

## Moaning Minnie and the Doodlebugs: Soundscapes of Air Warfare in Second World War Britain

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Familiar sounds were no longer heard; church bells were silenced; they were only to be as a warning of invasion. Whistles, tube type used by the police as well as the rattling pea type, were to warn of gas attack, while hand bells and football ricketys were only to be used as an indicator of some kind of alarm which escapes me now. Works horns, used to indicate starting, lunch breaks, and stopping times, steam operated like those fitted to ships' funnels, were briefly silenced but were soon brought back into use to maintain production. (Rountree 2004)

### Introduction:

First broadcast in 1968, the BBC television sitcom *Dad's Army* depicted the comic antics of the Walmington-on-Sea Home Guard, and remains an icon of British comedy. As the theme tune fades in the closing credits of the show an air raid siren sounds the 'All Clear', the tone that signaled the end of an air raid or alert period in British towns and cities during the Second World War. For many of those watching *Dad's Army* the sound would have been deeply and possibly painfully familiar, triggering memories of wartime: one man, a child during the war, recalled almost sixty years afterwards "How welcome was Minnie's steady 'all clear' note when the raids were over. Whenever that note sounds at the end of an episode of 'Dad's Army' it still brings a lump to my throat and reminds me of those difficult times" (Beckett 2003). Even in areas where no enemy aircraft ventured and no bombs fell, the air raid siren sounding for drills, real alerts and the all clear formed part of a nationwide soundscape of air war and Civil Defence that left marks in the minds and memories of those who lived through the years 1939-1945 in Britain.

For young people these memories, formed not only by the experience and understanding of war but (to a far greater extent than for adults) by its smells, tastes, sights, sounds and touches, can be extraordinarily powerful, with long-lasting adverse effects and the ability to return unexpectedly in response to an assortment of sensory triggers. As a teenager my grandfather was rescued unharmed from the bombed wreckage of his family home, protected by a steel 'Morrison' shelter, but for the rest of his life he found the smell of plaster dust too much to bear. It is likely that the psychological impact of the Second World War on those who lived through it will endure beyond the centenary of the conflict. This legacy of trauma exists for every episode of violence past and future: at this moment, century-long-lasting psychological damage is being done to young people in conflict zones around the world.

For many of these people the recall of their childhood memories or traumas will be sudden, overwhelming, and triggered by a sense: a loud bang, a smell of smoke. This phenomenon is known as involuntary autobiographical memory, and can manifest on a spectrum from a sudden recollection to a debilitating anxiety attack (Berntsen 1996; Hinton et al. 2006). During the Second World War the famed child-psychoanalyst Anna Freud studied children in Britain and found very high levels of trauma: after the war it was estimated that almost one in five of these 'children of the Blitz' displayed enduring adverse psychological effects (Freud and Burlingham 1943; Werner 2000: 213). My aim in this chapter is to explore the sense-memories of people who lived through the Second World War in Britain as children, focusing on sound-memories of air warfare. Of all the dimensions of the Second World War the war in the air had the widest-ranging direct impact on the population, but for most children it was experienced from the relative safety of an air raid shelter or refuge as a soundscape of sirens, aircraft, bombs and missiles. By exploring memory narratives of wartime childhood collected more than half a century after the conflict ended, I aim to characterize the soundscape of air warfare both as it was experienced and as it was and is remembered. My principal source for this work is the archive of the BBC People's War project, a remarkable crowd-sourced oral history project which ran from 2003 to 2006, collecting more than 47,000 stories through a nationwide network of libraries, community groups and other partners (Noakes 2009). This study of soundscapes of air warfare builds on my earlier work on the material culture, memory and senses of Second World War childhoods including studies of children's gas masks; children as collectors of militaria such as badges, bullets and shrapnel; children's claiming of bombsites as playgrounds; their experiences of air raid shelters and gas warfare training (Moshenska 2008; 2010a; 2010b; 2014; 2015). These studies form parts of a wider historical anthropology of children's material and sensory experiences of modern conflict.

## **Britain at war**

More than six months separate Britain's entry into the Second World War from the first civilian casualty of bombing: James Isbister, killed in an air raid on Orkney that was primarily aimed at the naval base of Scapa Flow. In the early stage of the war both Britain and Germany directed their bombs at maritime, industrial and infrastructure targets rather than civilian populations (O'Brien 1955). From the middle of 1940 the Luftwaffe attempted to smash the Royal Air Force's fighter force, targeting airfields and factories, before shifting focus in early September to the bombing of cities: what became known as the Blitz (Overy 1980). While the majority of these raids were still focused on strategic targets such as docks, factories and warehouses the civilian populations living in the vicinity of these targets were inevitably affected, and the Luftwaffe's bombing accuracy fell as they shifted to night bombing in the face of heavy losses. The Blitz on major cities and strategically significant towns lasted until May 1941, when the German war effort shifted focus onto the invasion of the Soviet Union. Low-intensity aerial

bombing continued throughout the following years, but in early 1944 the Luftwaffe launched a new strategic bombing offensive against British cities, partly in response to the Allies' devastating bomb attacks on German cities such as Hamburg. What became known as the 'Baby Blitz' finished in May 1944: the following month, just one week after Allied forces landed at Normandy, the first V1 cruise missile struck London (Calder 1991). Thousands of these 'Doodlebugs' struck London and the south-east of England for several months until the advancing Allied troops over-ran the launch-ramp sites. By that time the first V2 ballistic missiles had struck London; a campaign that would continue until March 1945. By the war's end tens of thousands of tons of bombs and thousands of missiles had left more than 67,000 people dead and hundreds of thousands injured or made homeless. Roughly ten percent of the casualties were children.

The war in general, and the bombing war in particular, affected British children in a variety of ways. The much-heralded evacuation of children and mothers of infants away from urban areas led to dislocation from families and friends, and placed many at risk of physical or sexual abuse, and general neglect. Conscriptio into the armed forces separated men from their families, sometimes for the duration of the war: many fathers returned to unrecognizable and resentful families (Turner and Rennell 1995). The movement of men into the forces saw a wider range of jobs become available for women, which further affected family dynamics, particularly for middle-class families where the mothers would have hitherto been less likely to have sought employment outside the home. One of the effects of evacuation, conscription and bombing was to disrupt, interrupt or abruptly end many children's education. These decays in the normal social fabrics of childhood alarmed authorities who feared an upsurge in juvenile delinquency and general criminality (O'Brien 1955). Police and courts cracked down harder on what was perceived to be a threat to social harmony, while Civil Defence training for children whether in the form of air raid drills or gas mask training were aimed at instilling a quasi-military discipline in children's minds and bodies (Moshenska 2010b). The most direct impacts of the war on children came in the forms of injury, trauma, and death.

The children of Britain responded to these hazards, changes, new freedoms and new restrictions in a variety of different ways. Some exploited the lack of parental or pedagogical supervision to explore the dangerous new landscapes of bombed buildings, military installations and Civil Defence sites, turning ruins into playgrounds. Some integrated the suddenly abundant militaria into their worlds of trade and exchange, mixing shrapnel and military badges in with cigarette cards and comics. Some subverted the most immediate symbols of the war, using gas masks as fart-noise-makers and gas mask cases as footballs or weapons. Some did, as feared, turn to petty crime: air raid shelter vandalism became a nationwide problem, while some enterprising young people stole weapons and ammunition from the military or Home Guard, with a few employing them in armed robberies. But by far the most common

response to the war was a rapid and at least superficially easy adaptation to new environments, amongst them the soundscapes of air warfare.

### **Soundscapes and stories**

Soundscape is a concept developed by the Canadian composer R. Murray Schafer as part of an ambitious research project into sonic environments around the world. Schafer distinguished *soundfields*, the areas within which specific sounds could be heard but defined by their creation, from *soundscapes*, the overlapping soundfields that make up an individual's sonic environment (Schafer 1993). Soundscape is defined in terms of the hearer, as explained by geographer Paul Rodaway:

The 'soundscape' is the sonic environment which surrounds the sentient. Soundscape is shorthand for 'anthropocentric sonic environment' ... The hearer, or listener, is at the centre of the soundscape. It is a context, it surrounds and it generally consists of many sounds coming from different directions and of differing characteristics. It is the sonic equivalent of landscape. (Rodaway 2002)

To examine children's responses to the soundscapes of war I have extracted narratives of wartime childhood from the digital archive of the BBC People's War project. This project was established by the BBC with the aim of creating a learning resource for the future study of the Second World War, particularly by school students. The project planners recognized that:

As the survivors of the wars of the last century get ever fewer, there is a great need for their children and grandchildren to find out what they did, where they served, and what really happened to them ... The official records for the Second World War contain only some of the answers and most of them are unavailable to the general public (BBC 2015)

The archive is based on user-generated content uploaded onto the website, and the project encouraged people to add their own stories or to assist friends and relatives in doing so. Trained volunteers in museums, libraries, community centres and elsewhere helped to record or transcribe stories onto the site: a total of more than 47,000 by the project's end in 2006 (Noakes 2009). Of these, some 6,500 relate to 'Bombing and the Blitz', and more than 14,000 – by far the highest number of any category – relate to 'Childhood and Evacuation'. To gather stories for a historical anthropology of the soundscapes of wartime childhood I used sound-related keyword searches to identify narratives with relevant themes, and these were roughly categorized and coded. The following discussion is structured around some of the main recurring themes that emerged during my analysis and sorting of the stories.

### **Soundscapes of air warfare**

What does air warfare sound like? It depends where you stand: all soundscapes are specific to a place, a time, and a person. The rural and urban experiences would most likely differ significantly, and the Civil Defence teams fighting fires and digging casualties out of the rubble would have a more immediate experience of the sounds than those more safely ensconced in air raid shelters. The children of Second World War Britain were mostly amongst this latter group: whether from a garden shelter or an Underground station platform, the real action was out of sight: the air war was experienced as soundscapes.

### **'Moaning Minnie' the air raid siren**

I well remember the first air raid siren sounding. I was scared out of my wits. That awful wailing sound up and down, up and down, in tone. (Elliott 2003)

On the first day of the Second World War a French aircraft was mistaken for a German raider, triggering the first air raid warning of the war. For many people this first experience of taking shelter in fear, which came soon after the outbreak of war was announced on the radio, suggested that catastrophic bombing and invasion were imminent: "It seemed almost immediately afterwards that the first air raid warning siren sounded - a sound I shall never again hear without a small shiver." (Hassall 2005). Another recalled of the day, "That evening, the sirens went and I remember being terrified. I thought an army of German soldiers would walk up the lane where I lived and kill us. We soon got used to hearing the sirens" (Allison 2005). In most places the sirens were mechanical or electrical; in some places hand-bells or whistles were used (Figure 1). A reminiscence of wartime Durham recalls a different and more familiar 'soundscape' of air raid warnings:

Soon we heard the wail of the cathedral siren, no doubt at first to test the efficiency of the siren and also to make the public aware of the sound and the action to be taken. We all learned very quickly of a 'warning' and a 'clear' sound of the sirens. We needn't have worried too much about the cathedral siren because at each air raid the pit buzzers would sound all around the city and in those days we were surrounded by pits. (Clark 2003)

In some places workplace buzzers and klaxons were restricted in their normal usage, but this was often over-ruled in the interests of workplace efficiency and productivity. Where sirens were used, they had two settings: to warn of an imminent raid it sounded a rising and falling wailing sound; to mark the 'all-clear' a single tone was sounded. The sirens were also frequently tested.

Our local Air Raid Siren was put on a very tall post beside the railway bridge at the Wormwood Scrubs end of Old Oak Common Lane. A policeman operated this

... When it was tested it produced a loud blood-curdling sound that couldn't be ignored. Starting as a low moan it rose to a high screaming wail, then dropped down to a moan, then back up to a wail, doing this several times before finally fading away leaving a loud silence. It was quickly named: "Moaning Minnie". All the grown-ups told us that if we ever heard that sound we must run home as fast as we could. Lucky I got those new plimsolls for my fourth birthday! (Brooks 2005)

Another woman recalls, similarly, that "My earliest memories were of coming out of the infant school by the park in Manor Road and the siren started to warn of an air raid. I felt very frightened and ran home" (Whitnell 2005). Aside from running home, the proper response to the siren was to take refuge in the nearest available air raid shelter where, as one testimony recalls, "the waiting would begin" (Palmer 2004). Fairly early in the bombing war the Luftwaffe shifted their main efforts to night raids, partly in response to significant losses. Most air raid shelters were designed to be used for a few hours at a time rather than overnight, with benches rather than bunks (O'Brien 1955). While some families began to pre-emptively sleep in shelters, whether at home, in the underground, or in sites such as Chislehurst Caves in Kent, others maintained some semblance of normal domestic life, taking refuge in the shelter only when necessary, and suffering broken sleep as a result: "I remember the many times, usually at night, when we would wake to the wail of the air raid siren and sleepily make our way to the Anderson shelter erected in the garden for safety." (Francis 2005).

Like the *Dad's Army* example discussed earlier, the most striking thing in the People's War accounts of air raid sirens is the extent to which the fear that they instilled has endured: "sixty odd years later, my son was amused to see me react to music playing in his car which included the sound of an air raid warning siren, he said that I immediately began looking up into the sky, covering all angles to check for approaching danger!" (Warren 2003). The degree to which the siren could act as a trigger for powerful involuntary memories can be seen in the significant number of accounts that describe physiological responses to the sound:

Living in London during the Blitz was an experience printed indelibly on my mind. Even now, when I hear the wail of a siren in a play or documentary on television, I experience a certain amount of that feeling of dread in the pit of my stomach. (Hall 2003)

At least the red and grey air-raid siren on a pole just round the corner was audible for miles! Its rising-falling howl for an air raid, and steady wail of "all clear" is unforgettable and still prickles the hairs on the back of my neck. We seemed to have heard it most nights at one time (Etherington 2004)

First there was the air raid siren (and even to this day the sound of this on radio or television will send shudders up my spine) (Farrell 2004)

I still feel funny and my stomach turns over at the sound of a siren. (Whitnell 2005)

The sound of the siren was enough to send shivers of fear through you and even after sixty years I still shudder when I hear that sound (Polley 2003)

Like the sound of a siren and the goose bumps that immediately appear over my body, even now, whenever I hear it (Smith 2004)

After the war, when the siren started to sound because there was a fire, I use to grab my clothes and run to the air-raid shelter. It's stuck in my mind. (Buttress 2005)

Air raid sirens are not infrequently used (as mentioned above) in radio and television programmes to give a 1940s 'feel' or colour to a drama or documentary. Similarly, there is a growing practice of using the siren as part of memorial events for victims of the Blitz. Given the frequency and power of the negative responses described above, and similar stories that I have heard in conversation with family, friends and colleagues, I would argue that its use should be more carefully restricted.

### **Aero engines**

I remember that I could identify a 'plane by the sound of its engines - spitfires, bombers, friend or foe, and dived for cover if it was foe. (Cochrane 2003)

Supercharged V12 aero engines developing upwards of one thousand horsepower are loud; large formations of single- and multi-engined aircraft are even louder. Before the invention of radar several nations experimented with and even operated large-scale listening devices, dishes or tubes made of metal or concrete, to search for the sounds of distantly approaching aircraft and provide early warning of attacks. The identification of aircraft as friend or foe was an important part of training for anti-aircraft gun, balloon and searchlight crews, the Royal Observer Corps and others. It was also popular amongst children, many of whom collected cigarette cards or read posters and pamphlets that aimed to teach the different types of aircraft. Actually spotting an enemy aircraft was a bit more difficult: in theory at least any Luftwaffe presence over any part of Britain should have triggered an air raid warning, and children along with most adults would be expected to take shelter, not to stand and stare, and this rule was generally but by no means universally followed (O'Brien 1955). From the relative safety of the air raid shelter the only means of identifying aircraft was by their engine noise.

The following stories give good overviews of the soundscapes of air raids from within the shelters:

The air raid siren sounded and the class filed out to our shelter. It was like a large Anderson shelter in the playground. (There was one for each class.) After a while we heard a plane. We knew that it was German from the sound which was distinctive and very different to the sound of English planes. In quick succession we heard the whistles of bombs falling and then exploding. Three were to my left and then one was to my right. The sound of the plane faded into the distance, then the “All clear” sounded and we went back to our lessons. (Robins 2003)

The Air Raid Warning would sound, the wailing siren rising and falling in a way that chilled the blood, we would go down to our shelter, and the waiting would begin. Soon came upon our ears the sound that we learned to dread, the characteristic throbbing of aircraft engines as the Enemy bombers approached, then the sound of our own anti-aircraft guns and, almost immediately, the thump, thump of exploding bombs (Palmer 2004)

In these and other descriptions the German aircraft engines are described as “a noisier deeper sound” or “a deep monotonous hum with a drop in pitch every second or so” (Cleave 2006; Vaudin 2003). One recalls that “to this day I can vividly remember the sound of the very distinct undulating pitch of the engines of the German bombers” (Collier 2005). Only one of the stories that I studied noted the main reason for this difference in tone, noting that he “had learned to identify British fighters, bombers and gliders, and the difference in sound between synchronised British engines and the pulsating, unsynchronised German engines” (Stevens 2003). In fact, the British Spitfire and Hurricane fighter aircraft had only one engine so there was nothing to synchronise. In contrast the Junkers, Dorniers and Heinkels that made up the majority of the German bomber force, along with the heavier Messerschmitt 110 fighter, were twin-engined (Bridgman 1989). If the two engines of these aircraft were not carefully tuned to matching pitches the resulting vibrations could create resonance in the airframes, causing discomfort and annoyance to the crews. These vibrations were the throbbing or undulating sounds that could be heard from the ground, making the bombers distinctive and, to many ears, more threatening:

I was supposed to go next door if the siren sounded but I never did. I would sit in the kitchen, which was in the centre of the house, and wait until I could hear the sound of the bombers approaching. It was very scary. I could hear the noise of their engines getting nearer and nearer and, after a while, I could tell by the sound whether the planes were ours or the enemy’s. Somehow the German planes seemed to have a much harsher sound than the British ones. (Hall 2003)

The bomber engines, while not as inherently terrifying as the air raid sirens, have also left behind powerful memories in people's minds. One man recalled that "A few months ago, I fell asleep while the film 'Dambusters' came on the television. I woke with my heart fluttering and a strange feeling in my chest I could not explain. I then realised that the sound of the Lancaster engines had revived that old feeling" (Anon. 2003). Another stated that "Even to this day though and I am now 75, when I hear an aeroplane going over it still seems a threat in my mind" (McRickus 2005).

## **Guns and bombs**

During air raids I would sometimes be joined under the shelter top by my grandmother. The anti-aircraft guns, which were situated in Gunnersbury Park, about a mile away, would make a fearful noise and I can clearly see my Grandma as she jumped in fright at every salvo. We would wait with bated breath as we heard the all too familiar whistling sound of falling bombs, followed by the inevitable explosion, which came as a relief as we selfishly gave thanks for someone else's tragedy. (Chudley 2003)

The definitive component of the soundscape of air warfare is undoubtedly explosions, whether of falling bombs or rising anti-aircraft artillery. The Luftwaffe employed a range of high explosive bombs ranging in size from 2kg cluster bombs to the most common 50kg and 250kg, and the rarer 1000kg aerial mines and 1800kg 'Satan' bombs (Jappy 2001). Several people recall the 'whistle' made by a falling bomb, which grew louder as it approached, and one noted that "Most of the noise was caused by a combination of the unsynchronised bomber engines, whistling and exploding bombs. The whistling was unnerving, although rumour had it that you never heard the one that hit you!" (Hassall 2005). One of the stranger accounts of the bombing of London recalls the burning of a factory full of oil drums, with the heating causing the drums to expand to bursting point, producing a series of extraordinarily loud bangs over several hours (Polley 2003). The stress of listening to the whistles of falling bombs grow closer must have been considerable, as attested in one recollection: "I can remember the bombs dropping and that's probably why I can't sleep well now because I can hear every little noise." (Jackson 2005).

In contrast to the fear of the bombs, accounts of the loud banging of anti-aircraft artillery describe the sound as 'comforting', and one compares it to "large timbers 'clonking' against each other" (Etherington 2004): certainly there was an improvement in morale from knowing that somebody was 'hitting back'.

One night in particular was different when a new explosive sound punctuated the crash of the bombs and the banging of the anti-aircraft guns sited in the recreation ground just up the road. An almighty barrage of a different nature made us wonder what was happening. The next day we learned that HMS

*Cossack* had been moored in the docks and had contributed its gunfire to the assault on the enemy bombers. This was a tremendous morale booster to everyone. (Johns 2004)

One recalled that “Initially, there was no defence when the planes came over, and we felt very helpless. But eventually, anti-aircraft guns were put in place all around London” (Hall 2003), while another takes a more sceptical view: “I think we were in almost as much danger from the shrapnel, which resulted from the gunfire, as we were from the bombs! No doubt the guns had some deterrent effect on the German planes but they didn’t seem to hit much” (Polley 2003). It is the case that anti-aircraft artillery was primarily aimed at deterring bombers from specific areas and forcing them to fly higher and therefore bomb less accurately: it was relatively rare for a German aircraft to be destroyed solely by the 3.7 inch calibre anti-aircraft guns that made up the bulk of Britain’s anti-aircraft artillery in this period (Dobinson 2001) (Figure 2). Of all the components of the soundscape of air warfare it was gunnery and bombing, particularly in places that were bombed night after night for weeks or months at a time, that had the most corrosive effect on mental wellbeing:

The racket of the anti-aircraft guns would be followed by an eerie echo around the night sky. Interspersed with this noise would be the occasional screaming whine of a descending bomb followed by its inevitable thundering explosion. You lived all the time in a state of tenseness, listening for the next sound. I don’t know how we all got up and went about our business the next day, but we did. (Hall 2003)

In response, some people mention being given earplugs to wear, and one recalled that “Dad had put a gramophone on the table in the shelter and played records to try to take the sound of both the planes and bombs falling away” (Turner 2003).

## **V1 missiles**

The Germans then began a further blitzkrieg with thousands of unmanned flying-bombs — the Doodlebugs or V1s, followed later by the devastating V2 rockets. The sound of the throbbing engines of the flying-bombs cutting out followed by a terrifying thud and shudder, still echo in my head. (Murch 2004)

In the last year of the war the German military unleashed its ‘Vergeltungswaffe’ or revenge weapons: the V1 and V2 missiles. The V1 was a cruise missile, a pilotless aircraft powered by a pulse-jet engine, and carrying a warhead of almost a ton (Figure 3). The V1s were launched from static ramps on the north coast of France, although later some were launched from specially adapted aircraft. With a basic autopilot based on a gyroscope, the V1 could fly a predetermined distance in a straight line. After a set distance the noisy, rattling, fire-belching ramjet engine would stop, and the controls

would be set to a dive. The V1 would crash into the ground and explode (Ogley 1992). As contributions to the soundscape of the air war V1s were formidable: their engines were loud and distinctive, one story compares them to “an old motorbike struggling to climb uphill” (Wright 2005), but it was the silence between the engine cutting out and the warhead’s detonation that became distinctive and is most widely remembered today:

Buzz bombs had no "rules" like aircraft. You did not feel like pointing your wooden Tommy gun at them; keeping your head down and praying that it would continue its flight past you was all that mattered. The dreadful moments when the sound stopped, the rocket tilted downward and the light at the end went out and the explosion followed were terrifying and never to be forgotten. (Brushwood 2004)

I remember the sound of the Doodlebugs. It was very chilling when they fell silent and you knew there was about to be an explosion. (Avard 2005)

The deadly drone of a doodlebug - will it pass over? Will the engine stop? “Please God, don’t let the engine stop!” (Smith 2004)

The cutout of the engine served as a very short warning to take cover: “we were taught to get into the nearest ditch or behind any substantial wall, if out in the open lay down flat supporting your weight on your hands and toes, as if in a ‘press up position’” (Collier 2005). The response to the V1 threat included redeploying a large number of anti-aircraft guns in the south of England, and the use of fast pursuit aircraft such as the Hawker Tempest and the first operational British jet fighter, the Gloster Meteor (Ogley 1992). Over a few months as the defences improved the number of V1s reaching targets in greater London fell significantly, but in total around 9,500 were launched at England in the course of the campaign with some 2,400 hitting London causing more than 6,000 civilian deaths (Dobinson 2001).

## **Discussion**

The soundscape of air warfare in Second World War Britain was dramatic, dynamic and damaging. From the air raid sirens at the outbreak of the conflict to the missile strikes in its dying days, the history of the war could be traced in sounds, some of which have achieved legendary status within the popular perception and representations of its history. The wailing air raid siren and the buzzing V1 are well-known enough to be literary tropes and television clichés: the ‘myth of the Blitz’ is so firmly embedded in British popular culture through film and other media that the soundscapes of the air war feel familiar even to many who did not experience them first-hand (Calder 1992).

The soundscape as defined by R. Murray Schafer is an individualized, experiential concept: two people in the same place at the same time might have similar but still distinctive sonic experiences, each the centre of their own soundscape. The sounds of air warfare in Second World War Britain contained many common elements that make connections possible over time and space: the cycle of warning siren/aircraft/anti-aircraft guns/bombs/all-clear siren made up the common pattern of air raids for most of the war, while the V1s added their own signature at a later stage. From within the relative safety of the air raid shelter people added their own elements to the soundscape: radios, gramophones and songs to drown out the sounds of war or earplugs to muffle the sounds. Other sounds that are mentioned in the stories collected include the rattle of shrapnel from anti-aircraft shells falling on roofs and pavements; the rumble of heavy-rescue vehicles and fire engines; the thud of bullets fired by low-flying aircraft at ground targets; often experienced from the unusual acoustic environment of a metal or concrete box buried in the ground.

From the stories collected and extracted above it is clear that the soundscapes of war left indelible marks on the children of Second World War Britain, to the extent that sounds such as air raid sirens can still trigger flashbacks, feelings of nausea, goosebumps and other symptoms. The psychological impacts of prolonged exposure to bombardment are reasonably well-known but it is eye-opening to see them described in honest and painful terms by so many people. The endurance of this trauma across entire lifetimes and its impact on future generations should be a factor in any discussions of present and future conflict, and for the care of those who have escaped from or endured those conditions. As I write, small children are arriving by boat in the south of Europe, fleeing a conflict in Syria that has seen the large-scale use of aerial bombing against civilian populations. Alongside asylum and the necessities of survival they will need psychological support for what for many will be a lifelong trauma, easily triggered by the sounds of aircraft and explosions.

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## **Images**

Figure 1: Second World War air raid siren in Lowestoft War Memorial Museum.  
(Source: Robert Jarvis, Wikimedia Commons).

Figure 2: 3.7 inch anti-aircraft gun at Nothe Fort, Weymouth. (Source: Jim Linwood, Wikimedia Commons).

Figure 3: V1 missile in the museum at Peenemünde. (Source: Petr Brož, Wikimedia Commons).