 June 1944 under the command of Brigadier General Kenneth B. Wolfe, and from the Marianas on 24 November 1944 under the command of General Hansell. Wolfe was one of the USAAF's finest production and engineering officers and had personally supervised the B-29 program. Hansell had played an important role in planning the bombing of both Germany and Japan and had commanded a B-17 wing in Europe for six months. He was chief of staff of the Twentieth Air Force before taking command in the Marianas. Operations from China did not go well, so Arnold fired Wolfe on 4 July 1944 and the next month replaced him with Major General Curtis E. LeMay.²⁴ But even with a new commander, no one expected great results from China. Disappointments there were balanced by the hope that operations from the Marianas would turn things around, but early results from the Marianas were no better.

Asia Command, headed by Mountbatten. Nimitz and MacArthur headed the Central Pacific and Southwest Pacific theaters, respectively.

22. Hansell, *Germany and Japan*, 157–58.

23. Craven and Cate, *Army Air Forces*, 5: 25, 29, 30. These operations also provided an important source of combat experience for use in future operations and plans. Werrell, *Blankets of Fire*, claims that their main contribution to the war was that they gave General LeMay experience running B-29 operations.

24. Wolfe was promoted and returned to the production field. LeMay did not arrive until 29 August because he insisted on learning to fly the B-29 before shipping out to India. For related discussion, see Hansell, *Strategic Air War Against Japan*, 45, and LeMay and Kantor, *Mission with LeMay*, 323, 324.

The B-29s were attempting to destroy high-priority industrial targets in Japan with high-altitude, daylight precision bombing, but by mid-January 1945, they had not destroyed a single target in Japan. The principal cause of bombing inaccuracy was the weather over Japan, in particular high-altitude winds of over two hundred knots and persistent heavy cloud cover. Before the Twentieth Air Force started high-altitude flights over Japan, the USAAF was unaware of the jet stream there and was in no way prepared for the problems it posed to bombing accuracy. The Norden bombsight could not compensate for crosswinds of such magnitude. Bombing runs conducted downwind had ground speeds of over five hundred miles per hour, making it impossible for bombardiers to line up their sights in time. Flying into the wind devoured fuel and left the aircraft over the target, exposed to antiaircraft fire, for too long.²⁵ The extreme winds could cause even more serious problems. As one participant recalled, “[T]he damn target backed right off the radar; we were going backward over ground.”²⁶ Heavy cloud cover meant that crews were rarely able to do visual bombing. As in Europe, radar was the only way of bombing through the clouds, but the radar then used by the B-29 (the AN/APQ-13, with performance comparable to the H2X used against Germany) did not provide a clear enough picture to be effective in precision bombing.²⁷

By January of 1945, even the Twentieth Air Force Headquarters in Washington felt that “the Twentieth Air Force [and the B-29] has been ineffective as an instrument of strategic warfare.”²⁸ That month Arnold responded by firing the commander of the B-29 operations in the Marianas, General Hansell. Arnold replaced him with General LeMay as part of his decision to stop B-29 operations from China and India and consolidate them in the Marianas. Nevertheless, Arnold continued to worry that “unless something drastic is done to change [the poor results] soon it will not be long before the B-29 is just another tactical airplane,”

25. Richard H. Kohn and Joseph P. Harahan, *Strategic Air Warfare: An Interview with Generals Curtis E. LeMay, Leon W. Johnson, David A. Burchinal, and Jack J. Catton* (Washington: Office of Air Force History, 1988), 53–55.

26. USAF Oral History Program, interview with General David A. Burchinal, 11 April 1975, K239.0512-837, p. 60, HRA.

27. Hansell, *Germany and Japan*, 231. Starting in late June 1945, the 315th Bombardment Wing arrived from the States with the new AN/APQ-7 radar that was able to produce precision results (a high percentage of bombs within three thousand feet of the target) against targets that were chosen because they were easily identifiable on radar.

28. Lt. Col. R. S. McNamara (Statistical Control Office, 20th AF) to Col. C. E. Combs (Deputy Chief of Staff, 20th AF) 16 January 1945, memorandum, Subject: Effectiveness of the Twentieth Air Force as a Strategic Weapon, AF File #760.310A (20th AF, Operations Analysis), 1944–45, Air Force History Support Office, Bolling Air Force Base, Washington, D.C.

diverted from strategic bombing to supporting Army and Navy forces.²⁹ Arnold’s biographer suggests that distress over the B-29 campaign caused Arnold’s massive heart attack in January 1945.³⁰ By the end of February results were still poor and the B-29 looked more and more like an expensive and embarrassing failure.

LeMay understood that in order to keep his job, he would have to find a way to succeed. The obvious solution was to switch from precision bombing to area bombing, which, given the known flammability of Japanese cities, would mean using incendiaries rather than high explosives. In late February, with the support of Twentieth Air Force Headquarters in Washington, LeMay tried area incendiary bombing. On 25 February 1945, he launched the largest B-29 raid to date against Tokyo, dropping over four hundred tons of incendiary bombs on the city. The raid burned about one square mile of Tokyo. It was the most destructive raid against Japan to date, but it did not produce results capable of changing the direction of a campaign. One more decision had to be made before the USAAF was ready to mount the raid that resulted in the 9–10 March conflagration.

During the 25 February raid, the B-29s flew as they were designed to fly—i.e., in daylight, in formation, at high altitude. Their altitude protected them from anti-aircraft fire, and the crossfires produced by their machine guns when flying in formation protected them from enemy fighters. The major technological innovations of the B-29 (remote control machine gun turrets and pressurized crew areas) were designed with these tactics in mind.

For the 9 March raid, LeMay abandoned accepted tactics, stripped the B-29s of their machine guns, and sent them over Tokyo at low altitude in a single-file stream rather than in a formation. The only concession he made to Japanese defenses was to fly at night when most of the Japanese fighters were ineffective. LeMay concealed his change in tactics from his superiors, perhaps (as he says) to protect them from possible failure, but perhaps because he also feared they might veto his radical new idea.³¹

By changing tactics, LeMay risked decimating his force, but he solved all of his other problems. At low altitude there was no jet stream, and the targets were much easier to hit with inaccurate incendiary bombs. “Hitting” an area target with incendiary bombs meant getting enough of the incendiaries to land close enough together so that the numerous small fires merged into one vast, uncontrollable fire. The

29. Arnold to Brig. Gen. Lauris Norstad (Chief of Staff, 20th AF), 14 January 1945, letter, cited in Coffey, *HAP*, 357–58.

30. Coffey, *HAP*, 338, 358.

31. LeMay and Kantor, *Mission With LeMay*, 348.

weight that the B-29s saved by not carrying their guns, gunners, and ammunition translated into an additional three thousand pounds of incendiary bombs per aircraft, contributing approximately 25 percent to the total amount of bombs dropped on 9 March. Flying at low altitude in single file used less fuel than climbing to high altitude and flying in formation, permitting an additional three thousand pounds of incendiary bombs per aircraft.³² Thus, his new tactics enabled LeMay to double the bombload of each plane and also to ensure that the bombs would land closer together. By flying at night, he might just get away with flying low without machine guns. LeMay naturally feared that the Japanese might devise countermeasures in response to his change in tactics, so if the 9 March raid worked, he planned to take full advantage of the initial surprise by running four more “maximum effort” incendiary raids as quickly as possible.³³

This raid also marked a radical change in the results of USAAF bombing of Japan. Previously, raids were typically flown at high altitude and dropped high explosives that failed to hit factories and killed relatively few Japanese civilians. From 9 March on, the bulk of the B-29 effort went into low-altitude incendiary raids that burned down Japan’s cities and killed hundreds of thousands of Japanese civilians. A change in tactics and target selection has rarely produced such a radical change in results. The operational chronologies of the B-29 campaign and some postwar memoirs have, however, led historians to draw several erroneous conclusions. One is that the primary goal of USAAF incendiary bombing of Japan (like British incendiary bombing of Germany) was to “demoralize the urban population.”³⁴ In fact, Japanese industry was the primary target of the area raids, as it was for precision raids. Another mistaken view is that the leaders of the USAAF did not fully accept the fact that they were killing large numbers of civilians. Some observers claim that the leaders somehow concealed from themselves the facts of what they were doing; others maintain that the civilian casualties were unintended “collateral damage.”³⁵ But in fact, the leaders of the USAAF knew exactly what they were doing, and civilian casualties were one of the explicit objectives of area incendiary bombing approved by both the USAAF and the Joint Chiefs of Staff. The B-29 crews also understood this

32. Craven and Cate, *Army Air Forces*, 5: 612–13.

33. Tactical Mission Report, Box B26, Curtis E. LeMay Papers, Manuscript Division, Library of Congress; Mission Number 40, flown 10 March 1945.

34. Overy, *Air War, 1939–1945*, 99.

35. For example, Sherry, *The Rise of American Air Power*, leans toward the “self delusion” school. The official historians of the Army Air Forces, Craven et al., lean toward the “collateral damage” view of Japanese civilian casualties.

because their orders for the 9 March raid explicitly listed Japanese civilian casualties as one of the goals of the raid.³⁶

A third error is to exaggerate LeMay's role in choosing to attack area targets.³⁷ The attacks on Japanese area targets began in earnest shortly after LeMay took over command in the Marianas. The success of the 9 March raid (and others based on that pattern) made LeMay's career, but he did not discover these targets on his own out on Guam in March of 1945. These area targets were included in USAAF plans in 1943, long before the B-29s started bombing Japan, and the intention was to start destroying them in the middle of the bombing campaign (ideally in March 1945). A variation on this misunderstanding is to claim that General Arnold decided to switch to area bombing in late 1944 and decided to replace Hansell with LeMay because Hansell would not conduct area bombing and LeMay would. In fact, Hansell had already conducted area bombing of Japanese cities, and if the B-29s had remained under Hansell's command, they would still have bombed urban area targets. Further, Arnold had other reasons for replacing Hansell with LeMay and would have done it soon, irrespective of their views on area bombing. A careful study of USAAF plans for bombing Japan and the details of the campaign conducted against Japan will bear this out.

USAAF Plans to Attack Japanese Cities and Civilians

It would be idle to search for the USAAF planner who first thought of making incendiary attacks on Japan. The vulnerability of Japanese cities to fires was well known to anyone with even a casual interest in Japan and had been amply illustrated by the Tokyo earthquake and fire of 1923. As Americans pondered the possibility of war with Japan, many considered taking advantage of this vulnerability. In 1932, retired Brigadier General William (Billy) Mitchell, one of the nation's foremost advocates of airpower and a virtual folk hero to the USAAF, claimed that, in case of war with Japan, “Incendiary projectiles would burn the [Japanese] cities to the ground in short order.”³⁸ At a secret press conference on 15 November 1941, Army Chief of Staff General George C. Marshall stated, “If war with the Japanese does come, we'll fight mercilessly. Flying fortresses will be dispatched immediately to set the paper cities of Japan on fire. There won't be any hesitation about bombing

36. Narrative History of the Twentieth Air Force (Decimal File Number 760.01, 1 July–2 September 1945), Binder VII, Target Information Sheets, Document 75, HRA.

37. Crane, *Bombs, Cities, and Civilians*, 10, 120–36.

38. Sherry, *Rise of American Air Power*, 58.

civilians—it will be all-out.”³⁹ Even without the encouragement of such influential figures as Billy Mitchell and George Marshall, the Japanese incendiary bombing of Chinese cities in the 1930s and the London blitz of 1940 would have made it virtually impossible for USAAF planners to have remained unaware of the possibility of using fire to attack Japanese cities.

USAAF planning in the Second World War was done in haste by inexperienced officers in newly created organizations. For the purpose of choosing initial targets, the two most important organizations were the Air Staff, created in 1941, and the Committee of Operations Analysts (COA), created in late 1942. The Air Staff served all of the traditional general staff functions and was manned initially by a hardcore group of airpower enthusiasts, mostly former instructors at the Air Corps Tactical School. It grew exponentially during the war, but the planners were lower-ranking, less experienced, and altogether less credible than their counterparts in the Army and Navy.⁴⁰ The COA was a more *ad hoc* organization, created by General Arnold to improve the quality and credibility of the intelligence on which USAAF planning was based. It was composed primarily of industrial and economic experts whose recommendations, Arnold hoped, would carry added weight with President Roosevelt and Secretary of War Henry L. Stimson. Much to the chagrin of the Air Staff, the COA was independent of it and worked on special projects as requested by General Arnold.⁴¹ Conflict between the Air Staff and the COA was inevitable but was minimized by having prominent members of the Air Staff also serve as members of the COA.

Initially, both the Air Staff and the COA focused their attention on the war in Europe. As a result, the Air Staff did not start serious work on selecting bombing targets in Japan until February of 1943. On 24 February, the Chief of Operational Plans for the Air Staff requested “an overall target study of Japan [and Japanese-controlled areas]” for an “air offensive against the vital military and industrial centers of the Japanese Empire.”⁴² The reply from the Intelligence Section of the Air Staff, a large binder entitled “Japanese Target Data—March 1943,” consisted of

39. Larry I. Bland and Sharon Ritenour Stevens, eds., *The Papers of George Catlett Marshall* (Baltimore: Johns Hopkins University Press, 1981–), 2: 678. The purpose of the secret press conference was presumably to deliver a threat to the Japanese without an official public statement.

40. Hansell, *The Air Plan that Defeated Hitler* (Atlanta, Ga.: Higgins-McArthur, 1972), 1-5. The Air Corps Tactical School was the prewar heart of the Air Corps and was responsible for formulating and disseminating Air Corps doctrine.

41. *Ibid.*, 148-49.

42. Japanese Target Data, March 1943, Air Force Numerical File 142.621-1, HRA.

assessments of those Japanese industries that appeared to be worth attacking. It assigned numbers to all targets, with some identified as "key targets" or "priority targets." However, in keeping with USAAF precision bombing doctrine, no mention was made of area attacks on Japanese cities. Two months later, in May of 1943, that changed. The Chief of the Plans Section requested, "as an addendum to 'Japanese Target Data—March 1943' . . . a study of the vulnerability of Japanese target areas to incendiary attack."⁴³

With this guidance, the Intelligence Section prepared another binder entitled "Japan, Incendiary Attack Data, October 1943," which analyzed twenty key cities and divided each into zones based on the flammability of its structures. For the ten most important cities, it provided overprinted maps which indicated the locations of the various zones. The most flammable zone of Tokyo was the target of the 9 March 1945 raid. The first page of the report listed four reasons why Japanese cities were better targets than German cities for incendiary attack: the greater inflammability of Japanese residential construction, the greater building congestion in Japanese cities, the proximity of factories and military objectives to residential construction in Japan, and the concentration of Japan's war industry in a few cities.⁴⁴ Thus, by October of 1943, almost eighteen months before the 9 March raid, the Air Staff had determined that incendiary area attacks on Japanese cities would be dramatically more effective than they had been against German cities.

Japanese civilian casualties figured prominently in the minds of the Air Staff from the beginning of their planning for incendiary area attacks on Japanese cities. The Air Staff study "Japan, Incendiary Attack Data, October 1943" listed the effects that the planners hoped to achieve with incendiary attacks. These were broken into "direct effects" (destruction of production facilities, military establishments, and storage facilities) and "indirect effects" (reduced worker efficiency, casualties among workers, damage to transportation facilities, damage to public utilities, diversion of resources to reconstruction, and lowered Japanese morale).⁴⁵ Thus in 1943, USAAF plans for incendiary bombing of Japanese cities focused on the impact such attacks would have on Japanese war production and included the clear intent to kill Japanese workers and lower Japanese morale. As Arnold's wartime deputy told a postwar

43. Japan, Incendiary Attack Data, October 1943, cover sheet, Air Force Numerical File 142.621-4, HRA.

44. Japan, Incendiary Attack Data, October 1943, Air Force Numerical File 142.621-4, HRA.

45. *Ibid.*

interviewer: "It made a lot of sense to kill skilled workers by burning whole areas."⁴⁶

Shortly after the Intelligence Section of the Air Staff submitted its initial report, the COA began a study of strategic targets in Japan. It chose to make its own independent study but had not yet assembled an incendiary subcommittee, so the COA report "Economic Objectives in the Far East," dated 11 November 1943, included the conclusions from the recently published "Japan, Incendiary Attack Data, October 1943."⁴⁷ The COA report listed six critical strategic target systems in the Japanese Empire without prioritizing them or indicating how they might best be attacked: merchant shipping, steel, urban industrial areas, aircraft plants, antifriction bearings, and electronics. To this list the Joint Intelligence Committee of the JCS added petroleum (JIC 152/2). The JCS approved these seven target systems on 6 April 1944, in JCS 742/6.⁴⁸ Thus, in April of 1944—before the B-29 had flown its first mission and almost a full year before the Tokyo raid of 9 March 1945—the highest U.S. military authorities approved Japanese urban areas as targets. Henceforth, U.S. plans for bombing Japanese industry would always include both precision attacks on individual plants and area attacks on cities.

The JCS also endorsed the Air Staff's interest in Japanese civilian casualties. A portion of JIC 152/2 included in JCS 742/6 explains the reason for attacking Japanese urban industrial areas in terms of the following intended results:

The absorption of man hours in repair and relief; the dislocation of labor by casualty; the interruption of public services necessary to production and above all the destruction of factories engaged in war industry would inevitably disrupt the enemy effort at points so numerous as to constitute a major disaster [for Japan].⁴⁹

46. Eaker interview. General Eaker is best known for his wartime service in Europe, but he was recalled to Washington in March 1945 to serve as Deputy Commander of the USAAF. In this position his primary responsibility was to facilitate the bombing of Japan.

47. History of the Committee of Operations Analysts, 16 November 1942–10 October 1944, vol. 1, 59–64, Air Force Numerical File 118.01, HRA. One reason for not establishing a subcommittee to study area incendiary targets in Germany was that the USAAF had access to the substantial British work on the issue.

48. JIC 152/2 and "Report of Committee of Operations Analysts on Economic Objectives in the Far East" are both included in JCS 742/6 ("Optimum Use, Timing, and Deployment of Very Long Range Bombers in the War against Japan") 6 April 1944, reel 1, frames 0749–79, *Records of the Joint Chiefs of Staff, Part I: 1942–1945: The Pacific Theater* (Frederick, Md.: University Publications of America, 1981).

49. JCS 742/6, p. 48.

Thus the JCS in 1944, like the Air Staff in 1943, wanted to use civilian casualties as a means of cutting Japanese industrial production. Japanese morale, however, was not explicitly mentioned, indicating that for the JCS, Japanese morale was not the main purpose of either the raids or the civilian casualties.

After submitting its report on “Economic Objectives in the Far East,” the COA established an incendiary subcommittee and found additional support for area bombing Japanese cities. Before the war, Japanese industry relied very heavily on subcontracting to small “home industries” scattered throughout highly congested residential areas, and the COA assumed that this had not changed much during the war.⁵⁰ This was not considered in earlier plans approved by the Air Staff and the JCS, but wartime press conferences often mentioned these tiny military plants, widely dispersed in residential areas. The COA felt that incendiary attacks should not be conducted until a large enough force had been assembled to “give maximum assurance of totally destroying the area attacked, the danger being that a small effort would merely create fire-breaks against a later heavy attack.” The COA determined that, based on historical weather data, the best conditions for starting large fires would be in March and September. Its 9 May 1944 memorandum therefore recommended that, if an adequate force was available, a “general attack on Japanese urban industrial areas should be initiated in March of 1945 and concentrated during that month.”⁵¹

Thus the COA, and through it the Air Staff, recognized that incendiary bombing of Japanese cities was a complicated undertaking. Ordinarily the USAAF thought in terms of moving through its target priorities in a straightforward way, destroying the highest priority target system first, followed by the second priority target system, and so forth. But with fire-bombing, small attacks might be counterproductive. Special weather considerations encouraged attacking cities in March regardless of how much progress had been made against higher-priority systems. The critical unanswered question facing the planners was how many tons of incendiary bombs would be needed per square mile to burn down Japan-

50. In fact, the postwar United States Strategic Bombing Survey found that, except in Tokyo, the role of home industries in the war effort had been exaggerated. Apparently the shift to a war economy (after the United States was denied access to Japanese industrial information) moved production into larger firms. For a fuller assessment, see United States Strategic Bombing Survey, *The Effects of Air Attacks on Japanese Urban Economy* (Washington: GPO, March 1947), 29, 30. For targeting purposes, the COA was limited to the information available and thus the perceived importance of home industries was critical.

51. Colonel Guido R. Perera (Chairman of the COA) to Brigadier General Hansell, 9 May 1944, memorandum, in “History of the COA 16 November 1942–10 October 1944,” Air Force Numerical File 118.01, HRA.

ese cities and, hence, how large a B-29 force would have to be assembled before major incendiary raids could begin. Plenty of data were available on the effects of incendiary bombing on European cities, but the planners knew that Japanese cities were different. They hoped that small experimental raids would provide the needed information without doing too much to alert the Japanese. However, since “large” raids would have dramatically different results than “small” ones, the small test raids would provide very limited information about large raids.⁵² In retrospect, it appears that by changing tactics and doubling the bombload per plane, LeMay transformed the inadequate force available to him in March into a force capable of starting enormous firestorms.

At this time, only the six cities where Japanese war industry was concentrated (Tokyo, Yokohama, Kawasaki, Nagoya, Kobe, and Osaka) were thought worthy of attack, and U.S. planners assumed that the same relief and recovery services would be used by all burned-out cities in Japan. Attacking as many urban areas as possible in rapid succession would help guarantee that Japanese recovery services were overwhelmed. Thus the COA saw urban area bombing as a brief and extremely violent interlude in the precision bombing campaign against Japan—an interlude that would begin when an adequate force was assembled and end when the six key cities had been burned down—regardless of how the precision bombing campaign was going. The COA hoped “to complete the planned destruction of all six cities within a period of a few weeks.”⁵³ Ideally “the entire March [1945] effort from the Marianas” would be used against the six cities.⁵⁴

Based on COA recommendations, the USAAF planned to begin bombing Japan with small precision raids on critical factories, later adding incendiary area attacks to the campaign. General Arnold stuck to this plan. For example, on 29 November 1944, Arnold’s deputy commander of the Twentieth Air Force, Brigadier General Lauris Norstad, wrote Arnold a note suggesting an all-out attack against the Imperial Palace in Tokyo with the small force available on 7 December 1944.⁵⁵ Arnold’s reply was, “Not at this time,” and that precision bombing should

52. Minutes of Meeting of COA, 13 September 1944, p. 20, Air Force Numerical File 118.151-16, HRA.

53. Minutes of COA Meeting, 14 September 1944, p. 25, Air Force Numerical File 118.151-17, HRA.

54. COA Memorandum for Colonel Lindsay, 8 June 1944, in History of the COA, Air Force Numerical File 118.01, HRA.

55. This would have been a classic “morale” raid since it would not impede the Japanese war effort but might demoralize the Japanese. Such a raid would also have been well received by the U.S. public, and “morale” bombing could be used to improve friendly morale as well as demoralize the enemy. Norstad to Arnold, 29 November 1944, letter, file 373.2, Operations Reports, Aviation, Record Group 18, National Archives, Washington, D.C.

continue: "Later destroy the whole city."⁵⁶ In his brief note, Arnold did not specify exactly what would be different "later," but he clearly intended to wait until he had a large enough force to "destroy the whole city" and may also have intended to wait until more precision targets had been destroyed.

The priority assigned to urban industrial areas gradually rose over time but remained fairly academic until large forces arrived. In addition to recommending that heavy incendiary attacks be planned for March 1945, the 9 May 1944 memorandum to General Hansell also listed urban industrial areas as the third-priority target system, behind the first-priority coke plants (necessary for steel production) and the aircraft and radio/radar industries that shared second priority. In its final report of 10 October 1944, the COA raised the priority of urban industrial areas to second, behind only the aircraft industry.⁵⁷

Out on Guam, LeMay (who succeeded Hansell in January 1945) and his staff tried to execute the plans drawn up by the Air Staff and approved by the JCS. The orders for the 9 March 1945 raid reflected the longstanding interest of the Air Staff and the JCS in using urban incendiary raids to cut Japanese industrial production by (among other things) killing Japanese civilians. The Intelligence Section of LeMay's staff produced a target information sheet for each mission, which the bomber crews received and presumably read. For the 9 March raid, the target information sheet was titled "Tokyo Urban Industrial Area." On page three, under the heading "Target Description," the information sheet told the crews that "[w]ithin this target area of approximately 10 square miles, the average population density is 103,000 people per square mile [hence over one million people lived in the target area], an average probably not exceeded in any other modern industrial city in the world." Under "Importance," the crews learned that:

Destruction of the target area would be more noticeable from the point of view of its relation to the Tokyo metropolitan area as a whole than from the physical loss of the individual installation within the target area itself. However numerous small factories, not profitable targets for precision bombing attack would be damaged or destroyed. Employment at scores of war plants throughout Tokyo and environs would be directly affected by casualties, movement of workers out of the area, use of manpower in reconstruction, and probably lowered worker morale.⁵⁸

56. *Ibid.*; General Arnold hand-wrote his reply on Norstad's original note.

57. "History of the COA, 16 November 1942–10 October 1944," 1: 115, Air Force Numerical File 118.01, HRA.

58. Narrative History of the Twentieth Air Force, Binder VII, Target Information Sheets, Document 75, Decimal File Number 760.01, 1 July–2 September 1945, vol. 8, HRA.

Thus, casualties were again explicitly mentioned, and regarded as desirable because they would directly affect employment at war plants. This time, however, the planners sought not just casualties among workers but also casualties among those (like the members of the workers' families) whose injuries or deaths might keep workers from going to work. Their casualties were important only inasmuch as they contributed to the general dislocation in Tokyo that the planners hoped to achieve as a means of disrupting war production. The planners also hoped to lower Japanese "worker morale" but, unlike casualties, which the planners were sure the raid would produce, lower morale was merely a "probable" outcome of the raid. Lowering morale was a means of lowering industrial production—not a means of inciting either rebellion or popular demands for surrender.

The planning for the 9 March raid was unusually thorough and the target information sheet was unusually detailed. The target information sheets were typically only a page or two long, and very brief on what the attack might achieve. They often neglected casualties, morale, and all the other "indirect effects" the raids hoped to achieve.⁵⁹ But the USAAF's internal wartime propaganda vehicle, *Impact* magazine, provided detailed articles on the fire raids that repeated the planners' view that casualties were one of the ways area raids cut Japanese production.⁶⁰ Everyone was well aware that burning down vast tracts of Japanese cities would produce substantial Japanese civilian casualties. For example, a front-page article on the firebombing appeared in the *New York Times* under the sub-headline: "1,000,000 Japanese Are Believed to Have Perished in Fires."⁶¹ Few Americans complained and many may have welcomed these Japanese casualties.⁶²

59. This is not to say that the Tokyo sheet was unique. Other target sheets mention "casualties," "morale," and "absenteeism," but the consistent focus was on Japanese industry. The target information sheets can be found in Narrative History of the Twentieth Air Force, Binder VII, Target Information Sheets, Document 75, Decimal File Number 760.01, 1 July–2 September 1945, vol. 8, HRA.

60. See for example: "Area Bombing Wrecks Jap 'Home' Industry," *Impact*, April 1945; and "Fire Blitz: Progress Report on the Incendiary Bombing of Japan," *Impact*, August 1945. In Arnold's introduction to the first (April 1943) issue of *Impact*, he explains that the purpose of the magazine is to "bring home to our Air Forces throughout the world and to our comrades in other areas of the service what the force, or impact, of air power is and can be." The entire run of *Impact* was reprinted: Air Force Historical Foundation, *Impact* (New York: J. Parton, 1980).

61. The full headline reads: "51 Square Miles Burned Out In Six B-29 Attacks on Tokyo, LeMay Backs Figures With Photos of Havoc—1,000,000 Japanese Are Believed to Have Perished," *New York Times*, 30 May 1945.

62. John W. Dower's *War Without Mercy: Race and Power in the Pacific War* (New York: Pantheon, 1986) provides an excellent assessment of wartime racism in

After the war, Arnold retained his enthusiasm for using Japanese civilian casualties to impede wartime industrial production. For example, writing as head of the USAAF in his final “War Report,” he describes the firebombing of Japanese cities in detail and concludes that:

In addition to the destruction of industrial installations, the casualties caused had significant effects in dislocation of industrial manpower and on enemy morale. The Japanese have stated that air attacks killed 260,000, injured 412,000, left 9,200,000 homeless, and demolished or burned down 2,210,000 houses.⁶³

Michael S. Sherry misrepresents this situation in his award-winning book, *The Rise of American Air Power*. Sherry claims that “the vague circumlocutions employed and the incremental way by which new assumptions crept into planning obscured the shift [in target priority toward urban areas].”⁶⁴ But the 9 May 1944 memorandum Hansell received from the COA clearly made urban areas high-priority targets and recommended that they be accorded the highest priority in March. The COA was not being vague or circumlocutory in explicitly raising the priority of attacks on urban areas. For their part, the planners working for LeMay in the Marianas were quite explicit in their intention to kill Japanese civilians, and the Air Staff and the JCS had not been vague in favoring incendiary area attacks and explicitly listing civilian casualties as one of the goals of incendiary attacks. If “new assumptions crept into planning,” they did so back in May of 1943 when the Chief of the Plans Section of the Air Staff requested an incendiary study.

Changes of Command: Or, Why Hansell Did Not Matter

Brigadier General Haywood S. Hansell was a staunch advocate of precision bombing and perhaps fanatical in his commitment to the idea that destroying a relatively small number of carefully selected factories was the most efficient way to win the war.⁶⁵ Since the major area raids

both Japan and the United States. Dower does not claim, and the documents do not indicate, that U.S. firebombing was the result of U.S. racism, but hostility to the Japanese certainly colored the general public’s view of the bombing, and decision makers were aware that they would receive little criticism for Japanese casualties.

63. The full title of the report was “Third Report of the Commanding General of the Army Air Forces to the Secretary of War,” which can be found in George C. Marshall et al., *The War Reports of General of the Army George C. Marshall, General of the Army H. H. Arnold, and Fleet Admiral Ernest J. King* (Philadelphia: J. B. Lippincott Co., 1947), 440. These war reports were unclassified documents published during and immediately after the war.

64. Sherry, *Rise of American Air Power*, 258.

65. Hansell, *Germany and Japan*, 211.

against Japan began shortly after he was relieved of command, it is natural to wonder if his opposition to such raids was the reason for his relief.

After the war, Hansell claimed that critical changes were made to the plan after he left the staff and became an operational commander.⁶⁶ He also implied that he would not have conducted extensive area bombing if he had remained in command and that his removal represented a change in policy away from precision bombing and toward area bombing. Some historians have made these same claims explicit. Sherry, for example, makes much of the fact that Hansell left Washington before the final COA report came out and thus “had missed out on a crucial stage in planning.” Sherry also implies that Hansell was fired because he opposed area bombing and that his replacement by LeMay represented a change of policy in the bombing of Japan.⁶⁷

The final COA report did in fact come out after Hansell left Washington, and the report promoted Japanese urban areas to the second most important target system, ahead of everything except the Japanese aircraft industry. This would seem to support Hansell’s claim, but Hansell received the earlier COA reports, and he had seen urban areas steadily rise on the target priority list. Though he did not review or endorse the final COA report, he did receive the 9 May report that made urban areas the third priority behind the coke ovens (first priority) and the aircraft and radio/radar industries (sharing second priority). Since virtually all the coke ovens were beyond the range of Hansell’s planes in the Marianas, and he never attacked them, the previous report had effectively made urban areas second priority for him. The only “critical stage in planning” Hansell missed was the rather minor decision that Japanese urban areas were better targets than the three key plants in the radio/radar industry.⁶⁸

If Hansell had stayed in Washington long enough to quarrel with the final COA report, he certainly would not have removed Japanese urban areas from the target list because he did not object to including them.⁶⁹ The most Hansell could have done would have been to keep urban areas from moving up the priority list, that is, keeping them behind the radio/radar industry. But the 9 May 1944 report Hansell received explicitly recommended a pause in the precision campaign to conduct area bombing of the six key cities (ideally in March) rather than a lock-step

66. Hansell, *Strategic Air War Against Japan*, 50, 51.

67. Sherry, *Rise of American Air Power*, 258.

68. History of the COA, Memorandum for Brigadier General Hansell, 9 May 1944, Air Force Numerical File 118.01, HRA.

69. Hansell planned to destroy urban areas (and kill large numbers of enemy civilians) in both Germany and Japan but felt that they should be attacked only as a “last resort,” after destruction of all precision targets had failed to convince the enemy to surrender. (Hansell, *Germany and Japan*, 47, 216, 217.)

progression through the target priorities. Whether there was one industry or two ahead of urban areas on the target list was not the issue.

Even in an organization as closely watched by Washington as the Twentieth Air Force, operational commanders had some latitude in how they conducted their training and operations. One of the lessons of the bombing of Germany seemed to be that small forces of unescorted bombers could not survive over the enemy's homeland in daylight. The factories would eventually supply the USAAF with large numbers of B-29s and the capture of Iwo Jima would eventually give the B-29s fighter escort over Japan, but initially the B-29s would be very vulnerable. The first commander of operational B-29 forces, General Wolfe, took this to heart and emphasized night radar bombing rather than daylight visual bombing.⁷⁰ Not too surprisingly, Wolfe's force was ineffective against the precision targets the planners gave him and when Arnold replaced him with LeMay, the first thing LeMay did was retrain them to improve their daylight accuracy.⁷¹ The men Hansell commanded (mainly the 73d Bomb Wing) were originally slated to join Wolfe in India, and their training had also emphasized night radar bombing. Like LeMay, Hansell's first move as commander was to train his crews for daylight precision bombing.⁷² Thus, night radar bombing was a part of B-29 operations and training from the outset. Wolfe favored these operations because they increased the safety of his crews, and both LeMay and Hansell independently moved away from these tactics toward the improved accuracy provided by daylight operations. However, the crews and planes were ready for either type of operation.

The Twentieth Air Force Headquarters in Washington pushed Hansell to conduct experimental urban incendiary attacks in December of 1944, and he protested this pressure. But Hansell was under a lot of strain about many things and protested often.⁷³ After the war, Hansell found himself in the uncomfortable position of having vehemently opposed the two most effective aspects of the B-29 campaign: aerial min-

70. *Ibid.*, 165, 167. Early in the B-29 crew training program, very few aircraft were available, so it was easier to train crews in radar operations—which could be done in individual aircraft—rather than in formation flying, which required a group of aircraft. This is not to say that the crews were good at radar bombing. When he took over, LeMay was appalled at how inadequate the radar operators were, as he recalls in LeMay and Kantor, *Mission with LeMay*, 345, 346.

71. Hansell, *Germany and Japan*, 209.

72. *Ibid.*, 170.

73. In his memoirs, Hansell acknowledges Arnold's insistence that he improve both maintenance and operations and goes on to lament Arnold's obsession with statistics and the constant stream of messages coming into his headquarters demanding information he did not have. For Hansell's view, see his *Strategic Air War Against Japan*, 44, 48; and *Germany and Japan*, 162.

ing of Japanese waters and urban incendiary bombing.⁷⁴ He opposed both because they were distracting him from his precision attacks on the Japanese aircraft industry. His belief that these were requests, or suggestions, rather than orders from General Arnold, increased the vigor of his protests.⁷⁵ In the case of aerial mining, he was essentially correct that this was the Navy's idea and that Arnold was participating reluctantly and was generally in sympathy with Hansell's views. In the case of area bombing, Hansell thought he was only arguing with General Norstad (Hansell's successor as chief of staff of Twentieth Air Force) and that he could win the argument by appealing to Arnold. Arnold, however, agreed with Norstad to a much greater degree than Hansell realized; when Hansell lost his appeal to Arnold, he conducted an experimental area incendiary raid on 3 January 1945 as ordered.⁷⁶ After the war, Hansell was surprised to learn that General Arnold had long supported area bombing of Japan.⁷⁷ For all his complaining, Hansell never even hinted at resigning or disobeying orders. If area bombing was what it took to stay in command, Hansell would have continued to do as much of it as Arnold told him to.⁷⁸

The counter-argument to the claim that Hansell would not have conducted area bombing of Japanese cities is that much of his bombing was just that. There was the 3 January 1945 raid noted above but, from his first raid on Japan on 24 November 1944, Hansell aimed a significant portion of his bombing at urban areas. On that first raid, thirty-five B-29s bombed the aircraft factory (the primary target), but fifty B-29s bombed the urban area of Tokyo (the secondary target).⁷⁹ The next raid on 27 November saw no B-29s bomb the primary (aircraft factory) target and

74. Of course the best-known B-29 raids were the two atomic bombings, but they were a part of the atomic program that just happened to use a few B-29s and were not really a part of the Twentieth Air Force's campaign. For Hansell's views on aerial mining, see Hansell, *Germany and Japan*, 198–201.

75. *Ibid.*, 199, 218.

76. Hansell neglects to mention this mission in his memoirs but it can be found in, Twentieth Air Force: A Statistical Summary of Its Operations Against Japan, Numerical File 760.308 (June 44–August 45), HRA; and Kit C. Carter and Robert Mueller, *The Army Air Forces in World War II: Combat Chronology, 1941–1945* (Washington: Office of Air Force History, 1973), 538.

77. Hansell, *Germany and Japan*, 216–19.

78. One of the striking things about Hansell's memoirs is that, while he often criticizes Arnold, he never mentions an instance when he openly disagreed with Arnold or changed Arnold's mind about anything. It is very hard to escape the impression that Arnold liked Hansell because Hansell did exactly what Arnold told him to do; and that Hansell would have continued to do Arnold's bidding in using B-29s for area incendiary bombing.

79. Mission Summary, Mission Number 7, Summary of XXI BomCom Missions, 760.01, vol. 6, 1 July–2 September 1945, HRA.

fifty-nine bomb the urban secondary target.⁸⁰ Hansell's third raid on Japan (29 November) was a straightforward night area incendiary raid on Tokyo.⁸¹ Thus, Hansell conducted a night area incendiary raid on Tokyo *before* he was pressured to do so, and even when he planned a precision raid on a factory, it often became an area raid on a city.

The companion error to exaggerating the importance of Hansell's dismissal is to misunderstand LeMay's role.⁸² Unlike Hansell, LeMay was not involved in planning the bombing of Japan; at the time he was commanding large bomber forces in Europe. There he conducted precision bombing of factories, as well as radar bombing of urban areas. Contrary to the claims of Ronald Schaffer and other historians, LeMay did not arrive in the Marianas focused on incendiary area bombing.⁸³ The fire-bombing gets considerable attention in LeMay's memoirs and postwar interviews because of its spectacular success, and after 9 March 1945, LeMay ordered a lot of it.⁸⁴ But in India, China, and the Marianas before March 1945, he focused on precision bombing. As he says in his memoirs and repeated in interviews, his first major changes upon taking command in India, China, and the Marianas were to improve lead-crew training, formation flying, and other aspects of precision bombing.⁸⁵ Before 9 March his operations out of China and the Marianas were the same mix of many precision raids and a few area raids employed by Hansell. Only two of Hansell's first nine missions against Japan were area raids and only two of LeMay's first eight missions against Japan from the Marianas were area raids.⁸⁶

Even after the 9 March raid, LeMay had no intention of abandoning precision bombing and in fact did as much as the weather allowed. In July the weather was very bad and only 16 percent of his sorties were precision raids, but better weather enabled him to devote 27 percent of

80. Mission Summary, Mission Number 8, Summary of XXI BomCom Missions, *ibid.*

81. Mission Summary, Mission Number 9, Summary of XXI BomCom Missions, *ibid.*

82. For example, Crane, *Bombs, Cities, and Civilians*, suggests that it was LeMay's willingness to abandon precision bombing that distinguished the USAAF's bombing campaign against Japan from that against Germany.

83. Schaffer, *Wings of Judgment*, 125.

84. After March 1945, in response to the spectacular success of area incendiary bombing, the USAAF expanded the number of cities considered worthy of attack from the original six to over seventy. For details, see Craven and Cate, *Army Air Forces*, 5: 653–58.

85. Kohn and Harahan, *Strategic Air Warfare*, 55–58, 61, 62; and LeMay and Kantor, *Mission with LeMay*, 328–45.

86. Twentieth Air Force, A Statistical Summary of Its Operations Against Japan, Numerical File 760.308 (June 1944–August 1945), HRA.

his June sorties to precision bombing, and 37 percent of August's.⁸⁷ He even attempted to beat the weather by using low-altitude night attacks against precision targets.⁸⁸ *Thus neither LeMay nor the USAAF abandoned precision bombing in favor of area bombing. Instead, they supplemented an unspectacular precision bombing campaign with a stunningly successful urban incendiary campaign.* (In Europe, on the other hand, the USAAF's area bombing campaign was relatively unimpressive compared to its precision campaign or the British area campaign.) LeMay recognized that often the weather would not permit him to attack his highest priority targets, so he found a way to take advantage of weaknesses in Japanese defenses and to devastate secondary targets when the weather was bad.⁸⁹ Urban incendiary bombing was not LeMay's idea, or even his primary goal; he just made it work spectacularly well.

The difference between Hansell and LeMay is illustrated by the difference between the raid conducted by Hansell on 27 November 1944 and the one conducted by LeMay on 25 February 1945. Both men wanted to attack aircraft factories. Both men wound up attacking urban areas. But Hansell sent out his planes prepared to attack factories and made a haphazard attack on an urban area; LeMay postponed his factory attack and sent out his planes prepared to conduct the urban area attack they executed. As LeMay's staff writes in the report on the 25 February mission, the primary visual target was the Musashino aircraft engine plant near Tokyo, but "weather forecasts indicated that all of Honshu [the island on which Tokyo is located] would be overcast, necessitating the selection of a radar target. As a result the urban area of Tokyo was chosen."⁹⁰

The "hiring" of LeMay and the "firing" of Hansell needs to be understood not in terms of area versus precision bombing but rather within the context of Arnold's concept of how the B-29 campaign would develop and who his subordinate commanders would be. As noted above, two critical elements of Arnold's argument for his personal control of B-29 operations were the fact that the planes would be directed against Japan (rather than targets within one of the theaters) and that they would be based in more than one theater. The first criterion was met by rejecting out of hand all but the most desperate requests for support from theater

87. *Ibid.*; and, United States Strategic Bombing Survey, *The Strategic Air Operation of Very Heavy Bombardment in the War Against Japan* (Washington: GPO, 1946), 16–17.

88. Craven and Cate, *Army Air Forces*, 5: 645–53. These methods failed to produce dramatic improvements in bombing accuracy.

89. As LeMay said, he was "Trying to get us *independent of weather*" [emphasis LeMay's], in LeMay and Kantor, *Mission with LeMay*, 351.

90. Report of Operations, 25 February 1945, Box B26, LeMay Papers.

commanders. To achieve the second, operations had to be conducted from several theaters.⁹¹ Operations out of China were immediately possible and would become more attractive if the Allies could reestablish overland communications between India and China and push back the Japanese in China, making bases available closer to Japan. The Marianas would be the second B-29 base area to become available, and the Philippines would be the third. The Marianas were the most promising since operations there could begin relatively soon (unlike in the Philippines), and its bases would not depend on the offensive capabilities of Chiang Kai-shek's forces. With China in the China-Burma-India theater, the Marianas in the Central Pacific theater, and the Philippines in the Southwest Pacific theater, this schedule met the need to base out of all three major theaters. Arnold created three Bomber Commands to conduct these operations: the XX for China, the XXI for the Marianas, and the XXII for the Philippines.⁹²

Arnold faced a problem finding good commanders for B-29 operations because his best bomber commanders were in Europe. As soon as the Germans surrendered, Arnold sent his top officers from Europe to take over the campaign against Japan.⁹³ Until then, he had to make do with more junior officers. His plan was to give the XX Bomber Command in China to Wolfe, a brigadier general; the XXI in the Marianas to LeMay, a major general; and the XXII in the Philippines to Hansell, a brigadier general.⁹⁴ While Arnold did not leave a record of his reasons for making these selections, it is worth noting that these three officers represented key constituencies within the USAAF: Wolfe came from the production and logistics side, LeMay spent the war commanding operational bomber units, and Hansell was best known as a planner and staff officer. The sequencing of their assignments may have been due to the fact that the greatest challenges to early operations would be mechanical, which Wolfe was extremely well prepared to handle. The operations out of the Marianas would be the USAAF's first real chance to put large numbers of bombs on key targets, and that command would be much larger than the others. LeMay had shown a remarkable ability to put bombs on targets,

91. Hansell, *Strategic Air War Against Japan*, 26.

92. Hansell, *Germany and Japan*, 164.

93. Gen. Carl A. Spaatz took over direction of the campaign from Arnold; Lt. Gen. James H. Doolittle brought in his Eighth Air Force from England; and Lt. Gen. Nathan F. Twining left Italy to replace LeMay as commander of the Twentieth Air Force. (In July 1945, Arnold had closed the headquarters of Twentieth Air Force in Washington and redesigned the XXI Bomber Command as the Twentieth Air Force under LeMay's command.) No one explained the change in command to LeMay until Twining arrived and LeMay asked him “What are you doing here?” Unlike Hansell, LeMay chose to stay on after losing his command. For related discussion, see Hansell, *Strategic Air War Against Japan*, 69–71.

94. *Ibid.*, 45.

and he had much more experience commanding large bomber forces than had Wolfe and Hansell combined. By the time the Philippines became available for B-29 operations, the Twentieth Air Force would be running smoothly and Hansell's job as chief of staff would be winding down.

Regardless of Arnold's reasons for choosing Wolfe, LeMay, and Hansell to be his first three B-29 commanders, events led him to modify his original plan. When the XX Bomber Command's operations disappointed him, Arnold replaced Wolfe with LeMay. This moved Hansell up from commanding the XXII to the XXI, in the Marianas. When the USAAF decided not to use the Philippines as a B-29 base, the XXII Bomber Command was disbanded. Thus the only reason Hansell ever commanded any B-29s was that Wolfe was fired. When the Japanese ground offensive drove the XX Bomber Command out of China and Arnold decided to consolidate all B-29 operations in the Marianas, he had another command problem.⁹⁵ Allowing Hansell and LeMay to run competing commands out of the Marianas did not make sense, so Arnold had to choose between them. This was a very easy choice because there were compelling reasons for keeping LeMay and replacing Hansell.

The first, and most obvious, fact was that LeMay outranked Hansell in 1945; the simplest solution, then, was to make LeMay the commander with Hansell as his vice commander. This was in fact what Arnold did, but Hansell quit (in something of a huff) rather than serve under LeMay.⁹⁶ Aside from his rank, LeMay was also the better commander. Of all Hansell's many defenders, none claims that Hansell would have done a better job than LeMay did.⁹⁷ Arnold's original plan for who would get which command suggests that, before operations began, he preferred LeMay to Hansell and, had the plan called for only one B-29 base area, he would have given that command to LeMay and not to Wolfe or Hansell.

Whatever Arnold's preferences before operations started, by January 1945 he had the benefit of several months observing LeMay and Hansell

95. Though the Japanese did not actually capture the airfields, their offensive put such a strain on Allied logistics in China that the U.S. commander there requested that the B-29s be removed. For related discussion, see Craven and Cate, *Army Air Forces*, 5: 150–52.

96. For one of the whiney letters Hansell sent to Washington after quitting, see Hansell, *Strategic Air War Against Japan*, 140–43.

97. The closest anyone comes to claiming that Hansell was the equal of LeMay is Hansell's own description of how, planned with the full benefit of hindsight and a wealth of information unavailable during the war, a precision bombing campaign (presumably conducted by him) might have done just as well as the campaign LeMay actually ran, but would have taken longer. For this discussion, see Hansell, *Strategic Air War Against Japan*, 71–93.

running independent B-29 operations (LeMay in India since August 1944 and Hansell in the Marianas since October 1944). Arnold made his view of their respective efforts clear when he chose to put Hansell under LeMay's command and left no other comment on the issue. Others have not been so reticent. Arnold's chief of staff, General Norstad, felt that Hansell suffered from an “utter absolute complete and irreversible lack of competence.”⁹⁸ One Air Force analyst pointed out the difference between the reports coming into Washington from the two B-29 commanders: “LeMay was writing half-page reports telling Arnold what he did yesterday, and Hansell was writing a three-page report explaining why the mission aborted.”⁹⁹ This disparity would have struck even the most casual observer but, given that Arnold was demanding action and hated to receive reports that were more than one page long, Hansell's catalogue of excuses only served to weaken further his untenable position. The fact that he wrote such reports at all indicates that he had no idea how his actions would appear to others and completely misunderstood his position.

Aside from the enormous advantages LeMay had over Hansell, there were solid reasons for simply firing Hansell. The ineffectiveness of Hansell's operations has already been noted. In addition, his subordinates and some of his superiors intensely disliked him. As Hansell acknowledged, his main combat force, the 73d Bomb Wing, “was openly hostile to me,” from its commander to its lowest private.¹⁰⁰ Hansell also had a running fight with Major General Willis H. Hale, the commander of the other USAAF aircraft in and around the Marianas.¹⁰¹ To make matters worse for Hansell, he managed to alienate thoroughly a group of congressmen who visited him on the Marianas.¹⁰² Arnold got official complaints about Hansell from Hale and the congressmen. Arnold also knew that Hansell's subordinates hated him because the key subordinate commander (Brigadier General Emmett “Rosey” O'Donnell, Jr., of the 73d Bomb Wing) was a good friend of Arnold's and was doing everything

98. Interview of Brig. Gen. Lauris Norstad by Murray Green, 15 July 1969, microfilm 168.7326, roll 43825, p. 14, HRA.

99. Interview of Maj. Gen. John B. Montgomery by Murray Green, 8 August 1974, microfilm 168.7326, roll 43825, p. 9, HRA.

100. Brig. Gen. H. S. Hansell to Lt. Gen. Barney M. Giles, 27 March 1945, letter, reprinted in Hansell, *Strategic Air War Against Japan*, 140–43. While it is not clear why *everyone* in the 73d Bomb Wing hated him, Hansell does describe a clash with Brigadier General Emmett O'Donnell, Jr., over their first mission against Japan. O'Donnell felt that the daylight raid Hansell insisted on was too dangerous and instead favored a night (area) raid. For a discussion of this, see Hansell, *Strategic Air War Against Japan*, 37, 38.

101. Hansell, *Germany and Japan*, 208.

102. *Ibid.*, 185.

he could to get Hansell fired.¹⁰³ With the open and outspoken hostility of so many people and without operational successes to fall back on, Hansell was not likely to keep his job long.

Even his personal friends felt Hansell was not the man for the job. Several key members of the Air Staff, including Lieutenant General Barney Giles and Major General Lawrence Kuter, actually approached Arnold to request that Hansell not be given command of the XXI Bomber Command. Giles and Kuter knew Hansell as well as anyone and were two of Hansell's closest friends, but they had no faith in him as commander in the Marianas. A postwar interviewer suggested to General Giles that Hansell had not been given enough time, but Giles passed up the chance to defend his old friend and said, "No, no, he was the wrong man to send there in the first place."¹⁰⁴ How long Arnold might have put up with Hansell is not clear, but when the opportunity came to move him out of command and back into a staff position (under LeMay), it must have been very attractive.

Hansell's biographer refers to Hansell's firing as a personal "tragedy," but the tragedy was Hansell's narcissism and complete lack of self-awareness.¹⁰⁵ A little thought on Hansell's part would have revealed to him that he would have a command only if there were a B-29 command that Wolfe and LeMay could not hold. It was also clear he would lose that command if General Arnold consolidated B-29 operations. And any of the three of them who was still around would be pushed aside the moment the European commanders were available for Pacific duty. As it turned out, the command Hansell was originally supposed to get (XXII Bomber Command) was disbanded and never saw action. Luckily for Hansell, Wolfe failed before LeMay could take over XXI Bomber Command in the Marianas, so Hansell got XXI (the best B-29 job) until Arnold decided to stop wasting his time in China. Then LeMay got the command Arnold had always intended to give him and kept it until the USAAF's first string arrived from Europe. For the rest of his life, Hansell puzzled over his relief from duty with the same lack of self-awareness that he showed when he responded to his relief by sending Arnold a *ten-page* letter that said in part, "I feel, on reflection, that I have erred in not passing on to you my problems in more detail."¹⁰⁶ (How could he have imagined that

103. Interview of Maj. Gen. John B. Montgomery by Murray Green, 8 August 1974, p. 7, microfilm 168.7326, roll 43825, HRA.

104. USAF Oral History Program, interview with Lt. Gen. Barney M. Giles, 20–21 November 1974, pp. 91–93, K239.0512-814, HRA.

105. Griffith, *The Quest*. Griffith claims that Hansell was fired because of his reluctance to conduct area bombing.

106. Hansell to Arnold, 14 January 1945, Record Group 18, File 201, National Archives (quoted in Griffith, *The Quest*, 196).

Arnold would read a ten-page letter from a man he just fired?) If ever a man complained enough, it was Haywood Hansell.

So where does all this leave us? The 9 March 1945 raid on Tokyo was a radical break from previous operations because LeMay had the imagination and courage to try low-altitude night operations, not because it was an incendiary raid on a major city. In bad weather, the USAAF performed extensive area incendiary bombing of both German and Japanese cities. From 1943 on, USAAF plans included incendiary area bombing of major Japanese cities, and heavy attacks were supposed to start well after the precision bombing campaign began. The main target of the raids was Japanese industrial production, and one of the means used to cut that production was civilian casualties. The intention to kill large numbers of Japanese civilians was explicitly included in planning documents read and approved at every level from the individual aircrewman to the Joint Chiefs of Staff, and in his final report on how he conducted the air war, the Commanding General of the USAAF included heavy Japanese civilian casualties as a measure of his success.