

# Out of sight, out of reach: Moral issues in the globalization of the battlefield

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## Abstract

*The Great War ushered in a new era of long-distance combat. For the first time, weapons with a very long range were massively deployed, in previously unheard-of places: under the sea and in the air. Stealth fighting also included espionage and propaganda, now orchestrated on a global scale. In reaction to the carnage in the trenches, a degree of moral rehabilitation came to be conferred on the weapons initially associated with a “cowards’ war”. This in turn encouraged experimentation with the new, unmanned technology that would lead to the first prototypes of guided munitions and drones.*

**Keywords:** Great War, First World War, Second World War, weapons technology, strategic bombing, U-boat, Zeppelin, drone, robot, cyber, guided munition, espionage, propaganda, censorship, jihad, special forces, post-traumatic stress disorder, international humanitarian law, ethics, stealth, disengaged combat, lethal autonomous weapons systems.

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\* The opinions expressed in this article are solely those of the author, writing in his private capacity. He wishes to dedicate his article to his great grandfather, Louis Gousseau, who served as a Major in the infantry during the First World War, and to his great grand-mother Laure and her sisters, Acélie and Louise, who served as volunteer nurses in a military hospital under the banner of the Red Cross. The article has been translated from French to English by Veronica Kelly. Unless otherwise noted, all translations are ours.

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*“War carried out by gas and bombing is no longer war, it is a kind of bloody surgery. Each side settles down behind a concrete wall and finds nothing better to do than to send forth, night after night, squadrons of planes to blow out the guts of the other side (...).”*

Antoine de Saint-Exupéry, *Terre des hommes*, 1939 (English translation by Lewis Galantieri: *Wind, Sand and Stars*, London, The Folio Society, 1990, p. 189).

*“I remember once, looking through an eyeglass, I spotted one of our observation aircraft falling onto enemy lines. Its fall seemed slow to me, because of the distance. Every war, seen from afar, is like an abstract game, not at all offensive to the eye. The courage, the resolution, the anguish and the suffering of two men – all that was wiped out instantly under a small heap of earth.”*

Émile-August Chartier (Alain), *Mars ou la guerre jugée*, 1936, p. 66.

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Conjuring up images very different from those of the trenches, the words “Zeppelin”, “Big Bertha”, “U-boat” and “spy mania” bring to mind a second memory of the First World War.<sup>1</sup> They are a reminder of the emergence of a new type of long-distance warfare, whose weapons – out of range of retaliation, and sometimes out of sight – were originally regarded as immoral.

In this new kind of warfare, the civilian population became a target for both bombing<sup>2</sup> and propaganda. Progress in technology opened up new areas for fighting, in the air and under the sea. The development of telegraphy and wireless telephony completely transformed the role played by spies, who could now inform an enemy submarine of the exact time a ship would be putting out to sea.<sup>3</sup> Telecommunications also meant that gunners could adjust their aim without being able to see their targets.

The Great War was globalized: its theatre of operations was just as much at the rear as at the front, it was fought in neutral countries as well as those officially at war, and it involved the civilian population as much as the fighting forces. The ethical and political questions raised at the time by the new “weapons, means or methods”<sup>4</sup> of long-distance warfare have remained remarkably relevant today.

1 “Zeppelin” was the generic name given to all German airships. Similarly, the name “*Dicke Bertha*”, or “Big Bertha”, was used not just for the 420-mm howitzer from the Krupp factories, but also (incorrectly) to describe all long-range cannons, including the *Pariser Kanonen* that bombarded Paris in 1918. “*U-boat*” was an abbreviation of *Unterseeboot*, which means submarine in German, and “spy mania” was the neologism coined during the Great War to describe the paranoia of those who thought they saw spies everywhere.

2 The aim sought was not so much military and local (tactical) as political and global (strategic): to undermine the morale of the civilian population at the rear, and push the government to negotiate.

3 G. Marin, “L’espionnage par T.S.F.”, *Lectures pour tous*, January 1923, pp. 516–518.

4 I am deliberately using the wording of Article 36 of the Protocol Additional (I) to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, 1125 UNTS 3, 8 June 1977 (entered into force 7 December 1978), on new weapons, which binds the contracting nations to verify that “a new weapon, means or method of warfare” complies with international law.

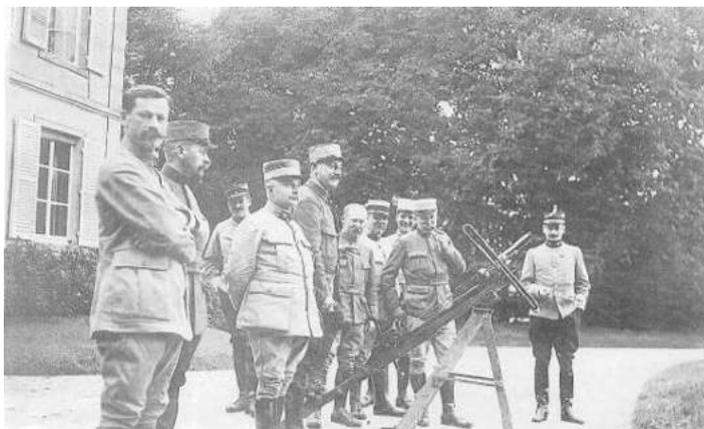


Figure 1. Crossbow “Letellier” – model “Grasshopper Type A”, June 1915, *Éric Germain’s private collection.*<sup>5</sup>

At a century’s remove, a new “global” war against terrorism<sup>6</sup> is now confirming the growing power of three long-range military capabilities: armed drones, special forces and cyberweapons. All three are evidence of a different kind of warfare, so disengaged that many non-governmental organizations (NGOs) have condemned the emotional as well as the physical remoteness of its operators.<sup>7</sup> A report published in October 2014 by the Rand Corporation talks about the *ethos* of a “quiet professional” which, it claims, a cyber-warrior might share with a fighter in the special forces.<sup>8</sup> In the past seven years, I have taken part in many international working groups and conferences on the ethics of roboticized weapons technology, and I am struck by the frequent references to the Great War. For example, I have heard the far-away pilot of an armed drone – having dinner with his family in a Las Vegas suburb after a day “waging war” 12,000 kilometres away – being compared to French fighter pilot Charles Guynemer who, in 1917, drank a glass of champagne at Maxim’s following an

5 The crossbow is the most famous historical example of the moral issues raised by a long-distance weapon since its use (against Christians) has been forbidden under penalty of anathema by Pope Innocent II at the Second Lateran council in 1139. It had been re-invented in winter 1914 to be used as a soundless grenade launcher to “treacherously” hit soldiers of the opposite trench. This photograph of a crossbow “Letellier” presented to the chief of staff of the French Fifth Army was taken by a young Major, Louis Gousseau, great grandfather of the author, *Éric Germain*.

6 In March 2003, President George W. Bush created a “Global War on Terrorism Expeditionary Medal”.

7 Among them the Fellowship of Reconciliation (FoR), an NGO founded in England in December 1914, which has condemned the “virtualization” of warfare using drones. FoR, *Convenient Killing: Armed Drones and the “PlayStation mentality”*, Oxford, September 2010, available at: <http://dronewarsuk.files.wordpress.com/2010/10/conv-killing-final.pdf> (all online references were accessed in September 2016). The operator of a drone or a “cyberweapon” is at an obvious physical distance, but the same is also true of a special forces soldier on certain missions (e.g. a sniper).

8 Christopher Paul, Isaac Porche and Elliot Axelband, *The Other Quiet Professionals: Lessons for Future Cyber Forces from the Evolution of Special Forces*, RAND Corporation, Santa Monica, CA, 3 October 2014, cf. “Lessons from the Analogy”, pp. 42–46, available at: [www.rand.org/t/rr780.html](http://www.rand.org/t/rr780.html).

afternoon's fighting high up over the trenches.<sup>9</sup> This comparison with the First World War shows that issues raised by combatants fighting not necessarily on a battlefield are not unheard-of. Is there really nothing new? Or to be more specific, did the conflict that took place between 1914 and 1918 open up a new age – one we are still living in today?

Taking a historian's view may help clarify what is at stake in the development of methods of combat – a development that began in 1914 not just with aerial and submarine warfare, but also with espionage, propaganda and, during the latter years of the conflict, with the invention of prototypes of radio-piloted and radio-guided weapons, known today as drones and missiles.

## The emergence of a new, multi-space battleground

The progress of weapons technology is often presented as a kind of continuum. From the invention of the first thrown weapon, so the theory goes, man constantly lengthened the distance between himself and his enemy, the better to ward off retaliation. From the slingshot to the crossbow (Figure 1), from the musket to the missile – so it is said – there was never really a revolution in weapons technology, just a series of more or less noticeable evolutions.

All the same, without wishing to question the existence of the so-called preservation instinct that is said to drive *Homo sapiens* (and therefore *prudens*) to extend the range of his new weapons,<sup>10</sup> the Great War may be regarded as opening up a radically different era. It was then, for the first time in history, that very long-range weapons were used on a massive scale. With artillery guided by radiotelegraphy, and weapons operated from previously unheard-of places (in the air and under the sea), targets were increasingly disappearing from the field of vision of the fighter who was deploying them.

Early in the morning of 23 March 1918, Parisians thought the bombs being dropped on them must be coming from a Zeppelin or a Gotha bomber flying at a very high altitude. Then they learnt that they were actually being targeted by cannons operating at the incredible distance of 121 kilometres away.<sup>11</sup> These *Pariser Kanonen* required ballistic calculations of such complexity that mathematicians were sent specially from Berlin to ready them for firing. For the first time in history,

9 Éric Germain, "L'ennemi... Toujours plus loin", 1914–2014: *Un siècle de guerre*, *Le Monde*, October–December 2013, p. 31. Charles Guynemer moved in high-society circles with the actress Yvonne Printemps. By the time of his death, on 11 September 1917, the French flying ace had achieved a total of fifty-three officially recognized victories.

10 The American biologist Paul Bingham goes a good deal further, presenting this ability to kill or injure other human beings from a distance as the main force driving the evolution of the human species towards "cooperative social adaptation" (to the extent that, as he puts it, the ability to kill remotely dramatically reduces "the individual cost of punishing non-cooperative behaviour by allowing these costs to be distributed among multiple cooperators"); P.M. Bingham, "Human Uniqueness: A General Theory", *Quarterly Review of Biology*, Vol. 74, No. 2, June 1999, pp. 133–169.

11 The fighter planes had been sent to fly over Paris in order to reconnoitre. "Le canon qui bombarde Paris" (The cannon that bombed Paris), *Les Cannons de l'apocalypse*, 19 August 2001, available at: <http://html2.free.fr/cannons/canparis.htm>. The *Pariser Kanonen* were initially confused with Big Berthas.

projectiles manufactured by human beings were now crossing the stratosphere, where the low air density allowed the shells to travel these remarkable distances.<sup>12</sup>

### “Unfair” weapons of warfare on land, under the sea and in the sky

Even before the war broke out, the international community had tried to ban bombing from the air. People realized that, because they were so inaccurate, these bombs would mainly strike non-military targets, including the civilian population. The Austro-Hungarian balloons’ attempt to bomb Venice in the summer of 1849 had not been forgotten. Banning aerial bombing was one of the major aims set for the peace conference held in The Hague, in The Netherlands, from 18 May to 29 July 1899.<sup>13</sup>

#### *In 1899, a preventive attempt to ban “blind” weapons*

In a letter to St Petersburg’s embassies on 24 August 1898<sup>14</sup> Tsar Nicholas II proposed “to convene a Conference (...) [aimed] above all [at] limiting the progressive development of existing armaments”.<sup>15</sup> The Tsar wished to ban the “throwing of projectiles or any explosives from balloons or by similar means” (at the time, heavier-than-air aircraft was still a futuristic technology).<sup>16</sup> This humanitarian goal was achieved in one of the texts of the 1899 Convention, but only for a period of five years. Declaration (IV, 1) “to prohibit (...) the launching of projectiles and explosives from balloons, and other new methods of similar nature” was adopted by most of the nations, with the notable exception of the United Kingdom.<sup>17</sup> The United States of America signed the document, but did not ratify it.<sup>18</sup>

- 12 They could reach a maximum altitude of some forty kilometres, and had a theoretical range of 130 kilometres. Alain Huyon, “La Grosse Bertha des Parisiens – Historique d’une arme de légende”, *Revue historique des armées*, No. 253, 2008, pp. 111–125, note 9, available at : <https://rha.revues.org/4682>.
- 13 Although placed on the agenda for the conference, the banning of submarines was quickly dismissed. Howard S. Levie, “Submarine Warfare: With Emphasis on the 1936 London Protocol”, in Michael N. Schmitt and Leslie C. Green (eds), *International Law Studies: Levie on the Law of War*, Vol. 70, 1998, pp. 294–295.
- 14 At first, some States suspected this was a Russian manoeuvre to offset the backwardness of their defence industry. They quickly became convinced of the sincerity of the Tsar, who was following in the Romanov tradition of military ethics (as exemplified by the 1804 initiative of Alexander I, who proposed to the British Prime Minister a system for the peaceful settlement of conflicts and a declaration designed to ban the use of certain projectiles in time of war (Saint Petersburg Declaration), 29 November–11 December 1868).
- 15 French Ministry of Foreign Affairs, *Documents Diplomatiques. Conférence Internationale de la Paix*, 1899, Imprimerie nationale, Paris, p. 4, available at : <http://gallica.bnf.fr/ark:/12148/bpt6k56137625/f13.image>. The final act of the conference was signed on 29 July 1899 by twenty-seven nations, most of whom were belligerents in the First World War.
- 16 *Ibid.*, p. 5. The first really motorized, manoeuvrable aerostat (“dirigible”, balloon or airship) was designed in 1884, but the first motorized aircraft (heavier than air) did not appear until the very beginning of the twentieth century.
- 17 List of States party to Declaration (IV, 1), to Prohibit, for the Term of Five Years, the Launching of Projectiles and Explosives from Balloons, and Other Methods of Similar Nature, The Hague, 29 July 1899, available at : [https://www.icrc.org/applic/ihl/ihl.nsf/States.xsp?xp\\_viewStates=XPages\\_NORMS\\_tatesParties&xp\\_treatySelected=160](https://www.icrc.org/applic/ihl/ihl.nsf/States.xsp?xp_viewStates=XPages_NORMS_tatesParties&xp_treatySelected=160).
- 18 List of States signatory to Declaration (IV, 1), The Hague, 29 July 1899, available at : [https://www.icrc.org/applic/ihl/ihl.nsf/States.xsp?xp\\_viewStates=XPages\\_NORMStatesSign&xp\\_treatySelected=160](https://www.icrc.org/applic/ihl/ihl.nsf/States.xsp?xp_viewStates=XPages_NORMStatesSign&xp_treatySelected=160).

At the Second Hague Conference in 1907, by contrast, Declaration XIV “prohibiting the discharge of projectiles and explosives from balloons” was ratified by the United Kingdom and the United States, but by neither France nor Germany<sup>19</sup> (Austria-Hungary did sign the text, but did not ratify it).<sup>20</sup> France and Germany thus found themselves bound by the sole – unanimously accepted – principle that the aerial bombing of undefended towns was not permitted.<sup>21</sup> The United Kingdom’s change in attitude may have been partly influenced by the popularity of machine-oriented science fiction prophesying the horrors to be expected from the weaponization of the sky.

In 1908, H.G. Wells published a serialized version of his novel *The War in the Air*.<sup>22</sup> In it, he depicts a world war waged by aerial vehicles (airships, aeroplanes and “ornithopters”) armed with new weapons of mass destruction that lead to the extinction of civilization. The book came out three years before Lieutenant Giulio Gavotti carried out the very first aeroplane bombing against Ottoman troops in Libya, thereby launching the era of aerial warfare. Italy justified this action by claiming it was lawful under the Hague Convention which, it said, banned only aerial bombing carried out from airships.<sup>23</sup>

Although this first Italian aerial bombardment was restricted to military targets, such restraint quickly disappeared at the start of the war. From London to Salonica, from Paris to Warsaw, the hearts of European cities were hit. All the same, none of the belligerents admitted to a deliberate desire to target the civilian population. When the conflict began, Kaiser Wilhelm II formally forbade the bombing of the centre of London, both in the name of humanist principles and out of a concern not to hurt his cousins in the British royal family.<sup>24</sup> Later, on 16 June 1915, at the urging of his chief of staff, he used the many civilian losses sustained in the French air force bombing of Karlsruhe as a pretext for authorizing the bombing of the City, with the exception of the royal residences and certain iconic monuments.

19 List of States Parties to Declaration (XIV) Prohibiting the Discharge of Projectiles and Explosives from Balloons, The Hague, 18 October 1907, available at: <https://www.icrc.org/ihl/INTRO/245?OpenDocument>.

20 List of signatory States to Declaration (XIV), The Hague, 18 October 1907, available at: [https://www.icrc.org/applic/ihl/dih.nsf/States.xsp?xp\\_viewStates=XPages\\_NORMStatesSign&xp\\_treatySelected=245](https://www.icrc.org/applic/ihl/dih.nsf/States.xsp?xp_viewStates=XPages_NORMStatesSign&xp_treatySelected=245).

21 According to Article 25 of Hague Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land, the Hague, 29 July 1899, “The attack or bombardment of towns, villages, habitations or buildings which are not defended, is prohibited”. Hague Convention II, 29 July 1899, entered into force on 4 September 1900. Available at: <https://www.icrc.org/applic/ihl/ihl.nsf/Article.xsp?action=openDocument&documentId=88354A9664EEA72FC12563CD00515E46>.

22 H.G. Wells, *The War in the Air*, George Bell and Sons, London, 1908. This subject also recurred in many other books at the time, including *Aerial Warfare* by R.P. Hearne, John Lane, London and New York, 1909.

23 R.G. Grant (ed.), *Flight: 100 Years of Aviation*, Dorling Kindersley Publishing, Inc., London, 2004, p. 59.

24 Stewart H. Ross, *Strategic Bombing by the United States in World War II: The Myths and the Facts*, McFarland & Company, Jefferson, NC, 2003, p. 20.

### *Civilian victims become less and less “collateral”*

From the first aerial bombings of the civilian population, in Paris in 1914 and then in London in 1915, to the very long-range artillery fire of the *Pariser Kanonen* at the end of March 1918, the humanist principles that had inspired the Hague Conventions of 1899 and 1907 were violated.

At the start of the war all the belligerents declared that they were aiming solely at military objectives, even though they must have known perfectly well that, more often than not, in urban engagements their shells and bombs missed their targets causing civilian losses. Soon, however, some voices in the army commands put forward the “strategic” argument that, by weakening the morale of a country’s population, these bombings would force a government to sue for peace.<sup>25</sup> They swung from ethics based on absolute values to so-called consequentialist ethics whereby, if the ultimate goal sought is a moral one (peace), then “bending” principles (i.e. violating the neutrality of a country or a flag, or targeting a civilian population) becomes acceptable.

The first strategic aerial bombardments were launched from rigid airships with a very long range manufactured by the firms of Zeppelin and Schütte-Lanz (Figure 2). These dirigibles – painted black to blend in with the darkness – were swiftly named “baby killers” by the British press. This furtive, “cowardly” technology aroused such abhorrence that it came to be condemned in the same terms as the submarine war waged by the U-boats. Indeed, an airship’s ability to rise swiftly to altitudes where it was out of reach of anti-air artillery and night fighters perfectly mirrored a submarine’s ability to avoid retaliation by diving into the abyss.<sup>26</sup>

Before the war, the British Admiralty had looked with some disdain on submarine vessels, which they saw as a “weapon for maritime Powers on the defensive”<sup>27</sup> – some senior officers going so far as to say that their use would be contrary to English values.<sup>28</sup> Although in 1901 the Royal Navy did decide to adopt them as a weapon,<sup>29</sup> it was nonetheless surprised and deeply disconcerted by the use the Germans made of them in their “all-out war”.<sup>30</sup> The demonization

25 *Ibid.*, p. 18, quoting the Rear Admiral Paul Behncke, deputy chief of the German Naval Staff.

26 For these altitudes, crews were equipped with respiratory masks attached to bottles of oxygen.

27 Statement by the First Lord on 6 April 1900 in the House of Commons, quoted by Paul Akermann, *Encyclopaedia of British Submarines 1901–1955*, 1989, p. 112.

28 In 1901 Admiral Arthur Wilson, Controller of the Royal Navy, declared that underwater warfare was “underhand, unfair and damned un-English”. He went so far as to threaten to hang any captured submariner like a pirate. “Royal Navy Submarine Service – History”, available at: <http://www.royal-navy.org/node/7>.

29 In 1914 the Royal Navy had fifteen submarines capable of missions on the high seas, while the German fleet had fourteen. “The First World War 1914–1918”, in “*Most Dangerous Service*”: *A Century of Royal Navy Submarines*, available at: <http://archive.iwm.org.uk/upload/package/12/submarines/ww1.htm> and Hans J. Koerver (ed.), *German Submarine Warfare 1914–1918 in the Eyes of British Intelligence: Selected Sources from the British National Archives*, Kew, 2012, LIS Reinisch, Steinbach, p. xvii.

30 In 1915, and especially from 1917 onwards, the *Reichsmarine* had decided to torpedo civilian ships without first searching them or checking the conditions for rescuing passengers and crew members. This violated existing customs underpinning maritime law.

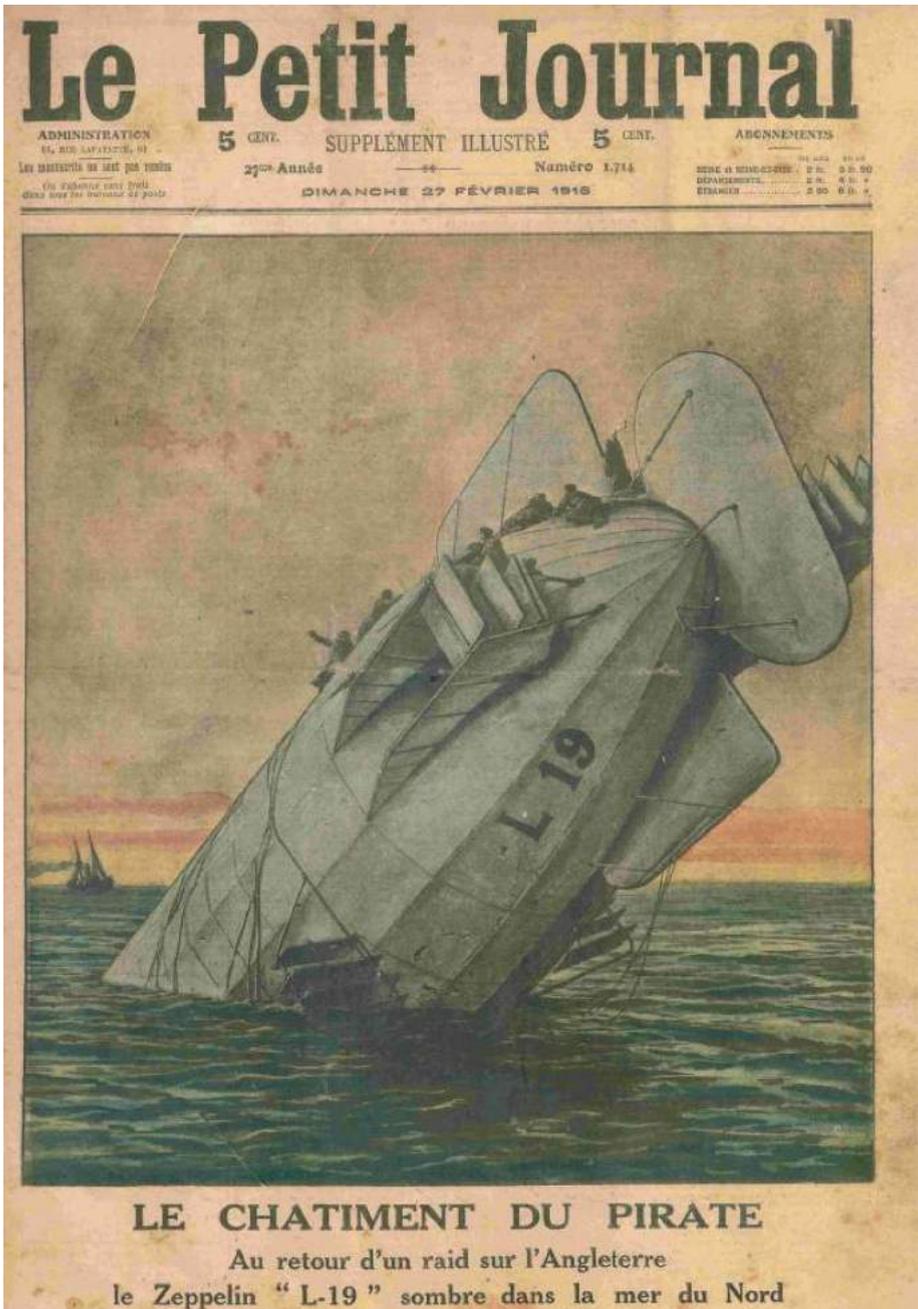


Fig. 2 - Colour online, Colour in print

Figure 2. "Punishing the Pirate – A Zeppelin L-19 sinking in the Channel while returning from a raid over England", front cover of *Le Petit Journal*, Paris, 27 February 1916, *Éric Germain's private collection*.

of these “ghost ships” also seems to have affected the military staff in their investigation into methods for combating an elusive threat. The British Admiralty even engaged the services of a medium to see if she could locate U-boats on a map of the Atlantic.<sup>31</sup> The emotional reaction to this new war technology gradually subsided, with the emergence of methods for dealing with attacks by using aircraft (anti-aircraft guns, telemetry and special munitions)<sup>32</sup> and submarines, along with the constant effort to innovate both tactics (convoys, camouflage paint, Q-ships and other “disguised” ships) and weapons (mines and anti-submarine grenades).

### *Targets beyond visual range*

In 1917, the French navy set up a submarine warfare laboratory in which physicists Paul Langevin and Constantin Chilowski carried out research on ultrasonic echoes, laying the foundations for modern underwater acoustics.<sup>33</sup> At the end of the summer of 1918, in Toulon harbour, they tested a sonar prototype designed for pursuing and attacking submerged submarines.

Research on acoustics also made it possible to locate enemy batteries made invisible by distance and camouflage. By 1915, scientists and self-taught inventors alike were coming up with different types of recorders that equipped sound-ranging sections to identify where firing was coming from, using triangulation.<sup>34</sup>

In offensive action, submarines were the first weapon to glimpse the possibility of vanishing completely from human view in order to detect and aim at their target. From 1917 onwards, U-boats were equipped with microphones, which enabled them to locate the ships to be torpedoed. On land, in the air or at sea, the operators of the new long-range weapons all shared an inability to distinguish clearly those they were firing at – sometimes even to see them at all.

The philosopher Alain wrote of his “war seen, so to speak, over the telephone”. Before joining the third heavy artillery regiment, all he knew about telephones was “the receiver and the microphone – that little box filled with grains of carbon – that you speak into”.<sup>35</sup> Now he had been placed at the head of “a thirty-two-line apparatus which was the intermediary between divisional

31 David A. H. Wilson, “Avian anti-submarine warfare proposals in Britain, 1915–18: The Admiralty and Thomas Mills”, *International Journal of Naval History*, Vol. 5, No. 1, April 2006, p. 8.

32 “Genèse de la DCA française”, in *Base documentaire Artillery-BAS'ART*, available at: [http://basart.artillery.asso.fr/article.php?id\\_article=738](http://basart.artillery.asso.fr/article.php?id_article=738).

33 Marc Saibène, “La lutte anti-sous-marine, 1939–1940”, *Marines, Guerre & Commerce*, No. 62, August–September 1999, pp. 35–39; Claude Gazanhes, “Du laboratoire de la guerre sous-marine de Toulon au laboratoire de mécanique et d’acoustique de Marseille”, *La revue pour l’histoire du CNRS*, February 2000, available at: <http://histoire-cnrs.revues.org/2772>.

34 There was the invention by the soldier Ferdinand Daussy (Hubert Saur and Henri Tribout de Morembert, “Ferdinand Daussy”, Académie nationale de Metz, 1968, available at: <http://documents.irevues.inist.fr/handle/2042/34140>), the devices invented by the physicists Alexandre Dufour, Pierre Weiss and Aimé Cotton, and the one developed by the engineer Ludovic Driencourt in collaboration with Gustave Ferrié. Pierre Lamandé, *Rapport Science-Industrie-États: L’impact de la Première Guerre mondiale*, Report, Nantes University, 2009, p. 15, available at: [http://foad.refer.org/IMG/pdf/AUF-cours\\_UEF2.pdf](http://foad.refer.org/IMG/pdf/AUF-cours_UEF2.pdf).

35 Émile-August Chartier (Alain), *Souvenirs de guerre (Memories of War)*, Paul Hartmann, Paris, 1937, republished in Georges Bénézé (ed.), *Les Passions et la sagesse*, Bibliothèque de la Pléiade, Paris, 1960, p. 476.

artillery and infantry”.<sup>36</sup> Alain described the telephone as a ten-kilometre-long sword with a foot-soldier’s corpse on its tip.<sup>37</sup>

A fighter in the trenches sometimes experienced reality in both of these ways, as a gunner and a foot soldier. The poet Guillaume Apollinaire, for example, was posted to a field artillery regiment before being transferred to the infantry. On the evening of his fourth day at the front line he described his experience of being a “bulwark of living flesh”, contrasting it with a gunner’s war, which he depicted as “an outing where the risks are not much greater than in mountaineering”.<sup>38</sup>

### Long-distance warfare rehabilitated in reaction to the horror of the trenches

The technological tools of distance warfare were developed in a conflict distinguished by extreme proximity between belligerents. Paradoxically, it was trench warfare that was to confer a degree of moral rehabilitation on distance.

#### *The flying ace: a useful heroic figure from olden days*

The early days of fighter aircraft were studded with chivalrous acts that were harder to imagine in the brutality of hand-to-hand combat on the ground where, by comparison with the knives of the wretched “trench sweepers”, the much-reinvented (less lethal) club seemed like a “humanist” weapon. Significantly, while aviators kept their leather helmets throughout the conflict, in the trenches the képi, side cap and peaked cap had to be replaced by helmets.<sup>39</sup>

From the end of the sixteenth century, the foot soldier’s metal helmet had gradually fallen into disuse among European armies.<sup>40</sup> It resurfaced at the same time as hand-crafted shields and many other forms of protection that were an odd reminder of the armour of bygone days. The British helmet was directly inspired by the kettle hats worn by foot soldiers in the Hundred Years’ War.<sup>41</sup>

36 *Ibid.*, p. 495. Lieutenant-Colonel Gustave Ferrié had built a model of a mobile wireless telegraphy unit, over 12,000 of which were to equip the allied armies between 1914 and 1918. P. Lamandé, above note 34, p. 13.

37 Émile-August Chartier (Alain), *Mars ou la guerre jugée*, Éditions Gallimard, Paris, 2nd ed., 1936, p. 205. (English edition published under the title *Mars; Or the Truth about War*, New York, Jonathan Cape & Harrison Smith N.D., 1930).

38 Guillaume Apollinaire, *Lettres à Madeleine (Letters to Madeleine)*, Laurence Campa (ed.), Gallimard, Paris, 2005, letter of 2 December 1915, p. 363. In his *Souvenirs de guerre*, Alain confirms this feeling of inequality (above note 35, p. 447), although in another text he puts this “immunity” into perspective by recalling the heavy losses suffered by artillerymen in the Battle of the Marne. É. Chartier, above note 37, p. 117.

39 In the trenches, fewer wounds were inflicted by direct fire than by shrapnel. At the end of 1914 the French army distributed a metal skull cap, known as a *cervelière* (brain-cap), to reinforce the képi.

40 In September 1915 the “Adrian” steel helmet was distributed to the troops en masse. Its equivalents, the German *Stahlhelm* and British Brodie helmet, appeared the following year. Details of the Adrian helmet may be found on the World War Helmets website at: <http://www.world-war-helmets.com/fiche.php?q=Casque-Francais-Adrian-Mle-15>.

41 *Ibid.* This was particularly true of the facial protection that adapted the Adrian helmet and transformed it into a kind of barrel helm, and of the breastplates that gave protection from howitzers’ shrapnel (like the German *Sappenpanzer*, which could be worn either on a foot soldier’s chest or on his back).

The return to medieval forms of protection, however, was by no means accompanied by a resurgence of chivalry in ground fighting, which had become extraordinarily deadly.

In the air, a fighter pilot's talent and daring could offset the disadvantages of having a less powerful aircraft than his adversary. This relative degree of fair play gave licence for the elegant behaviour of some aviators, who dared to disobey orders, for example if they wanted to give the enemy news of their fallen pilots.<sup>42</sup> In October 1917, at a time when camouflage techniques were widespread, the decision by the pilot Manfred von Richthofen to have his new triplane painted bright red was not without a certain panache.<sup>43</sup> The Red Baron, as he was known henceforth, became the most famous of these "aces", who provided the German press with valuable heroes.

First the press, and then literature, highlighted a code of honour among fighter pilots which reassured public opinion. Their "air duels" showed that some of civilization's values were being upheld despite the horrors of a war in which, more often than not, the only law was necessity, and the heroic figure of the aviator played an increasingly important role in keeping up the morale of the civilian population. This explains why the German command decided to bring its last flying ace, Oswald Boelcke, back from the front until his Fokker monoplane – now obsolete – could be replaced by the brand-new Albatros D1.<sup>44</sup>

Even bombing, the form of aerial warfare most objected to, appeared to be better tolerated by the end of the conflict. In 1914, aerial bombing was considered legitimate only in actions against military infrastructure,<sup>45</sup> but as fight succeeded fight it gained in acceptability, even when targeting troops and no longer just equipment. At the end of 1916 the Germans created an "aerial infantry". Former soldiers and non-commissioned officers from the trenches were trained to pilot small biplanes flying at a very low altitude. In attacks known as "strafing", these "assault aviators" (*Sturmflieger*, or storm flyers) machine-gunned and bombarded the enemy to support their comrades advancing on the ground.<sup>46</sup> After feeling stuck in the stalemated war in the trenches, superiority in the air revived their hope of being able to carry out offensive actions with minimal loss of life among their own forces. Two months before the armistice was signed, confidence in a reversal of the balance of power enabled the Secretary of State of British aviation to write to General Hugh Trenchard: "I should be very glad if you could unleash

42 The Italian ace Francesco Baracca who, on 7 April 1916, flew down to shake hands with an Austrian pilot forced to land, exemplifies these elegant gestures, to be found in each camp. Georges Pagé, *L'aviation française 1914–1918*, Grancher, Paris, 2011, Ch. 33.

43 Although this decision was also a tactic whereby his squadron remained hidden, under cloud cover – the better to swoop on an adversary absorbed in the combat he had initiated.

44 This was done in mid-September 1916. John H. Morrow, "Les airs", in Jay Winter (ed.), *La Première Guerre mondiale – tome 1: Combats*, Fayard, Paris, 2013, p. 397.

45 Such as the dropping of bombs by a French plane on the Zeppelin hangars in the Metz-Frescaty base, on 14 August 1914. Jean Daçay, "Celui qui survola le premier les hangars de Frescati", *La Guerre Aérienne Illustrée* (Paris), Vol. 21, No. A1, 5 April 1917, pp. 330–331, available at: <http://gallica.bnf.fr/ark:/12148/bpt6k6246433d/fl.image>.

46 Georg P. Neumann (ed.), *In der Luft unbesiegt: Erlebnisse im Weltkrieg (Undeafated in the Air: Experiences of the World War)*, Lehmanns, Munich, 1923; quoted by J.H. Morrow, above note 44, pp. 403–404.

a bloody great fire on one of the German cities (...). The German is sensitive to bloodletting.”<sup>47</sup> *Vae victis!*

### *Aerial bombing accepted as a means to destroy more inhumane weapons*

Did all moral objections to the bombing of civilians fade away in the four years of conflict? No. Even at the end of the war, many political leaders remained opposed to the idea of deliberately striking the civilian population. President Woodrow Wilson, for example, refused to allow the American air force to take part in a messy bombing of industrial and commercial sites, or of the people of enemy countries, which would not meet a demonstrated military need.<sup>48</sup>

All the same, the ethical principles underpinning the rules of engagement as stated and practised in 1918 were no longer as intangible as they had been at the start of the conflict. On 26 May 1915, for instance, it was solely in retaliation to the German army's use of asphyxiating gas that the French air force was authorized to bombard the chemical factory at Ludwigshafen am Rhein. At the time, taking the risk of killing the workers in an armaments factory was justified by the lack of alternative means of stopping the manufacture of an odious weapon. To exonerate the military command from this first large-scale bombing of German territory, newspapers stressed the use of asphyxiating gas during the Battle of Artois.<sup>49</sup> A caricature in the British press also drew a parallel between this raid and the bombing of a London suburb by a Zeppelin on the very same day (which killed two women and injured a child). The Kaiser was shown as a dunce in short trousers, under the wrathful glare of his teacher, in front of a blackboard on which was written: “An act of war – French raid on Ludwigshafen” and “An act of murder – German air raid on Southend.”<sup>50</sup>

This need for moral justification was felt again when it came to the use of incendiary ammunition filled with phosphorus, which was explicitly banned by the Saint Petersburg Declaration of 11 December 1868.<sup>51</sup> The British christened these

47 J.H. Morrow, above note 44, 2013, p. 411. This argument may be compared with that put forward by Rear Admiral Paul Behncke, deputy chief of the German Naval Staff who said in August 1914 that the proposed attacks “may be expected, whether they involve London or the neighbourhood of London, to cause a panic in the population which may possibly render it doubtful that the war can be continued”; quoted by S. Ross, above note 24, 2003, p. 18, note 7.

48 Harvey A. DeWeerd, *President Wilson Fights His War: World War I and the American Intervention*, Macmillan, New York, 1968, p. xx, quoted in Wilfried Wilms, “Hollywood’s Celluloid Air War”, in W. Wilms & W. Rasch (eds), *Bombs Away! Representing the Air War Over Europe and Japan*, *Amsterdamer Beiträge zur neueren Germanistik*, Amsterdam, Rodopi, Vol. 60 (2006), p. 360.

49 See the article “War”, *The Straits Times*, 29 May 1915, p. 10, and the report in *L’Aérophile*, 1–15 June 1915, available at: <http://gallica.bnf.fr/ark:/12148/bpt6k6553361f/texteBrut>.

50 Cartoon printed with the caption “Wilfully Stupid” in *How did London civilians respond to the German airship raids of 1915?*, available at: <http://www.londonairshipraids1915.co.uk/introduction.htm>.

51 The use of such projectiles was regarded as “contrary to the laws of humanity”, as these weapons would “uselessly aggravate the sufferings of disabled men, or render their death inevitable”. Declaration Renouncing the Use, in Time of War, of certain Explosive Projectiles (St Petersburg Declaration), Saint Petersburg, 29 November/11 December 1868, Preamble, available at: [https://www.icrc.org/applic/ihl/ihl.nsf/ART/130-60001?OpenDocument&xp\\_articleSelected=60001](https://www.icrc.org/applic/ihl/ihl.nsf/ART/130-60001?OpenDocument&xp_articleSelected=60001).

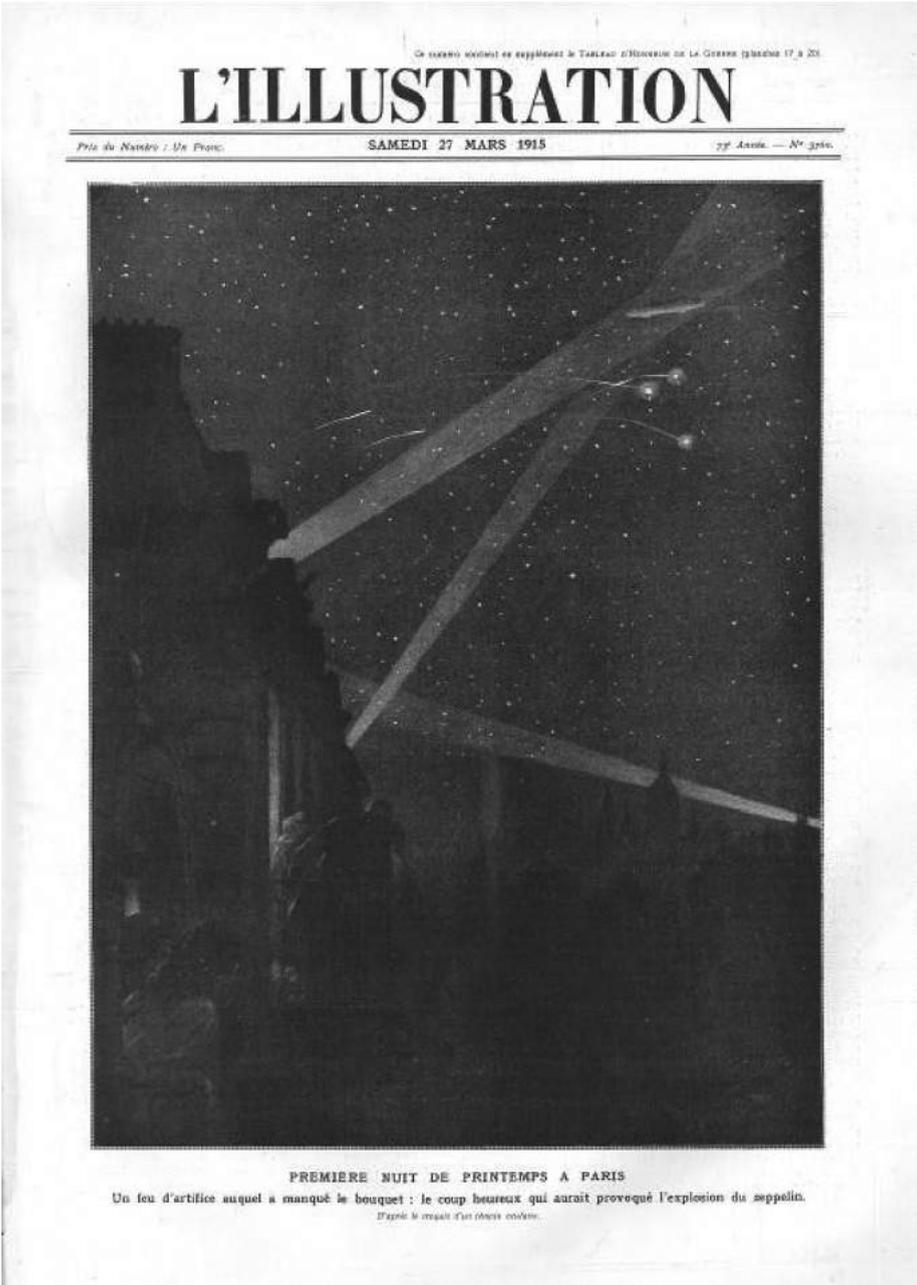


Fig. 3 - B/W online, B/W in print

Figure 3. “First Spring night in Paris – Fireworks missing its browning piece”, front cover of *L'Illustration*, Paris, 27 March 1915, *Eric Germain's private collection*.

“Buckingham” bullets, to justify using them against the Zeppelins that deliberately hit the civilian population of London. The Germans, for their part, gave their fighter pilots written orders stipulating that the incendiary bullets they took on board were strictly reserved for firing at airships, and were never to be used against planes.<sup>52</sup> The French and British pilots asked for a similar document, for fear they would be shot if captured with this type of ammunition in their possession.<sup>53</sup>

A 1921 adventure story, *L'aéroplane invisible*, illustrates the post-war fragility of the moral rehabilitation of aerial warfare.<sup>54</sup> In literature for the edification of the young, it is considered acceptable for a bombardier to be invisible only if he is destroying a German submarine base – submarines having been discredited by being used against civilian and non-belligerent targets.<sup>55</sup> A “sneaky” weapon seemed legitimate only for combat against other “unfair” weapons, and in the post-war period an aircraft that could not be seen from the ground was still regarded as being incompatible with military ethics.<sup>56</sup> This reservation may also be found in the work of the commission of jurists meeting in The Hague from December 1922 to February 1923 which, interestingly, combined two new elements in long-distance combat: wireless telegraphy and air warfare.

The “Rules concerning Air Warfare” they drew up forbade “any bombardment of cities, towns, villages, habitations and building [*sic*] which are not situated in the immediate vicinity of the operations of the land forces” (Art. 24(3)), but they state that air bombing directed against a military target in urban areas is lawful “in the immediate vicinity of the operations of the land forces” if “there is a reasonable presumption that the military concentration is important enough to justify the bombardment” (Art. 24(4)).<sup>57</sup>

As so often in this post-war literature, the character at the centre of the plot in *L'aéroplane invisible* is a spy. For, in the collective imagination, the new long-range weapons used in the first worldwide conflict were closely associated with the (even sneakier) tools of long-distance warfare – espionage and propaganda – which were facilitated by the dawn of a new era in communications technology.

52 Norman Archibald, *Heaven High, Hell Deep: 1917–1918*, A. C. Boni, Inc., New York, 1935, p. 186.

53 *Ibid.*, pp. 186–187.

54 H. Gorsse and P. Guitet-Vauquelin, *L'aéroplane invisible*, Hachette, Paris, 1921.

55 During the Second World War a similar ethical justification underpinned American General “Hap” Arnold’s plan to turn bombers into drones so they could be sent to explode over German submarine bases. Sarah Kreps and Micah Zenko, “The Next Drone Wars: Preparing for Proliferation”, in *Foreign Affairs*, March–April 2014, available at: <http://www.foreignaffairs.com/articles/140746/sarah-kreps-and-micah-zenko/the-next-drone-wars>.

56 Regardless of whether the aircraft’s “stealth” was the result of high altitude, a night flight or, as in this novel for young people, the invention of new camouflage technology such as the clear dope covering the wings and fuselage of the German Taube bomber, “making it almost transparent against a bright sky”. Marshall Michel, “Stealth, 1914 style”, available at: <http://www.kaiserslauternamerican.com/stealth-1914-style/>.

57 *Rules concerning the Control of Wireless Telegraphy in Time of War and Air Warfare*, Part II: Rules of Air Warfare/Chapter IV: Hostilities/Bombardment; Article 24, available at: [https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/ART/275-370036?OpenDocument&xp\\_articleSelected=370036](https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/ART/275-370036?OpenDocument&xp_articleSelected=370036) .

## The hidden face of long-distance weaponry: wireless warfare

The First World War was marked by the extreme physicality of the front – a battlefield whose western border barely shifted for the whole duration of the conflict. The fighting there ploughed up a landscape whose relief, a century afterwards, is still visibly shaped by those shells.

The rear was defined as being behind the lines where the foot soldiers were fighting, but that did not put it beyond the area of conflict. It was a target not only for aerial bombing but also for (real or perceived) acts of espionage and sabotage, as well as propaganda to influence the population, which had now become “public opinion”.<sup>58</sup>

### Seeing without being seen: espionage and “the enemy within”

Espionage activities and the new weapons for long-distance combat were linked in many ways. In the field, spies gave the enemy precise information about the targets to bombard: the railway convoy at the platform, the weapons factory, the ship whose sailing times they had obtained. Progress in wireless transmission enabled them to send the information with previously unheard-of speed and reliability. In the air, the possibility of flying over enemy territory without being seen (or without giving an adversary time to hide its troops or vehicles) clearly represented an extremely valuable advantage.<sup>59</sup> In 1912 Admiral Sir John Fisher prophesied that wireless telegraphy would become “the pith and marrow of war!”.<sup>60</sup>

Airborne intelligence was a task explicitly entrusted to the “spy basket” (*Spähkorb*), or “spy gondola” (*Spähgondel*), a feature of many models of German airships.<sup>61</sup> The single-seater nacelle, or basket, was suspended by a steel cable (joined to a telephone wire) a few hundred metres below the Zeppelin.<sup>62</sup> This observation post made it easier to navigate and to aim the bombs, while still allowing the airship to remain hidden by cloud cover. A scene from the film *Hell’s Angels*, shot by Howard Hughes in 1930, illustrates the ethical dilemma facing the operator of a “spy basket”, who refuses to bombard Trafalgar Square and deliberately aims his Zeppelin’s bombs at the waters of the Thames.

58 Since the Crimean War, in the middle of the nineteenth century, the print media had played a key role in covering even faraway conflicts by enabling people to experience them from day to day, as they developed. Jean-Pierre Bacot, “Le rôle des magazines illustrés dans la construction du nationalisme au XIXe siècle et au début du XXe siècle”, *Réseaux*, No. 107, 2001, pp. 265–293.

59 Article 29 of the Hague Convention II states that “soldiers not in disguise who have penetrated into the zone of operations of a hostile army to obtain information are not considered spies”, above note 21.

60 Admiral Sir R. H. Bacon (ed.), *The Life of Lord Fisher of Kilverstone*, Vol. 2, London, 1929, p. 144, quoted in Heidi J. S. Twork, “Wireless Telegraphy”, 8 March 2016, available at: [http://encyclopedia.1914-1918-online.net/article/wireless\\_telegraphy](http://encyclopedia.1914-1918-online.net/article/wireless_telegraphy).

61 Ernst Lehmann, *Auf Luftpatrouille und Weltfahrt, Volksverband der Bücherfreunde (Air Patrols and World Travel: Book-Lovers’ Unit)*, Berlin, 1936, pp. 60 and 67.

62 The “spy basket” of the Zeppelin LZ90, found near Colchester in September 1916, is displayed in the Imperial War Museum in London.

### *A new type of combatant: the spy*

The watching eyes in the sky were not the only ones: there were also those of the “traitor” who blended into the population and gave the enemy intelligence about targets. Spies became active participants in the globalization of warfare: they were the individuals a submarine could infiltrate, and subsequently exfiltrate, on the isolated coast of an enemy nation, and also in a neutral country, or a remote colony.<sup>63</sup>

Fig. 4 - B/W online, B/W in print

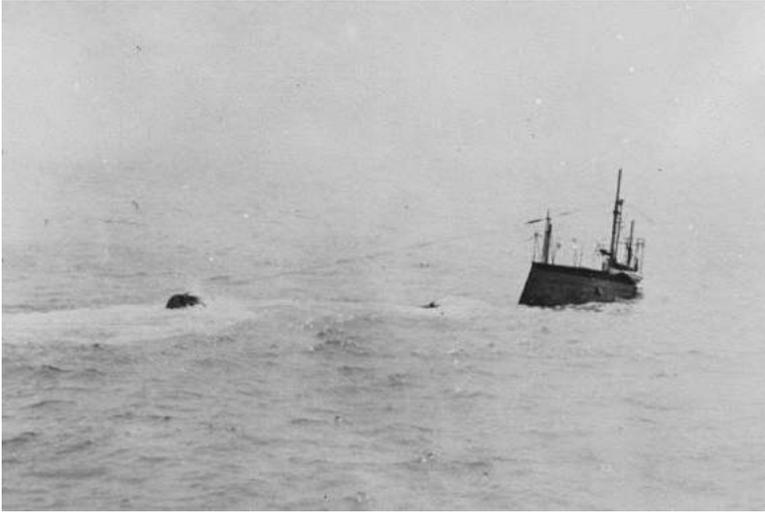


Figure 4. British submarine, 1917, *Éric Germain's private collection*.<sup>64</sup>

Today, our view of espionage in the Great War seems inextricable from the narrative constructed about it in the inter-war years with the publication of novels and what purported to be memoirs, often adapted for the cinema.<sup>65</sup> The reality was less romantic, and it remained significantly different from that of previous wars. During the course of the conflict, espionage and counter-espionage activities became a good deal more professional, and came to be incorporated into the planning and conduct of hostilities.<sup>66</sup>

63 Like Lieutenant Conrad von Belke, a character in Joseph Storer Clouston's novel *The Spy in Black* (William Blackwood, Edinburgh, 1917, made into a film by Michael Powell in 1939).

64 Text printed on the back “*With the British Navy in wartime. A submarine submerging*” with stamps “*Official Photograph issued by the Press Bureau*” and “*Passed for transmission abroad*”.

65 Chantal Antier, “Espionnage et espionnes de la Grande Guerre” (Spying and Female Spies in the Great War), *Revue historique des armées*, No. 247, 2007, pp. 42–51, available at <http://rha.revues.org/1963>.

66 Bertrand Warusfel, “Histoire de l’organisation du contre-espionnage français 1871–1945”, *Cahiers du Centre d’Études d’Histoire de la Défense*, Vol. 1, CEHD, Paris, 1996, p. 13, available at: [http://www.droit.univ-paris5.fr/warusfel/articles/HistoireCE\\_warusfel96.pdf](http://www.droit.univ-paris5.fr/warusfel/articles/HistoireCE_warusfel96.pdf); Paul Émil von Lettow-Vorbeck *et al.*, *L’espionnage et le contre-espionnage pendant la guerre mondiale d’après les archives militaires du Reich*, Nouveau Monde éditions, Paris, 2012.

Although espionage constituted an extreme form of long-distance warfare, those who became spies out of patriotism – both men and women – regarded themselves as actual combatants.<sup>67</sup> At the same time, despite the risks they ran, these spies were conscious that they had a more enviable lot than combatants at the front. On this subject we have the account of the British writer Somerset Maugham, who was working at the time for the Secret Intelligence Service. The writer-cum-secret agent describes his unbearable, overwhelming feeling when, on a mission to Russia in 1917, he found himself face to face with a mutilated Russian soldier on the platform of a Trans-Siberian Railway station. He – the soldier without a uniform, as he calls himself, operating in the comfort of the rear – felt a painful empathy with this man who was begging, and singing in a voice that told of the terror, suffering and death he had faced on the battlefield.<sup>68</sup>

Somerset Maugham's eyewitness account is also a reminder that espionage is not the only "invisible" form of warfare. That is also – and above all – the war waged after a conflict, with the (mostly visible) physical wounds of disfigured veterans and the (mostly inaudible) psychological scars. The label "shell shock" was given to one of the syndromes that would be included today in the category of "post-traumatic stress disorder", affecting the lives of soldiers and their families many years after a war had ended. This conflict ushered in an age in which people began to realize that a war could have more casualties after the cessation of hostilities than under enemy fire.<sup>69</sup>

Like other weapons of long-range combat, espionage was to be somewhat rehabilitated in the post-war years, when the physical courage and moral qualities of some of its protagonists were recognized. In this respect the Great War fits in with an older trend in the evolving relationship between States – to codify espionage and, thereby, legitimize it. The Hague Convention of 1899 – signed by all the First World War belligerents – guaranteed that a spy caught in the act on enemy territory would be given a trial (Hague (II), Article 30).<sup>70</sup> The following article added that: "A spy who, after rejoining the army to which he belongs, is subsequently captured by the enemy, is treated as a prisoner of war, and incurs no responsibility for his previous acts of espionage."

67 As affirmed by the Belgian spy Marthe McKeena, *Comment on deviant espion*, Payot, 1935, quoted by C. Antier, above note 65. Victor Saville, *I Was a Spy!*, 1933.

68 William Somerset Maugham recounts this episode in the 1941 preface to his short-story collection *Ashenden, or The British Agent* (first published in 1927).

69 After the most recent conflicts the United States has been involved in, there have been more veterans' suicides than there were deaths on the battlefield. Herbert Hendin, "Healing The Hidden Wounds of War: Treating The Combat Veteran With PTSD at Risk For Suicide", *Huffington Post*, 18 September 2013, available at: [http://www.huffingtonpost.com/herbert-hendin/healing-the-hidden-wounds\\_b\\_3948156.html](http://www.huffingtonpost.com/herbert-hendin/healing-the-hidden-wounds_b_3948156.html).

70 Chapter II of the Hague Convention (II) is devoted to spies, and defines the category by specifying its legal status in a conflict. The text is careful to stipulate that "individuals sent in balloons" must be considered combatants, not spies (Article 29).

### *From espionage to spy mania: a new battleground emerges*

The relative normalization of legal measures to combat espionage in wartime was also partly due to its rapid expansion in the preceding decades. The upsurge in hostile actions in peacetime had pushed most European countries to adopt new legislation to punish and deter spies.<sup>71</sup> Moreover, on the outbreak of war, codes of military justice regained their full value in the belligerent countries. In France, it was pursuant to Article 206 of the French code that fifty-six people convicted of espionage were shot between 1914 and 1918 (more than half of them in the first year of the war).<sup>72</sup> Despite the media coverage given to some convictions (such as that of Margaretha Zelle, alias Mata Hari, who was executed on 15 October 1917), this double-digit number suggests that there was actually far less espionage going on than what society perceived. The fear of espionage, which was evident well before the war broke out, also reflected growing xenophobia.<sup>73</sup> Spy mania was based on a high degree of irrationality, but for the public authorities this collective paranoia had the advantage of strengthening the involvement of the whole nation in the war effort, and justifying the sacrifices asked of people.

With the threat of espionage hanging over them, silence and discretion were required of civilians. Propaganda reminded them incessantly that, in the World War II slogan, “careless talk costs lives”, that the smallest piece of *a priori* harmless information could prove to be of real military interest to the enemy. In factories, on the docks or in a train station, the supposed presence of spies brought the battlefield to well behind the front lines. In 1915, French Minister of War Alexandre Millerand ordered posters to be put up to warn people: “Keep quiet! Be on your guard! Enemy ears are listening.”<sup>74</sup> (Figure 5)

71 On this kind of legislation, adopted in the last third of the nineteenth century, see Sébastien Laurent, *Politiques de l'ombre. État, renseignement et surveillance en France (Politics of the Shadows. The State, Intelligence and Surveillance in France)*, Fayard, Paris, 2009.

72 According to a report by a working group headed by Antoine Prost, *Quelle mémoire pour les fusillés de 1914–1918? Un point de vue historien*, Report submitted to the Minister Delegate for Veterans' Affairs, 1 October 2013, p. 12, available at: <http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/134000666/0000.pdf>.

73 In France, this was reflected in the 1912 vote making it compulsory for Nomadic people to carry an anthropometric identity booklet, and the 1917 decree introducing a compulsory identity card for foreigners. Even after the war had ended, an order dated 14 December 1918 introduced a special identity card for people from Alsace and the Moselle, who were divided into four classes, A to D, depending on their degree of “Germanic” or “French” ancestry.

74 This was the slogan officially adopted by the ministerial circular of 28 October 1915; <http://verdun-meuse.fr/index.php?qs=fr/ressources/objet-du-mois—novembre-2010—assiette-tais>.

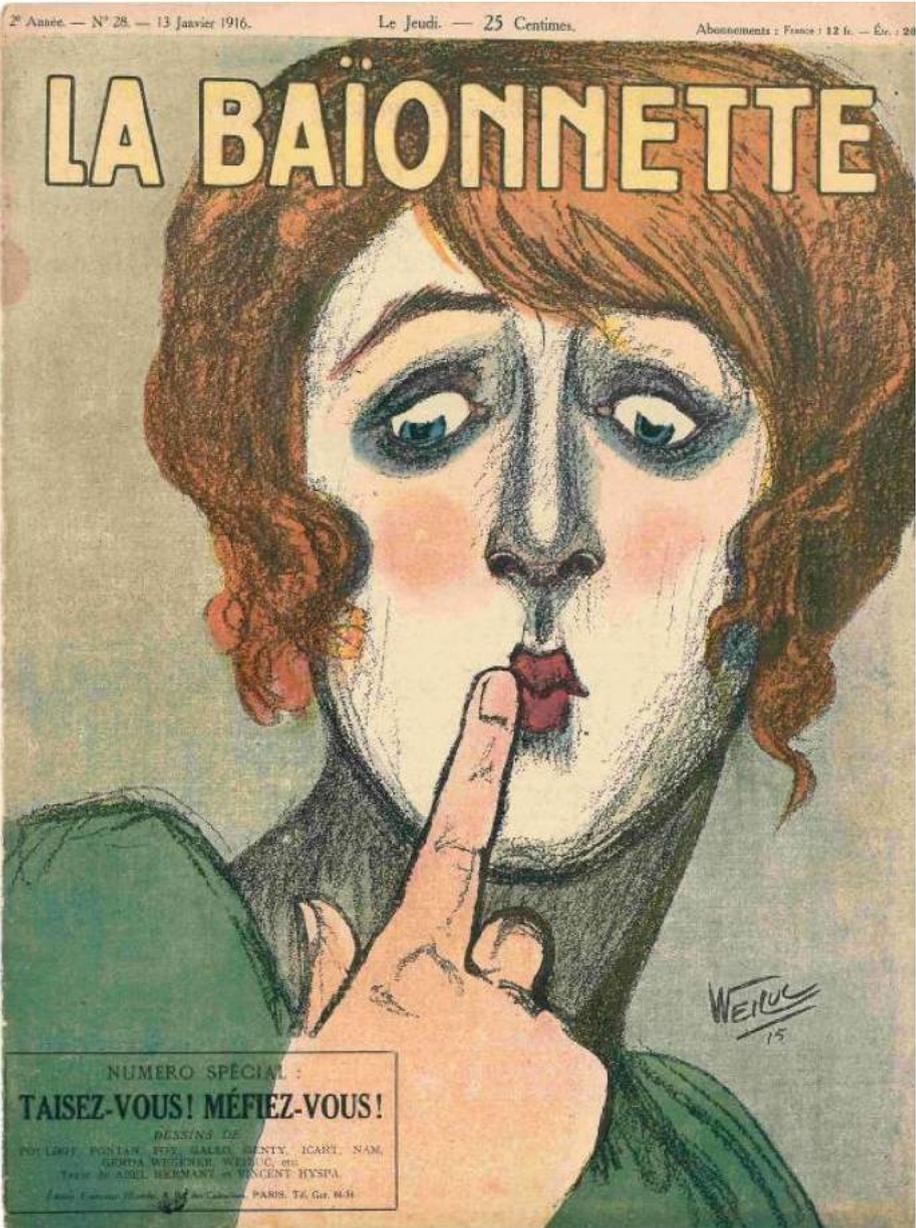


Fig. 5 - Colour online, Colour in print

Figure 5. Special number “Shut up – be wary” of the satirist review *La Baïonnette*, front cover of No. 28, Paris, 1 January 1916, *Éric Germain’s private collection*.

In passing the Espionage Act on 15 June 1917 in the United States, thousands of kilometres away from the military theatres of operation, President Woodrow Wilson extended the concept of a spy to opponents of the war. The following year, the Sedition Act made it possible to imprison influential pacifists such as the trade unionist Eugene Debs.<sup>75</sup> The 1917 Espionage Act was to have a surprising legacy, from the Rosenbergs to the more recent cases involving Bradley Manning and Edward Snowden, as it has been regarded as an effective tool of war in peacetime.

### Propaganda transformed into “psychological warfare”

The war experienced by the soldiers of the shadows was genuinely worldwide. It brought a growing need for clandestine communication, which sparked the development of new technology, such as wireless transmission.<sup>76</sup> As the conflict went on, dissimulation methods became more advanced. Formulas for invisible ink, for example, which were invented in both camps, show such a level of ingenuity that they would be the oldest secret documents kept by the Central Intelligence Agency (CIA) and not declassified until 2011.<sup>77</sup>

### *From wire tapping to the semantics of deception*

The sabotaging of German underwater cables by the Royal Navy was the very first military action carried out after war was declared on 4 August 1914.<sup>78</sup> Aware of the fragility of their networks, the Germans had anticipated this threat by developing radio stations to keep in touch with their African colonies.<sup>79</sup> In 1914 the German Admiralty set up its telecommunications centre in the long-wave radio station built in 1906 by the Telefunken group in Nauen, near Berlin.

Throughout the conflict, the Allies had the benefit of a secure network of underwater cables, while the Entente countries were forced to use Hertzian communication, which was susceptible to wire-tapping. As a result, techniques for encryption and decryption and for locating transmitters (radio direction finding) became major challenges at which the Allies showed a marked superiority. In early 1917, the interception and decryption of the Zimmermann

75 Daniel G. Donaldson, *The Espionage and Sedition Acts of World War I: Using Wartime Loyalty Laws for Revenge and Profit*, LFB Scholarly Publications, El Paso, TX, 2012.

76 In the immediate post-war period, this progress (described in the article by G. Marin, above note 3, pp. 516–518) caused radio to take off as a means of communication.

77 “CIA reveals invisible ink recipes used by WWI spies”, *BBC News*, 20 April 2011, available at: <http://www.bbc.co.uk/news/world-us-canada-13141473>. At her trial, Mata Hari admitted that she had thrown the compromising inkbottle into the sea.

78 Some of these sectioned cables would be used to make new connections, such as the cables linking Brest with Casablanca in 1915 and Casablanca with Dakar in 1916. Gérard Fouchard, “Le câblage de l’Afrique de l’Ouest”, *Bulletin de l’Association des amis des câbles sous-marins*, No. 47, June 2013, p. 16, available at: <http://www.cablesm.fr/bulletin47.pdf>.

79 Association des amis des câbles sous-marins (Friends of Underwater Cables), “Le réseau gouvernemental et les compagnies télégraphiques allemandes”, available at: [http://www.cablesm.fr/Les%20compagnies%20allemandes%20\\_2\\_.pdf](http://www.cablesm.fr/Les%20compagnies%20allemandes%20_2_.pdf).

telegram by the British Admiralty's intelligence services played a crucial role in leading the United States of America into the war.<sup>80</sup>

Fear of espionage prompted the belligerents to develop ground-breaking semantics of deception around the new weapons, especially those used in long-distance fighting. The first German air squadron – created in November 1914 for bombarding Britain – was thus christened “Ostend Homing Pigeons Detachment” (*Briefstauben Abteilung Ostende*). In the same spirit, the British engineer Archibald Low gave the name “Aerial Target” to his radio-controlled aeroplane project, to make the Germans think it was about research on a simple target drone to test anti-aircraft capabilities.<sup>81</sup>

The prime example from this semantic jamming war, however, was the word “tank”, which Lieutenant-Colonel Swinton suggested as the name for the British project on an armoured fighting vehicle. In 1914, Lord Kitchener sent Ernest Swinton to the western front to serve as a war correspondent. His task was to give the news to journalists, who were not authorized to go onto the battlefields. No stranger to the workings of propaganda, the Scottish officer (the same one we have to thank for coining the term “no man’s land”)<sup>82</sup> came up with the idea of using the word “tank” to deceive the enemy about the purpose of the armoured car.

While it may be easy enough to keep a new weapon secret at the experimental stage, this becomes infinitely more difficult when it moves to production in the factory. Its designers therefore decided not just to avoid names that were too explicit, such as “land-cruiser” or “land-ship”,<sup>83</sup> but also to build stories around the word “tank” (Figure 6). This resulted in the propagation of rumours whereby these so-called “tanks” were mobile, armoured containers of water intended for troops fighting in the deserts of Egypt and Mesopotamia, or else that they were snow ploughs for the Russian front.<sup>84</sup>

In a booklet published before the end of the hostilities, Colonel Swinton claimed that his choice had contributed to the element of surprise in September

80 The telegram sent on 16 January 1917 by the German Minister for Foreign Affairs, Arthur Zimmermann, to the Mexican government proposed that Mexico should enter the war against the United States in exchange for financial support and the promise that it could annex three American states (Texas, Arizona and New Mexico).

81 Gary Warne, “The Predator’s Ancestors – UAVs in The Great War”, 25 July 2012; available at: <http://warnepieces.blogspot.ca/2012/07/the-predators-ancestors-uavs-in-great.html>.

82 Ernest Swinton used this expression to refer to the “wilderness of dead bodies... between the opposing lines” in his short story “The Point of View”, published under the pseudonym of Ole Luk-Oie. *The Green Curve and Other Stories*, Doubleday, Page & Company, Garden City, NY, 1914, p. 243.

83 According to John Weldon the word “tank” was used instead of “machine gun destroyer”. John Weldon, “A short history of tank development: Seven tanks for armoured warfare”, *Meccano Magazine*, July 1970, pp. 370–373.

84 Ernest Swinton, *The Green Curve and Other Stories*, above note 82, 1918, p. 4. We are not told whether these rumours were created deliberately or whether they were just left to occur naturally, in accordance with a phenomenon ably examined by Marc Bloch (quoted below).

1916 (Battle of Flers-Courcelette, where tanks were used for the first time), and the psychological shock that hampered the response by the German forces.<sup>85</sup>

Fig. 6 - B/W online, B/W in print



Figure 6. A British tank taken in the battle of Menin Road, September 1917, *Éric Germain's private collection*.<sup>86</sup>

### *Winning hearts and minds: from text to image*

Ernest Swinton presented himself as the inventor of “psychological warfare”.<sup>87</sup> In October 1914, his first feat of arms was to drop 25,000 pamphlets printed in German on the lines of the Central Powers. Their typography and the colour of the paper (arsenic green) were carefully chosen to reinforce the psychological

85 “... it was naturally realised that the greatest results to be expected from the employment of this new weapon would be attained if it could be launched unexpectedly, so that the enemy might be caught unprepared to meet it.” Ernest Swinton, *The “Tanks” (by request and with permission)*, George H. Doran Company, NY, March 1918, p. 3, available at: [https://archive.org/stream/tanksbyrequestwi00swin\\_0/tanksbyrequestwi00swin\\_0\\_djvu.txt](https://archive.org/stream/tanksbyrequestwi00swin_0/tanksbyrequestwi00swin_0_djvu.txt).

86 Text printed on the back side of the photograph: “Official Photographs taken on the British Western Front. *The Battle of the Menin Road [20–25 September 1917]*” and interestingly the text continues: “One of our latest tanks going to destroy German machine gun positions” [the machine gun being considered as a more “inhumane” type of modern weaponry]; with stamps “Official Photograph issued by the Press Bureau” and “Passed for transmission abroad”.

87 In fact, it was a German monoplane that carried out the first “psychological warfare” operation by flying over Paris on Sunday, 30 August 1914 with a banner in the colours of the Reich. It dropped pamphlets bearing the message: “The German army is at the gates of Paris, it only remains for you to surrender.” Jean Hallade, 1914–1918: *De l’Aisne on bombardait Paris*, Imprimerie de l’Aisne Nouvelle, 1979; quoted in “L’aviation allemande bombarde Paris, en août et septembre 1914”, 1914 – *Première bataille de la Marne – First Battle of the Marne*, available at: <http://1914ancien.free.fr/parisbom.htm>.

impact of the text.<sup>88</sup> According to Swinton, the initiative was discontinued because of fear of the treatment that would be meted out to the pilot of an aeroplane captured on this type of mission. Indeed, the airborne propaganda actions, which proliferated from 1917 onwards, drove the German authorities to court-martial captured pilots.<sup>89</sup> In August 1915, France was the first country to create a department of airborne propaganda. On the British side the activities carried out to weaken the adversary's morale met with hostility from the Royal Flying Corps, which felt that they did not merit the risks run by the pilots. The propaganda office, set up at the start of 1916 within the military intelligence section of the War Office, concentrated on domestic public opinion.

To boost public support for the war effort, British propaganda posters readily used the icons of German long-distance warfare: airships and submarines. These new weapons made the British public realize that their protective insularity, hitherto guaranteed by the superiority of their navy, was at an end. A 1915 recruiting poster showed a Zeppelin flying over London on a moonless night, and a caption that read: "It is far better to face the bullets than to be killed at home by a bomb. Join the army at once and help stop an air raid."<sup>90</sup>

German airships became a dominant theme in propaganda posters, especially in English-speaking countries, which often depicted the black silhouette of a "cowardly" Zeppelin driven out by the crossed beams from anti-aircraft defence projectors. One poster underlines the "murderer's impunity" by a chromatic contrast between the pastel-tinted sky, in which two airships are cruising peacefully, and the garish colours of the explosions lighting up the dead bodies of women and children.<sup>91</sup> The image was skilfully designed to inspire a feeling of outrage at the Zeppelin crews "serenely" striking civilians, whose status was reduced to that of innocent prey.<sup>92</sup>

In this war-by-image, photography played an increasingly important role: it showed those living behind the lines pictures of the "reality" of the front, which it

88 Ernest Swinton, *Eyewitness: Being Personal Reminiscences of Certain Phases of the Great War, Including the Genesis of the Tank*, Doran & Company, Garden City, NY, 1933, pp. 47–50.

89 In June 1917 the German Minister for Foreign Affairs told his Swiss counterpart that any aviator dropping propaganda would be regarded as breaking the laws of war – a threat carried out in December of the same year. Bernard Wilkin, "Propagande militaire aérienne et législation durant la Première Guerre mondiale", *Revue historique des armées*, No. 274, 2014, pp. 87–94, available at: <http://rha.revues.org/7976>.

90 Available at: [http://upload.wikimedia.org/wikipedia/commons/e/ec/It\\_is\\_far\\_better\\_to\\_face\\_the\\_bullets.jpg](http://upload.wikimedia.org/wikipedia/commons/e/ec/It_is_far_better_to_face_the_bullets.jpg). See also the poster "Zeppelins Over Your Town", available at: <http://www.iwm.org.uk/collections/item/object/30918>. For the print media, see the photo of an airship under the beams of projectors, which appeared on the front page of the 8 November 1915 issue of the American illustrated weekly *The Independent* and of *L'Illustration*, No. 3760, 27 March 2015 (see Figure 3).

91 W. A. Gullick, "Enlist, by staying at home you are giving your approval to this kind of thing", picture, in *Collection of New South Wales recruitment posters for World War I*, available at: <http://nla.gov.au/nla.pic-an7697018-3>.

92 An analogy with an entertaining hunting activity currently featuring in anti-armed drones campaigns which condemn the "PlayStation mentality" of pilots accused of having a virtual – and obscenely game-inspired – image of their targets.

presented as having been taken “live”.<sup>93</sup> In 1914, the Germans were way ahead of the French in their use of this new medium, with a *Militärische Film und Photostelle* which centralized production and distribution in a single body. The Leipzig office flooded neutral countries with German photographs, to the point where the French foreign ministry was alerted. In 1915 they encouraged their military authorities to set up the army’s photographic and cinematographic sections (SPA and SCA).<sup>94</sup> Camera operators in the SCA shot short documentaries and a weekly news film. The latter (*Annales de la guerre*) was screened in cinemas before the main film. The propaganda films made by the French army were scripted, and were sometimes even filmed by experienced directors using professional actors.<sup>95</sup>

### *Distance humour and rumours to counter globalized propaganda*

In the first half of 1915, the major warring countries decided to set up central censorship bureaus,<sup>96</sup> which soon became united with propaganda offices. The British MI7, founded in January 1916, exemplified this innovative approach by including censorship as part of a comprehensive propaganda strategy.<sup>97</sup>

Neither soldiers nor the general population remained passive in the face of this industrialized information war. The fact was that alongside organized propaganda consisting of selective truths and outright lies, there also developed a vast realm of gossip and make-believe which emerged spontaneously. In a 1921 article about the war’s cacophony of “false news”, historian Marc Bloch recalled that, in the trenches, censorship gave rise to the feeling that “anything could be true except what was allowed to be printed”<sup>98</sup> – words that have the ironic ring often found in post-war writings. Indeed, during the conflict, humour – sometimes bordering on nonsense<sup>99</sup> – was another form of reaction to the most overt forms of propaganda, although it was sparked primarily by the difficulty of

93 This despite the fact that there was nothing spontaneous about the pictures, which had been carefully staged. *Sur le vif* and *J’ai vu* were two magazines, founded during the war, in which illustrations were more important than commentary. Hélène Guillot, “La section photographique de l’armée et la Grande Guerre”, *Revue historique des armées*, No. 258, 2010, pp. 110–117, available at: <http://rha.revues.org/6938>.

94 The SPA and SCA were merged in January 1917. Violaine Challeat, “Le cinéma au service de la défense, 1915–2008”, *Revue historique des armées*, No. 252, 2008, pp. 3–15, available at: <http://rha.revues.org/2983>.

95 Such as the screenwriter and director Henri Desfontaines, *ibid.*, note 7. Across the Atlantic, Charlie Chaplin was making several propaganda films: *Zepped*, *The Bond* and the comedy *Shoulder Arms*. “World One War: Charlie Chaplin”, *HubPages*, 29 April 2011, available at: <http://smmmchannon.hubpages.com/hub/World-One-War-Charlie-Chaplin>.

96 The *Bureau de la Presse* in Paris in January, the *Oberzensurstelle* in Berlin in February and the Official Press Bureau in London in June 1915; Eberhard Demm, “Censorship”, 8 March 2016, notes 4 and 9, available at: <http://encyclopedia.1914-1918-online.net/article/censorship>.

97 *Ibid.*, note 11.

98 Marc Bloch, “Réflexions d’un historien sur les fausses nouvelles de la guerre” (A historian’s reflections on false news during the war), *Revue de synthèse historique*, Vol. 33, August–December 1921, p. 32.

99 This feeling of irrationality and false reality found radical artistic expression, for example in the Dada movement, which emerged in those years and spread throughout the world.

responding directly to the absurdity of the army command's decisions in trench warfare.

For official communication, two areas were demarcated in France: an internal zone and an army zone. Even though it was placed under the strict control of the military authorities, the latter did not escape the "curious efflorescence of the collective imagination".<sup>100</sup> Marc Bloch recounts the manufacturing of one of these rumours, which he witnessed when serving at the front as an intelligence officer:

We saw how one day (in September 1917), by virtue of imaginations heated by tales of espionage, a burgher from Bremen [*"Brème" in French*] [a German soldier who had just been captured] was transformed into a spy who had treacherously settled in Braisne [*pronounced "Brène" in French*] [a small town south of the Chemin des Dames plateau, on the front line of the Aisne battlefield, where his regiment was].

Where did this transfiguration first take place? Not quite along the line of fire, but a little farther away from the enemy, in the batteries, the convoys, the kitchens. It was from this relative "rear" that the rumour flowed back to us. That was the route almost always followed by false news. (...) In that little world of the trenches, it was the kitchens that stood in for the market square.

... On a map of the front, a little behind the intertwining lines recording the infinite detours of the front positions, one could shade in a continuous zone in hatching; that would be the zone where legends were created.<sup>101</sup>

Marc Bloch invites us to consider a new cartography for this "army zone". He reminds us that, while there was a front and a rear, the fighting front itself had its own "relative rear".

This was also true on a broader scale, and those designing propaganda gradually realized that their sphere of influence needed to be worldwide. The German news agency – significantly named Transocean (Trans-Ocean)<sup>102</sup> – sent messages at least twice a day to its North American wireless station in Sayville. The Telefunken transmitter, located near New York City, had the most advanced technology available<sup>103</sup> and was used as a relay for reaching Asia and South America.<sup>104</sup>

100 *Ibid.*, p. 19.

101 *Ibid.*, pp. 32–33.

102 On the role played by this news agency in connection with German consuls, businessmen volunteers and associations of Germans resident overseas, see Jamie Bisher, *The Intelligence War in Latin America, 1914–1922*, McFarland, Jefferson (NC), 2016, p. 32.

103 <http://www.sayville.com/wireless.html>.

104 After declaring war on Germany on 6 April 1917, one of the first hostile acts of the United States was to seize the Sayville Station. However, this had little effect on the German world broadcasting capacity, as by that time the long-wave radio station at Nauen could transmit messages over 11,000 kilometres. H. Tworek, 2016, above note 60.

In their efforts to customize their war propaganda, the Germans displayed great inventiveness, both in the media they used and in the intellectual and emotional arguments they marshalled. In Muslim countries, with the help of the Turkish authorities they created the ideological framework for a “holy war” which was intended to set the French, British and Dutch colonial empires ablaze. “Jihad made in Germany” was master-minded in the Berlin-based Oriental News Department.<sup>105</sup>

The orientalist and archaeologist Max von Oppenheim theorized about an ideology of pan-Islamic *jihad* which was scientifically designed to be a tool in a war encompassing the religious psyche.<sup>106</sup> Despite rather lacklustre results, this nevertheless represented the first modern use of a strategy for manipulating the emotional sphere of religion in order to spread a bellicose ideology.

## Are there lessons to be learnt for the new battlefields of the twenty-first century?

If the First World War may be regarded as a watershed moment in the development of long-distance warfare techniques, it is partly because of the experiments with the first guided munitions and unmanned aerial and naval vehicles. Although they mostly remained at the prototype stage, the emergence of this category of weapons shows that the concept of the legitimacy of military action was evolving.

### First marine, ground and aerial drones invented between 1909 and 1917

“Manned” and “remotely driven” military aviation came into being within a few years of one another. On the French side, the pioneer of the so-called “automatic” aviation was Captain Max Boucher, who began to experiment with radio-controlled aeroplanes in the summer of 1917.<sup>107</sup> The military command encouraged this research in the hope of preserving its precious, qualified human resources at a time when the life expectancy of a fighter pilot operating in French skies was six weeks at most.<sup>108</sup> The controls for these biplanes were operated by radio waves, which meant that they had to be guided within sight of the pilot on the ground. It is conceivable, therefore, that they may have been initially intended

105 Wolfgang G. Schwanitz, “Euro-Islam by ‘Jihad made in Germany’”, in Nathalie Clayer and Éric Germain (eds), *Islam in Inter-War Europe*, Hurst, London, 2008, pp. 271–301.

106 The British effort at mobilizing religious affects seems to have been more amateurish. In 1933 Colonel Swinton admitted that his idea of painting hideous genies on the armour of tanks sent to fight in Palestine – in the hope of giving the enemy an even greater fright – had been inspired more by his familiarity with the *Arabian Nights* than by any real knowledge of the region’s culture. E. Swinton, *Eyewitness*, above note 88, 1933, pp. 260–261. To encourage the Bedouin tribes to revolt, T. E. Lawrence had inflamed not their religious affects but nationalist Arab feeling.

107 “L’avion sans pilote” (The Pilotless Plane), in *Journal des Voyages*, 4 April 1929, reprinted in *Le Piège*, No. 208, March 2012, available at: <http://www.aea.asso.fr/public/lepiege/sommaires/2012.html>.

108 J. H. Morrow, above note 44, p. 411.

for observation at close range, or even for anti-aircraft defence, to dissuade or neutralize enemy airships, as had already been imagined in the English film of 1909, *The Airship Destroyer*.<sup>109</sup>

An identical project was being developed on the far side of the Channel by Captain Archibald Low, who was working on a model of a radio-controlled aeroplane.<sup>110</sup> In the same period, the British engineer is said to have designed the first radio-guided missile. In the United States, meanwhile, Elmer Sperry, the inventor of the gyroscope, and his son Lawrence, were developing the concept of a drone-cum-aerial torpedo loaded with trinitrotoluene (TNT).<sup>111</sup> The first test flight of the Curtiss-Sperry Flying Bomb was on 6 March 1918, although it was not until 1926 that the project was revealed by the American press.<sup>112</sup>

109 This little silent film, inspired by H. G. Wells and Jules Verne and directed by Walter Booth, imagined the city of London attacked by a fleet of aircraft but saved by the invention of a radio-guided aerial torpedo. IMDb entry available at: [http://www.imdb.com/title/tt0000790/?ref\\_=ttrel\\_rel\\_tt](http://www.imdb.com/title/tt0000790/?ref_=ttrel_rel_tt).

110 Jonathan Sale, "The secret history of drones", in *The Guardian*, 10 February 2013, available at: <http://www.theguardian.com/world/shortcuts/2013/feb/10/secret-history-of-drones-1916>.

111 "Deadly Air Torpedo Ready at War's End: Elmer Sperry's Invention Is Told", in the *New York Times*, 8 December 1926, quoted in Thomas P. Hughes, *American Genesis: A Century of Invention and Technological Enthusiasm, 1870–1970*, University of Chicago Press, Chicago, 2004, p. 128.

112 In Germany, the Krupp factories had been working on the concept of an aerial torpedo from 1909, drawing on the work of a Professor Weichert: "Torpedoes That Fly In The Air: Krupp's Subvention of a New Aerial Monster", *New Zealand Herald*, Vol. 46, No. 14079, 5 June 1909, p. 2, available at: <http://paperspast.natlib.govt.nz/cgi-bin/paperspast?a=d&d=NZH19090605.2.98.32>.



Fig. 7 - Colour online, Colour in print

Figure 7. “Aeroplane Torpedo”; front cover of *Le Pays de France*, Paris, 2 December 1915, *Éric Germain's private collection*.

The idea of remotely controlling not the delivery vehicle (the drone) but the munitions themselves (the rocket or torpedo) emerged very quickly, with the first “radio-automatic” torpedoes tested by Gustave Gabet in the waters of the Seine in 1909.<sup>113</sup> The French engineer, a committed pacifist, presented his invention to the navy command as a deterrent.<sup>114</sup>

At the start of 1915, Paul Aubriot, a trade unionist and Socialist deputy for the fifteenth arrondissement in Paris, proposed to the minister for war that he should assign Gustave Gabet to the technical section of the Engineers.<sup>115</sup> In July, thanks to private financial aid from François de Wendell, an industrialist from Lorraine and also a deputy, Gabet gave a demonstration of a prototype electric, wire-guided “ground torpedo” mounted on caterpillar tracks.<sup>116</sup>

Some months later he presented a more impressive model, an “armoured, automobile blockhouse” armed with a 37-mm cannon under a turret operated by two men.<sup>117</sup> The “Gabet Electric Blockhaus”, adapted from an American Caterpillar tractor, was first produced in an electric version (powered by a cable) before being given autonomy through motorization. It was one of the many prototypes that preceded the effective introduction of the new armoured weapon – the “tank” – on the battlefields of the Somme on 15 September 1916.

The pioneering research conducted on munitions and unmanned aerial and marine vehicles was abandoned at the end of the conflict. However, the ambition of gaining ground in an engagement from a distance, and thereby protecting soldiers’ lives, was pursued through a doctrinal reflection on aerial bombing and operational use which was experimented with many miles from European soil.

- 113 Agence Rol, “Torpille radio automatique Gabet”, picture, Rol 7510, 24 December 1909, available at: <http://gallica.bnf.fr/ark:/12148/btv1b6913022n>; Agence Rol, “Torpille dirigible Gabet”, picture, Rol 5070, 31 August 1909, available at: <http://gallica.bnf.fr/ark:/12148/btv1b6912353x>. See also “Invention d’une torpille radio automatique”, *Le Petit Journal*, 14 February 1909.
- 114 Reminiscent of the words of Orville Wright: “When my brother and I built and flew the first man-carrying flying machine, we thought that we were introducing into the world an invention which would make further wars practically impossible.” Orville Wright to C. M. Hitchcock, letter, 21 June 1917, available at: [http://www.smithsonianeducation.org/educators/lesson\\_plans/wright/flights\\_future.html](http://www.smithsonianeducation.org/educators/lesson_plans/wright/flights_future.html).
- 115 Paul Aubriot, “Chars d’assaut – premiers efforts” (Tanks – first attempts), in *Le Midi*, 7 September 1918, available at: [http://images.midi.bibliotheque.toulouse.fr/1918/B315556101\\_MIDSOC\\_1918\\_09\\_07.pdf](http://images.midi.bibliotheque.toulouse.fr/1918/B315556101_MIDSOC_1918_09_07.pdf).
- 116 This pioneering research is described in Peter Singer’s best-seller, *Wired for War: The Robotics Revolution and Conflict in the 21st Century*, Penguin Press, New York, 2009; and in Robert Work and Shawn Brimley (eds), *20YY: Preparing for War in the Robotic Age*, report, Center for a New American Security (CNAS), Washington, DC, 22 January 2014, p. 22, available at: [http://www.cnas.org/20YY-Preparing-War-in-Robotic-Age#\\_UzU9ldhAfEY](http://www.cnas.org/20YY-Preparing-War-in-Robotic-Age#_UzU9ldhAfEY).
- 117 “1919 – Quelques chars, guerre et après-guerre” (1919 – Some tanks, war and post-war), *Vieux-Papiers*, 14 February 2010, available at: <http://vieux-papiers.over-blog.com/article-1919-quelques-chars-guerre-et-apres-guerre-44917424.html>; “Torpille Terrestre” (Ground Torpedo), *Le Bestiaire Extraordinaire de l’Armée Française*, 2005, available at: [http://modelarchives.free.fr/Bestiaire/Torpter\\_P/](http://modelarchives.free.fr/Bestiaire/Torpter_P/); “1915 Cuirasse Aubriot-Gabet”, *Un siècle d’histoire des engins blindés français* (French Armoured Vehicles: A Century of History), available at: [http://www.chars-francais.net/new/index.php?option=com\\_content&task=view&id=787&Itemid=36](http://www.chars-francais.net/new/index.php?option=com_content&task=view&id=787&Itemid=36).

## Air power and the temptation of a war without foot soldiers<sup>118</sup>

After 1918, theories began to emerge around the idea of a “contactless” engagement. For air combat, Giulio Douhet, an Italian general, developed the first doctrine of “air power”, a force that relied on strategic bombardments and whose effectiveness would make war with foot soldiers obsolete.

Winston Churchill was one of the first politicians to interest himself in modern ways of using the new aerial weapon. In 1919, when he became Secretary of State for War, he was up against the collapse of military budgets combined with fierce public hostility to the prospect of again seeing Tommies shed their blood. In this situation, a colonial air force seemed like “a manpower-compensating component”.<sup>119</sup> On the advice of General Hugh Trenchard, Churchill decided to set up a permanent contingent of the Royal Air Force (RAF) in Mesopotamia, to deal with the many revolts that were undermining the Empire.<sup>120</sup> In the 1920s, British squadrons successfully carried out several air strike campaigns to suppress rebellions in Somaliland, Iraq, Kurdistan and Waziristan.

It is tempting to draw a parallel with the contemporary situation that has led the American president, Barack Obama, also to gamble on air power (although remotely controlled) to carry out drone strikes in these same areas of Somalia, Iraq, Kurdistan and Waziristan. This choice was also made out of a concern to spare human and material resources, when faced with the necessity of making safe a world shaken by terrorist shocks. Comparing two historical moments is a risky game, but it does have some advantages. Here it reminds us that immediately after the Great War people believed that developing technology for keeping fighters at a distance from one another would make it possible to escape the “blood sacrifice”.

This illusion did not last long – only for the 1920s, in a colonial context featuring a marked asymmetry in material capacity.<sup>121</sup> In 1935, after Adolf

118 This section draws on some ideas originally presented in the article by É. Germain, “L’ennemi...Toujours plus loin”, above note 9, p. 31–32.

119 Colonel Armengaud, “L’aviation militaire au Maroc au cours du 2e trimestre 1925. Les opérations”, *Revue de l’aéronautique militaire*, September–October 1925, p. 101, quoted by Jérôme Millet, “L’aviation militaire française dans la guerre du Rif” (The French air force in the Rif War), *Revue historique des armées*, No. 166, March 1987, p. 49.

120 The efficacy of the British “air control” doctrine was somewhat downplayed on the French side. According to the commander of the colonial air force in Morocco, the experience of the Rif War showed that “it is not enough, as some have feigned to believe, to reach the Rifian in his home with aerial bombings: we must conquer his country’s sensitive points by bringing a column of all kinds of weapons there...”. Colonel Armengaud’s report of 19 July 1925 for his superior, Marshal Lyautey, quoted by J. Millet, *ibid.*, p. 52.

121 An asymmetry that was already precarious, as illustrated by a 1925 intelligence memorandum warning that Abd el-Krim might resort to mercenary pilots for flying his three planes in Morocco. *Ibid.*, p. 57.

Hitler had come to power, and finding himself faced with the prospect of confronting an enemy equipped with similar technology, Winston Churchill critically reassessed an air power that, he said, could as easily put an end to a civilization as to a war.<sup>122</sup>

During the Somaliland campaign in 1920, the use of RAF bombardments was still regarded, ethically, as an exception. The asymmetry of the military resources deployed was justified by the supposed abnormality of the adversary: “religious fanatics” led by a person known in the London press as the “Mad Mullah”. In the following years, air strikes – outside of tactical missions giving “fire support” to troops on the ground – became commonplace and no longer sought any particular ethical justification.

From the Second World War on, high-altitude bombing by the United States (US) air force again raised this ethical question, in a different context, depending on the type of weapon used: conventional in Dresden and Tokyo, nuclear in Hiroshima and Nagasaki. In the spring of 1999, before “precision-guided munitions” became widespread, the North Atlantic Treaty Organization (NATO) bombing in Yugoslavia was to be the last episode in the trade-off – challenged on moral grounds – whereby a high altitude which increased crew safety was given precedence over the aim of reducing collateral damage.

## Today’s challenges of disengaged warfare and detached public opinion

In April 1916, the British 39 Squadron was formed in order to fight the infamous “baby killers” – the Zeppelins. Disbanded several times, the 39 Squadron was reformed on 1 January 2007 to host the pilots of the RAF armed Reaper aircraft at Creech Air Force Base,<sup>123</sup> from which the drone fleets of the US Air Force – and, very probably,<sup>124</sup> the CIA – were also operated. In the past decade the CIA’s “drone war”<sup>125</sup> has brought fresh acuity to the debate on disengaged combat. The

122 Winston Churchill, “...one can clearly see that the conquest of the air may mean the subjugation of mankind and the destruction of our civilization”, House of Commons, 7 June 1935, quoted by Richard M. Langworth (ed.), “Churchill and the ‘Flying Peril,’ 1913–1955”, available at: [http://www.winstonchurchill.org/images/pdfs/for\\_educators/The%20Flying%20Peril.pdf](http://www.winstonchurchill.org/images/pdfs/for_educators/The%20Flying%20Peril.pdf).

123 Royal Air Force, “Remotely Piloted Air System (RPAS): 39 Squadron”, available at: <http://www.raf.mod.uk/organisation/39squadron.cfm>.

124 Chris Woods, “CIA’s Pakistan drone strikes carried out by regular US air force personnel”, in *The Guardian*, 14 April 2014, available at: <http://www.theguardian.com/world/2014/apr/14/cia-drones-pakistan-us-air-force-documentary>.

125 A very particular kind of war, with no declaration of war and even no army, with terrorists on one side and a civilian intelligence agency on the other. Moreover, this fleet of armed drones is said to be piloted mostly by operators from private companies, under contract. See Peter W. Singer, “Double-Hatting Around the Law: The Problem with Morphing Warrior, Spy and Civilian Roles”, in *Armed Forces Journal*, Brookings Institution, Washington, DC, 1 June 2010, available at: <http://www.brookings.edu/research/opinions/2010/06/01-military-roles-singer>.

remotely piloted aircraft and their ammunition (which is both miniaturized and “intelligent”) are presented as offering the most technologically advanced countries the promise of completing the transition from the “bloody surgery” (to use Antoine de Saint-Exupéry’s words) of long-distance warfare in 1914 to the “clean surgery” of modern conflicts.<sup>126</sup> We have not yet fully realized that this borderless drone war is being fought after a century-old process of blurring the distinction between front and rear.

Today, when the spouse of a drone pilot is driving her husband to work, does she become a legitimate military target? Many jurists specializing in the law of armed conflict may agree that she does. The questions raised by “cyber warfare” appear just as troubling. The post-traumatic syndromes that affect both cyber-activists and drone pilots show that the reality of the violence they watch is far from disembodied.<sup>127</sup> But does this mean that “cyber-activists” are warriors? Where do their combats take place? The ubiquity of a (no longer merely worldwide, but global) war with the previously unheard-of capabilities offered by remote-controlled, automated forms of technology has radically transformed our concept of military action and the law and ethics relating to it.

On Monday 7 August 1911, announcing the first test of a torpedo controlled by Hertzian waves, the daily newspaper *Le Gaulois* prophesied the transformation of warfare this invention could lead to:

The question of remote control has thus been raised, and it is a good one, and the time is doubtless not far off when, from the Eiffel Tower, our officers will be able to blow up bridges and detonate mines beneath the feet of marching battalions. (...)

When that time comes, we shall see aeroplanes (...) criss-crossing space, blindly obeying orders from the transmitter. (...)

The time is not far off when remote control will perform veritable miracles and will transform (...) war itself.<sup>128</sup>

In one century, Western societies have come from a bloody conflict with over eighteen million casualties<sup>129</sup> to military operations that are both more disembodied and more contained. Are we to regard this as progress in humanizing war?

126 With the accuracy of the air-dropped guided munitions touted in the CNAS report *20YY: Preparing for War in the Robotic Age*, above note 116, pp. 10–16.

127 There is even talk about hackers being affected by this type of post-traumatic stress disorder. The group of internet activists going by the name of Telecomix – whose We Rebuild campaign has enabled activists from the revolutions in Tunisia, Egypt and Syria to bypass censorship since 2011 – have set up a help unit for members who have been psychologically damaged by viewing unbearable images.

128 “L’œuvre d’un grand français” (The Work of a Great Frenchman), *Le Gaulois*, 7 August 1911, available at: <http://gallica.bnf.fr/ark:/12148/bpt6k5351462.texte>.

129 Philip J. Haythornthwaite, *The World War One Source Book*, Arms & Armour Press, London, 1993. Each camp lost more than nine million lives, both military and civilian.

The laudable concern to save the lives of soldiers and of the civilian population is currently leading to investment in more discreet technology and resources, which are less sensitive to public opinion. The development of weapons and means and methods of warfare for which the involvement and consent of a country's citizens is no longer a requirement is something we should be worried about.

Democracies that have abandoned conscription in favour of professional armies must take care to maintain the conscious, responsible involvement of the nation and its representatives in acts of war carried out in their name. Early in 1917, German Chancellor Theobald von Bethmann Hollweg resigned after failing to contain an all-out underwater war that “placed the fate of the Reich in the hands of a hundred U-boat commanders”.<sup>130</sup> In tomorrow's wars, will it not be just as risky to entrust the artificial intelligence of a hundred totally autonomous future robots with the responsibility of distinguishing between civilians and combatants?<sup>131</sup>

History will perhaps remember that it was actually in 2014, the year of the centenary of the outbreak of the Great War, that an international discussion on the issues at stake in lethal autonomous weapons systems (LAWS) began in Geneva.<sup>132</sup> The particular sensory and cognitive capacities of those future LAWS are still hard to imagine, as the technology is still in its infancy. We do already know, however, that they are likely to be used in a type of ubiquitous warfare that is not completely unknown to us, because most of its distinctive features first emerged during the four years of the First World War.

130 Bernhard Schwertfeger, *Kaiser und Kabinettschef: nach eigenen Aufzeichnungen und dem Briefwechsel des [...] Rudolf von Valentini* (The Kaiser and the Head of Cabinet: from Rudolf von Valentini's own records and correspondence), Gerhard Stalling, Oldenburg, 1931, p. 144, quoted in Bayerische Landeszentrale für Politische Bildungsarbeit, “Keine Chance auf Frieden? Außenpolitik 1917” (No Chance for Peace? Foreign Policy 1917), March 2007, available at: [http://www.blz.bayern.de/blz/eup/03\\_07\\_themenheft/3.asp](http://www.blz.bayern.de/blz/eup/03_07_themenheft/3.asp).

131 On the issues raised by “autonomous lethal robots”, which I include in the wider category of “coercion robotics”, see Éric Germain, “La campagne pour l'interdiction des ‘robots tueurs’ se trompe-t-elle de cible?” (Is the campaign to ban ‘killer robots’ mistaking its target?), in *Le Monde*, 24 June 2013, available at: [http://www.lemonde.fr/idees/article/2013/06/24/la-campagne-pour-l-interdiction-des-robots-tueurs-se-trompe-t-elle-de-cible\\_3435578\\_3232.html](http://www.lemonde.fr/idees/article/2013/06/24/la-campagne-pour-l-interdiction-des-robots-tueurs-se-trompe-t-elle-de-cible_3435578_3232.html).

132 A high-level meeting of experts, chaired by the French ambassador, was held at the Palais des Nations (UN) in Geneva from 13 to 16 May 2014 under the 1980 Convention on Conventional Weapons (CCW); the agendas for the three meetings organized since then, and their final reports, are available at: [http://www.unog.ch/80256EE600585943/\(http://Pages\)/8FA3C2562A60FF81C1257CE600393DF6?OpenDocument](http://www.unog.ch/80256EE600585943/(http://Pages)/8FA3C2562A60FF81C1257CE600393DF6?OpenDocument).

