Yaron Jean

Muted Spectacles: Wartime Sounds, Aerial Warfare, and the Limits of the Visual

The evolution of modern warfare technology and its sensual array frequently rely on two core elements: the level of progress achieved in a given country and the prevalent notion of the future war.[1] The war that broke out in Europe in summer 1914 combined these elements in a horrible fashion. Most of the warring countries had not foreseen any future war in terms of a global conflict. Consequently, in early twentieth century Europe, concepts of military technology were rather limited in comparison to other developments at the time in areas such as commerce and civil engineering. Strategists viewed modern technology in terms of a one-dimensional battlefield; its major purpose was to facilitate a limited engagement consisting of a series of swift, knockout victories. Imperial Germany, for instance, derived most of its pre-World War I combat experience from the Napoleonic wars and the German wars of liberation. Ironically, at least from the standpoint of its military equipment, the German army of 1914 strongly resembled the one of the 1860s. Breech loading firearms, bayonets, horses, and frontal engagement still dominated the mind-set of the early twentieth-century military.[2]

It is an open secret, however, that many of the warfare technologies that were used in World War I had seen some action outside Europe during the last third of the nineteenth century.[3] The ironclad ships and the dreadnoughts were products of the Crimean War. The utilization of submarines, torpedo boats, mines and machine guns traces back to the American Civil War and the Russo-Japanese War.[4] The Aeroplane flew first in 1903 in the United States and Zeppelins became a German symbol of power over the continent from the late nineteenth century.[5] Despite this fact, they were not mass produced. Advanced military technology was still considered a prerequisite for supporting the traditional maxima. In short, the cavalry should light the way and the infantry was supposed to win the way.[6]

The outbreak of hostilities in Europe in August 1914 created a gap between the actual combat situation and the way it was experienced. Those who were mobilized

1 An early draft of this essay was presented at the conference "The Disasters of Violence, War and Extremism," held by the Frankfurt Humanities Research Centre at Goethe University, Frankfurt am Main, 2–5 July 2015.

2 Archer Jones, *The Art of War in the Western World*, 388.

3 Ironically, a similar situation prevailed on the eve of World War II. See: Gerhard L. Weinberg, *A World at Arms: A Global History of World War II*, 536.

4 John Keegan, *A History of Warfare*, 317ff.

5 Guillaume de Syon, *Zeppelin!*: *Germany and the Airship*, *1900–1939*, 40.

6 Frédérick Guelton, "Technology and Armament," in *The Cambridge History of the First World War*, 260.

https://doi.org/10.2478/978-3-11-062375-8-014

experienced the early war situation with a mixture of dread and fascination. For them the image of the modern battlefield nestled somewhere between the actual war situation, the grand strategy of yesterday and the excitement caused by the large-scale employment of massive firepower. Equally important was the way this combat experience was further transferred and mediated at home through national, public, and private memories. In fact, as recent studies have shown, this early battle experience (*Fronterlebnis*) fueled much of the conservative heartland of right-wing authors and their attitude toward the interwar concept of danger.[7]

In considering World War I in terms of a mass borderline experience, it is rewarding to examine certain issues. These include the impact of sounds induced by warfare technology on the sensual array of modern warfare and the effect of wartime sounds on the logistics of wartime hearing. As we all know, violent engagement always produces sound. Even before the introduction of gunpowder, sounds were an integral part of warfare: battle cries, war drums, hunting horns, neighing horses, and the rattle of swords dominated the sonic experience of the battlefield. World War I, however, was much louder than earlier conflicts. The thunder of explosions and the large-scale employment of long-range saturation weapons transformed the battleground of the Great War into a gigantic sonic event. Both the volume and the quality of the sonic environment shifted. Not surprisingly, therefore, between 1914 and 1915, medical doctors reported a leap of more than a hundred percent in cases of deafness caused by explosions at the front.[8]

The predominance of firepower over large areas and the dispersed nature of distance weapons during the Great War undermined the traditional spatial concept of the front and its sounds as a war theater.[9] Instead of the classic staging of opposing armies, in the age of modern technological warfare, the front turned into a total skirmish of fire, light, sound, noise, smell, and smoke. Mass destruction induced by modern weaponry abolished the traditional spatial division between combatants and non-combatants. For the soldiers, it intensified the sensory experience to a new level. In fact, modern warfare created new forms of acoustic ecology based on specific sensations, reflexes, and habits on both sides of the front. The loud sounds of the modern battlefield created new modes of sonic perception according to which the soldier developed a bipolar mode of hearing that enabled him to distinguish between

7 Julia Encke, *Augenblicke der Gefahr: Der Krieg und die Sinne. 1914–1934*, 16.

8 H. Bourgeois and M. Spurdille, *War Otitis and War Deafness: Diagnosis, Treatment and Medical Reports*, 86.

9 The term Theater of War (Kriegstheater, Kriegsschuplatz) perhaps originated in the Seven Years War (1756–63) but the Prussian military theorist Carl von Clausewitz (1780–1831) actually coined the term. According to Clausewitz, the Theater of War is a defined space over which war occurs independently and has its own boundaries that distinguish it from the rest of the front. This kind of a war within a war can be achieved, for instance, by limiting the front to certain kinds of weapons or geographies, for instance, siege warfare or land warfare versus aerial warfare. For the original term, see Carl von Clausewitz, *Vom Kriege*, part 2, book 5, 244ff.

sounds of safety versus sounds of danger. Consequently, by attempting to decipher the soundscape of the front, the soldier's ear turned into a weapon, and hearing became a significant means of survival.

In other works, I have elaborated the far-reaching impact that modern technology had on the 'sonic mindedness' of the foot soldiers in the trenches of World War I.[10] In this essay, however, I would like to examine another aspect of the sonic intensification created by modern warfare–namely, the way modern weaponry set a boundary between visual and sonic fronts. I shall base my contention on the ability of aerial warfare in World War I to implement a new art of remote killing. I shall show the extent to which the vertical dimension of aerial warfare divorced sight from sound and, consequently, undermined the reality of the battle. From the pilot's viewpoint, the act of killing was dissipated in the no-man's land stretched between the sonic and the visual. To be more precise, I would like to examine the ways in which the inability of the pilot to maintain sonic relations with his target was mediated into a form of a visual destruction that found its way to an actual killing on the ground.

***

The creation of the military airplane, similar to other wartime innovations, derived from coincidental circumstances related to the dual use of technology for military and civil purposes. On the eve of the war, airplanes served merely as flying observation posts.[11] The immediate need to protect friendly airplanes from hostile fire, however, impelled the belligerents to arm their flying machines, but issues of weight and stability precluded the mounting of land weapons. Light airborne weapons entered service only during the late stages of the war. In addition, because of the airplane's three-dimensional manoeuvrability, the pilot encountered great difficulty in locking his vision on a fixed target. In contrast to the foot soldier, who used his weapon on solid ground, the pilot had nothing beneath him but endless skies. Consequently, early aerial gunnery and bombing raids suffered from poor results and required extraordinary skills. To compensate, pilots began to carry pistols to defend their airplanes. In some exotic instances, they even used to eject stones and sharp metal objects over enemy posts.[12]

10 Yaron Jean, *Noises of Modernity: Hearing Experiences in Germany, 1914–1945* (Hebrew); "The Soundmindedness of the Great War: Viewing History through Auditory Lenses," in *Germany in the Loud Twentieth Century. An Introduction*; "Silenced Power: Warfare Technology and the Changing Role of Sounds in Twentieth-Century Europe," *Studies in Contemporary History* 8 (2011).

11 Lee Kennett, *The First Air War, 1914–1918*, 23.

12 Nick Enoch, "Let's Not play Darts! The Tiny Skull-Piercing Arrow Bombs Dropped by WWI Biplanes onto German Trenches, which Disgusted British Pilots as they were 'Ungentlemanly,'" *Daily Mail Online*, 19 June 2014. www.dailymail.co.uk/news/article-s662730/WWI-darts-dropped-biplanes-German-trenches-disgusted-British-aviators-ungentelmanly.html.

The introduction of the synchronous machine gun in early 1915 transformed the situation beyond recognition. A chain wheel mechanism invented by a Dutch engineer named Anthony Fokker enabled pilots to use a forward firing machine gun without the risk of damaging the propeller. The idea was simple but effective. A rotating cog blocked the fire each time the propeller blades crossed the line of fire.[13] In practice, the so-called "Fokker interrupter gear" revolutionized the concept of aerial warfare. For the first time, the pilot could coordinate his vision and his firepower, which enabled him to attack ground targets in the course of his flight. In terms of the history of the senses in wartime, the synchronous machine gun signified the beginning of a deadly connection between the pilot's eyesight and his prey. Moreover, the pilot's scopic vision afforded him an endless number – both spatially and temporally – of potential enemy targets on the ground that could at any given moment result in actual killing. The unlimited arsenal of possible targets along with the inability of the airplane to conquer territory made the airborne vehicle an ideal weapon for conducting what later became known in the continental legal tradition as a war of extermination (*Vernichtungskrieg*).[14]

The concept of a "view to a kill" was, however, just one part of the equation. The other part relates to the role played by sound and its impact on the aviator's fighting experience. This discussion entails a deeper understanding of the role of sound in setting the boundaries between aerial and ground warfare.

The experience of sound could be regarded as the nucleus of any sonic event. Without the ability to hear, we lose much of the ability to experience. In the words of Hans Georg Lichtenberg from the late eighteenth century, the vibration of sound becomes a cultural phenomenon as soon as it encounters a human ear.[15] Hearing represents the codification process that turns unorganized acoustic stimulation into a meaningful message that can be interweaved within a broader context of time and place. Within the sensory intensification of the battlefront, sound, in many instances, afforded the only way of distinguishing between friend and foe. Battle sounds, therefore, served as a demarcation line between feelings of safety and danger. Moreover, and to some extent even paradoxically, wartime sonic epistemology counters the traditional association of sonic experience with modernity. As we know, the Italian Futurists were among the first to attune the public ear to the close relationship between war, technology, and sound. The Futurist manifesto "The Art of Noise" (L'arte dei rumori) authored by Luigi Russolo in March 1913, praised the

13 Anthony Fokker and Bruce Gould, *The Flying Dutchman: The Life of Anthony Fokker*, 189.

14 For the legal implications of the concept of a "war of extermination" (*Vernichtungskrieg*) and the way it was employed against Imperial Germany during World War I, see Carl Schmitt, *Der Nomos der Erde im Völkerrecht des Jus Publicum Europaeum*, 236.

15 Georg Christoph Lichtenberg, *Vermischte Schriften*, 4: 1082.

auditory techno-sensation created by modern technology as a distinctive category of "noise-sounds."[16]

Russolo was not alone, however, in this early cultural experiment. Filippo Tommaso Marinetti, the founding father of the Futurist movement in Italy, adopted a more direct approach to wartime sounds. Based on his sonic experience as a war correspondent in the Italo-Turkish war of 1911–12, Marinetti perceived the sounds of war as an atavistic force of cultural liberation. Nonetheless, the Futurist movement and later forms of artistic installations of wartime sounds viewed the battle soundscape primarily as a force of creation coming from the soundless. In endowing the senseless with sense, those who found the wartime soundscape a source of inspiration for their artistic creation implicitly challenged the bourgeois aesthetics of the industrial age by using the disorganized wartime sounds as a literary and musical force.[17]

In fact, this standpoint detached the representation of sound from the actual wartime sonic experience of hundreds of thousands of soldiers and civilians at the time. Moreover, by assigning the cultural role of noise as the villain of sonic epistemology, it established its later role in modernity as a cultural weapon.[18] Pursuing this line of thought leads to the observation that such a point of departure not only established the consolidated negative role of noise in the western sonic culture, but also it perpetuates its negative legacy as the "outsider" of modernity until the present.[19]

Combatant soldiers at the front, it seems, regarded the artistic discourse concerning the cultural role of wartime soundscape as far-fetched or irrelevant. Lacking any motivation to explore the artistic articulations of wartime soundscape, the frontline soldier approached the sonic diversity of the modern battlefield primarily from a practical viewpoint based on the immediate need correctly to decode the meaning of battle sounds in order to insure survival. In other words, the attempt to outline the sonic phenomenology of the battlefield as a means of survival overshadowed any other contemporaneous or retrospective cultural explanations of wartime sonic experiences. Paul Fussel, who wrote one of the pathbreaking studies on the modern memory of the Great War, elaborated this point vividly. As a former American soldier who endured the fierce battles of the Bulge in World War II, Fussel suffered the consequences of his wartime sensory experience long after the guns of the Third Reich fell silent.[20]

16 Luigi Russolo, *The Art of Noise*, 5.

17 A similar approach could be found in the works of Hugo Ball and the experimental DADA works of the Cabaret Voltaire. See Douglas Kahn, *Noise Water Meat: A History of Sound in the Arts*, 45.

18 Jacques Attali, *Noise: The Political Economy of Music*; Karin Bijsterveld, *Mechanical Sound: Technology, Culture Public Problems of Noise in the Twentieth Century*; Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900–1933*.

19 Steve Goodman, *Sonic Warfare: Sound, Affect, and the Ecology of Fear*, 7.

20 Paul Fussel, *The Great War and Modern Memory*, 9.

During World War I, this mode of bipolar wartime hearing affected the auditory perception of those who were under fire from the very beginning. In fact, sensory experience related to the role of sound in battle appeared to be similar on both sides of the front, regardless of gender, rank, class, social estate, or formal position. The attempt to establish a wartime sonic vocabulary based on binary sensory experience of safety and danger, however, faces difficulties, particularly in the case of aerial warfare, in which the sonic division between friendly and enemy sounds did not pertain. From his height, the aviator was unable correctly to distinguish the sounds of the ground battlefield or any other sound. He was, therefore, unable to establish any sonic relationship with his target.

While airborne, the pilot was sonically isolated from his fellow pilots as well as from his victims. His sensory world was restricted mainly to the extreme noise of his immediate surroundings. World War I airplanes were built with an open canopy and were not soundproofed. In practice, it meant that pilots were exposed to an extremely noisy environment consisting of engine, wind, and propeller noises. In addition, they wore heavy flight gear and, until later stages of the war, they lacked any effective wireless communication system. In this sense, aerial warfare detached the visual image of the battle from its invisible threads of sonic experience that tied it to a larger cultural, moral, political, and historical tapestry. The sonic environment was so tangled that one French physician even suggested that deafness was the best attribute for combat piloting.[21] Without a shred of irony, German experts at the time reached a similar conclusion. Later researchers on the topic went a step further, concluding that wartime aircrews suffered simply from what they termed "mental deafness."[22]
Several figures soon testified to the difficulties arising from the new nature of wartime combat. A German pilot named Ernst Udet, for instance, compared the war in the air to sitting in a huge aquarium. Another famous German fighter pilot named Oswald Boelcke depicted a strafing of Russian soldiers in terms of smashing a column of ants. Manfred von Richtofen, one of the highly decorated fighter pilots in imperial Germany, recorded similar reflections. In his memoirs, Richtofen repeatedly alluded to the quasi-scientific and alienated nature of aerial warfare. He could verify the face of victory only by the face of visual destruction caused by his tracer bullets hitting the target.[23]

***

The price of divorcing sound from its significance in the early days of aerial warfare

21 Kennett, *The First Air War*, 116.

22 H. Loebell, "Seelentaubheit," in *Archiv für Hals-,Nasen-und Ohrenheilkunde*, 15, 4 February 1944, 157.

23 Manfred von Richthofen, *Der rote Kampfflieger*, 94.

was very high. It turned the actual deafness imposed on the aviator while airborne into a mental deafness that blindspotted the pilot from his objects of destruction on the ground. In fact, the horrors of World War I did not seem to diminish when they were reduced to the role played by aerial warfare at the time. In practice, the reverse was true. Because of the aviator's visual muteness, the act of killing became a surgical technique combining a steady hand, careful eye, and a killer instinct. The endless visual panorama viewed from the airplane transformed the air strike into an almost cinematic act consisting of moving and collapsing images. Although this new art of combat was born back in 1916, one gains the impression that the age of pushbutton warfare began with the mental deafness of the World War I pilot.

In fact, long after the end of the Great War, the changes introduced by aerial warfare that shifted the boundaries between the virtual and real in modern battlefield live on. The antiseptic nature of killing based on the muted image of the target seemed to be revived almost a century later with the use of drones, better known as remotely piloted aircrafts [Unmanned Aerial Vehicles (UAVs)]. In the age of the drone, when overhead surveillance cameras can silently pick a target on a video screen and eliminate individuals thousands of miles or even continents away, the ability of modern warfare technology to divorce sound from sight seems to have achieved a new and horrible stage. This hi-tech soundless warfare has turned into individual ghastly acts launched from invisible optical eyes in the sky. In a tragic irony, in this new art of war, only the name of the unmanned aircraft retains a link to sound. The term drone, which in ordinary English means a male bee, derives from the early low-tech unmanned aircraft models that used to make a continuous humming sound similar to an electric motor.[24]

In the age of mute warfare as a borderline experience that detaches the virtual from the real, it is fitting to close our essay by citing the words of Helen Keller from almost a century ago. Keller, who at the age of nineteen months was afflicted by illness that left her blind, deaf, and mute, was frequently asked what aspect was most difficult for her. She used to reply that if you are blind, you probably lose contact with objects, but deafness is another story because the loss of hearing deprives you of any contact with human beings.[25]

24 According to another explanation, the term "Drone" derives from the name of robotic aircraft that were in use by the U.S. air force as training targets for pilots during World War II. For the various etymologies of the term Drone for denoting an "unmanned aircraft," see Benjamin Medea, *Drone Warfare: Killing by Remote Control*, 7.

25 Bruce Goldstein, *Wahrnehmungspsychologie*, 314.

Bibliography

Attali, Jacques. *Noise: The Political Economy of Music*. Minneapolis: University of Minnesota Press, 2009.

Bijsterveld, Karin. *Mechanical Sound: Technology, Culture, and Public Problems of Noise in the Twentieth Century*. Cambridge, Mass: MIT Press, 1999.

Bourgeois, H. and M. Spurdille. *War Otitis and War Deafness: Diagnosis, Treatment and Medical Reports*. London: University of London, 1918.

Clausewitz, Carl von. *Vom Kriege*, part 2, book 5 [1832]. Leipzig: Insel Verlag, 1935.

Encke, Julia. *Augenblicke der Gefahr: Der Krieg und die Sinne. 1914–1934*. Munich: Wilhelm Fink Verlag, 2006.

Enoch, Nick. "Let's Not play Darts! The Tiny Skull-Piercing Arrow Bombs dropped by WWI Biplanes onto German Trenches, which Disgusted British Pilots as They Were 'Ungentlemanly.'" (*Daily Mail Online*, 19 June 2014). www.dailymail.co.uk/news/article-s662730/WWI-darts-dropped-biplanes-German-trenches-disgusted-British-aviators-ungentelmanly.html.

Fokker, Anthony and Bruce Gould. *The Flying Dutchman: The Life of Anthony Fokker*. New York, 1931.

Fussel, Paul. *The Great War and Modern Memory* (1975). With a New Introduction by Jay Winter. New York/London: Oxford University Press, 2013.

Goldstein, Bruce. *Wahrnehmungspsychologie*. Berlin: Spektrum, 1997.

Goodman, Steve. *Sonic Warfare: Sound, Affect, and the Ecology of Fear*. Cambridge, Mass: MIT, 2010.

Guelton, Frédérick. "Technology and Armament." In *The Cambridge History of the First World War*, edited by Jay Winter. Cambridge: Cambridge University Press, 2014.

Jean, Yaron. *Noises of Modernity: Hearing Experiences in Germany, 1914–1945* (Hebrew). Tel Aviv: Resling, 2011.

———."Silenced Power: Warfare Technology and the Changing Role of Sounds in Twentieth-Century Europe." *Studies in Contemporary History* 8 (2011): 178–197.

———."The Soundmindedness of the Great War: Viewing History through Auditory Lenses." In *Germany in the Loud Twentieth Century. An Introduction*, edited by Florence Feiereisen and Alexandra M. Hill, 51–62, New York: Oxford University Press, 2012.

Jones, Archer. *The Art of War in the Western World*. Urbana: University of Illinois Press, 2000.

Kahn, Douglas. *Noise, Water, Meat: A History of Sound in the Arts*. Cambridge, Mass: MIT Press, 1999.

Keegan, John. *A History of Warfare*. New York: Vintage Books, 1993.

Kennett, Lee. *The First Air War, 1914–1918* (1991). New York: Simon and Schuster, 1999.

Lichtenberg, Georg Christoph. *Vermishchte Schriften*, vol 4. Göttingen, 1852.

Loebell, H. "Seelentaubheit." *Archiv für Hals-, Nasen-und Ohrenheilkunde*, 15, 4 February 1944.

Medea, Benjamin. *Drone Warfare: Killing by Remote Control*. London: Verso, 2013.

Richthofen, Manfred von. *Der rote Kampfflieger*. Berlin, 1917.

Russolo, Luigi. *The Art of Noise* (1913). New York, 1967.

Schmitt, Carl. *Der Nomos der Erde im Völkerrecht des Jus Publicum Europaeum* (1950). Berlin: Duncker und Humblot, 1997.

Syon, Guillaume de *Zeppelin!*: *Germany and the Airship*, *1900–1939*. Baltimore: John Hopkins University Press, 2002.

Thompson, Emily. *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900–1933*. Cambridge, Mass: MIT Press, 2004.

Weinberg, Gerhard L. *A World at Arms: A Global History of World War II*. Cambridge, UK: Cambridge University Press, 1994.