



Proving Grounds of Urbicide: Civil and Urban Perspectives on the Bombing of Capital Cities

Kenneth Hewitt¹

Department of Geography and Environmental Studies
Wilfrid Laurier University, Waterloo, ON, Canada
E-mail: khewitt@wlu.ca

Abstract

In the bombing of urban settlements, the main impacts have been on resident civilians, living space and non-military functions. This is shown in the bombing of London, Berlin and Tokyo in the Second World War, arguably the first and only serious tests of strategic air power and urbicide to determine war outcomes. The history and scope of raiding of these capital cities differed in many ways, but the civilian experience and urban implications were very similar. The bombings attacked the most vulnerable areas, where resident populations found themselves poorly protected at best. The intentions, as well as results, of the raiding are examples of urbicide, planned to kill indiscriminately and destroy all elements of urban existence. Yet, a disarticulation emerges between the political, industrial and war-controlling functions of the capitals, which the bombing was supposed to disable but could not, and the plight of their citizens. The bombing was encouraged as 'spectacular violence', even though militarily inconclusive and, in seeking to avoid combat while terrorising non-combatants, it experimented with an approach to armed violence that would prevail after 1945. Despite enormous changes since 1945, the plight of bombed civilians has changed little.



Introduction

No state can do without a capital city to serve as the pivot of its culture...No great nation can long endure without a centre where its political, intellectual and economic life can be focused, and its people feel united.

Heinrich von Trietsche (quoted in Willis, 1973, 791)

...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 bomber force...a long continuing memorial to the effects which strategical [sic!] bombing had produced in this war and could produce at any time again.

Directorate of Bomber Operations, U.K. (1944), PRO AIR 20/4831.

Shortly after the first aircraft flew a century ago, air forces were deployed to bomb cities. Civilian air raid casualties since then have numbered in the millions. Tens of millions have been made homeless, displaced and otherwise directly affected by aerial bombardment (Iklé, 1958; Hewitt, 1997). More civilians have been killed by other forms of armed violence, but counter-city bombing emerged as the largest threat of destruction for cities, whether compared to other forms of warfare or to natural and technological disasters (Elliot, 1972; Hewitt, 1983; Rummel, 1994). Air power, especially as it threatens cities, epitomizes total war and the so-called balance of (nuclear) terror. It has been the focus of 'civil defense' and is a leading instrument of the 'war on terror' (Quester, 1966; Ali, 2000).

My focus is on civilians in heavily bombed cities, the consequences of the destruction of communities and their living space, urban services and cultural heritage. I look mainly at evidence of whom, what, and where of raid impacts and civilian responses; a viewpoint from under the bombs, giving priority to the condition of city-dwellers. This 'view from below' contrasts with the commanding perspectives of air power (Virilio and Der Derian, 1997). The attacks appear much more like calamities than warfare. They are about terror, not fighting (Graham, 2004). However, it may be wondered what can be learned from attacks 60+ years ago and, something not seen since, attacks on the capital cities of major powers.

Wars since 1945 appear very different from the Second World War, and there have been extraordinary innovations in air weapons systems. Recent investigations of these issues highlight new or emerging urban features and the unique contexts of recent wars. There are transformations in architecture, telecommunications, surveillance, counter-insurgency and urban warfare. The talk is of "cybercities",

“homeland security”, terrorism and urban geopolitics (Davis, 1998; Graham, 2004). These concepts address important arenas of contemporary life and compelling concerns in urban violence. However, they foreground technocratic and strategic transformations, whether to approve or critique them, especially the roles of those literally and metaphorically “calling the shots” in cities or at them.

Conversely, the question addressed here is whether any, or much, of these developments alter the predicament of civilians under the bombs. Rather than entering some post-modern catastrophic society, badly bombed areas undergo a sudden devolution, an extreme projection of Graham’s (2004) “forced demodernisation”. As he emphasises, consumer goods and high-tech options are less relevant than denial of elementary forms of everyday survival and communion. A more accurate if appalling picture may be that conveyed by airmen who have wanted to bomb enemies “back into the Stone Age”, notably General Curtis LeMay on various occasions (Coffey, 1987). The link with the moral implications and experimental nature of the raids, discussed below, is expressed in one of the first and most forthright critiques of the bombing war, “Advance to Barbarism” by F.J.P. Veale (1962). A main and immediate impact is the loss of homes, another atrocity identified as “domicide” by Porteous and Smith (2001). It will be shown that domestic space is almost always ‘ground zero’ in the bombing of settlements. Equally common are malnutrition, destruction of systems of health care, absent hygiene, unsafe consumables and medicines; widespread scavenging, having to eat vermin, trafficking and Black Market economies (Gregory, 2004). Meanwhile, city-dwellers tend to lack the experience, tools and skills, or permission to pursue ‘Stone Age’ adaptations. In such terms, the urban wastelands and bombed-out people of east London in 1941, the rubble of working class Berlin in 1943, and ‘dead city’ of downtown Tokyo in 1945, prefigure the essential plight of residents in Sarajevo, Beirut and Grozny in the 1990s; Baghdad, urban Gaza, Jalalabad, Tskhinvali and Gori today.

The case for these statements must emerge from world war evidence and events. However, it involves an important issue of researching the topic. In recent and on-going conflicts, raid plans and results tend to be kept secret. Evidence is unreliable and subject to “spin” by interested parties. The same occurred, indeed was pioneered, during the world war; but afterwards, the release of once-secret documents has offered detailed and relatively clear evidence of the goals and impacts of the raids. The bombing threat led governments to watch their own citizens very closely. House-by-house and street-by-street investigations were made after most attacks; deaths and injuries were diligently recorded. An unparalleled record of conditions in the cities survives, including the plight of ordinary civilian victims in areas that bore the brunt of the attacks. These records have received much less attention than the air war itself, and mainly in studies of individual countries or cities (Harrisson, 1976; Havens, 1978; Friedrich, 2002). The article makes use of some very rich archival sources:

- (i) The United States Strategic Bombing Survey (USSBS) collections in the National Archives in Washington D.C. (MacIsaac, 1976), identified as UBSE (European Surveys) and UBSP (Pacific War surveys); and
- (ii) U.K. Home Office (HO) files relating to wartime conditions and Air Ministry (AIR) files on Britain's prosecution of the bombing war, in the Public Record Office (PRO), Kew, London.

Documents from these sources are essential to the critical approach adopted here. They were not compiled with the concerns being addressed but provide strong support for them. Evidence gathered and confirmed at the time, and how it was used to pursue war aims, is more fundamental to the argument for urbicide than later assessments, even if the latter are more accurate. Equally important, items cited differ markedly from official, wartime pronouncements and most of the air war literature since. They come from the most neglected parts of the same archives, but provide detailed records of the extent and nature of civilian casualties, dehousing, etc. They show that these were not just clearly known to raid analysts, but were central to raid *objectives*. As such they provide firmer support of existing critiques of the bombing based largely on inference (Veale, 1962), or second-hand sources and post-war observations in the cities (Lindqvist, 2000; Grayling, 2006).

The Morality of 'morale bombing'

An urban, civil perspective cannot ignore ethical and legal implications; civil society is impossible without them. Broadly, I agree with positions defined by others who specialise in humanitarian law and "the laws of war", that the urban raids violated fundamental principles (Walzer, 1977; Grayling, 2006; Selden, 2008). Even so, the evidence suggests most civilians in bombed cities were neither pacifists nor anti-military, and backed their own air force. Few thought air war, even the enemy pilots bombing their city, inherently wrong – only the bombing of defenceless, uninfluential civilians (Hewitt, 1994a). Therefore, it seems inappropriate to assume an anti-war or anti-air force approach here, whatever the merits of such positions.

Recently, counter-city attacks have been called "urbicide", a word coined by Bosnian architects during the conflicts in the former Yugoslavia (Graham, 2004; Coward, 2004, 165). The term is at least less ugly than the phenomenon it defines, and situates attacks on cities among other forms of indiscriminate and reprehensible violence, including genocide (Shaw, 2004; Valentino, 2004). There is not just destruction; each death and loss contributes to, and is usually intended to cause, extermination of the larger social body—in this case, the people, support systems and associations upon which urban/civil life depend. It contravenes the basic intent, often the letter, of conventions to outlaw attacks on non-combatants.

The raiding of capital cities emerges as the intentional annihilation of primate cities, resulting in massive civilian casualties; a process also called “morale bombing” and, by its victims, “terror bombing”. This is not to say that what civilians endured in other cities was less severe, or can be treated as somehow less important. If anything, a stronger conclusion is that civilians in all heavily bombed cities shared similar predicaments. Equally, post-1945 bombings of cities are not less, but also not more, painful and urbidal. They may be very different in intensity, scale or context. However, world war raid plans did view the capitals as exemplary, “show cases” in a set of aims, experiments, and consequences definitive of urbicide (Lindqvist, 2000, 82; Ali, 2000; Herold, 2004).

Experiments and Spectacular Violence

Two other features of the capitals’ story would assume general significance for urbicide in the post-war world: the practice of “live experiments”, and a related preoccupation with demonstration pieces or spectacle. Each identifies a mind-set—military and social assumptions—that continue today. Of course, experimental sites and models are integral to air war planning. Incendiaries were tested on mock-ups of “German vernacular architecture” and Japanese urban areas (Standard Oil Development Co., 1943; Bond, 1946).² However, the story of the capitals underscores an experimental element in actual raids. New techniques were continually being tried out to increase surprise and destructiveness. The A-bomb victims saw themselves as “guinea pigs”, and are unique in this respect (Lifton, 1967). Nevertheless, conducting live experiments against urban areas applies to the earliest “blitzes” on British cities, to the V-rocket attacks, RAF “main force” fire raids on German cities, and USAAF fire raids on Japanese cities.

In air war planning and table talk another preoccupation emerges: making a statement, teaching lessons to the enemy or, as the quotation above suggests, to “all peoples”. Documents would refer to a raid as a “big show”. The most destructive raids, those on the capitals especially, were freighted with notions of exemplary *spectacle*.

The ‘society of spectacle’ was an interpretation of modernity developed by a radical, primarily urban, political movement in the 1960s: the Situationists (McDonough, 2002). It characterises modern, urban-industrial society as governed through “... an ever-growing mass of image-objects ... [by which] the ruling order discourses endlessly upon itself in an uninterrupted monologue of self-praise ...” Such a “monologue” had appeared in bombing wars long before and served the same “... abstracted vantage-point of the master-subject ...” (Debord, 1994, 17 and 19). However, the bombers’ spectacles were intended to shape the imagination of

² AIR 14/763 (Saundby) 19 Jan, 1942; Bottomley, 25 Oct, 41; AIR 52/77; HO 191/194 Research and Experiments Dept., “Japanese Domestic Architecture” (12 Mar. 1944).

destruction rather than “production”. They sought to communicate spectacles of death and ruin, rather than of consumption and commodities, to so-called mass society. The same is found more recently in “shock and awe”, while the release of “smart” bombing footage contributes to this sense of dazzling spectacle. It also continues another enduring theme of air war rhetoric: that high-tech improvements in weaponry reduce or avoid the supposedly accidental “collateral damage” of earlier raids. In the Second World War, it was already claimed that the latest technologies made bombing efficient, precise, and less indiscriminate. The newsreels, newspapers and war speeches made it seem even more accurate than today’s smart bombs. As will be seen, it was monstrously inaccurate and indiscriminate. Meanwhile, today’s smarter weapons kill even more civilians per ton than those of the world wars, ensuring that civilians remain the majority of victims (Herold, 2004; Gregory, 2004).

Capital Punishment

Capital cities have had a special relation to the expectations and conduct of strategic air war. Visions of a capital falling in fire and ruin beneath an enemy air fleet appeared long before any air force existed (Clarke, 1992). Capitals have been bombed in most wars involving air power, from the small Italian effort over Tripoli, Libya, in 1911 to the massive assaults on Baghdad in 1991 and 2003, and on Belgrade and Grozny in 1999 (Lindqvist, 2001). Only two factors seem to restrain states: lack of an air force or of aircraft capable of reaching the enemy capital.

Planning documents from the First and Second World Wars show the destruction of the enemy’s capital city as a primary goal: to demonstrate the unique strategic ability to leap over the battlefronts and assail the “nerve centre” of the enemy. In the First World War there were raids on London and Paris. Some neighbourhoods suffered appalling civilian casualties, but the raids were deemed militarily ineffective. However, new technologies and larger bomber fleets were expected to change that (Warner, 1943; MacIsaac, 1986). Between the world wars, Londoners received many dire warnings. J.F.C. Fuller (1923, 15) foresaw a fleet of aircraft reducing the capital “to pandemonium” in half an hour, the government swept away “in an avalanche of terror.” Liddell Hart (1925, 47), another respected military theorist, foresaw the collapse of “organisation and central direction” and “anarchy” as crowds of “maddened ... marauding ... slum dwellers” roamed the city.

The attacks were rationalised in terms of the concentration of political and material power. In the nineteenth and early twentieth centuries, Old World capitals generally grew faster than most other cities, inflated by relatively recent concentrations of political and financial power, by industrialisation and transportation networks focussed on them. This helps explain how Berlin, after the unification of Germany (1871), and Tokyo after the Restoration (1868), developed

so quickly into cities unrivalled in their own countries and rivalling older capitals abroad. The world wars came at the climax of this metropolitan dominance within an international system shaped by the Old World imperial powers.

In 1939, dominance appeared in the entire profile of demographic, economic and political power. Greater London, with more than 8 million inhabitants, was the most populous city in Europe, perhaps the world. Tokyo itself was smaller, but its conurbation made it London's equal. Berlin's population was about 4.4 million, the largest city in Germany and principal metropole of Central Europe. Each capital was its nation's leading industrial city, distinguished by diversity and some of the most modern industries. London was the largest port of the empire. Tokyo's deep water port, Yokohama, handled a quarter of all overseas trade. The capitals were the foci of national road and railway networks, air traffic, and the mass media. Yet, it was mainly bureaucratic centralism and control of communications that underwrote their ability to shape national destinies. Concerted action of governments and corporations helped the global influence of metropolitan elites.

There proved to be much illusion about the role of capitals in war, or what the bombers might do about that. However, a capital seemed to involve great vulnerability too and, as the second quotation above indicates, a compelling target for the air arm. Capitals also attracted apocalyptic visions of the collapse of civilisation and "city-hating": the backlash of paranoia and disaffection, equally part of the era of rapid urban growth and centralisation. They found fertile ground in the mindset of those gearing up to attack the capitals with weapons of mass devastation.

Towards Urban Apocalypse

In the Second World War aircraft attacked at least twenty-nine capitals throughout the Old World. In Britain, Germany and Japan the capitals suffered the heaviest weight of attack and extent of destruction (Table 1). London and Tokyo had their respective country's greatest civilian casualties. Some other towns suffered greater proportionate losses: Hamburg and, possibly, Dresden had more civilian casualties than Berlin. There is a huge literature on the raiding of London and Berlin—Tokyo to a smaller extent in English—but little has been written comparing their stories, least of all the civilian experience (cf. Robert, 1997).

The bomb load directed at Berlin was twice that for the other two capitals combined, but its casualties were not proportionately larger. Despite fewer raids and a much smaller weight of bombs, Tokyo had by far the greatest devastation and civilian deaths.

Table 1. Comparative summary of the scale and impact of air attacks on London, Berlin, and Tokyo

Impact data		London	Berlin	Tokyo
Raids	All	360	241	89
	Large (>50 aircraft)	71	73	25
	Other data	2937 V-weapon		
Bomb Weight	All (short tons)	30,000	75,350	16,568
	% incendiaries	10	42	89
	Urban area raids (%)	?	48	68
Civilians Killed and Injured³	Total	29,890	50,000 (?)	100,000+
	Severe	50,507	33,230	c.1 million
	Light	88,848	?	In all
Civilians Bombed Out	Building Destruction	0.4 million	1.7 million	2.9 million
	Demolished+ Severe	50,000+	125, 775	267,171
	Homes Lost	?	500,765	?
Urban Area Razed		5 km ²	26 km ²	70 km ²

Sources: For London: Titmuss, 1950; OBrien, 1955; Wakefield, 1990; for Berlin: USSBS E, 1945a, 1945c; Hohn, 1991; for Tokyo USSBS P, 1947a and b; Craven and Cate, 1951-53; Edoins, 1987; Selden, 2007.

London: The First Generation of Ruins.

The “Air Raid Defence League”, which disseminated official views to the public in the 1930s, portrayed London as the logical target of a “lightning blow” from Germany (A.R.D.L., 1939, 17). A 1936 planning document concluded that “London is ... of far greater national importance than Berlin ...” (Webster and Frankland, 1961 iv, appendix 8). In the event, Germany showed no interest in a lightning blow. More than a year passed before attacks on the capital began and it became the foremost target. Nevertheless, half of Britain’s civilian air raid casualties occurred within Greater London, and 92 percent of rocket or V-weapon deaths; almost 30,000 killed (Calder, 1969; Hewitt, 1990). The larger fraction of property destruction occurred there, especially housing.

Londoners’ experience is singled out by concentrated damage and casualties in the “Big Blitz”, the first major urban assault (Wakefield, 1990). Elizabeth Bowen (1949) referred to it, ominously enough, as “the first generation of ruins.” It began with two attacks on 7th September, 1940, dropping more bombs than fell on

³ See text for ranges and uncertainties

the whole country in the First World War. Some 840 Londoners were killed and 2,350 seriously injured.⁴ If the pre-war apocalyptic visions were not realised, that was not obvious in the worst-hit parts. From the docklands and East End boroughs fear spread across the whole metropolis:

... The first night ... As we came over Westminster Bridge ... the whole of the left side of London seemed to be alight ... [with] the whole fury of that conflagration ... Civilians hastened by in twos and threes, hushed below the stupendous pall of defeat ... (Green, 1943, 176-7).

Henry Green, novelist and volunteer fireman, was not alone in reporting inexperienced, confused fire-fighting and rescue work. Decades of official warnings, exhortations to civilians, were nowhere matched by well-planned readiness. For several days the raiders suffered little interference from aerial defences. Shelters and assistance to raid victims were quite inadequate. Most of the bombed-out had to fend for themselves (Titmuss, 1950; O'Brien, 1955).

Virginia Woolf's (1988) diary records "the burning houses", the fear and wreckage. She tried "... to imagine how one's killed by a bomb ..." – as well she might! It was 2nd October and some 7,000 civilians had died around her in barely three weeks. And women formed over half the casualties, although mostly from poorer East End districts.⁵ A rich sense of what ordinary civilians had to say of their experience is found in Harrison (1976), Hostettler (1990), and Wakefield (1990). Voices from the capitals are included in an "oral geography" of air war developed by Hewitt (1994a).

Some dignify this phase as "The Battle of London." If so, it was a battle "... of the unknown warriors ... men, women and children ... in the towns and streets ..." (Churchill, 2003, 233). They wielded fire buckets and spades, not guns; struggled to save their families and neighbourhoods rather than a battlefield; fought against explosion, fire, lack of sleep, not their attackers. In ten weeks nearly 13,000 were killed, 18,000 seriously injured, and over 300,000 bombed out. The raiding then shifted to provincial cities but there were few weeks without some raiders over the capital. London's worst individual raids came in the spring of 1941.

The German Air Force did not mount another assault as severe as the Big Blitz, and probably could not have. In hindsight, the war starts to go against Germany after 1942; an Allied victory was in the cards from 1943. For ordinary Londoners, however, none of this was obvious. Germany remained the dominant military power in Europe for three more years. Its airmen seemed able, more or less at will, to choose a target for raiding. In 1943, raids killed 542 Londoners and

⁴ HO 198/245.

⁵ HO 192/245 for East End casualties

hospitalised 989. Five sharp attacks in February 1944 killed 600 and seriously injured 1,300 (Calder, 1969).

Only the D-Day landings of June 1944 seemed really to turn the tide; but at that moment the V-Weapon assaults began (Collier, 1957). London was again a proving ground for a new form of urbicide. Some 2,420 “Flying Bombs” and 517 V-2 rockets fell within the metropolitan region, almost half of all that landed on British soil. Roughly ten times more deaths per strike occurred within London than elsewhere. Such random, automatic warfare, going on day and night against the civilian population, was uniquely stressful and surreal (Pynchon, 1973).

Berlin: “Reichstrümmerstadt” (Rubble Capital).

Berlin was spared air attacks in the First World War. Early in the Second it remained near the limit of Britain’s Royal Air Force (RAF) operations and was ranked behind the Ruhr as a target of economic warfare. Later on, however, it became the focus of attacks intended to be decisive. City authorities reported 378 air attacks (Table 2). Civilian casualties occurred in 185 of these raids (Hampe and Beeskow, 1978; Hampe and Mauter, 1982; Demps, 1982). Almost 75,000 tons of bombs were directed at Berlin, an enormous commitment, although less than a third actually fell there. The weight carried partly reflects efforts to overcome poor results with ever-greater saturation and repetition.

Destructive RAF night raids began on 25th-26th August 1940, but for three years were “... of a harassing nature, the object being to maintain fear of attack over the city and to impose ARP [Air Raid Protection] measures ...” (Webster and Frankland 1961, 144).⁶ Notice here a common and extraordinary assumption of this style of offensive, urbidical warfare. Somehow, air planners thought that forcing the enemy to deploy forces in defence of its own cities was a bonus; defending even its greatest ‘nerve centre’ a waste of resources, rather than using the aircraft and artillery in distant battlegrounds—no mention being made of the, usually far greater, cost of the attacking force. The matter may seem different since 1945, when most air raids have been against cities and countries lacking any aerial defences.

⁶ UBS E # 39 (EXHIBIT A)

Table 2. Six monthly totals of raids, civilian casualties and bombed out for Berlin

Dates		Raids		Civilians	
Year	Months	Total	Large, urban (USAAF)	Killed*	Bombed out
1940	Jan – June	-	-	-	-
	July – Dec.	33	1	222	9,867
1941	Jan. – June	7	-	97	5,244
	July - Dec.	10	2	101	4,729
1942	Jan – June	-	-	-	-
	July – Dec.	2	-	2	-
1943	Jan – June	9	5	1,169	88,189
	July – Dec.	19	10	6,700	659,428
1944	Jan – June	31	18 + (2)	4,108	469,168
	July – Dec.	44	40 + (4)	1,191	66,054
1945	Jan – June	75	56 + (4)	4,429	385,074
TOTALS		241	203 + (15)	18,019	1,687,753

* Based on the only detailed record in Hampe and Beeskow (1978), but their numbers are too low (see text)

Sources: RAF Raids based on Middlebrook and Everitt (1985) and USAAF on USSBS E (1945a)

Not until 1943 could a major offensive be mounted against Berlin. Thereafter, it suffered a catastrophic demolition. Some reports cite 80,000 Berliners killed by hostile action. A former chief of German fire services mentions "... at least 52,000 dead and twice as many severely injured" (Rumpf, 1962, 159-60). The head of the Civil Defence Police estimated 49,600 (quoted in Hohn 1991, 135). The only detailed, official register gives 18,019 civilian deaths (Hampe and Beeskow, 1978), but it seems much too low.

Unlike many other German cities, Berlin's layout restricted the development of mass fires. However, a third of the city's housing was destroyed or badly damaged, some 40 percent of the 1939 population bombed out (Hohn, 1991, 134-5). About 45 percent of public, commercial and industrial buildings were destroyed (Bond, 1947, chapters 5 and 6). Those serving the civilian population suffered earlier and more heavily than those directly serving the war effort. Countless buildings of great historic and architectural interest were destroyed (Beseler and Gutschow, 1988, vol 1, 135-199).⁷

⁷ UBS E # 193

The episode of greatest damage, civilian casualties, and displacement began with RAF Bomber Command's "Battle of Berlin", from November 1943 through March 1944; in effect, Berliners' "Big Blitz". Air Marshall Harris assured Mr. Churchill: "We can wreck Berlin from end to end if the USAAF will come in on it. It will cost between us 400-500 aircraft. It will cost Germany the war".⁸

The commitment was unprecedented, with 32,646 tons of bombs dispatched, even if only 18 percent fell on Berlin or did what was classed as "effective" damage.⁹ In some raids the RAF had severe losses and, in all, some 2,500 airmen were killed, 1,047 aircraft destroyed and 1,682 damaged (Middlebrook and Everitt, 1985, 488; Terraine, 1988, 557). German air defences also had great losses (Demps, 1982), reminders of how deadly the raiding could be for air crew in this war. Partly to deceive the aerial defences, other cities were targeted as part of the operations (Middlebrook and Everitt, 1985; Friedrich, 2002). On 30th-31st March Bomber Command attacked Nürnberg and ninety-two aircraft were lost, perhaps their worst of the war, leading the RAF to halt the offensive.

The official historians thought the Battle of Berlin a military failure (Webster and Frankland, 1961). Nevertheless, it was an unprecedented calamity for the city, killing at least 9,000 German civilians and over 600 foreign workers.¹⁰ British Intelligence reported 30 km² of the built-up area devastated, ten times more than for London. About 1.2 million people were bombed out and 1.5 million evacuated, two-thirds of the wartime totals (Hampe and Mauter, 1978).¹¹

There was resistance to 'area attacks' by the US command, and to Harris' proposals for Berlin, which some classed as "terror bombing" and contrary to American policy (Craven and Cate, 1948-1953. v.3, 726-7). Yet, a critical shift occurred in 1944 when the Eighth Air Force began large area attacks on some cities. Meanwhile, their daylight 'precision' raids against Berlin were usually from above 8,000m altitude to avoid the "murderous German flak". They employed "blind bombing" through a cloud cover and problems of inaccuracy were countered by "... drenching an area with bombs". Hence, damage was very indiscriminate. In 1945, US raids on Berlin were extremely destructive, causing a third of the area devastation and housing losses, if a small fraction of casualties. So many people had already been driven out.

⁸ AIR 20/842, Minute 3 Nov. 1943

⁹ AIR 20/842.

¹⁰ AIR 14/838,905; 20/842, 3234.

¹¹ "Bericht über eine Rundreise durch luftkriegsbetroffene Städte ...im Januar/Februar 1944", Staatsarchiv Hamburg, states 25% of all housing lost. Speer Docs. 21.5% destroyed; British Intelligence estimated seriously damaged housing in Berlin at 31%, based on air photographs to June 1944.

In the end Berlin suffered a dreadful annihilation (Brett-Smith, 1967). A member of J.K. Galbraith's U.S.S.B.S. Berlin team, wrote on 19th July, 1945:

... The place is uniquely devastated, not so much quantitatively as qualitatively. The city is a living corpse - much more than anything I saw in the West [of Germany]. The impact of the catastrophe on people seems to be larger ... need, starvation, disruption of the most primitive processes of life more outspoken ... That Berlin could have functioned to any appreciable extent in the last months of the war is almost incredible ...¹²

U.S. Secretary of State, Harry Hopkins, called Berlin "a modern Carthage" in reference to the Roman annihilation of that ancient city (Irving, 1989, 290). The amount of rubble defies belief; some 70 million m³. Eventually, what could not be salvaged was dumped in great spoil heaps, which are today the largest 'hills' in Berlin. A satirical name was coined for what the capital, the "Reichshauptstadt", had become: "Reichstrümmerstadt" or Rubble Capital (Conradt and Heckmann-Janz, 1987).

Summary statistics and the final state of London and Berlin can obscure two aspects of civilian experience. On the one hand, civilians endured many months when there was little or no raiding. There were years of life amid the rubble; not a minor inconvenience for domestic survival. Many recalled lack of sleep as their worst memories; endless problems with disrupted meals, uncomfortable, unsanitary and crowded air raid shelters (USSBS, 1945c; Harrison, 1976, 100-121). There were hundreds of "false alarms" making people apathetic about raid dangers, and many stopped going to the shelters (Hewitt, 1997, chapter 11). On the other hand, destruction and death came, overwhelmingly, in a very few catastrophic attacks. It is appropriate to consider them, before turning to Tokyo.

Disaster Raids

In most attacks, damages tended to be highly localised. Early in the London Blitz, the physicist J.D. Bernal started an inventory of "disaster incidents." A selection from his lists indicates impacts mainly on 'ordinary' civilians in their homes, places of entertainment or air raid shelters (Table 3). The V-weapon strikes produced many such disaster incidents and some of the worst. A special calamity was when hospitals were hit; 76 in London with 2,600 beds lost (Titmuss, 1950; O'Brien, 1955).

¹² USBS E(A) 39 b 1.9, unpubl.

Table 3. Examples of “disaster incidents” recorded in London

Date	Time	Place	Killed	Injured	Comment
1940 9 Sept.	Night	Cadogan House, Chelsea	61	-	Raid shelter
10 Sept.	Night	St. Hallsville School, West Ham	73	50	Rest centre
13 Oct.	Night	157/161 Stoke Newington Rd.	154	33	Public shelter under apartment block
15 Oct.	Night	Morley College, Westminster	67	104	Emergency rest and feeding centre
20 Oct.	Night	St. Peter’s Church	86	107	Shelter in crypt
1941 12 Jan	Night	Bank Subway Station	111	6	Used as city shelter
13 Feb.	Night	Hendon, houses	75	445	Single 2,500 kg bomb
17 Feb	Night	Pancras Square	77	52	Single land mine, surface shelter
1943 20 Jan.	Day	Lewisham, Elementary School	59	67	Most were children
7 Nov.	Night	Putney	78	210	Dance hall
1944 ? May	Night	King’s Rd., Chelsea	72	111	Apartment block, 40 missing
30 June	Day	The Strand	198	-	Shopping area
3 July	Day	Turk’s Row, Chelsea	124	-	Shopping area
23 Aug.	Day	East Barnet	211	-	Suburban area
? Nov.	Day	New Cross, Woolworth’s Store	160	108	Mostly women and children
1945 8 Mar.	Day	Finsbury	110	123	Farringdon Market

Sources: “[J.D.] Bernal’s lists” (PRO/HO 192/7); O’Brien, (1955); Wakefield, (1990).

The “Battle of London,” a relentless attack night after night, appears as a single crisis, but a few individual attacks dominate losses (Table 4). Almost a quarter of the Big Blitz death toll came in four night raids. The worst, on 10th-11th

May, 1941, killed 1,436 civilians. The most destructive attack, on 29th-30th December, 1940, set 1,500 fires.¹³ Those in the inner City of London around St Paul’s Cathedral were fanned by strong winds into uncontrollable mass fires (Collier, 1957, 272-3), described as “The Second Great Fire of London” (Johnson, 1988). And this raid should be seen in relation to a defining moment in the history of urbicide—to some, a glorious one (Spaight, 1944). A British Air Staff Memorandum of 23rd September, 1941, proposed attacks on German civilian morale by targeting the most densely inhabited areas of cities with incendiaries.¹⁴ Huge increases in the scale of attack would follow and ‘successful’ attacks set catastrophic fires (Bond, 1946; SIPRI, 1975). This did delay Berlin’s final ruin, the capital being less susceptible to incendiary attack.

Table 4. The worst ‘disaster raids’ on London and Berlin

PLACE Date	No. Aircraft	Bomb Wt Sht. tons. (IBs)	Civilians Killed	Civilians Sev. inj.	Bombed Out	COMMENT
LONDON 7-8/9/40	570	- (*)	430	1600	(1,000s)	“Black Saturday”
8-9/9/40	200	- (*)	412	747	“ ”	
15-16/9/40	410	590 (*)	430	900		
29- 30/12/40	136	127 (22,068)	163	569		“2 nd Great Fire of London.” Most destructive raid
19-20/3/41	479	470 (122,292)	750	1200		“The Wednesday”
16-17/4/41	685	890 (151,230)	1180	2230		2,250 fires: 15 hospital, 13 churches destroyed or severely damaged
19-20/4.41	712	1000 (153,096)	1200	1000		1,460 fires

¹³ HO 191/86; HO 193/13, 45; HO199/284; 207/45.

¹⁴ AIR 14/763.

PLACE Date	No. Aircraft	Bomb Wt Sht. tons. (IBs)	Civilians Killed	Civilians Sev. inj.	Bombed Out	COMMENT
10-11/5/41	507	711 (86,173)	1436	1800		2,154 fires
BERLIN 1-2/3/43	302	600 (54%)	709	1825	64,909	
23-24/8/43	727	1570 (53%)	899	2127	103,558	
3-4/8/43	316	999 (40%)	623	1192	39,844	
22- 27/11/43	1597	5376 (49%)	3758	9907	454,056	
16- 17/12/43	493	1815 (48%)	628	968	30,063	
27-31/1/44	1741	5188 (41%)	1526	2194	172,390	
15-16/2.44	891	2332 (50%)	169	512	60,836	
21/6/44	876	2843 (26%)	474	756	28,180	
3/2/45	937	2267 (11%)	2541	1688	119,057	
6/2/45	1112	2886 (44%)	636	389	71,283	
18/3/45	1221	3092 (50%)	336	357	79,785	

Sources: On London O'Brien, 1955; PRO/AIR; Wakefield, 1990; on Berlin USSBS E; Hampe and Mauter, 1982; Middlebrook and Everitt, 1985.

Although raided so often and by large forces, Berlin's losses were also concentrated in a few severe attacks (Table 4). The worst civilian losses occurred in the first of three successive raids between 22nd and 27th November, 1943 (Hampe and Mauter, 1982). A USAAF attack of 3rd February, 1945, was the most destructive of the war. Hans-Georg von Studnitz (1965, 281) described this as "the Apocalypse" finally arriving. "Tempelhof [Airfield] and [railway] Marshalling Yards" were the designated targets, but it resembled a classic area attack.¹⁵

In relation to today's discourses on terror, one notes that no single raid on London or Berlin killed as many civilians as the 11th September, 2001, attack on New York ("9/11"). There were more casualties in the series of attacks on Berlin

¹⁵ USBSE 39 b 1-9.

between 22nd and 27th November, 1943. In Britain, only one attack killed more civilians; over 4,000 in Liverpool and Merseyside on 7th-8th April, 1941 (Hewitt, 1997, 302). For all raids, London and Berlin's deaths were each ten times greater than in New York on 9/11, and there were more civilian injured and dead in a great many raids. Meanwhile, at least thirteen single Allied raids on other German cities caused more than 3,000 deaths (Hewitt, 1993, 33), and at least ten USAAF raids on Japanese cities (Hewitt, 1987). The defining European disaster raids were on the thirteen German cities where firestorms were generated (Hewitt, 1993). Dresden is the best known, but Hamburg 29th-30th July, 1943, is now recognised as the most devastating. Out of over 45,000 deaths, at least 30,000 were women and children (Hewitt, 1993, 35).

None of this is intended to diminish the significance of the avoidable and intentional massacres in New York or anywhere else. From civilian and humanitarian perspectives, the statistics are not about a competition, but guides to the scale of atrocity whose essence does not lie in counting or spectacles. It lies in the irreversible sense of loss when my/your/any child, parent, spouse, sibling, friend or neighbour suffers unnecessary and horrible death. Just one person's feelings of loss and outrage tell us what this is really about. Numbers should not mask the faces and places of grief; only aid in bearing witness and opposing the wilful pursuit of such killing.

Tokyo and the "Big Fire" Raid.

Tokyo was out of reach, except for carrier-borne attacks, until the final year of the war. Annihilation came in a very short time compared to London and Berlin. Of some ninety recognised air raids, eight caused 99 percent of civilian casualties and area burnt out (Table 5). However, nothing equalled the night of 9th-10th March, 1945, when the capital was attacked by 334 B-27 bombers or "Superfortresses." They were the newest, most advanced and expensive air weapon, and each carried some 5.5 tons of bombs. Not the largest raid of the war, it was nevertheless a formidable force; its mission to destroy Tokyo (Craven and Cate, 1948-53, vol. 5; Caiden, 1960; Edoins, 1987; Hewitt, 1987).

The "aiming point" was the most densely built-up and inhabited Asakusa District, where raid plans estimated an average of 40,000 persons per square kilometre, rising to 55,000 in parts. The ratio of "roofed over" to total area was exceptional: almost 75 percent for Asakusa and far in excess of most Western city cores. Here too were packed, flimsy structures, highly susceptible to fire; 99 percent were wooden in Asakusa and not less than 96 percent in the surrounding areas (Sherry, 1987, 100-15).¹⁶

¹⁶ HO 191/194; AIR 52/143; AIR 52/77; AIR 52/143. For the logic of attacking residential areas with incendiaries see Janow (1943).

Table 5. Summary of raids and damages to Tokyo from 27 November, 1944, to August 7th, 1945, compared with March 9-10 “Big Fire” raid.

	Damaging Raids All >50 aircraft	Casualties Dead Wounded	Homeless	Buildings Destroyed (Partly)
ALL RAIDS	89 28	95,992 70,957	2,861,857	755,717 (10,907)
“Big Fire”	1	83,793 40,918	1,008,005	267,183 (1,175)

Source: USSBS P (1947b, 1947d); data were derived from official Japanese reports acquired after the surrender and widely considered to underestimate casualties in the “Big Fire” (see text)

The bombers carried mainly incendiaries, about 2,000 tons in all, city-wrecking and anti-personnel munitions chosen for effect in residential areas. The *New York Times* (21 March, 1945) described their action:

... one of the principle instruments of destruction in the fire attacks ... the M-69 incendiary ... [is a] jellied gasoline bomb ... containing gel-gas, a resin-type jelly [also called napalm] ... Cheesecloth impregnated with flaming jelly is spewed out in all directions over a radius of twenty-five yards shortly after the bomb strikes. The material burns fiercely at a heat of about 3,000 degrees F. for eight to ten minutes” (quoted in Reischauer, 1974, 130).

The lead aircraft were over Tokyo around midnight and came in at low altitude. With poor defences and good visibility there was a high concentration of bombs. A rising wind helped generate a vast conflagration described thus by a fire-fighting expert:

... an extended fire swept over 16 miles (25.7 km) in six hours. Pilots reported the air was so violent the B-29's turned over completely at 6,000ft [1,820m] and the heat was so intense they had to put on oxygen masks ...” (Bond, 1946, 181).

Things were considerably worse on the ground (Pacific War Research Society, 1972, 13). Robert Guillian (1947) lived in Tokyo through the war and gave a detailed account. He describes desperate crowds converging on the great Senso-ji or Asakusa Kannon Temple, a Seventh Century Buddhist foundation credited with saving people who took refuge there in the 1923 earthquake and fire (Seidensticker, 1983, 207). On this occasion, however, the temple was destroyed along with those seeking safety there.

First Aid posts were destroyed. Rescue units and 300+ fire engines on the scene early were unable to reach the stricken areas. Bombing continued for three hours, frustrating escape and rescue by filling the air with fire from canisters of jellied gasoline. Few raid shelters were adequate to withstand these fires. Many turned into death traps where thousands died of asphyxiation, carbon monoxide poisoning or heat stroke, common causes of death in large incendiary raids (USSBS E, 1945c; USSBS P, 1947)

By mid-morning on the 10th the main fire had burnt itself out, after laying waste to an area of 41 km². Official Japanese estimates were 83-84,000 civilian dead (Edoin, 1987, 106). Later studies suggest a minimum of 100,000 (Selden, 2007), some as many as 200,000 (Daniels, 1975, 129; Salmaggi and Palavisini, 1979, 682)—at least 90 percent of all raid fatalities in the capital, perhaps a fifth for all raids on Japan. Over 280,000 buildings were destroyed, mostly residential. Estimates of the bombed-out were from 644,000 to over one million.¹⁷ An enormous evacuation followed.

The calamity far exceeded anything Londoners faced, or Berliners in an individual raid. The nature of construction, so effective in feeding the fires, meant almost no vestige of burned neighbourhoods survived. The authorities saw no point in restoring services, leaving them as empty wastelands.

A passage in the USAAF official history raises some compelling urbicidal issues:

... One broadcast reported that the sea of flames which enclosed the residential and commercial sections of Tokyo was reminiscent of ... Tacitus' famous account of the 64 A.D ... holocaust of Rome, caused by the Emperor Nero ... But the physical destruction and loss of life at Tokyo exceeded that [and] any of the other great conflagrations of the western world – London, 1666 (436 acres, 13,200 buildings); Moscow, 1812 (38,000 buildings) Chicago, 1871 (2,124 acres, 17,450 buildings); San Francisco, 1906 (4 square miles, 21,188 buildings). Only Japan itself [in] 1923 at Tokyo and Yokohama, had suffered so terrible a disaster. No other air attack of the war, either in Japan or Europe, was so destructive of life and property (Craven and Cate, 1948-53. vol. 5, 617).

The 1923 fire was used as a model for planning the attack. Like other great fires in Tokyo's past, it showed the vulnerability of low-lying and residential areas, and the importance of windy months in historical conflagrations, especially March and September. The objective was, indeed, to recreate a calamity.¹⁸

¹⁷ USBS P Files #12 and #56.

¹⁸ HO 191/194, RED; REN, 424.

“Big Fire” was the worst attack, but others caused severe damage. A fire set by the night raid of 25th-26th May was even larger; the largest in the history of warfare. Less congested districts and the mass exodus after “Big Fire” meant fewer casualties, but 3,400 deaths in one night exceeded anything in London or Berlin. Another raid burnt out almost as much as “Big Fire”. A fourth, with 23.4 km², was similar to the Hamburg firestorm, the worst in Germany, and another exceeded the Dresden firestorm (Hewitt, 1993).¹⁹

An American serviceman, writing in September 1945, echoed his countryman in Berlin:

... Tokyo, the first war casualty I've seen is a devastated, immodest mess, but the silence is what gets me most; no honks, yells, clangs - none of the stuff you hate about a town but come to expect. For Tokyo, for all Japan I suppose, the calamity is past, but everyone is still staring in that god-awful silence (Cary, 1975, 54).

Bombing was not the only reason for the numbed state of so many Japanese. However, the bombed wastelands of the capital, described as “dead city” or “lunar landscapes” (USSBS, 1947a), were constant reminders of their ruined world.

(In)decisive Blows?

A fateful notion linking strategic air power to the plight of these capital cities was of the “knock-out blow” (Quester, 1966; MacIsaac, 1986).²⁰ Then, as now, a pessimistic view of defence against air attack prevailed among the airmen, encouraging attacks as sudden and “total” as possible to avoid retaliation in kind. For a time, in 1940-41, the Luftwaffe claimed it would cripple Britain or keep her out of the war by delivering the heaviest possible blows on London. The great RAF attacks on Berlin and USAAF fire raids on Tokyo were justified in similar terms.

Raid reports for air crew and the public emphasised vital communications, government buildings, state-institutions, key installations. In fact, the central, congested areas aimed at and destroyed contained few or no essential or more modern war industries. An impression was given of damage primarily to industries, yet items vital to the war were rarely hit or, like the railways, got going quickly; essential war workers were a small fraction of the casualties. In all three capitals the production “must” for weapons and war supplies was maintained almost to the last.²¹

¹⁹ USBS P file # 56.

²⁰ USBS E 193a; HO 192/1645; AIR14/763, 1779; AIR 20/4054, 4069.

²¹ AIR 14/1229, 20/3234; AIR 20/4831 B, Ops. 1, 15th February.

There is, then, in the plans of strategic bombing, a sense of gross oversimplification of the relation between the capitals, especially their citizens' "morale", and a war effort. On economic warfare, Milward (1977, 298) finds the tendency was "... to believe what they wanted to believe ..." A lack of any clear impact on the course of the war by these capital city calamities challenges how urban realities were understood in bombing theory, and aggravates the sense of unnecessary suffering inflicted on non-combatants.

The Big Blitz may have been less destructive than the worst-case predictions, but surely a serious test of the 'knock-out blow' thesis. No capital of a major power, no urban population, had endured such a weight and repetition of attack. If the air power theorists had been even partly right, Britain's will or means to wage war should have suffered measurably. The opposite seems nearer the truth. The enormous civil destruction, unimaginable pain and personal loss for so many folk, and irrecoverable loss of cultural heritage never translated into great harm to the war effort. The real damage was not only largely confined to and borne by civilians, but they emerged more committed to the war than before (Calder, 1969).

Despite vastly greater devastation, the Battle of Berlin also brought no serious change in the capital's war role. Neither bomb damage, labour shortage, nor demoralisation prevented munitions and other vital production from continuing to rise (Speer, 1970; Milward 1977, chapter 9)²². It did not "cost Germany the war" and yet, amazingly, the same belief soon resurfaced in a plan called Operation THUNDERCLAP. Although not carried out as such, its documents provide a clear statement of knock-out blow thinking, its urbicidal nature and the intent to *cause* civil disasters (Webster and Frankland, 1961, v.1V, 54).

It was proposed that "... an all-out attack by every means at our disposal on German civilian morale might be decisive"²³. A carpet of 2,000 tons of bombs per square mile was envisaged for central Berlin, or between 10,000 and 20,000 tons of bombs, "... something out of the ordinary ..."! This was to "... cause 90% devastation [such that]...3/4 of the people...in this area will become casualties. Assuming a daytime population of 300,000 [in the central 2 mi²], it may be expected that 220,000 casualties will be caused. 50% of these, or 110,000 may be expected to be killed ..." Moreover, being "... *for purely moral effect*":

... i) the attack must be delivered in such density that it imposes as nearly as possible 100% risk of death to the individual in the area...

iii) The target chosen should be one involving the maximum associations, both traditional and personal, *for the population as a*

²² USBS E, 39 b 1-14; USBS.E #2, 2a, 3 and 3

²³ AIR 14/838, vol. 3, 52.

whole. Considerations of economic importance must not be permitted to influence the selection of the target.

iv) subject to iii), the area selected should embrace *the highest density of population ...*²⁴ (emphases added).

Equally relevant, the model for this annihilating blow on Berlin was developed by identifying what would do the same to London! THUNDERCLAP documents contain a raid plan to destroy London. (Since breaches of secrecy occur most often within the intelligence apparatus itself, it was perhaps fortunate the German Air Force no longer had the capacity to raid London!)

The February 3rd, 1945, USAAF attack almost achieved the intensity THUNDERCLAP prescribed and something approaching the devastation. A mass exodus meant casualties were much less. Thereafter, Berlin was finally “written off” as an urban target. Yet, Germany’s leaders remained in the capital to direct the war to the very end. “Uniquely devastated” as it was, Allied troops had to take the city street by street in some of the bloodiest fighting of the war.

“Big Fire” achieved or exceeded every ingredient expected of a knock-out blow. Strategic air power struck the “heart” of the enemy state long before an invasion was possible. Tokyo burned as Berlin would not and suffered unparalleled destruction. Civilian casualties, “de-housing” and panic-like uprooting exceeded the worst pre-war visions. Civilian survivors saw imminent death threatening everyone in the burning districts (Guillian, 1947; Pacific War Research Society, 1972).

General LeMay, commander of U.S.A.A.F units, regarded the raid as the most ‘successful’ of the war, causing more casualties than any other military action (Coffey, 1987). He did not mention that they were nearly all civilians; two-thirds women and children (Selden, 2008). Yet, there was no discernable break in the Japanese will to fight, or in civilian support. On March 10th, a great military parade took place in Tokyo, ignoring the thousands of families streaming out of the city (Havens, 1978, 178). The American airmen themselves did not pause to let the message sink in, but hurried to fire bomb nearly every other Japanese city (Hewitt, 1997, 306)

It should be emphasised that raid planning did not ignore, let alone spare, other cities. The assault on the capitals is a special threat and narrative of air power in relation to cities. However, residents of other heavily bombed cities faced the same or similar and sometimes more calamitous threats. There was even a kind of generalised knock-out-blow thinking. The Big Blitz turned into an attack on all

²⁴ AIR 14/838, “10,000 Plan”,

major industrial cities (Wakefield, 1990). RAF Bomber Command pursued shifting notions of just how many German cities, and down to what minimum size, would have to be flattened to win the war (Webster and Frankland, 1961). The Superfortresses attacked almost all large and medium-sized Japanese cities.

The Social Geography of Disaster

If the bombing is commonly described as ‘indiscriminate’, raids were quite ‘discriminatory’ in social and urban terms. Who lived and who died, whose homes were razed and whose survived, followed mainly from the social geography of density and wealth, much as in so-called natural disasters (Hewitt, 2007). However, raid planning was *designed* to exploit the most vulnerable areas. Over an area of many city blocks the fall of bombs was essentially random. The denser the buildings, the more likely free-falling, widely scattered bombs would hit them or, most important, start a fire whose flames would spread to other buildings. Fires caused most property damage and served as beacons guiding the further bombing.²⁵

London consisted of 96 boroughs. Some of the outer, suburban boroughs lost barely a dozen homes in total, their civilian casualties measured in single figures. By contrast, each of 26 inner boroughs had over 400 civilian air raid deaths (Hewitt, 1994b). Only three British cities, Liverpool, Birmingham and Glasgow, with populations three to four times larger, lost more residents than the inner boroughs of Lambeth (1,470 killed) and Wandsworth (1,253).²⁶ Property damage, especially housing, was concentrated in historic core areas and dense East End boroughs along the river.²⁷ Yet, more bombs actually fell over the extensive, outer boroughs, reflecting how the fraction of ground space covered in buildings was critical. Aldgate had 69 percent roofed-over area, Ealing or Finchley further out, had 12 percent; the whole of Greater London barely 5 percent.

The V-weapon strikes were virtually random within broad, tens-of-kilometers wide pathways. Nevertheless, their net impact was concentrated in densely inhabited areas of southern and central London boroughs, including over 40 percent of housing losses. In Fulham, Deptford, Camberwell, and Wandsworth deaths approached those of the Big Blitz (Collier, 1957).

Equally telling are exact places of death. As early as October 1940, more people were dying in their homes than anywhere else. Air raid shelter deaths came second. Deaths at work or in the streets were negligible. In a mid-April, 1941, raid in S.E. London, 18 percent died in shelters and 70 percent in their homes, mainly in row-houses, the most frequently hit buildings.²⁸ However, a marked increase in

²⁵ HO 191/9, 198/244, 199/284, AIR 14/1779.

²⁶ PRO/HO 191/9.

²⁷ HO 193/13; HO 193/45; HO 198/244.

²⁸ HO 191, Bradford Hill’s notes R.E.N # 441 p.2.

tuberculosis between 1939 and 1941 was related to nights in damp, cold shelters; a greater risk, some thought, than the bombs. No wonder people preferred to stay at home, their numbers *increasing* through the Big Blitz.

There were significant age and gender differences. The highest proportionate death toll in the Big Blitz and in many German cities was among the elderly, tending to increase with age. “Shelter deaths of the aged” were widely reported, involving heart attacks and other stress- or privation-related causes—a kind of involuntary euthanasia (USSBS, E, 1945c). The highest numbers of casualties in homes and shelters were women, along with relatively more child deaths. In the denser County of London districts, more females were killed than males (CWRC, 1954).

Where names, addresses and dates are available they reveal multiple deaths in single households (CWRC, 1954), mainly at home but also in air raid shelters and, above all, in the “disaster” raids hitting row houses or tenement blocks, or large air raid shelters (Marwick, 1976).²⁹ Multiple deaths in particular families took more children, females and elderly (Hewitt, 1994b). Since mobilisation for war was at an early stage in the Big Blitz, more men were present. The V-weapon attacks, later in the war, caused proportionately higher female and child deaths. When the bombing was greatest over Berlin and Tokyo, mobilisation was far more complete and casualty figures reflect the greater presence of “non-essential personnel”. Meanwhile, researchers at Britain’s Ministry of Home Security had decided that losing a home was even more distressing for British civilians than deaths. I doubt this, but it led RAF planning to give priority to de-housing German people, intensifying impacts on resident civilians.

Berlin was divided into twenty Districts (Bezirken). Damage was concentrated in the more densely packed residential areas. In the central built-up areas, 31 percent of housing was destroyed, compared to 4 percent in the outer suburbs (Foreign Office and MEW, 1944, 8). Civilian casualties were heaviest in Kreuzberg (1,697 killed), Charlottenburg (1,621) and Mitte (1,463). After the Battle of Berlin, visible damage was greatest in the inner city. Casualties and property loss were concentrated here, mainly among older, more congested buildings.³⁰

The geography of demolition also highlights the role of “disaster” attacks. Half of Steglitz’ casualties occurred on 23/24 August, 1943: 57 percent of the bombed out, and two-thirds of building damage; Steglitz’ “catastrophe.” Then again, some residents were killed in thirty-two other attacks (Hampe and Mauter,

²⁹ HO 191/60; USBS E, 1 File 152

³⁰ HO 193/13, 45; USSBS #E 39

1982).³¹ It is a reminder that, for most of the war, raiding was so arduous, and navigation errors and disruption by the defences so severe, that there were huge uncertainties in when and whether even high density areas would suffer.

Tokyo comprised fifteen “Old” and twenty “New” Wards, the low-lying and most densely inhabited ones suffering over 90 percent of civilian deaths (Sherry, 1987; Edoin, 1987). Districts completely razed in the 9th-10th March conflagration formed 7 percent of the city’s area but housed over a quarter of its population. Almost total annihilation of the inner wards explains their phenomenal population loss. The most populous, Honjo, with 241,000 residents in 1944, fell by 95 percent; Fukugawa and Asakusa by 93 and 89.5 percent respectively. Old City wards fell to a quarter of their 1944 population, or a fifth of 1940. Some outer, New Wards lost half their pre-raid population, if proportionately fewer killed. Arakawa, the most populous ward, lost over 250,000 folk, the largest in total numbers and 75 percent of its pre-raid residents (USSBS P, 1947b).

“Low City” Disasters

In the capitals, as other large cities, people spoke of the attacks as “slum raids.” Official reports identified the greatest losses in London with “crowded terraces and courts”, “mean, narrow streets”, “back-to-back’ and “congested Nineteenth century housing”; “... house property of slum, or semi-slum [sic!] character and shoddily built”.³²

In Berlin, apartments suffered twice the losses of other dwellings, mainly in working-class areas. A Japanese journalist recalled how “(o)ne night ... 100,000 people were killed when they hit a slum area [presumably “Big Fire” raid] ...”, and added, “If the raid had come in a ‘better’ section of town, the victims would have been able to spread more concern ...”.³³

Writing about old Tokyo, Edward Seidensticker (1983, viii) distinguishes between, “... what occurred in the city because it was a capital, and what occurred because it was a city ...” He explores how capital and city are intertwined, but unequally. The greatest bombing losses occurred in the *Shitamachi*, which he calls Tokyo’s Low City or plebaean flatlands—socially, as well topographically, “low”. Here the great fire raids sought to hurt “the capital,” to bring about a strategic “decapitation” of the state, on the dubious assumption that ordinary city-folk and their living space had leverage against the “high city.” Instead, the latter’s very survival had come to require and accept sacrificing the former!

³¹ Stadtarchiv, Berlin # 2610 HI 1a. Oberbürgermeister Rept (24th 30th etc, Aug. 1943)

³² PRO/HO 191/60

³³ USBS P 2d Doc (I)-(II) Interrogation No.419, p.4, 25/10

In each capital, wartime conditions also exaggerated losses among those subject to social disadvantage in peacetime (Hewitt, 1994a). There were many more women alone and woman-headed households. Battlefield casualties were disproportionate among men from densely populated inner city areas, leaving many more widowed or, de facto, “single-parent” households. Relatively, there were more elderly folk, unemployed youths, children and disabled needing care. Anecdotal evidence suggests care givers, in most cases women, were put at greater risk. Popular accounts have emphasised women engaged in war work, the “Rosie the Riveters” or “land army girls” (Gluck, 1987), but far more women and female bombing victims were “homemakers”.

Equally important from a civil perspective, many older and more vulnerable neighbourhoods had resembled collections of ‘urban villages’, each with its special flavour and history, and a long-time resident population (Stern, 1947; Havens, 1978; Hostettler, 1990). Their inhabitants surely wanted a better life, better conditions, but still valued the places where their lives were actually set. Such matters were irrelevant to raid planning, but not to residents at the sharp end of urbicidal warfare. Those who survived would mourn those lost places (Hewitt, 1983, 276-77; Nipper and Nutz, 1993).

Interpretations: Urbicidal Dreams and Realities

Over time, much like the war itself, these metropolitan calamities moved and expanded successively from England to Germany and then Japan. Impacts in each capital differed because the types of munitions used and the scale of attack changed. In London and Berlin most injuries and deaths were due to high explosive bombs and fragmentation devices, although fire caused most property damage (Zuckerman, 1978). In Tokyo, like most other Japanese *and* German cities, incendiaries killed more people and fire-related losses exceeded all others (Hewitt, 1997, chapter 11). Londoners and Berliners endured almost six years of raid-related stresses and privations, including life in bomb-damaged homes and neighbourhoods. Conversely, Tokyo was annihilated in short order, but spared the years of raid threats and rubble, though not other and severe wartime privations (Havens, 1978). In many respects, however, there were fundamental similarities between the impacts of bombing on civilians in each city.

The ingredients of Urbicide

First and foremost, the raids destroyed the life support of urban communities. For each city they defined a negative urban, civil ecology distinguished by:

- 1) fatalities concentrated among resident civilians;
- 2) a predominance of casualties among “definitive civilians”: women, children, the elderly and infirm, and persons who were not just non-

combatants but mainly involved in continuance of, and dependence on, civil life;

3) attacks on the domestic foundations of the city, through physical damage predominantly to homes, the ‘de-housing’ of residents, and death and injuries mainly occurring in homes and civilian air raid shelters;

4) enforced displacement of resident populations, directly for the bombed-out, indirectly through official evacuations that separated and dispersed families and neighbours, dismembering their shared worlds;

5) physical destruction to civil support systems and urban institutions; shops, schools, hospitals, places of entertainment and worship; these institutions were subjected to the second-greatest level of destruction, after housing;

6) extensive, indiscriminate but often intentional destruction of buildings of historic and artistic significance, ancient landmarks, symbols of identity and continuity of urban settlements;

7) indiscriminate, wall-to-wall destruction of the inner city, the capitals’ historic site and urban heritage; exploiting the vulnerability of its social and civic geography, hoping to influence war functions or political power;

8) generating landscapes of violence whose rubble and dead buried under it converted the living city into a necropolis.

For a geographer, such a profile of harm amounts to “place annihilation”, the extermination of lived geographies (Hewitt, 1983). It underscores the murder and displacement of the *place-makers* and, in wartime, *place-maintainers* of cities, as well as the razing of built environments and urban heritage. Added to this, so-called civil defence failed when needed the most. The often heroic efforts of firemen, first-aid units and others could not reverse the failure to invest adequately in civil defence, or remotely as much as in the bomber fleets.

Similar concerns underpin the notion of urbicide, but identify something beyond destructive outcomes: intentional gross violation of human rights or crimes of war. The once-secret raid plans like THUNDERCLAP show the profile of “place annihilation” outlined above was an intended, not accidental, achievement. It gives the lie to the propaganda of reprisals and ‘collateral damage’. The counter-city raids described here were intended to terrorise civilians, the losses largely paid by them during and after the war. If anything is urbicide, the attacks on the capitals

were. However, so were attacks on hundreds of other cities in the Second World War.

Discussions of urbicide tend to focus on profound changes in the nature of wars and warfare since 1945, and also in urbanism and urban living (Graham, 2004). From certain perspectives it is hard to disagree, but not so clearly from that of bombed civilians. Air raid casualties have continued to be overwhelmingly civilian, from the Korean War to Afghanistan, Iraq, Lebanon, Gaza and Georgia today. Air power has remained essentially a state instrument for dominant powers who lead in the manufacture, sale and use of air weapons, mainly the world war victors or their clients. In particular, two key features argue continuity more than change: the condition of civilians in bombed cities, and the mind-set and intentions of counter-city bombing.

Concluding remarks

On the one hand, even if it was sixty years ago, the study and remembrance of what happened in bombed capitals seems to me justified in its own right, as other great calamities; not least to do justice to the collective memories of erstwhile “enemies” (Irwin-Zarecka, 1994). The neglect of comparative study, surely a major concern of geographers and historians; the implications of such widely championed and praised brutality; the suffering of so many innocent and defenceless persons on all sides; all seem compelling reasons to look back. On the other hand, as the title suggests, key elements of those campaigns appear as ‘proving grounds’ for what bombing did to other cities in the world war and would continue to do to the present time, including capitals like Baghdad, Kabul, Grozny, and Beirut.

What the bombing revealed at once in London, later in Berlin and Tokyo, was a remarkable disarticulation between the capital as such, or its war functions, and the plight of its citizens. Matters crucial to the war effort were a good deal more defensible or moveable than densely built-up areas and civil populations. The capitals’ authority was, seemingly, more abstract than concrete; more like the thermostat than the power-house of war. The results strongly support the view that these attacks “... hit what was physically the most vulnerable but socially the least effective component of the city ...” (Sherry, 1987, 286). Scattered through Allied raid planning documents are references to the voiceless condition of the German and Japanese people. Some urged bombing Government headquarters or Party apparatus, if the focus could not be on factories, power plants, and transportation. The balance of air force and technical opinion favoured indiscriminate annihilation of densely-packed inner districts.³⁴ Yet, even had they substantially influenced the course of the world war, reduced its length and overall casualties, could the attacks on capital cities and all the other urban area raids be justified? What does it mean to

³⁴ AIR 20/1129; 3234; 4831

not merely condone but aim to kill defenceless civilians to save soldiers' lives or influence enemy soldiers and leaders? To destroy the major, essentially defenceless, centres of civilised life to reduce the toll of air, sea and ground battles?

In the world war a basic difference emerged, material as well as moral, between the urban attacks as a civilian threat and supposed air power goals. Yet, if the capitals seemed to offer unique opportunities for air power, limited strategic results never led to a reduction, let alone rejection, of this style of raiding. This also applies to counter-city raiding from Korea to Afghanistan; dubious results, but a refusal to stop experimenting.

More alarming, perhaps, is the absence of any effective or concerted effort to defend and promote civil priorities against this fundamental threat to civil life. Rather, bombing has escalated, even to serve, supposedly, progressive values: "humanitarian wars" or to "bring democracy"! Meanwhile, the nature and prevalence of civilian losses are identical to the world war bombings (Hewitt, 1997; Ali, 2000).

Acknowledgements

Thanks for research funds from the Social Science and Humanities Research Council (SHHRC), Ottawa, and Wilfrid Laurier University's Office of Research; for field work and discussions with Dr. Joseph Nipper; to Dr. Stephen Graham for introducing me to the 'urbicide' notion; and Ms. Mariko Yabe for helpful comments and pointers to recent work in Japan, yet to be looked into.

References

- Ahlström, C. 1991. *Casualties of conflict: report for the world campaign for the protection of victims of war*. Uppsala: Department of Peace and Conflict Research, Uppsala University.
- Ali, T. (ed.). 2000. *Masters of the Universe? NATO's Balkan Crusade*. London: Verso.
- A.R.D.L. 1939 *Publication #4*. London: Air Raid Defence League.
- Bindinian, L.J. 1976. *The Combined Allied Bombing Offensive Against the German Civilian: 1942-1945*. Lawrence, Kansas: Coronado Press.
- Beseler, H., and Gutschow, N. 1988. *Kriegshicksale deutscher Architektur: Verluste-Schaden-Wiederaufbau*, Neumunster, 2 volumes.
- Bond, H. (ed.). 1946. *Fire and Air War*. Chicago: National Fire Protection Association.

- Bowen, E. 1954. *The Heat of the Day*. London: Jonathan Cape.
- Brett-Smith, R. 1967. *Berlin 1947: the Grey City*. New York: St. Martin's Press.
- Caidin, M. 1960. *A Torch to the Enemy: the Fire Raid on Tokyo*. New York: Ballantine Books.
- Calder, A. 1969. *The People's War: Britain 1939-1945*, New York: Pantheon.
- Churchill, W.S. 2003. *Never give in!: the best of Winston Churchill's speeches*. London: Pimlico.
- Clarke, I.F. 1992. *Voices Propheying War*, 2nd Ed. Oxford: Oxford University Press.
- Coffey, T. M. 1986. *Iron Eagle: The Turbulent Life of General Curtis LeMay*. New York: Random House.
- Collier, B. 1957. *The Defence of the United Kingdom*. London: History of the Second World War, H.M.S.O.
- Conrad, S. and Heckmann-Janz, K 1987. *Reichstrummerstadt: Leben in Berlin, 1945-1961 in Berichten und Bildern*. Berlin: Luchterhand.
- Coward, M. 2004, Urbicide in Bosnia. In, Graham, S. (ed.), *Cities, War and Terrorism: Towards an Urban Geopolitics*. Oxford: Blackwell, pp. 154-71.
- Craven, W. and Cate, J.L. (eds.). 1948-1953. *The Army Air Forces in the World War*. Chicago: Chicago University Press, 7 volumes.
- CWRC, 1954. [UK] *Civilian War Dead 1939-1945*, London: Commonwealth (originally Imperial) War Graves Commission.
- Davis, M. 1998. *Ecology of Fear: Los Angeles and the Imagination of Disaster*, New York: Vintage Books.
- Daniels, G. 1975 the great Tokyo air raid, 9-10 march, 1945. In, Beasley, W.G. (ed), *Modern Japan: Aspects of History, Literature and Society*. Berkeley, CA, University of California Press, pp. 113-31.
- Debord, G. 1995. *The Society of Spectacle*. (translated by D. Nicholson-Smith). New York: Zone Books.

- Demps, L. 1982. Die Luftangriffe auf Berlin. Ein dokumentarischer Bericht. Volume II. In, *Jahrbuch des Markischen Museums*, VIII, Berlin, pp. 7-43.
- Edoin, H. 1987. *The Night Tokyo Burned*. New York: St. Martin's Press.
- Elliot, G. 1972. *Twentieth Century Book of the Dead*. Harmondsworth: Penguin.
- Foreign Office and Ministry of Economic Warfare, 1944. *Economic Survey of Germany (December), Section C, "Housing"*, Economic Advisory Branch (mimeograph).
- Friedrich, J. 2002. *Die Brand: Deutschland im Bombenkrieg 1940-1945*. Munich: Propylaen.
- Fuller, J.F.C. 1923. *The Reformation of War*. London: Hutchinson.
- Gluck, S.B. 1987. *Rosie the Rivetter Revisited: women the war and social change*. Boston: Twayne Publishers.
- Graham, S. (ed). 2004. *Cities, War and terrorism: Towards an Urban Geopolitics*. Oxford: Blackwell.
- Grayling, A.C. 2006. *Among the Dead Cities*. New York: Walker Publishing.
- Green, H. 1943. "Caught". London: Hogarth Press.
- Gregory, D. 2004. *The Colonial Present*. Oxford: Blackwell.
- Guillan, R. 1947. *Le Peuple Japonais et la Guerre*. Paris: Juillard.
- Hampe, H. and Beeskow H-J 1978. *Jahrbuch des Maerkischen Museums Berlin: Maerkisches Museum, Kulturhistorisches Museum der Hauptstadt der Deutschen Demokratischen Republik*.
- Hampe, H. and Mauter, H. 1982 *Bericht ueber eine Rundreise durch luftkriegbetroffene Staedte, im Januar/Februar 1944*. Berlin: Maerkisches Museum, Kulturhistorisches Museum der Hauptstadt der Deutschen Demokratischen Republik.
- Harrisson, T. 1976. *Living Through the Blitz*. London: Penguin..
- Havens, T.R.H., 1978. *Valley of darkness: the Japanese people and World War Two*. New York: W.W. Norton.

- Herold, M. W. 2004. Urban dimensions of the punishment of Afghanistan by US bombs. In, Graham, S. (ed). *Cities, War and terrorism: Towards an Urban Geopolitics*. Oxford, Blackwell, pp. 312-34.
- Hewitt, K. 2007. Preventable disasters: addressing social vulnerability, institutional risk and civil ethics. *Geographische Rundschau, International Edition*, 3/1, 43-52
- Hewitt, K. 1997. *Regions of Risk: a geographical introduction to disasters*. London: Longman/Pearson.
- Hewitt, K. 1994a. "When the great planes came and made ashes of our city...": towards an oral geography of the disasters of war. *Antipode* 26:1, 1-34.
- Hewitt, K. 1994b. Civil and Inner City Disasters: the urban, social space of bomb destruction. *Erdkunde* 48, 259-74.
- Hewitt, K. 1993 Reign of Fire: the civilian experience and urban consequences of the destruction of German cities, 1942-1945. In, Nipper, J. and Nutz, M. (eds). *Kriegszerstoerung und Wiederaufbau deutscher Staedte*. Koeln: Koelner Geographischen Arbeiten 57, 25-46.
- Hewitt, K. 1990. Our cities bombarded: the "Blitz" remembered. *Geographical Magazine*, May, 10-13.
- Hewitt, K. 1987. The social space of terror: towards a civil interpretation of total war, *Society and Space: Environment and Planning D* 5, 445-74.
- Hewitt, K. 1983. Place annihilation: area bombing and the fate of cities. *Annals, Association of American Geographers* 73, 257-84
- Hohn, U. 1991. *Die Zerstorung Deutscher Stadte im Zwieten Weltkrieg*. Dortmund: Duisberger Geographische Arbeiten 8.
- Hostettler, E. (ed). 1990. *The Island at War: Memories of Wartime Life on the Isle of Dogs, East London*. London: Island History Trust.
- Iklé, F. 1958. *The Social Impact of Bomb Destruction*, Norman: University of Oklahoma Press.
- Irving, D.J. 1989. *Und Deutschlands Stadte starben nicht: ein Dokumentarbericht der Bombedkrieg gegen Deutschland*. Augsburg: Weltbild Verlag.
- Irwin-Zarecka, I. 1994. *Frames of Remembrance: the Dynamics of Collective*

- Memory*. London: Transaction Publishers.
- Janow, S. 1943. Economic consequences of 'mass' attack on Japanese Cities" US Board of Economic Warfare - Enemy Br. Jan.25th, EP-12 (unpublished).
- Johnson, D. 1988. *The City Ablaze: the second Great Fire of London, December 1940*. London: William Kimber.
- Kantor, M. 1965. *Mission with LeMay: My Story*. New York: Doubleday.
- Lewallen, J. 1971. *The Ecology of Devastation: Indochina*. London: Penguin.
- Liddell Hart, B. H. 1925. *Paris, or the Future of War*. New York: E.P. Dutton.
- Lifton, R.J. 1967. *Death in Life: survivors of Hiroshima*. New York: Random House.
- Lindqvist, S. 2001. *A History of Bombing*. New York: The New Press.
- MacIsaac, D. 1976. *Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey*. New York: Garland.
- MacIsaac, D. 1986. Voices from the central Blue: the Air Power theorists. In, Paret, P. (ed). *Makers of Modern Strategy from Machiavelli to the Nuclear Age*. Princeton, NJ: Princeton University Press, 624-46.
- Marwick, A. 1976. *The Home Front: the British and the Second World War*. New York: W.W.Norton.
- McDonough, T. (ed). 2002. *Guy Debord and the Situationist International: texts and documents*. Cambridge, Mass: MIT Press.
- Middlebrook, M. 1987. *The Nuremberg Raid*. London: Allen Lane.
- Middlebrook, M, and Everitt, C. 1985. *The Bomber Command War Diaries: an operational reference book, 1939-1945*. New York: Viking.
- Milward, A.S. 1977, *War, economy and society, 1939-1945*. London: Allen Lane.
- Nipper, J. and Nutz, M. (eds). 1993. *Kriegszerstoerung und Wiederaufbau deutscher Staedte*. Koeln: Koelner Geographischen Arbeiten 57, 25-46.
- O'Brien, T.H. 1955. *Civil Defence*. London: History of the Second World War, H.M.S.O.

- Pacific War Research Society, 1972, *Japan's Longest Day*. Tokyo: Kodansha International.
- Porteous, J.D. and Smith S.E. 2002. *Domicide: The Global Destruction of Home*. Montreal: McGill-Queen's University Press.
- Pynchon, T. 1973. *Gravity's rainbow*. New York: The Viking Press.
- Quester, G.H. 1966. *Deterrence Before Hiroshima: the air power background to modern strategy*. New York: Wiley.
- Reischauer, E.O. (ed.) 1974. *Japan: the Great Contemporary Issues*. New York: Arno Press.
- Robert, J-L. 1997. [*Capital Cities at War: Paris. London. Berlin 1914-1919*](#). Cambridge: Cambridge University Press.
- Rumpf, H. 1962. *The Bombing of Germany*. (translated, Fitzgerald, E.H.). New York: Holt, Rhinehart and Winston.
- Rummel, B.J. 1994. *Death by Government: Genocide and Mass murder since 1900*. New Brunswick, N.J: Transaction Publishers.
- Salmaggi, C., and Palavisini, A. 1979. *2194 Days of War*. New York: Mayflower Books.
- Seidensticker, E. 1983. *Low City, High City: Tokyo from Edo to the Earthquake*. Rutland, Vt: Charles E. Tuttle.
- Selden, M. 2008. Japanese and American war atrocities: Historical memory and reconciliation, Mark Selden's ZSpace Page, April 23, <http://www.zmag.org/znet/viewArticle/17224>, last accessed January 20, 2009.
- Shaw, M. 2004. New wars of the city: relationships of "Urbicide" and "Genocide". In, Graham, S. (ed). *Cities, War and terrorism: Towards an Urban Geopolitics*. Oxford: Blackwell, pp. 141-53.
- Sherry, M.S. 1987. *The Rise of American Air Power*. New Haven, Conn.: Yale University Press.
- SIPRI, 1975. *Incendiary Weapons*. Cambridge. Mass: Stockholm Peace Research Institute, MIT Press.

Snyder, J. 1984. Civil-military relations and the cult of the offensive, 1914 to 1984. *International Security* 9, 108-46.

Spaight, J.M 1944. *Bombing Vindicated*, London: G. Bles.

Speer, A. 1970. *Inside the Third Reich: Memoirs*. New York: MacMillan.

Standard Oil Development Company. 1943. *Design and construction of typical German and Japanese Test Structures at the Dugway Testing Grounds, Utah*. Project # 30601, Chemical Warfare Service - Tech. Div. (March 12th).

Stern, J. 1947. *The Hidden Damage*. New York: Hartcourt and Brace.

Terraine, J. 1985. *The Right of the Line, the Royal Air Force in the European War, 1939-1945*. London: Hodder and Stoughton.

Titmuss, R.M. 1950. *Problems of Social Policy*. London: History of the Second World War, H.M.S.O.

USSBS E 1947. *Civilian Defense Division Final report*. Washington, D.C.: United States Strategic Bombing Survey Report # 40, Washington, DC.

USSBS E 1945a. *Overall report (European War)*, Washington, D.C.: United States Strategic Bombing Survey.

USSBS E 1945b *Area Studies Division Report*. Washington, D.C.: United States Strategic Bombing Survey.

USSBS E 1945c *The Effect of Bombing on Medical and Health Care in Germany*. Medical Branch, Morale Division, Report #65. Washington, D.C.: United States Strategic Bombing.

USSBS P 1947a. *The Effects of Strategic Bombing on Japanese Morale*. Washington DC.: Pacific Survey, Morale Division,

USSBS P 1947b *Effects of Air Attack on the Urban Complex Tokyo-Kawasaki-Yokohama*, , Washington, DC: Urban Areas Division.

USSBS P 1947c *The Effects of Bombing on the Health and Medical Services in Japan*. , Washington DC: Medical Division, United States Strategic Bombing Survey.

- USSBS P 1947d. *Covering Air-Raid Protection and Allied Subjects in Japan*. Civilian Defence Division, Final report #4. Washington, DC: United States Strategic Bombing Survey.
- Valentino, B. A. 2004. *Final Solutions: Mass Killing and Genocide in the 20th Century*. Ithaca, NY: Cornell University Press.
- Veale, F.J.P. 1962 *Advance to Barbarism: the Development of Total War from Sarajevo to Hiroshima*. London: The Mitre Press.
- Virilio, P. and Der Derian, J. 1997. *Paul Virilio Reader*. Oxford Blackwell.
- von Studnitz, H-G. 1965. *While Berlin Burns: the diary of Hans-Georg von Studnitz*. New York: Prentice-Hall.
- Wakefield, K. 1990. *The Blitz Then and Now*. London: Battle of Britain Prints International, 3 volumes.
- Walzer, M. 1977. *Just and Unjust Wars: a moral judgement with historical illustrations*. New York: Basic Books.
- Warner, E. 1943. Douhet, Mitchell, Seversky: Theories of Air Warfare. In, Earle, E.M. (ed). *Makers of Modern Strategy: military Thought from Machiavelli to Hitler*. Princeton NJ: Princeton University Press, pp. 485-503.
- Webster, C. and Frankland, N. 1961. *The Strategic Air Offensive against Germany, 1939-1945*. London: History of the Second World War, H.M.S.O., 4 volumes.
- Willis, F.R. 1973. *Western Civilisation: an urban perspective*. v.3. Berkeley CA: University of California Press.
- Woolf, V. 1988. *Diaries*. London: Penguin.
- Zuckerman, S. 1978. *From Apes to War Lords, 1904-1946: an Autobiography*. London: Hamish Hamilton.