Firebomb

How to Stop Worrying and Love the Incendiary Bomb
By Mike Davis

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Recently I read a chapter from Mike Davis' *Dead Cities* that reminded me of part of Errol Morris' documentary *Fog of War*. They both talk about the use of *firebombs* in World War II: bombs designed not to destroy military compounds but rather to destroy dense, urban civilian populations in order to weaken the morale of the enemy.

*firebomb n : a bomb that is designed to start fires; are most effective against flammable targets (such as fuel) [syn: incendiary bomb, incendiary] v : attack with incendiary bombs; "The rioters fire-bombed the stores" [1]*
I was on the island of Guam. In [chief of staff of the Strategic Air Forces in the Pacific during World War II General Curtis E. LeMay's] command, in March of 1945, in that single night, we burned to death 100,000 Japanese civilians in Tokyo -- men, women, and children. I was part of a mechanism that in a sense recommended it. I analyzed bombing operations, and how to make them more efficient -- i.e. not more efficient in the sense of killing more but more efficient in weakening the adversary. ... I don't want to suggest that it was I that put into LeMay's mind that his operations were totally ineffective ... but anyhow that's what he did ... he decided to bomb with firebombs. ... Fifty square miles of Tokyo were burned.

Robert McNamara

Still from "Fog of War" showing a B-29 assembly line in Kansas during World War II. B-29's were the planes used to firebomb Tokyo.

- Clip from Fog of War: (8:43) in either low res (modem - 3.8 MB) or hi res (broadband - 23.5 MB).
Berlin's Skeleton in Utah's Closet

All scattered lies Berlin.
Gunter Grass

Berlin's most far-flung, secret, and orphan suburb sits in the saltbrush desert about ninety miles southwest of Salt Lake City. "German Village," as it is officially labeled on declassified maps of the US Army's Dugway Proving Ground, is the remnant of a much larger, composite German/Japanese "doomtown" constructed by Standard Oil in 1943. It played a crucial role in the New Deal's last great public works project: the incineration of the cities of eastern Germany and Japan.

In 1997, the Army allowed me to briefly tour German Village with a dozen of my students from the Southern California Institute of Architecture. Dugway, it should be pointed out, is slightly bigger than Rhode Island and more toxically contaminated than the Nuclear Test Site in nearby Nevada. As the devil's own laboratory for three generations of US chemical, incendiary, and biological weapons, it has always been shrouded in official secrecy and Cold War myth. The threat of base restructuring, however, has prompted the Army to mount a small public relations campaign on Dugway's behalf. Since napalm, botulism, and binary nerve gas are not conventional tourist attractions, Dugway Proving Ground instead extolls its preservation of an original section of the Lincoln Highway. Most visitors are pioneer-motoring enthusiasts who come to admire the decrepit, one-lane bridge that fords a swampy patch in Baker Area, not far from the controversial bio-warfare lab, guarded by a double perimeter of razor wire, where the Army tinkers with Andromeda strains.

German Village is a dozen or so miles farther west, in a sprawling maze of mysterious test sites and target areas which Dugway's commander is not eager to add to the visitor itinerary. He relented only when we convinced his press office that the Village had an important aura that might enhance "base heritage": It was designed by one of Modernism's gods, the German-Jewish architect Eric Mendelsohn.
Bombing Brecht

In 1943, the Chemical Warfare Corps secretly recruited Mendelsohn to work with Standard Oil engineers and RKO set designers to create a miniature Hohenzollern slum in the Utah desert. Nothing in the appearance of the surviving structure - the double tenement block known as Building 8100 - gives any hint that it is the product of the same hand that designed such landmarks of Weimar Berlin as the offices of the Berliner Tageblatt, the Colombushaus, the Sternefeld villa in Charlottenburg, or the Woga Complex on the Kurfurstendamm. Absolute "typicality" in all aspects of layout and construction was what the Chemical Warfare Corps wanted. [3]

They were in a hurry. Despite the horrifying successes of their thousand-bomber fire raids against Cologne and Hamburg, their British allies were increasingly frustrated by their inability to ignite a firestorm in the Reich's capital. The top Allied science advisors urged a crash program of incendiary experimentation on exact replicas of working-class housing. Only the United States - or, rather, the combined forces of Hollywood and the oil industry - had the resources to complete the assignment in a few months. The design and construction processes were dovetailed with parallel secret research on the fire characteristics of Japanese homes coordinated by the architect Antonin Raymond, who had worked in Japan before the war. [4] The eventual test complex was five square miles in area.

Mendelsohn's achievement was the anonymity of his result: six iterations of the steeply gabled brick tenements - Mietskasernen or "rent barracks" - that made the Red districts of Berlin the densest slums in Europe. Three of the apartment blocks had tile-on-batten roofs, characteristic of Berlin construction, while the other three had slate-over-sheathing roofs, more commonly found in the factory cities of the Rhine. Although not as tall as their seven-story counterparts in Wedding or Kreuzberg, the test structures were otherwise astonishingly precise replicas, far surpassing in every specification what the British had achieved at their own German target complex at Harmondsworth.

Before drawing any blueprints, Mendelsohn exhaustively researched the roof area coverage - a critical incendiary parameter - of target neighborhoods in Berlin and other industrial cities. His data were "extended and confirmed," reported the Standard Oil Development Company, "by a member of the Harvard Architecture School, an expert on German wooden frame building construction." (Could it have been Walter Gropius?) The builders, working with fire protection engineers, then gave extraordinary attention to ensuring that the framing (authentic woods imported from as far away as Murmansk) duplicated the aging and specific gravity of older German construction. When the fire experts objected that Dugway's climate was too arid, their Standard Oil counterparts contrived to keep the wood moist by having GI's regularly "water" the targets in simulation of Prussian rain.

The interior furnishing, meanwhile, was subcontracted to RKO's Authenticity Division, the wizards behind Citizen Kane. Using German-trained craftsmen, they duplicated the cheap but heavy furniture that was the dowry of Berlin's proletarian households. German linen was carefully studied to ensure the typicality of bed coverings and drapes. While the authenticators debated details with Mendelsohn and the fire engineers, the construction process was secretly accelerated by the wholesale conscription of inmates from the Utah State Prison. It took them only forty-four days to complete German Village and its Japanese counterpart (twelve double apartments fully furnished in hinoki and tatami). The entire complex was fire-bombed with both thermite and napalm, and completely reconstructed at least three times between May and September 1943. The tests demonstrated conclusively the superiority of the newly invented M-69 napalm munition. [5] It was a splendid example of the characteristic American "approach [to] war as a vast engineering project whose essential processes are as precisely calculated as the tensile strength requirements of a dam or bridge." [6]

Mendelsohn's secret signature on German Village is also rich in irony. Like all of his progressive Weimar contemporaries, he had a deep interest in housing reform and the
creation of a neue Wohnkultur (new culture of living). Yet, as all of his biographers have noted, he never participated in the big social housing competitions organized by the Social Democrats in the later 1920s, which were such crucial showcases for the urbanist ideas of the emergent Modern movement. His absence was most dramatic (and mysterious) in the case of the 1927 Weissenhof Siedlung - the model housing project coordinated by Mies van der Rohe and sponsored by Stuttgart’s leftwing government - which Philip Johnson has called "the most important group of buildings in the history of modern architecture." In his biography, Bruno Zevi says that Mendelsohn was "excluded from the large works of the Siedlung." (Is he implying anti-Semitism?)[7]

If so, Dugway's German Village was his revenge. Here was workers' housing perversely designed to accelerate the campaign "to dehouse the German industrial worker," as the British bluntly put it. The Weissenhof masterpieces of Gropius and the Taut brothers were included in the 45 percent of the 1939 German housing stock that Bomber Command and the Eighth Air Force managed to destroy or damage by the spring of 1945.[8] Indeed, Allied bombers pounded into rubble more 1920s socialist and modernist utopias than Nazi villas. (Ninety-five percent of the Nazi Party membership is estimated to have survived the Second World War.)[9]

Did Mendelsohn and the other anti-Nazi refugees who worked on German Village have any qualms about incendiary experimentation that involved only plebian housing? Did they apprehend the agony that the Chemical Warfare Corps was meticulously planning to inflict upon the Berlin proletariat? (Standing in front of Building 8100, I couldn't help but think: "This is like bombing Brecht.") No memoir or correspondence - Mendelsohn was notoriously tight-lipped - authorizes any surmise. Historians of the US Army Air Force, on the other hand, have excavated a complex, sometimes tortured debate (one that never occurred in the racial inferno of the Pacific Theater) over the ethics of firebombing Berlin.

The Zoroastrian Society

During the early days of the Second World War, tens of millions of American voters of German and Italian ancestry were reassured that the Army Air Force would never deliberately make a target out of "the ordinary man in the street." Americans were officially committed to the clean, high-tech destruction of strictly military or military-industrial targets. The Eighth Air Force sent its crews in daylight "precision" raids against visually identified targets, in contrast to its Blitz-embittered British allies, who saturation-bombed German cities at night by radar, hoping to terrorize their populations into flight or rebellion. The extraordinary technologies of the B-17 and the Norden bombsight allowed the United States to bomb "with democratic values." (Then, as now, "collateral damage" was smugly swept under the rug of national conscience.)

But, as the construction of German Village dramatizes, the uncensored story is considerably more sinister. While staff doctrine, aircraft technology, and domestic public opinion preserved a huge investment in precision bombing, counter-civilian or "morale" bombing had never been excluded from US war planning against Germany. As Ronald Schaffer and other historians have shown, AWPD-1 - the secret strategy for an air war against Germany that was adopted months before Pearl Harbor - specifically envisioned that it might be "highly profitable to deliver a large-scale, all-out attack on the civil population of Berlin" after precision bombing had disrupted the Ruhr's industries. As preparation for attacking an industrial metropolis of Berlin's scale, the Air Corps Tactical School had already "bombed" the critical infrastructures of New York City in a 1939 targeting exercise.[10]

The British, moreover, fiercely pressured the American Eighth Air Force to join their "area bombing" crusade. Even before the Battle of Britain, Churchill had advocated an "absolutely devastating, exterminating attack by very heavy bombers from this country upon the Nazi homeland."[11] The Blitz quickly generated a vengeful public opinion that supported this strategy of bombing enemy civilians. But neither Churchill nor his chief science advisor and
Dr. Strangelove, Lord Cherwell, were primarily interested in revenge per se. As they unleashed the fury of Bomber Command in March 1942, they were testing the hypothesis long advanced by Lord Trenchard, Britain's pioneer theorist of strategic bombing, that domestic morale (as in 1918) was Germany's achilles heel. It soon became the idée fixe around which all British air policy revolved.

Of course there were different ways to terrorize Germans from the sky. For example, a case might have been made for singling out the mansions of the Nazi political and industrial elites for aerial punishment. But this risked retaliation against Burke's Peerage and was excluded by Cherwell from the outset. "The bombing must be directed essentially against working-class houses. Middle-class houses have too much space around them, and so are bound to waste bombs." Thus the squalid Mietskasemen were the bullseye, and "area bombing" was adopted as the official euphemism for Churchill's earlier "extermination."

"It has been decided," read the official order to air crews in February 1942, "that the primary objective of your operations should now be focused on the morale of the enemy civil population and in particular of the industrial workers." By November 1942, when thousand-bomber night raids had become common over western Germany, Churchill was able to boast to FDR about the heroic quotas that the RAF had pledged to produce: nine hundred thousand civilians dead, one million seriously injured, and twenty-five million homeless.

A.J.P. Taylor would later write of "the readiness, by the British, of all people, to stop at nothing when waging war. Civilized constraints, all considerations of morality, were abandoned." At the time, the only significant public dissent was British writer Vera Brittain's powerful protest, Massacre by Bombing, which was published in the United States by the Fellowship of Reconciliation. Socialist leader Norman Thomas then defended Brittain in a famous radio debate with Norman Cousins, the bellicose editor of The Saturday Evening Post. Although Brittain and Thomas were generally excoriated in the press, some of the US air chiefs, like General George McDonald, the director of Air Force intelligence, privately shared their revulsion against "indiscriminate homicide and destruction." General Cabell, another "precisionist," complained about the "the same old baby killing plan of the get-rich-quick psychological boys."

Secretary of War Henry Stimson and Chief of Staff George Marshall also quietly struggled to maintain a moral distinction between the Nazi leadership and the German working class. (Stimson, not wanting "the United States to get the reputation of outdoing Hitler in atrocities," equally opposed the fire-bombing of Japan.) Meanwhile, reports to FDR complained that Eighth Air Force crews, harboring "no particular hatred of the Germans," lacked the vengeful racial motivation of their brothers in the Pacific. But the Commander in Chief, influenced by his own Strangelovian advisors and his friendship with Churchill, was more broadminded about massacring enemy civilians. When RAF's Operation Gomorrah in July and August 1943 succeeded in kindling tornadic firestorms in the heart of Hamburg (seven thousand children were amongst the carbonized victims), Roosevelt was reported to be greatly impressed.

Gomorrah also strengthened the hand of the fire war advocates within the Army Air Force and the National Defense Research Committee. Six months before Pearl Harbor, the Chemical Warfare Service had secretly dispatched Enrique Zanetti, a Columbia University chemist, to study incendiary warfare in London. He became a fervent and influential lobbyist for the Churchillian method of brimstone and pitch. After the arrival of the Eighth Air Force, the ambitious head of its Chemical Section, Colonel Crawford Kellogg, also sought out British expertise. The RAF accordingly organized a discussion group, the so-called Zoroastrian Society, to share technical information and promote the city-burning strategy. It soon became an intellectual home for aggressive young commanders like Curtis Le May who were infected with the British enthusiasm for incendiary weapons and wanted to see their deployment greatly expanded in every theater. Their views were endorsed by Assistant Secretary of War Robert Lovett. In a meeting to discuss the adoption of a nightmare anti-personnel bomb loaded with napalm and white phosphorus, he argued: "If we are going to have a total war we might as well make it as horrible as possible."
On the home front, civilians were often more avid advocates of total warfare than their military counterparts. Walt Disney, for instance, popularized the quilling ideas of Russian émigré Alexander P. de Seversky - a fanatical advocate of bombing cities - in the film, *Victory Through Airpower.* After the fall of Bataan, *Harper's* published a widely discussed article that extolled fire-bomb attacks on Kyoto and Kobe: "The suffering that an incendiary attack would cause is terrible to contemplate. But the fact remains that this is the cheapest possible way to cripple Japan." In addition, incendiary warfare enjoyed powerful support from influential Harvard scientists (led by the "father of napalm," Louis Feiser), the oil companies, psychologists (who studied Axis morale), and the fire protection industry. The fire insurance experts, one historian emphasizes, "did not simply advise the Army Air Force. They pushed it as hard as they could to make it wage incendiary warfare against factories and homes." They loved to point out to airmen the overlooked fire potentials of structures like churches, which were "quite vulnerable to small incendiaries." Top operations analyst William B. Shockley (the future inventor of the transistor and a notorious advocate of the intellectual inferiority of people of color) buttressed the case for fire bombs with a clever accounting of their higher destructive "profitability."

German Village was constructed in May 1943, on the eve of Churchill's burnt offering at Hamburg, to address opportunities and problems that were beyond the moral perimeter of precision bombing. It was a trade show for the burgeoning fire-war lobby hungry for "profits." Those planning the coming air offensive against urban Japan were eager to see how newly invented incendiaries, including napalm and an incredible "bat bomb" (Project X-Ray) that released hundreds of live bats booby-trapped with tiny incendiaries, performed against Dugway's Japanese houses. Meanwhile, the Zoroastrian Society was looking for clues on how to set ablaze Berlin's massive masonry shell.

**Churchill's "Marxism"**

In his authoritative postwar report "The Fire Attacks on German Cities," Horatio Bond, the National Defense Research Committee's chief incendiary expert, underscored Allied frustration. "Berlin was harder to burn than most of the other German cities. There was better construction and better 'compartmentation.' In other words, residential buildings did not present as large fire divisions or fire areas. Approximately twice as many incendiaries had to be dropped to assure a fire in each fire division." As the German Village tests demonstrated, "little (could) be expected in the way of the free spread of fire from building to building." Buildings were lost "because they were hit by bombs rather than because fire spread from other buildings." Yet until Zhukov was literally spitting in the Spree, the British clung to the belief (or dementia, as many Americans saw it) that Berlin could be bombed out of the war. What the Mietskasernen refused to oblige in terms of combustibility, RAF planners argued, could be compensated for by more bombers and greater incendiary density. They assumed that intolerable civilian suffering would inevitably produce a proletarian revolt in the heart of the Third Reich. "The British," explains Robert Pape, had distinctively married "the Air scare to the Red scare of the 1920s. Air power, according to this logic, would bomb industrial centers, creating mass unemployment and panic, especially among the working classes, who in turn would overthrow the government. In short, air attack against populations would cause workers to rise up against the ruling classes." Churchill, who thought enough Lancaster bombers could turn Berlin's workers back into antifascists, remained a more orthodox Marxist than Stalin, who alone seems to have understood the enormity of Hitlerism's moral hold on the Reich's capital.

Promising the British people that "Berlin will be bombed until the heart of Nazi Germany ceases to beat," Sir Arthur Harris (whose enthusiasm for bombing civilians dated back to the Third Afghan War in 1919) unleashed the RAF's heavy bombers on 18 November. In
a new strategy that the Germans called *Bombenteppich* or "carpet bombing," the Lancasters, flying in dangerously tight formations, concentrated their bomb loads on small, densely populated areas. Mission performance was measured simply by urban acreage destroyed. Incendiary attacks were followed up by explosives with the deliberate aim of killing firefighters, rescue workers, and refugees. In line with the Churchillian doctrine of targeting Weimar's Red belts to maximize discontent, the famous KPD stronghold of Wedding was thoroughly pulverized and set afire.\[32\]

The Zoo was also a major target, which inadvertently increased the meat ration of the city's poorer residents. "Berliners discovered to their surprise that some unusual dishes were extremely tasty. Crocodile tail, for instance, cooked slowly in large containers, was not unlike fat chicken, while bear ham and sausages proved a particular delicacy." Although Harris was unable to fuel a Hamburg-style firestorm over the Tiergarten, the Lancasters did flatten almost a quarter of the metropolitan core. The BBC boasted that as many as a million Berliners had been killed or injured.\[33\]

Yet as Harris himself had to acknowledge to Churchill, the RAF's all-out effort "did not appear to be an overwhelming success." For one thing, Goebbels, the city's real ruler, mounted a brilliant defense with his flak towers, squadrons of deadly nightfighters, and fire brigades conscripted from all over Germany. Five percent of Harris's air crews were shot out of the sky every night, an unsustainable sacrifice for Bomber Command. Moreover, despite terrible damage to the slums, the real machinery of power and production in Berlin remained remarkably undamaged. The Americans, who had broken the Japanese codes, found no reports of crippling damage in intercepted wires from Japan's embassy in Berlin. Strategic bombing analysts, for their part, marveled at the ability of the city's industries "to produce war material in scarcely diminished quantities almost up to the end."\[34\]

As for the calculus of suffering that firebombing was supposed to instruct, Goebbels cunningly shifted the parameters~ "Issue no denials of the English claim to have killed a million in Berlin," he ordered his propagandists. "The sooner the English believe there's no life in Berlin, the better for US."\[35\] Meanwhile, he evacuated more than one million nonessential civilians-especially children—into the countryside. Conversely, he moved hundreds of thousands of Russian and Polish prisoners of war directly under Allied bombsights. As Alexander Richie has described their plight: "They had almost no protection from air-raids, were kept in concentration camp conditions, received low rations and were inevitably given the most difficult, filthy and dangerous jobs. ... [O]f the 720 people killed in a typical raid on 16 December 1943, 249 were slave labourers...."\[36\]

While Hitler was throwing tantrums in his bunker, Goebbels was holding stirring rallies in the ruins of the Red Belt, harvesting the populist anger against the Allies that carpet bombing had aroused in working-class neighborhoods. At the same time, he massively reinforced his incomparable network of surveillance and terror, ensuring that any seed of discontent would be promptly destroyed before it could germinate into a larger conspiracy. If the British were dumbly oblivious to the possibility that "morale bombing" actually strengthened the Nazi state, Goebbels's own internal enemies had no doubts: The terror of the bombings forged men together. In rescue work there was no time for men to ask one another who was for and who against the Nazis. In the general hopelessness people clung to the single fanatical will they could see, and unfortunately Goebbels was the personification of that will. It was disgusting to see it, but whenever that spiteful dwarf appeared, people still thronged to see him and felt beatified to receive an autograph or a handshake from him.\[37\]

The RAF clung with fanaticism to its flawed paradigm. Harris convinced Churchill—who's own penchant was for massive, first-use poison gas attacks--that "we can [still] wreck Berlin from end to end if the US air force will come in on it. It will cost us between 400-500 aircraft. It will cost Germany the war."\[38\] In late winter and spring 1944, as the sensational new American long-range fighters began to give B-17s unprecedented protection over eastern Germany, the Eighth Air Force, while still theoretically selecting only precision targets, became partners with British area bombers in a series of thousand-plane
raids on what the crews always called "the Big City." The offensive culminated in April with a second carpet-bombing of bolshevik Wedding and its red sister, Pankow. One and a half million Berliners were made homeless, but industrial output, once again, quickly rebounded.[39]

**Operation Thunderclap**

Roosevelt had thus far in the war reconciled the divergent philosophies of strategic bombing by accepting at the 1943 Casablanca Conference the British concept of a Combined Bomber Offensive "to undermine the morale of the German people," but at the same time preserving the Army Air Force's tactical option for daylight, precision targets. After Hitler retaliated for D-Day with his V-I and then V-2 attacks on London, this compromise became untenable. Indeed, Churchill's initial reaction to Germany's secret weapons was to demand poison gas attacks or worse on Berlin: "It is absurd to consider morality on this topic," he hectored RAF planners in early July, "I want the matter studied in cold blood by sensible people, and not by psalm-singing uniformed defeatists."[40]

As Barton Bernstein has shown, Churchill asked Roosevelt to speed up the delivery of 500,000 top-secret "N-bombs" containing deadly anthrax, which had been developed at Dugway's Granite Peak complex.[41] The RAF, writes Bernstein, "was putting together a bombing plan for the use of anthrax against six German cities: Berlin, Hamburg, Stuttgart, Frankfurt, Aachen, and Wilhelmshafen. The expectation was that 40,000 of the 500-pound projectiles, containing about 4.25 million four-pound bombs, could kill at least half the population 'by inhalation,' and many more would die later through skin absorption."[42] Poison gas and anthrax were too much for the White House, but Roosevelt passionately wanted to offer a gift to the British. In August 1944, he complained angrily to his Secretary of Treasury, Henry Morgenthau Jr.: "We have got to be tough with Germany and I mean the German people not just the Nazis. We either have to castrate the German people or you have got to treat them in such a manner so they can't just go on reproducing people who want to continue the way they have in the past."[43] Churchill the same month proposed to FDR "Operation Thunderclap," an RAF plan that would guarantee to "castrate" 275,000 Berliners (dead and injured) with a single 2000-bomber super-raid against the city center. Roosevelt, following Chief of Staff George Marshall's advice, accepted the plan in principle.[44]

Key Air Force leaders were disturbed by the unsavory character of Thunderclap. Major General Laurence Kuter protested to colleagues that "it is contrary to our national ideals to wage war against civilians." Intelligence chief McDonald railed against a plan that "repudiates our past purposes and practices... [and] places us before our allies, the neutrals, our enemies and history in conspicuous contrast to the Russians whose preoccupation with wholly military objectives has been as notable as has been our own up to this time."[45] Lt. General Carl Spaatz, the commander of the US bombers in Europe, had "no doubt... that the RAF want very much to have the US Air Forces tarred with the morale bombing aftermath which we feel will be terrific." (Spatz was already smarting from international criticism of the hideous civilian casualties, more than 12,000 dead, caused by an errant American "precision" raid on Bucharest in September.[46] War hero Jimmy Doolittle, the Eighth Air Force's commander, remonstrated bitterly after being ordered by Eisenhower to be ready to drop bombs "indiscriminately" on Berlin.[47]

Nor did Air Force commanders in Europe easily buy the argument of planners in Washington who thought that Stalin had grown too potent on the battlefield and needed a dramatic demonstration of the destructive power of Allied bombers. The RAF Air Staff had added that frosting to Thunderclap's cake in an August 1944 briefing: "A spectacular and final object lesson to the German people on the consequences of universal aggression would be of continuing value in the postwar period. Again, the total devastation of the centre of a vast city such as Berlin would offer incontrovertible proof to all peoples of the power of a modern
air force. ... [I]t would convince our Russian allies and the Neutrals of the effectiveness of Anglo-American air power."[48]

In the end, Thunderclap (which now included Dresden and Leipzig in its menu) was unleashed for competing and contradictory reasons, having as much to do with starting the Cold War as with ending the Second World War. Meanwhile, the murderous potential of what American planners called "promiscuous bombardment" had been dramatically increased by the influx of hundreds of thousands of panicked refugees fleeing the advancing Red Army in early 1945. When the leaden winter skies finally cleared over Berlin on 3 February, Doolittle stubbornly withheld his more vulnerable B-24s, but sent in 900 B-17s and hundreds of fighter escorts. It was not the Gotterdammerung that the British had envisioned, but 25,000 Berliners nonetheless perished while deep under the burning Reich Chancellery Hitler listened to Wagner.[49]

Dresden, a month later, was closer to the original apocalyptic conception of Thunderclap. Although the last unscathed city on Harris's bombing menu, the approaching Red Army had not requested its targeting. Crowded with desperate refugees, slave laborers, and Allied prisoners, the cultural center's only strategic role was as a temporary transport junction on the imploding Eastern Front. "The impetus within British circles to attack Dresden itself came more from Churchill," whose objective, as always, was "increasing the terror." Thus American bombers concentrated on the railyards, while the British went after the residential areas. "Dresden's marginal war industries, though sometimes cited as justification for the attacks, were not even targeted."[50]

It was the biggest firestorm since Hamburg: "complete burnout" in the jargon of ecstatic British planners. The death toll, given the huge number of refugees, is unknowable, although estimates range from 35,000 to 300,000. After reducing it to cinder, Harris savagely bombed the city again with high explosives to kill off the survivors in the cellars. An official history called it Bomber Command's "crowning achievement."[51] The RAf then infuriated Spaatz and Doolittle with a gloating press conference that implied that the us Army Air Force now fully embraced Churchillian strategy. (The AP wire read: "Allied air bosses have made the long-awaited decision to adopt deliberate terror bombing of the great German population centers as a ruthless expedient to hasten Hitler's doom.")[52]

Back in Berlin, Hitler, who had always hated the city and its bolshevik-infected working class, issued his infamous "Nero" order. Every civic installation and structure of potential value to the Russians was to be systemically destroyed in advance of their arrival. When Speer protested that "such demolitions would mean the death of Berlin," the Fuhrer responded that this was exactly his intention. "If the war is lost, the nation will also perish. Besides, those who remain after the battle are only the inferior ones, for the good ones will have been killed." The end of the Reich would be a vast exercise in terminal eugenics.[53]

Roosevelt's endorsement of Thunderclap, which paved the way for US complicity in Dresden, was a moral watershed in the American conduct of the war. The city burners had finally triumphed over the precision bombers. By committing the Air Force to British doctrine in Germany, Thunderclap also opened the door to the Zoroastrian Society alumni who wanted an unrestricted incendiary campaign against Japan. The hundred thousand or so civilians whom the Eight Air Force burnt to death in the cities of eastern Germany during the winter of 1945 were but a prelude to the one million Japanese consumed in the B-29 autos-da-fe later that spring.

The secret napalm tests at Dugway's "Japanese Village" and later at Eglin Field's "Little Tokyo" in Florida, together with Curtis Le May's experimental "incendiary only" raid on the Chinese city of Hankow in December 1944, gave American planners the confidence that they could achieve bombing pioneer Billy Mitchell's old dream of incinerating Japan's "paper cities" ("the greatest aerial targets the world has ever seen").[54] The Committee of Operations Analysts-whose Brahmin membership included Thomas Lamont of J. P. Morgan, W. Barton Leach of Harvard Law, and Edward Mead Earle of Princeton's Institute of Advanced Study-was convinced it had cracked the scientific puzzle of how to generate holocausts whose "optimum result" would be "complete chaos in six Japanese] cities killing
584,00 people." In the event, the Twenty-First Bomber Command's attack on Tokyo on 10 March 1945 exceeded all expectations: General Norstad described it as "nothing short of wonderful."[55]

The target of "Operation Meetinghouse" - the most devastating air raid in world history - was Tokyo's counterpart to Wedding or the Lower East Side, the congested working-class district of Asakusa. The Fifth Air Force's commander, Curtis Le May, regarded the Japanese in the same way that a Heydrich or an Eichmann regarded Jews and Communists: "We knew we were going to kill a lot of women and kids when we burned that town. Had to be done. ... For us, there are no civilians in Japan."[56] Since Japan had hardly any nightfighters, Le May stripped his B-29 Superfortresses of armaments in order to make way for maximum bombloads. Two thousand tons of napalm and magnesium incendiaries were dropped in the dense pattern that Dugway tests had shown to maximize both temperature and fire spread. The resulting inferno (Akakaze or "red wind" in Japanese) was deadlier than Hiroshima, killing an estimated 100,000 people. American "know-how" manufactured the fires of hell.

Most died horribly as intense heat from the firestorm consumed the oxygen, boiled water in canals, and sent liquid glass rolling down the streets. Thousands suffocated in shelters and parks; panicked crowds crushed victims who had fallen in the streets as they surged toward waterways to escape the flames. Perhaps the most terrible incident came when one B-29 dropped seven tons of incendiaries on and around the crowded Kokotoi Bridge. Hundreds of people turned into fiery torches and "splashed into the river below in sizzling hisses." One writer described the falling bodies as resembling "tent caterpillars that had been burned out of a tree." Tail gunners were sickened by the sight of the hundreds of people burning to death in flaming napalm on the surface of the Sumida River. ... B-29 crews fought superheated updrafts that destroyed at least ten aircraft and wore oxygen masks to avoid vomiting from the stench of burning flesh.[57]

The macabre "success" of the raid, which made Le May the most "profitable" air commander of the war, was kept secret from the US public for nearly three months. Then, on 30 May, the New York Times shrieked with proud hyperbole: "1,000,000 Japanese Are Believed to Have Perished." As Air Force historian Thomas Searle dryly notes, "few Americans complained."[58] The horrors of Hiroshima and Nagasaki a few months later were mere anticlimax to the million deaths in Tokyo that most Americans believed had already been inflicted in revenge for Pearl Harbor. The mass extermination of Japanese civilians had passed the muster of public opinion long before the Enola Gay locked Hiroshima's city hall into its bombsight. These ghosts of the Good War's darkest side—perhaps two million Axis civilians—still haunt the lifeless waste around German Village. The ghastly history of modern incendiary warfare is archived here. Now that Potsdamer Platz and the other open wounds of Berlin's history have been healed into showpieces of reunified prosperity, Mendelsohn's forlorn Mietskasernen suddenly seems monumental: reproof to the self-righteousness of punishing "bad places" by bombing them. German Village is Berlin's secret heartache, whispering in the contaminated silence of the Utah desert.

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1. WordNet 2.0, (c) 2003 Princeton University
3. What follows is taken from Standard Oil Development Company, "Design and Construction of Typical German and Japanese Test Structures at Dugway Proving Grounds, Utah," 27 May 1943 (copy provided by Dugway public relations office).
4. Antonin Raymond, An Autobiography, Rudand, Vt. 1973. "As I was then very busy at Fort Dix, New Jersey, we constructed a prefabrication factory near Fort Dix, and established a line of trucks from Dix in Jersey to the Utah Proving Grounds, thousands of miles away, to transport the prefabricated parts. The parts were then
assembled at the Proving Grounds and were subjected to bombarding. As soon as they were destroyed, new ones were erected, until the result was satisfactory. The buildings were fully furnished with futon, zabuton and everything that one finds usually in a Japanese house. They even had amado (sliding shutters), and bombarding was tried at night and in the daytime, with the amado closed or open" (p. 189).


12. Ibid., p. 263. Advocates of terror bombing, like Cherwell, Trenchard, Sir Charles Portal, and, of course, Bomber Command's Arthur Harris, argued that a sustained campaign would bring complete defeat of the Reich by 1944 with the help of only "a relatively small land force" (p. 504).

13. "Air policy, Bomber Command policy, the whole course of the strategic offensive, were now drawn inexorably towards the method which not even Churchill now called 'extermination,' although 'morale' would still be widely used, and even more generally, 'area bombing'": ibid., p. 262.


15. Terraine, p. 507. "This was a prescription for massacre; nothing more or less."


17. Ibid., p. 92.

18. Conrad Crane, Bombs, Cities and Civilians: American Airpower Strategy in World War II, Lawrence, Kans. 1993, pp. 29-30 and 34-37. Unfortunately, the secretary of war found no significant constituency that echoed his scruples. "Robert Oppenheimer recalled that Stimson thought it was 'appalling' that no one protested the heavy loss of life caused by the air raids against Japan" (p. 57).

19. Ibid., p. 58.

20. 19. Kenneth Hewitt, "Place Annihilation: Area Bombing and the Fate of Urban Places," *AAAG 73*, no. 2 (1983), p. 272; Werrell, p. 41; Sherry, p. 156; and Crane, pp. 32-33; 1.3 million incendiary bombs were dropped on Hamburg. The death toll has been estimated at 45,000, but "exact figures could not be obtained out of a layer of human ashes" (Brooks Kleber and Dale Birdsell, *The Chemical Warfare Service: Chemicals in Combat* [United States Army in World War II], Washington, D.C. 1966, p. 619).


22. Schaffer, p. 93.


25. To discover the best method of shattering German morale, one Ohio State psychologist proposed to "make guinea pigs" of civilian Nazi internees to discover what fears or torments would be most demoralizing (Schaffer, p. 91).
26. Schaffer, p. 109
27. Sherry, p. 232.
30. Pape, p. 61. The same idea surfaced latter in planning for the fire raids on Japan. "Back in the fall of 1944, when the Joint Target Group was planning the firebombing raids, Professor Crozier had suggested that the air force could intensify class hostility if it destroyed slum areas while leaving wealthier districts intact" (Schaffer, p. 136).
33. Ibid., pp. 141-42.
34. Ibid., p. 142; Sherry, p. 156.
36. Richie, p. 583.
40. Barton Bernstein, "Churchill's Secret Biological Weapons," *Bulletin of the Atomic Scientists*, Jan./Feb. 1987, p. 49. Churchill had long been an enthusiast of chemical warfare against civilians; as, for example when he notoriously advocated its use against Pushtan villages during the Third Afghan War in 1919 (p. 45).
41. Dugway also conducted extensive testing of phosgene, cyanogen, hydrogen cyanide, and other deadly airborne agents. Some contaminated areas of the base are rumored to be quarantined "for at least 1000 years."
42. Bernstein, p. 50.
43. 4FDR's surprising metaphor is symptomatic of an elite culture steeped in eugenical values. If, in his past career, he had not been an outspoken public zealot of negative eugenics and forced sterilization like Churchill and Hitler, he certainly shared the mindset: believing, for example, that the Japanese had "less developed skulls" (Crane, p. 120).
44. Schaffer, p. 102.
45. Ibid., pp. 115-18.
46. Crane, pp. 98 and 117.
47. Richard Davis, "Operation 'Thunderclap,'" *Journal of Strategic Studies*, pp. 94 and 105: "The mission is unique among the approximately 800 Eighth Air Force missions flown under USSTAF's command, for the nature and vehemence of Doolittle's objection to his targets" (p. 105).
48. Davis, p. 96. Likewise, US General David Schlatter: "I feel that our air forces are the blue chips with which we will approach the postwar treaty table, and that [Thunderclap] will add immeasurably to their strength, or rather to the Russian knowledge of their strength" (Schaffer, p. 96).
49. Army Air Forces, p. 726
50. Sherry, p. 260.
51. Crane, p. 115; Garrett, p. 20. When asked by one of Churchill's aides about the effects of the attack, Harris replied: "Dresden? There is no such place as Dresden" (Garrett, p. 42).
52. Schaffer, pp. 98-100.
54. Kennett, p. 164; and Sherry, p. 58.
56. Ibid., p. 142; and Crane, p. 133.
57. Ibid., p. 132.
58. Thomas Searle, "'It Made a Lot of Sense to Kill Skilled Workers': The Firebombing of Tokyo in March 1945," Journal of Military History 66 (January 2002), p. 122. As Searle emphasizes, the incendiary bombing of Japanese cities was luridly reported in the US daily press (albeit with time delays because of military censorship). There can be little doubt that most Americans were aware of the scale and horror of the campaign, including the probable incineration of thousands of small children and their mothers.

http://msqr.us/articles/firebomb.xml