

## CIVIL AND INNER CITY DISASTERS: THE URBAN, SOCIAL SPACE OF BOMB DESTRUCTION

With 4 Figures and 7 Tables

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*Zusammenfassung:* Zerstörung innerstädtischer Lebensräume durch Bombardierungen

In diesem Artikel werden die Einwirkungen der Bombardierung englischer, deutscher und japanischer Städte im Zweiten Weltkrieg auf Zivilbevölkerung und urbane Strukturen untersucht. Vor allem sollen die sozialen Auswirkungen der Zerstörung und die Konsequenzen für das Leben der Stadtbevölkerung aufgezeigt werden. Es zeigte sich, daß die meisten Schäden in den Städten durch einen oder mehrere außerordentlich zerstörerisch wirkende Angriffe verursacht wurden, nämlich solchen, die unkontrollierbare Flächenbrände auslösten. Diese „Desaster-Angriffe“ bestimmten weitgehend das Ausmaß der Zerstörungen und der Bevölkerungsverluste. Besonders gravierend für Zivilbevölkerung und Bausubstanz war überall der Verlust an Wohnraum; die Wohnbevölkerung – hauptsächlich Frauen – war am härtesten betroffen. Der größere Teil der Toten waren oft Frauen, Kinder und ältere Menschen. Die meisten Opfer zählten nicht nur nicht zur kämpfenden Truppe, sondern waren definitiv Zivilpersonen, die sich einzig und allein um Heim und tägliches (Über-)Leben kümmerten und so weder direkt (Soldat) noch indirekt (in der Kriegsproduktion) am Krieg beteiligt waren. Insofern litten in allen drei Ländern diejenigen am schlimmsten unter den Bombardierungen, die nach Status, Vermögen, Alter, Geschlecht und Beruf am wenigsten Einfluß auf den Krieg hatten. Aber gerade sie waren entscheidend für die Aufrechterhaltung des städtischen Lebens. Die auf die innerstädtischen Bezirke konzentrierte Bombardierung vernichtete darüber hinaus die historischen Strukturen der Stadt, d. h. das kulturelle Erbe der urbanen Entwicklung und damit grundlegende Elemente des urbanen Lebens. Zerstört wurden die sozialen Strukturen in den alten Wohngebieten. In geographischer Terminologie war es der Prozeß und die Erfahrung von „place annihilation“. Die tödlichen Angriffe waren in erster Linie eine Katastrophe für die zivile Bevölkerung, für die „Stadt für die Menschen“, keineswegs aber für die kriegsunterstützende „produktive Stadt“. Der Wiederaufbau nach dem Krieg hat den letzteren Typ weiter auf Kosten des ersteren gestärkt und ausgebaut, oft sogar mit dem Bestreben, dessen große Verluste zu verbergen.

field, geography has conspicuously neglected the role of armed violence in its main concerns. That is in spite of a large professional role in wartime intelligence, planning and fighting. Yet, it is not difficult to show that the impacts of the world wars were enormous upon modern societies, their settlements, habitats and populations. That includes preparations for war, its impact and consequences (BUNGE 1973; HEWITT 1979, 1987; PEPPER a. JENKINS 1983; WESTING 1984; THRIFT a. FORBES 1986, NIETSMANN 1987; ASHWORTH 1992; ZELINSKI a. KOSINSKI 1993).

The present paper addresses one aspect of the Second World War, through a comparative view of civil and urban impacts of city-wrecking from the air, in Britain, Germany and Japan. Of course, the topic itself has a huge literature in air force and general war histories, local histories from cities involved and personal memoirs. There are some notable studies of civil defence and wartime conditions, and overall damages (HARRISON 1976; HAVENS 1978; HOHN 1991). We know city-wrecking and civilian morale were objectives of the most destructive urban attacks (HEWITT 1983, 1987; SHERRY 1987). A growing body of literature looks at the reconstruction of these cities (DURTH a. GUTSCHOW 1988; DIEFENDORF 1990; NIPPER a. NUTZ 1993). Yet, the impact of the raids upon urban and social geography has been largely neglected. Half a century later, it is hard to comprehend how drastic were the effects now masked by post-war reconstruction.

The argument here is that aerial bombardment revealed and exploited strong social and geographical differences in the vulnerability of cities. The result was distinctive patterns of loss for civilians and urban places, patterns of devastation that had an enormous role in post-war transformations. Urban 'social space' – the position or role people and areas have in the social order and, more literally, in social geography – substantially decided who and what would be destroyed or survive.

Most destruction occurred in night raids by massed bomber formations, intended to lay down dense carpets of bombs. However, bombs fell more or less randomly in areas the size of city blocks or districts, often whole towns. The probabilities of damage were, therefore, governed largely by the density of buildings

### *1 Introduction: the social space of vulnerability in war*

As citizens we know the Second World War was of epochal significance. As geographers, however, our work hardly even recognizes its legacy. As a modern

Table 1: Summary profiles of the impact of air attacks on civil life in the capital cities of Britain, Germany and Japan  
Auswirkungen der Luftangriffe auf die Hauptstädte Großbritanniens, Deutschlands und Japans

	London	Berlin	Tokyo
Raids dispatched (>50 aircraft)	360 (71)	241 (73)	89 (25)
Civilian Casualties:			
killed	29,890	18,019	>140,000
injured, severe	50,507	33,230	c. 1 million
injured, light	88,848	?	
Bombed out and forced evacuation	1.4 million	1.9 million	2.9 million
Urban area razed (km <sup>2</sup> )	5	26	116

Sources: COLLIER 1957; CALDER 1969; O'BRIEN 1957; U.K. MINISTRY OF HEALTH 1946; DEMPS 1982; MIDDLEBROOK a. EVERITT 1985; CRAVEN a. CATE 1953, vol. 5; USSBS 1947a, 1947e

and of people on the ground. Hence, aiming points of urban attacks were in the central, most densely built-up areas, and incendiary bombs the principal munitions. Fire was the greatest cause of damage. The most congested urban areas were more likely to catch fire, and contained the inflammable materials to generate great mass fires (BOND 1946). This was not the largest use of the air weapon, nor always its largest deployment against targets in cities. Yet the counter-city campaigns against these three countries were unprecedented in scale and scope, and the major causes of urban devastation and civilian casualties in them.

## 2 The Social Geography of Bomb Destruction

The primary destructive impacts of the urban attacks fell upon residential districts and domestic life. Over 90% of air raid deaths were to civilian residents. Housing destruction, by numbers of buildings, areal extent or replacement costs, comprised the greatest property losses (IKLE 1950; CALDER 1969; HAVENS 1978; HEWITT 1983, 1990, 1993a; HOHN 1991). The largest numbers of civilian victims were those bombed out. However, gross casualty and damage statistics, if most often cited, do not show where and upon whom losses were concentrated. The capital cities, which received the greatest weight and number of raids in their respective countries, can provide a first, comparative view (Table 1).

A greater weight of bombs fell on London's outer, suburban boroughs, but their dispersed buildings suffered least. Some lost barely a dozen homes and civilian casualties were measured in single figures. By contrast, 26 inner boroughs had over 400 civilian air raid deaths (Fig. 1). The tolls in Lambeth (1,470 killed) and Wandsworth (1,253), were only exceeded by

the cities of Liverpool, Birmingham and Glasgow. The geography of property damage in London, especially housing, broadly followed that of casualties.<sup>1)</sup> Housing losses exceeded 80% of all aircraft-caused property losses in most districts, and over 95% in six inner city ones.

Civilian losses in Berlin were also concentrated in inner, more congested areas. Civilian casualties were heaviest in Kreuzberg (1,697 killed), Charlottenburg (1,621) and Mitte (1,463). Housing demolition and numbers bombed out were even more concentrated in inner districts (Fig. 2). Mitte, the smallest district, had the highest proportion of losses: almost 54% of housing and population, closely followed by Tiergarten and Friedrichshain (HOHN 1991, 134). Mitte and Tiergarten, with many apartment blocks, lost proportionately more individual homes per residential building destroyed.

Not all congested areas were equally affected, of course. High density Prenzlauer Berg fared better than the less dense Steglitz and Wilmersdorf, due to the way large attacks approached the city from the west. Congested sections in the latter districts suffered heavily. Large, low density districts like Spandau, Reinickendorf and Zehlendorf suffered least, yet contained the most important war industries and were targets of many industry raids.

At Tokyo density of occupancy also determined death and survival. The waterfront districts, crowded around the Sumida River, were estimated to have an average of 40,000 persons per km<sup>2</sup>, rising to 55,000 in some parts (CRAVEN a. CATE 1953). The built-over area in Asakusa and Nihombashi wards was 75 and 68% respectively – much higher than most inner

<sup>1)</sup> U.K. MINISTRY of HOME SECURITY (MHS) Public Record Office (PRO) Kew, London, Files, HOME OFFICE (HO) 191/9 and HO 198/244.

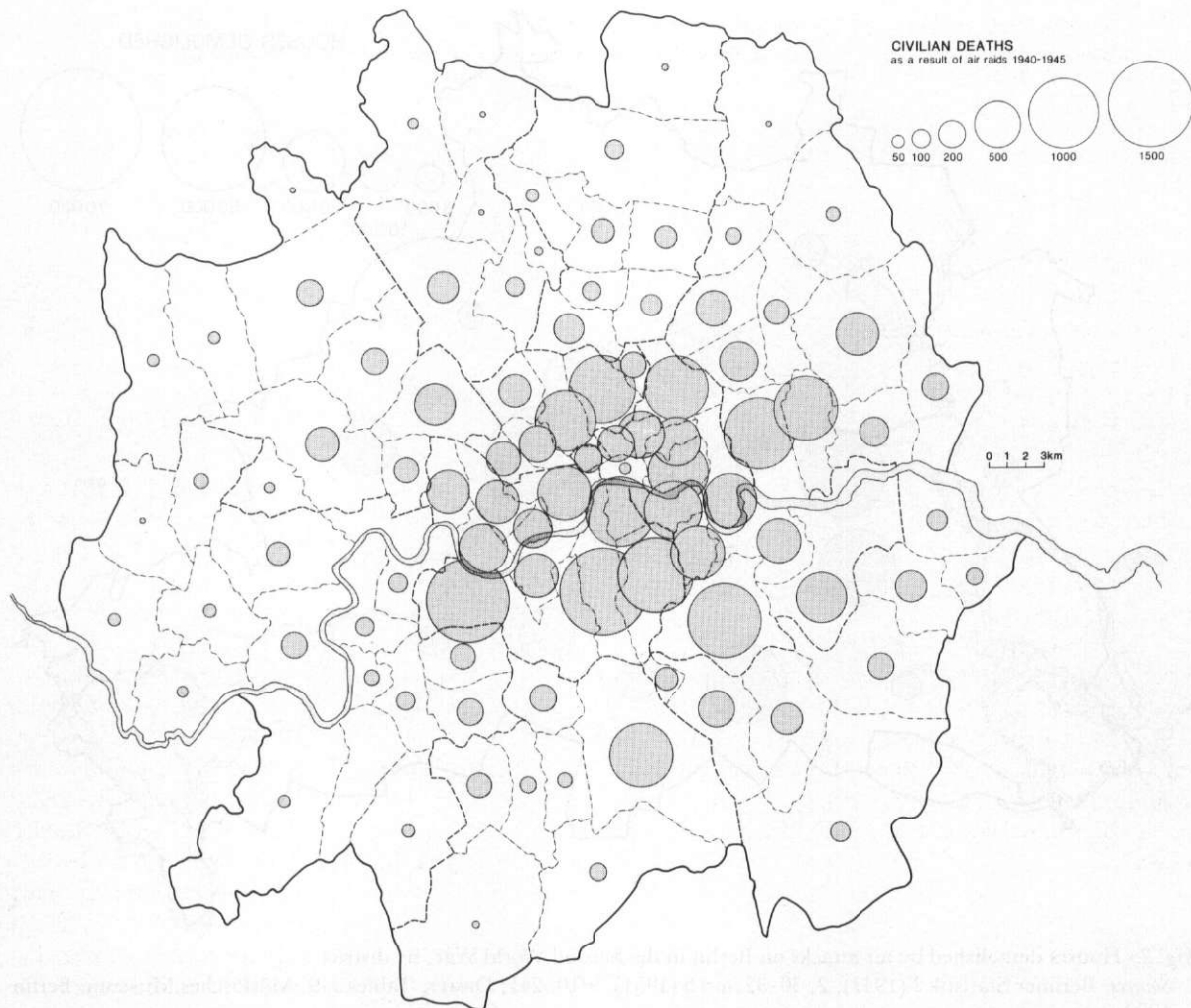


Fig. 1: Civilian deaths from air attacks of the Second World War on Greater London, shown by county  
Sources: PRO/HO 191/9; HO 198/244; HO 198/245

Bei Luftangriffen auf den Großraum London im Zweiten Weltkrieg getötete Zivilpersonen nach Counties

districts of European cities. Though comprising only 7% of the city area, the inner wards held over a quarter of its population and 90% of civilian deaths occurred here. Evacuation and population loss due to fire raids reflect an almost total annihilation of inner city living space (Fig. 3). The most populous ward, Honjo, with 241,000 residents in 1944, fell by 95%; Fukugawa and Asakusa by 93 and 89,5% respectively. An incredible 116 km<sup>2</sup> of built-up area were burnt-out (HEWITT 1987). But outer, newer and less dense wards had few casualties and small population change.

This picture for the capitals was, in many ways, intensified in other, especially smaller cities. In the industrial city of Birmingham in the English Midlands, two thirds of 2,241 civilians killed, 5,000 homes

demolished and over 20,000 made uninhabitable, were in the older, mostly poor residential neighbourhoods of the "Central Ring". The port of Plymouth illustrates the more total impact on a smaller town. After the raids, of April, 1941, it was reported: "The *civil and domestic* devastation exceeds anything seen elsewhere, both as regards *concentration throughout the heart of the town*, and as regards the random shattering of houses all over. The *dislocation of everyday life* also exceeds anything seen elsewhere and an enormous burden is being placed on the spirits of the people..."<sup>2)</sup> About 1,100 civilians had been killed and, of 169,000

<sup>2)</sup> Mass Observation (MO), File Report No. 683, 4 May 1941, Tom Harrison Archive, University of Sussex (emphasis added by author).

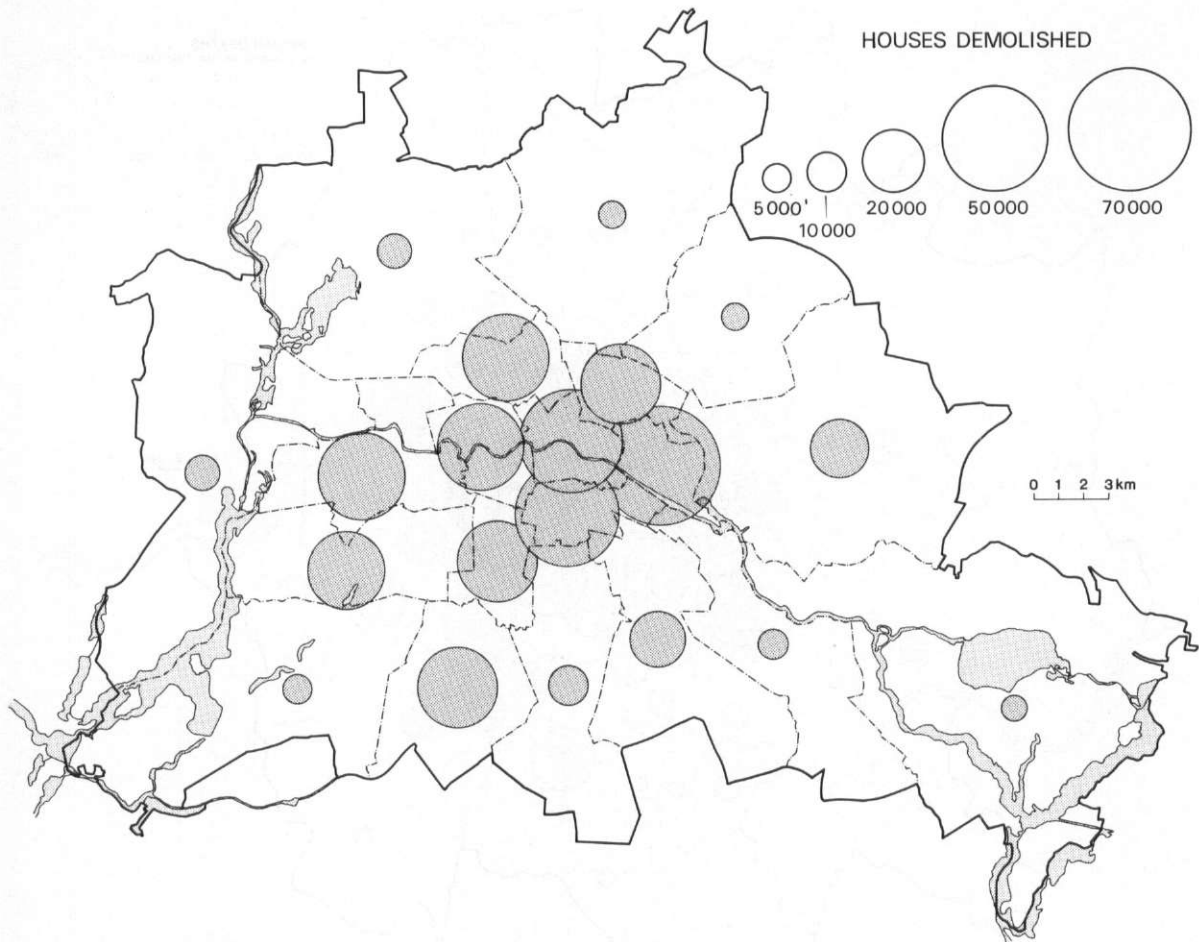


Fig. 2: Houses demolished by air attacks on Berlin in the Second World War, by district

Sources: Berliner Statistik 2 (1947), 2, 30-32 and 5 (1951), 9/10, 241; DEMPS, Tables 3-9, Märkisches Museum, Berlin 1982

Bei Luftangriffen auf Berlin im Zweiten Weltkrieg zerstörte Gebäude nach Stadtbezirken

who had been living there in March 1941, just 67,000 remained in May.

Before 1943, damages in German cities were similar to Britain's in type and scale. Bombing in the May 30/31, 1942 "Thousand-Raid" on Köln, was very scattered, but destruction concentrated in the inner city and upon housing. Aerial photographs showed 61% of visible damage in the old city and surrounding, congested residential areas (Table 2).<sup>3)</sup> Most of the 411 civilians killed, 5,027 injured and over 45,000 bombed out, and 70% of housing destroyed were in the inner city. An ominous indication of the future was the role of fire. In the inner city

it destroyed about 18 buildings for every one by explosives, but less than two to one in industrial and suburban areas.

Once the large forces at Köln were linked to the fire raid techniques, experimented with in 1942 against Lübeck and Rostock, the fate of most inner city areas of Germany was sealed (WEBSTER a. FRANKLAND 1961; RUMPF 1962; LONGMATE 1983). However, this raises another key issue, already apparent in British cities but of overwhelming impact in Germany and Japan.

### 3 Disasters of the Air War

The experience of air attack is often compared with natural and other disasters (HEWITT 1983; BARTON 1969; EBERT 1993). Less often recognized is the over-

<sup>3)</sup> MHS/Research and Experiments Department (RED) Report No. RE/H 24 "Raid Assessment Report, Cologne, Raid of 30th/31st May 1942, 15 p, PRO.

Table 2: Assessment of damage by urban zones from air photograph coverage of Köln, after the raid of 30/31 May, 1942  
 Schätzung der Schäden im Stadtzentrum aufgrund der Luftaufnahmen von Köln nach dem Luftangriff vom 30./31. März 1942

Zones Covered	% Buildings Damaged/Destroyed		Estimated Dwellings Uninhabitable	% Destroyed
1 City centre	41.6	27.2	7,750	30.9
2a Compact residential - fully built-up <sup>1</sup>	19.4	12.5	5,820	15.8
2b Compact residential - 40-70% built-up <sup>2</sup>	3.0	2.0	1,840	3.0
3 Suburban - under 40% built-up	3.3	2.6	720	6.0
4 Industrial <sup>3</sup>	6.8	6.6	2,230	11.0

<sup>1</sup> "... extends to railway belt"; <sup>2</sup> "... separated from 2a by the open belt ..."; <sup>3</sup> "... inside Hohenzollern Ring ..."  
 Source: U.K. MINISTRY of HOME SECURITY, RESEARCH and EXPERIMENTS DEPARTMENT, RE/H24. 17 pages (PUBLIC RECORD OFFICE, LONDON)

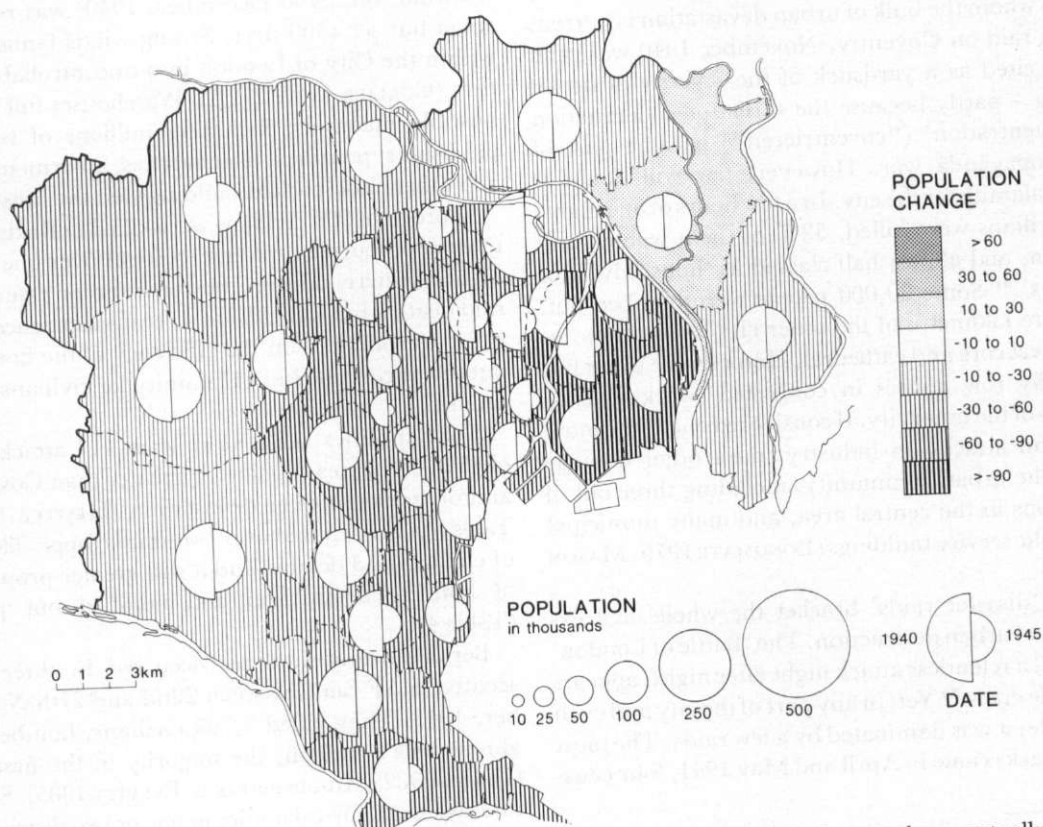


Fig. 3: Population change in Tokyo between 1940 and 1945 by wards. Almost all of the changes shown actually occurred between February and May 1945  
 Source: USSBS P Civil Defence Division, 1947, 172  
 Bevölkerungsveränderungen in Tokio zwischen 1940 und 1945 nach Verwaltungsbezirken. Die meisten Veränderungen gehen auf die Ereignisse im Februar und Mai 1945 zurück

Table 3: Summary of civil losses in the twelve most lethal attacks on German cities

Bevölkerungsverluste bei den zwölf verlustreichsten Angriffen auf deutsche Städte					
City	Date	Civilians Killed	Bombed Out (approx.)	Urban Area razed (km <sup>2</sup> )	Comments
Hamburg	27./28. 07. 43	c. 40,000	800,000	13.2	firestorm
Dresden	14./15. 02. 45	c. 35,000	250,000	6.8	firestorm
Pforzheim	23./24. 02. 45	17,600	50,000	2.2	firestorm
Magdeburg	16./17. 01. 45	c. 16,000	199,000	3.1	firestorm
Darmstadt	11./12. 09. 44	10,550	49,000	2.0	firestorm
Nordhausen	3./ 4. 04. 45	8,800	20,000	1.8	great fire
Kassel	22./23. 10. 43	7,000	110,000	4.7	firestorm
Heilbronn	4./ 5. 12. 44	c. 7,000	50,000	1.4	firestorm
Potsdam	14./15. 03. 45	c. 5,000	40,000	-	great fire
Würzburg	16./17. 03. 45	4,500	56,000	1.7	firestorm
Köln	3./ 4. 05. 43	4,377	230,000	-	great fires
Wuppertal-Barmen	29./30. 05. 43	3,400	130,000	2.6	firestorm

Source: HEWITT 1993 a

whelming role, in urban and civilian losses, of the most destructive attacks. In all three countries, certain exceptionally destructive raids decided where and to whom the bulk of urban devastation occurred.

The raid on Coventry, November 1940 was, and still is cited as a yardstick of the severity of urban raiding – partly because the threat or codemnation of ‘coventration’ (“coventrieren”) became part of the propaganda war. However, few will doubt it was a calamity for the city. In a few hours of one night, 568 civilians were killed, 52% of them women and children, and almost half classed as ‘housewives’ or ‘widows’.<sup>4)</sup> Some 20,000 people were bombed out. A square kilometre of the inner city lay in ruins, its mediaeval core and cathedral. Homes were worst hit, especially row houses in congested, working class districts of the inner city. If considered one of the more successful attacks on industry, most other damage was to the urban community, including three out of four shops in the central area, and many municipal and public service buildings (LONGMATE 1976; MASON 1985).

Such ‘disaster raids’ bracket the whole civil experience of urban destruction. The ‘Battle of London’ 1940–41, a relentless attack night after night, appears as a single crisis.<sup>5)</sup> Yet, in any part of the city and even as a whole, it was dominated by a few raids. The most lethal attacks came in April and May 1941, four caus-

ing almost a quarter of the death toll. The worst, on 10/11 May, killed 1,436 civilians. The most destructive raid, on 29/30 December, 1940, was relatively small but set 1500 fires. Strong winds fanned those within the City of London into uncontrollable mass fires (COLLIER 1957, 272f.). Warehouses full of combustible materials, including millions of books in publishers’ premises, old churches, apartment blocks and other close-packed buildings fed the fires.<sup>6)</sup>

More than 500 civilians were killed in British cities in each of fourteen raiding episodes over one or two nights (HEWITT 1990). They account for a quarter of raid deaths, but only 3% of aircraft dispatched. This is not to comment on the efficiency of the bombing, but the uncertain risks of calamity for civilians on the ground.

German cities suffered at least 117 attacks with civilian casualties equal to or greater than Coventry, and/or greater urban devastation (HEWITT 1993 a; Table 3). They caused over two-thirds (appr. 320,000) of civilian raid deaths, and a still greater proportion of housing destruction and bombed out people (Table 4).

Berlin’s worst fatalities occurred in three consecutive RAF raids between 22nd and 27th November, 1943. They killed 3,758 civilians, bombed out almost half a million, the majority in the first raid (DEMPS 1982; MIDDLEBROOK a. EVERITT 1985). Severe raids were usually calamities in one or two districts. In the ‘disaster raid’ of 23/24 August, 1943 half the casualties, 57% of the bombed out and two-thirds of building damage occurred in Steglitz. While damages

<sup>4)</sup> Coventry City Record Office, Second World War Records, and Commonwealth (formerly Imperial) War Graves Commission (CWGC), “Civilian War Dead, 1939–1945”, Coventry.

<sup>5)</sup> PRO/HO 193/13, 45.

<sup>6)</sup> PRO/HO 191/86; 199/284; 207/45.

Table 4: Comparison of centre city and suburban housing destruction, based on British air photograph data to March 31, 1944 (Several of these cities suffered their most destructive raids after March 1944.)

Vergleich der Zerstörungen in Stadtzentren und Randlagen aufgrund britischer Luftaufnahmen vom 31. 3. 1944 (Einige dieser Städte erlebten die schwersten Luftangriffe nach dem März 1944.)

City	Percent Houses Uninhabitable		Total Number Uninhabitable	
	Central Built-up	Other Suburbs	x10 <sup>3</sup>	(Percent all)
Aachen	54	13	20.0	(42)
Augsburg	52	8	20.0	(39)
Berlin	31	4	359.7	(25)
Bochum	53	9	15.7	(19)
Braunschweig	10	1	3.8	(7)
Köln	58	10	73.5	(32)
Dortmund	41	7	28.7	(20)
Duisburg	15	3	9.9	(9)
Düsseldorf	79	12	53.7	(36)
Essen	30	21	40.2	(24)
Frankfurt a. M.	59	25	68.8	(40)
Hagen	40	7	6.8	(16)
Hamburg	77	19	298.1	(56)
Hannover	66	10	67.1	(48)
Kassel	81	31	32.4	(54)
Krefeld	51	19	15.4	(30)
Leipzig	38	4	62.2	(28)
Mannheim/L.	43	8	38.5	(32)
Mülheim	79	8	c. 15.0	(23)
München	8	2	11.7	(5)
Münster	5	2	1.2	(4)
Nürnberg	12	13	15.1	(13)
Oberhausen	2	15	-	-
Remscheid	98	30	15.8	(51)
Schweinfurt	21	16	2.4	(17)
Stettin	21	9	14.4	(18)
Stuttgart	19	5	14.0	(11)
Wuppertal	70	14	44.1	(36)

Source: Foreign Office and Min. Econ. Warfare, Economic Advisory Branch (December 1944), Economic Survey for Germany, Section C. "Housing", p. 8

occurred in 17 other districts and civilian deaths in 12, this was Steglitz' 'catastrophe'. The most destructive attack came on 3rd February, 1945 by the USAAF (CRAVEN a. CATE 1948-53, Vol. 3). Some attributed 20,000 deaths to it, but the most detailed source gives 2,541 (DEMPS 1982).

The fate of Hamburg illustrates the overriding impact of calamitous fire raids on congested inner districts. Out of 213 recognized attacks on the city, 104 caused civilian casualties.<sup>7)</sup> However, over 90%

<sup>7)</sup> United States Strategic Bombing Survey (USSBS) Archive (A), European Theatre (E), Modern Military Archives, National Archives, Washington, D. C.; 32b Box 73 Table VI (Major raids on Hamburg); USSBS (A) E 64b h 3 "Sample towns . . ." pp. 13-14 (Proportions incendiaries, target designation, raid type; aircraft dispatched).

of these and homes destroyed came in three raids of the July 1943 "catastrophe", and 95% of those in the July 27/28 firestorm. It was the most destructive attack of the war in the European theatre, and determined the overall wartime balance of buildings lost (BRUNSWIG 1987). Yet, three times the weight of bombs would be directed at Hamburg after August 1943 than to that time.<sup>8)</sup>

Almost 90% of buildings destroyed were residential. Moreover, for every single family home damaged, there were 7.5 homes in multi-home buildings. The ratio exceeded 8 to 1 for destroyed homes. A higher fraction of multi-home dwellings exposed to bombing were actually hit - 53% damaged compared to 31% of single family homes. A higher proportion of

<sup>8)</sup> USSBS (A) E 64b h 3 p. 9; 65 k 17 p. 6.

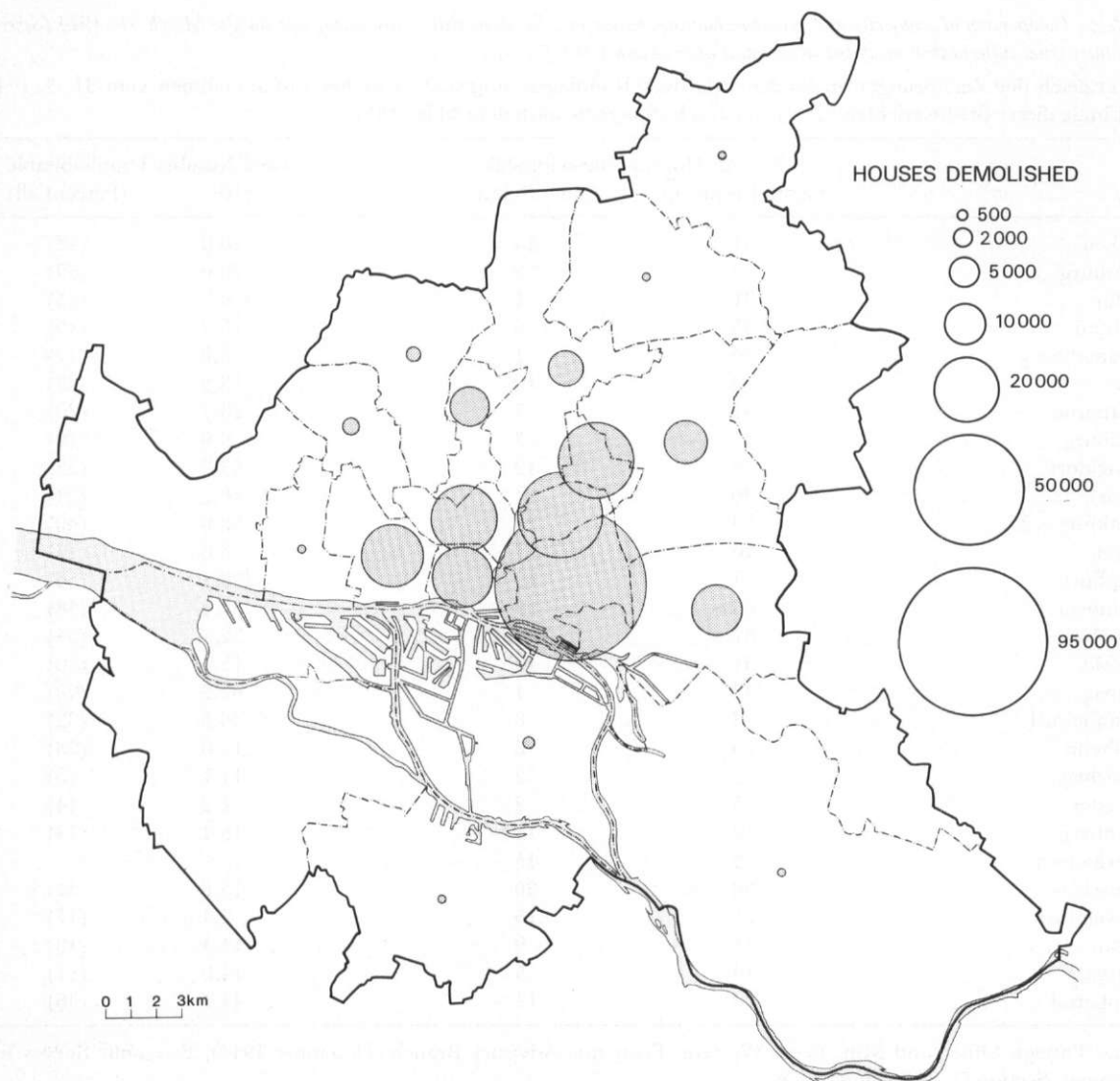


Fig. 4: Housing destroyed in Hamburg by city district between censuses in 1940 and 1945: Most of the losses actually occurred in the July 1943 attacks, especially the fire storm

Source: Hansestadt Hamburg (1951): Hamburg in Zahlen. Statistisches Landesamt 29,6

In Hamburg zwischen 1940 und 1945 zerstörte Häuser nach Stadtteilen. Die meisten Verluste gehen auf die Luftangriffe im Juli 1943 und die anschließenden Flächenbrände zurück

the former were destroyed – 53% of those damaged, compared to 46% of single homes (Hansestadt Hamburg 1951, 6). The enormous impact upon inner city congested districts shows how the firestorm decided the social distribution of harm (Fig. 4). A huge evacuation of inner districts followed, and large parts became abandoned 'dead zones'. Most outer districts grew, as people were billeted in largely untouched housing there. Within two months of the July–August raids, occupancy of remaining housing moved from 0.73 persons per room to 0.97, and to 1.03 by February, 1944 (IKLE 1950).

A similar picture applied in most German cities (HOHN 1991, Maps 13–25). That was clear from British aerial reconnaissance (Table 5). Rarely recognized is how these also showed the overwhelming role of the disaster attacks in the urban geography of devastation (Table 6).

Damage in Japan was much more compressed in time. The great conflagration, set by the March 9/10, 1945 'Big Fire' raid on Tokyo was the most destructive in the history of warfare. It swept through the inner, most congested districts burning out 38 km<sup>2</sup>. Under the smoke lay more than 130,000 civilian dead



Table 5: *Proportions of inner city, compact residential and suburban areas destroyed in selected "disaster raids" on German Cities*  
 Zerstörungsausmaß in Stadtzentren, dicht bebauten Wohnbereichen und Randlagen bei ausgewählten "disaster raids"  
 auf deutsche Städte

City Raid		Inner City (%)	Compact Residential (%)	Suburban (%)
1. Aachen	07/43	44	25	9
2. Aachen	04/44	10	28	5
3. Augsburg	02/44	42	18	6
4. Wuppertal-Barmen	05/43	51	38	7
5. Bonn	10/44	57	15	5
6. Bremen	08/44	24	39	5
7. Bremen	10/44	29	4	2
8. Bremerhaven	09/44	66	16	5
9. Braunschweig	10/44	81	16	4
10. Darmstadt	09/44	82	52	33
11. Dresden	02/45	84	29	6
12. Frankfurt a. M.	03/44	43	33	10
13. Freiburg i. B.	11/44	56	37	5
14. Hamburg	07/43	59	54	15
15. Hannover	10/43	55	35	7
16. Heilbronn	12/44	77	63	31
17. Kassel	10/43	93	45	7
18. Magdeburg	02/45	63	12	5
19. Nürnberg	01/45	20	1	2
20. Stettin	08/44	28	18	2
21. Stuttgart	07/44	36	8	6
22. Ulm	12/44	41	19	3

Source: HO 192/1681 "Assessment of damage to major German cities: Aachen to Ulm" (Public Record Office)

(DANIELS 1975; HEWITT 1987). The great exodus that followed was described earlier. Tokyo and most other Japanese cities were razed by one or a small number of such attacks (Table 7).

#### 4 *Lethal space: the composition of Civilian Casualties*

The disaster raids also determined the distribution of civilian casualties by gender, age and (usually low) social status. They largely caused women to be almost half (49%) of civilian raid deaths in Britain, and with children, almost 56%. Losses by age were highest in proportion to exposure, for persons over 55 years (U.K. Ministry of Health 1947). In detail casualties had ominous features that became paramount in Germany and Japan.<sup>9)</sup> In the County of London, the inner, most heavily bombed part of the capital, 51 per cent of the 17,811 killed were women (Registrar General 1947, 14). Night raids were more lethal for women and children due to heavier casualties in

homes and shelters. In the port towns of Merseyside and Clydeside, at Hull and Belfast nearly all civilian casualties were at home in congested districts. The proportions of women, children and the elderly were exceptional. Home deaths were mainly in row-houses, the most frequently hit buildings (MARWICK 1976, Plates).<sup>10)</sup> In working class areas a disproportionate share of losses were to families suffering multiple deaths. Moreover, they usually involved much higher proportions of women, children and elderly. In 58 households with three or more members killed at Clydebank, in the raid of 13/14 March, 1941 – responsible for 75% of all deaths – almost half were children, and 82 per cent women and children together. The same applied in Belfast, Liverpool, and the East End boroughs of London.<sup>11)</sup> It must also apply to large fire raids on Germany and Japan.

<sup>9)</sup> Central Statistical Office HSWW: Statistical Digest, Tables 37a. 38 (1951).

<sup>10)</sup> PRO/MHS, RED. No. 182 "A Comparison of casualties caused by German bombs of different sizes" (26:10:43) Appendix 1, Table 4, p. 3; PRO/HO 191/60; USSBS (A) E, File 152 (significance of row-housing).

<sup>11)</sup> CWGC, op.cit.

Table 6: Summary of civil losses in twelve of the most destructive raids on Japanese cities

Bevölkerungsverluste bei den zwölf schwersten Luftangriffen auf japanische Städte					
City	Date	Civilians Killed	Bombed Out (approx.)	Urban Area Razed (km <sup>2</sup> )	Buildings Destroyed
Tokyo	9./10. 03. 45	c. 130,000	c. 1 million	38	270,000
Osaka	14. 03. 45	4,000	c. 300,000	21	135,000*
Kobe	17. 03. 45	2,700	242,000	7.5	65,051*
Tokyo - Kawasaki	15. 04. 45	841	> 500,000	24.8	238,732
Nagoya	15. a. 17. 05. 45	3,886	472,000	32	113,460
Tokyo	23. a. 25. 05. 45	3,400	-	14 + 43.5	221,160
Yokohama	29. 05. 45	4,500	-	23	89,073
Osaka	1. 06. 45	3,960**	218,700	8	136,110*
Kobe	5. 06. 45	-	-	17.3	51,400
Osaka	7. 06. 45	-	-	6	55,330
Hiroshima	6. 08. 45	110,000***	144,000	10	62,000
Nagasaki	9. 08. 45	70,000***	143,000	5	14,000

\* "houses"; \*\* "dead or missing"; \*\*\* "bomb-time deaths"

Source: HEWITT 1987; COMMITTEE FOR THE COMPILATION 1981

In most German cities more adult women were killed than men (RUMPF 1962). Almost 14% of resident civilian deaths were under 15 years, and nearly one fifth were over 65 years.<sup>12)</sup> Again, disaster raids were largely responsible, more women dying in most of them, and always more women and children together (Table 7). Hamburg shows the critical role of the great fire raids. Of the 30,482 registered deaths in the July 'catastrophe', 60% were females (BRUNSWIG 1987, 40). More significant still, proportionately more women died in districts with higher overall mortality. In Mitte, 15,900 women died or 70 per thousand, compared to 10,065 or 48.2 per thousand men. In Hammerbrook, the worst hit, 7,571 women died (328 per thousand) and 4,410 men (203.5). 'Ground zero' was Ortsteil No. 123, where almost one in two women died - 435 per thousand, compared to 282 for men (Hansestadt Hamburg 1951). The message was clear - the more lethal an attack, the more it affected the domestic scene, especially women.

Various sources refer to women and children casualties as predominant in Japan (EDOIN 1987). Considering the nature of the attacks, largely fire raids, and late stage of the war, that seems likely.<sup>13)</sup> A landmark study of Hiroshima and Nagasaki shows the profile of A-bomb casualties closely resemble those in fire raids: "... explosion-time injuries were heavier among women than among men ... among men in

the cities, the effects were heaviest in the forty-to-fifty age bracket ... A-bomb deaths (were) high among spouses [= wives] and heirs [= sons], especially in the central bombed area [since] Many people were in their homes or somewhere close by, on the day of the bombing ... [and] ... among children, girls suffered more than boys ..." (Committee for the Compilation ... 1981, 376). Males accounted for 51.9% of 'bomb-time' fatalities at Hiroshima, but 53.7% of identified casualties were women. Death rate was higher for wives than husbands within the inner city, but the reverse in outer zones (Committee for the Compilation ... 1981, 374).

##### 5 "Slum Raids" and 'Low City' Disasters

In all three countries these disasters were often described as 'slum raids'. That applied in London's East End, Southampton, Birmingham, Liverpool, Bootle, Hull and Belfast (HEWITT 1990). Official surveys found greatest losses in "crowded terraces and courts", "mean, narrow streets", "back-to-back" and "congested 19th Century housing", or as "house property of a slum or semi-slum character and shoddily built".<sup>14)</sup>

After the "Thousand Raid" on Köln, a woman there observed: "... it was mostly directed towards the centre and the Altstadt ... Unfortunately, the poorer class of people and children had to suffer

<sup>12)</sup> Wirtschaft und Statistik, 8, H. 10, "Deutsche Bevölkerungsbilanz des II. Weltkrieges (1956).

<sup>13)</sup> USSBS (A) Pacific Theatre (P) File. 12.

<sup>14)</sup> PRO/HO various files on individual cities.

most . . ."<sup>15</sup>) A Japanese journalist drew a similar picture of the March 9/10 raid on Tokyo: "... One night, one of the first raids, 100,000 people were killed when they hit a slum area . . . [and added an equally widespread sentiment that] . . . If the raid had come in a "better" section of town, the victims would have been able to spread more concern . . ."<sup>16</sup>)

War measures increased the presence in cities of people associated with social disadvantage in peacetime (BROWN 1982). There were many more women alone and de facto 'single parent' or woman-headed households; and often, relatively more elderly, youths, children and others needing care. Relatively more people with lower education, unskilled and without wage earnings were in the inner city, and families of ordinary soldiers at the fronts. They were unusually vulnerable to the severe stresses.

In a study of old Tokyo, SEIDENSTICKER draws a distinction "... between what occurred in the city because it was a capital, and what occurred because it was a city . . ." (1983, 207). He explores how 'capital' and 'city' are intertwined, but unequally. A similar distinction may be applied to the bombing. The raids sought to hurt 'the capital' by inflicting pain on 'the city'. They tried to bring about a strategic 'decapitation' of the state at war, but mainly by destroying ordinary city folk and their living space. In Tokyo, the Shitemachi, urban flatlands occupied by the lowliest inhabitants or the 'low city' (ibid), was destroyed ostensibly to influence the 'high city'. But the latter's very survival had come to involve sacrificing the former! Conditions were not greatly different in London nor Berlin. As one analyst says, these attacks "... hit what was physically the most vulnerable but socially the least effective component of the city . . ."<sup>17</sup>) (SHERRY 1987, 286).

Wealthier city dwellers were not always spared. In the 'Baedeker raids' on historic cities of Britain, and the attacks upon old historic towns like Darmstadt, Freiburg im Breisgau and Würzburg later in the war, many better-off persons and officials were severely affected. In the worst raids a terrible 'levelling' occurred socially as well as physically. A middle class woman said after the Darmstadt firestorm: "... this night we have all become beggars and homeless . . ." (SCHMIDT 1964, 86). Deprivation, as always, was relative. Communities of congested neighbourhoods

were the most devastated and dispersed. However, as the war continued or the raiding got worse, civilians of all classes had less and less influence.

## 6 Inner City Disasters

Overarching the many private and family losses was a public calamity. The devastation in inner city areas also involved the most distinctive, historic features of city life, and the majorities who supported them. Retail and commercial activity was focussed there, the finer hospitals, hotels, colleges, theatres, museums, art galleries, religious and civic buildings. There were historic streets, squares and monuments. Each disaster raid destroyed them in great numbers. Many volumes are needed to inventory the unique architecture lost (LA FARGE 1946; HEWITT 1983; BESELER a. GUTSCHOW 1988). A historian of Japan observed: "No one could ever count the books, documents, paintings and other treasures that went up in flames . . ." (IENAGA 1978, 2).

Countless residences were destroyed, associated with important figures in the past development of civil culture; houses, streets and squares made famous in novels, plays and paintings. Imagine how many volumes a 'black' guidebook would have that traced all these lost places. They too, testify to an assault upon civil life, this time its cultural heritage which, if not confined to the inner city, was concentrated there. Another essential requirement of urban living and identity in mass society was assailed here - the 'imagibility' of cities (LYNCH 1960). It resides in distinctive cityscapes, landmarks and special places of congregation for business, ceremony or pleasure. These orient and anchor experience amid the 'jungle' of urban geography and help us find our way around.

People in Köln recollect some degree of comfort, seeing the bulk of the great cathedral stood on, despite the almost total wreckage of the inner city. It spoke of the possibility of survival. So did St Paul's Cathedral, among the gutted buildings of the City of London. Elsewhere, lost or ruinous profiles of important buildings magnified the sense of loss and disorientation. The Japanese writer and survivor of Hiroshima, Ota Yoko recalled coming to the site of Hiroshima Castle "... toppled to earth and utterly flattened . . .", and how: "... Hiroshima, a flat city with no hills, thanks to its white castle . . . became three-dimensional and preserved the flavour of the past. Hiroshima, too, had its history, and it saddened me to march forward over the corpses of the past . . . [and again] . . . Even in normal times, it was scary for me

<sup>15</sup>) USSBS (A) E 64 b f 2. Summaries of responses to Que. 11.

<sup>16</sup>) USSBS (A) P 2 d Doc (1)-(11) Interrogation No. 419 p. 4 (25/10).

<sup>17</sup>) Emphasis added by author.

Table 7: "Disaster" raids on German cities, for which we have fairly reliable data on the demographic distribution of civilian casualties  
 "Disaster raids" auf deutsche Städte, für die einigermaßen verlässliche Daten über die demographische Zusammensetzung der Getöteten vorliegen

City	Raid	Women (%) <sup>a</sup>	Men (%)	Children (%)	All (%) <sup>b</sup>	Total Fatalities
	1942					
Lübeck	28./29. 3.	139 (47.1)	113 (38.3)	43 (14.6)	295 (94.6)	312
	1943					
Berlin	1./2. 3.	207 (45.5)	199 (43.7)	49 (10.8)	455 (70.8)	643 <sup>c</sup>
Wuppertal-Barmen	29./30. 5.	1,554 (57.3)	726 (26.6)	432 (15.9)	2,712	-
Hamburg	July					
	"catastrophe"	20,000 (50.0)	15,884 (38.0)	5,016 (12.0)	40,900 (97.8)	41,800
Remscheid	30./31. 7.	608 (54.3)	465 (41.5)	47 (4.2)	1,120 -	-
Nürnberg	10./11. 8.	249 (44.6)	235 (42.1)	74 (13.3)	558 (95.9)	582
	1943					
Frankfurt a. M.	4./5. 10.	224 (40.1)	191 (34.2)	144 (25.8)	559 (97.4)	574
Leipzig	3./4. 12.	889 (51.6)	587 (34.1)	247 (14.3)	1,723 (98.3)	1,753
	1944					
Frankfurt a. M.	29. 1.	367 (50.5)	277 (38.1)	83 (11.4)	727 (96.4)	754
Leipzig	19./20. 2.	300 (50.3)	199 (33.3)	98 (16.4)	597 (73.1)	817
Frankfurt a. M.	22./23. 3.	493 (53.5)	366 (39.7)	62 (6.7)	921 (97.4)	946
Aachen	11./12. 4.	758 (53.2)	454 (31.9)	212 (14.9)	1,424 (93.4)	1,525 <sup>d</sup>
Karlsruhe	25./26. 7.	438 (49.5)	272 (30.8)	61 (6.9)	771 (87.2)	884
Darmstadt	11./12. 9.	2,742 (41.3)	1,766 (26.6)	2,129 (32.1)	6,637 (78.7)	8,433
Stuttgart	12./13. 9.	568 (59.4)	299 (31.2)	29 (3.0)	896 (93.6)	957
Frankfurt a. M.	25. 9.	232 (52.0)	189 (42.4)	25 (5.6)	446 (89.9)	496
Hamburg	25. 10.	366 (47.0)	271 (34.8)	142 (18.2)	779 -	-
Freiburg i. B.	27./28. 11.	1,650 (60.9)	1,050 (38.7)	[360] (13.3)	2,710 (97.0)	2,710
Karlsruhe	4./5. 12.	164 (50.3)	104 (32.0)	58 (17.8)	326 (90.8)	359
Giessen	6./7. 12.	316 (51.5)	214 (34.9)	84 (13.7)	614 (75.5)	813
Ulm	17./18. 12.	306 (53.8)	142 (25.0)	121 (21.3)	569 (80.5)	707
	1945					
Nürnberg	2./3. 1.	892 (51.7)	643 (37.3)	172 (10.0)	1,726 <sup>f</sup> (94.4)	1,829 <sup>c</sup>
Nürnberg	20./21. 2.	531 (45.5)	563 (48.2)	73 (6.3)	1,167 (84.0)	1,390
Leipzig	27. 2.	349 (44.9)	279 (35.9)	150 (19.3)	778 (91.7)	848
Nürnberg	16./17. 3.	321 (57.1)	205 (36.5)	36 (6.4)	562 (94.1)	597
Kiel	3. 4.	237 (59.7)	160 (40.3)	[124] (31.2)	397 (63.6)	624
Leipzig	6. 4.	233 (41.0)	267 (46.9)	69 (12.1)	569 (77.6)	733

Notes: <sup>a</sup> Percentage of civilian residents; <sup>b</sup> Percentage of total casualties; <sup>c</sup> Totals in sources with demographics different from latest totals; <sup>d</sup> Includes 8 "unidentified"; <sup>e</sup> Includes 19 "unidentified"

Sources: USSBS (Archive); MIDDLEBROOK a. EVERITT 1983; HEWITT 1993a; Various city archives

to cross Hiroshima's long, long bridges. But now the buildings of both banks that seemed to anchor the bridge were gone . . . Those hundreds of temples that were such a grand sight in Teramachi, always visible on the left - they were gone . . ." (MINEAR 1990, 266f).

As with other intimate and shared realities, those of place and geography are often only fully realized when destroyed. After the firestorm at Würzburg, a

survivor wrote: "We persevere here, in search of the city. We find we still carry its [lost] dimensions and form within us . . . This inner portrait is stronger than the bad dream round about and surges from within to cover the ruins with its former life . . ." (DÜNNINGER 1946, 51). Courageous words, but here is 'the destruction of geography' in the most basic sense. No outside world now matches the citizen's internal 'map' (HEWITT 1993b).

### 7 Place Annihilation

The meaning of these experiences is only reinforced by the objective evidence of raid damages. We may summarize the main ones as follows:

- fatalities concentrated largely among *resident civilians*;
- a predominance of casualties among the '*definitive civilians*': women, children, the elderly and infirm, who were not just 'non-combatants' but mainly involved in continuance of, and dependence on civil life;
- attacks on the *domestic foundations* of the city, through physical damage predominantly to homes, while death and injury mainly occurred in homes and shelters;
- the second focus of destruction was upon *civil support systems* and urban community: retail stores, schools, hospitals, places of entertainment and worship;
- destruction of buildings of historic and artistic significance, ancient landmarks, *symbols of identity and continuity of urban culture*;
- enforced *uprooting of resident populations* - directly through the bombed-out and indirectly in the evacuation and separation of families and neighbours;
- indiscriminate destruction of the inner city, reflecting *urban social geography* rather than war functions or political power;
- a *landscape of violence* whose rubble and the dead buried under it, converted the living city into a necropolis.

This profile of destruction is a kind of negative inventory of the *civil ecology* of a city. For a geographer it is summarized in the phrase 'place annihilation' (HEWITT 1983). Civility and its living space are tied to the experience and sharing of place, and differences between places. A place involves a distinctive physical habitat, landscape and a shared social world of its inhabitants (RELPH 1976; GODKIN 1980).

Urban places are the definitive constructs of civilized existence. The urban air attacks, and especially those identified as 'disaster raids', caused a catastrophic unmaking of civil places. Not only was living space physically annihilated. The attack fell mainly on those concerned with the maintenance of domestic and communal life - the *place-makers* of civil society. And with the destruction of the inner city, of buildings and streets dense with meaning and habitation, expired the historic places of old world urbanism. Whatever their war-fighting objectives, whether justified or not, 'place annihilation' defines the major

consequences of the raids. Even before nuclear weapons they spelled an end to the security of civilized, settlement geography. And for the rest of the century, similar technology and strategies went on to assail cities in Korea, Indo-China and the Middle East and countless smaller settlements around the world.

### 8 Concluding Remarks: reconstruction and 'the Peoples' City'

Some observations by Walther Rathenau, early in the century, help reinforce the urban significance of the annihilations described here. He suggested that: "... Only in the old core areas of the cities ... [are] ... reminders of a distinctive physiognomy ... maintained as almost extinct showplaces, while the districts round about, no less in the direction of the residential or recreational areas than the factories, are fully a part of the global emporium ..." (RATHENAU 1912, 22). He referred to the old cores of German cities, which often retained their mediaeval character. It contrasted with the new "structure and mechanics [of] all large cities of the white world." Here "mechanical production" was the preeminent goal, all buildings and functions were to "serve production", obviously in manufacturing or power supplies, but also: "... Partly they serve transportation and commerce, and hence production indirectly. Partly they are for administration, housing and health, but in that way too, predominantly serving production. Partly they serve the sciences, the arts, technology, education, recreation and thus, indirectly, ... once more, production ..." (RATHENAU 1912, 51). The argument applies especially to the enormous impact of urban infrastructure since the late nineteenth century, the 'networked city' that became the focus and defined the goals of urban planning (KONVITZ 1985; TARR a. DUPUY 1988). The airmen picked up on this vision, as showing where to destroy the 'nerve centres' of the enemy (MACISAAC 1986).

Instead, we found the cities contained other, civil concerns, a majority of 'nonessential' persons, consumer and 'hidden' economies, and peoples' spaces. Indeed, they remained more substantial than Rathenau and others seem to recognize, and despite war measures to increase production and remove 'unnecessary' activities and persons. And the inner districts most fully represented that other city, of civilian living space, of historic settlement and urban culture - *the peoples' city*. And that is what succumbed more readily to the new mechanics of destruction. Instead of the *productive city*, described as its main

target, the bombing largely laid waste this 'non-productive' urban space. Indeed, it detached, or allowed Home Front policies to detach, the fate of the majority of resident civilians, their support systems and civil roles, from the productive city and its war-supporting functions (c.f. USSBS 1945b; SPEER 1970, ch. 20a, 24; HEWITT 1993b).

The war's impact upon older, inner districts was further confirmed, even embraced, by the 'new mechanics' of post-war reconstruction. A story of amazing resilience and revitalisation, it was largely carried out in terms of the productive city, much of which had, in any case, survived (KONVITZ 1990). In each country, the devastations to the peoples' city were covered up and paved over, psychologically as well as physically (PORTEOUS 1989). The opportunity was taken to fully incorporate old inner cores into the productive city; to modernize Downtown and its circulation systems. Popular places crowded into the inner city were dovetailed into the dream of the efficient and smooth-running metropolis. Such highly valued buildings and historic localities as could be restored, were incorporated into fashionable marketing areas to attract crowds of tourists and shoppers from the new residential subdivisions. Old working class communities were dispersed into high rise blocks, the vast apartment complexes in the suburbs and 'new towns'. To be sure, people in those places had wanted improvements and a better life. But they, whose places and communities had suffered most, generally had the least say in the reconstructions,

which largely strove to realize the dreams of the prewar generation of urban planners (DURTH a. GUTSCHOW 1988).

In the end, cities must be both productive and people's places. But one of these may dominate and damage, or fail adequately to serve the other, as the productive city has in our century. It is the people's rather than the productive city that warrants JACOBS' observation, that, "Unstudied, unrespected, cities have served as sacrificial victims." (1961, 25) – most obviously, but not only under the bombs. Debate is growing about the way the combined blows of bombing and postwar reconstruction hastened the demise of the historic and convivial city (HAJDU 1979; NIPPER a. NUTZ 1993). Painful as it is, we are unlikely to understand what has happened to the city in this century without recognizing the scope of these assaults upon urban places and bearing witness to the lost places of civility.

#### *Acknowledgements*

Funding for the research was provided by the Social Science and Humanities Research Council, Ottawa and Wilfrid Laurier University's Office of Research. Thanks for assistance with archival work to Ms. MICHELLE DARVILL, and helpful discussions with Dr. JOSEPH NIPPER and his research group at Cologne University. The figures were prepared by Ms. PAM SCHAUS.

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