Introduction

On 1 November 1911 Lieutenant Giulio Gavotti of Italy decided to be the first person in the world to throw bombs from his aeroplane. The Italian aviator had been sent to Libya in order to carry out missions of strategic reconnaissance, but had not been given more precise orders on how to proceed. To be sure, no one in the military hierarchy had any precise ideas how to proceed with an aeroplane, but all deemed that it must be an excellent means for strategic observation of enemy manoeuvres. At dawn Gavotti was at the airfield and had his Etrich Taube prepared. He cautiously stowed three bombs of 1,500 g each in a box, and a fourth bomb in the pocket of his coat. Another little box contained detonators. He started the engine and took off, climbing to an altitude of 700 m above the Mediterranean west of Tripoli. Flying in a large circle he headed towards the African Continent. The previous days, he had observed some 2,000 Arab fighters gathering at Ain Zahra and had decided that the small oasis would be the first target of aerial bombing. In a letter to his father, he described what happened during this morning of 1 November 1911 in the skies of Libya. Holding the wheel with one hand, he extracted a bomb from the box and put it on his knee. Changing hands, he grasped a detonator and put it into the bomb. He was ready and looked below. Ain Zahra lay a kilometre ahead and he could clearly distinguish the Arabs' tents. When he arrived above his target, he took the bomb in his right hand, pulled the trigger with his teeth, and threw the bomb out of the plane. For a couple of seconds, his eyes followed the explosive and a moment later he saw a small dark cloud rise up from the ground. After launching his three other bombs, but without being able to identify any effect, he happily returned to his aerodrome. Giulio Gavotti had certainly accomplished an historic event; he had realized the fantasy of war from the air. The Italian pilot had also opened a new chapter in the history of warfare.

What Gavotti did on 1 November 1911 was actually more than just applying the new technological device of the aeroplane to military purposes. His action implied a mixing-up of different forms of previously

separate military missions. The original mission he was assigned to was reconnaissance and he had carried out the bombing without any formal order from the military hierarchy. In the Libyan desert, aircraft thus performed a role that had traditionally been played by cavalry forces. In dropping bombs on enemy military installations, his mission bore, furthermore, resemblance to bombardments as traditionally carried out by the artillery during operations on the battlefield. There are, however, two crucial differences between traditional artillery operations on the battlefield and Gavotti's aerial bombing: the target of this bombing was not a military unit employed on the battlefield but consisted of fighters dwelling far from the front line and not actually engaged in combat operations. Moreover, the oasis of Ain Zahra was not only a military camp but also constituted a social system with an economic and social organization of its own. When pulling the trigger with his teeth and throwing the bomb out of his Etrich Taube, Gavotti performed a mission comprising very different and even contradictory ideas about air power. Was he engaged in a mission of reconnaissance? Was he carrying out tactical combat missions of a particular kind? Or was he the first to be engaged in 'strategic' bombing, inasmuch as his target was a social system as a whole? The bombing of Ain Zahra potentially involved a conceptual revolution about the nature of warfare, inasmuch as these traditionally very different missions became practically undistinguishable. On a conceptual and doctrinal level, this merging of different missions has caused considerable confusion over the decades following Gavotti's flight, and the following pages will be a contribution to the understanding of the changes in warfare brought about by the advent of air power since this fateful morning of 1 November 1911.

Dropping explosives from the air had been a military dream for centuries. In 1670, the Jesuit count Francesco Lana de Terzi was probably the first to foresee the possibility of war from the air. Drawing on the idea of 'lighter than air', which Roger Bacon had developed in his *De secretis operibus naturae et de nulligate magiae* around 1260, Lana pointed out that an airship could attack cities, castles and even ships, dropping projectiles, bombs and fire without any risk to the airship itself.[1] But it was only during the wars of the French Revolution that the first attempts to adapt balloons to military purposes – both communication and bombing – were undertaken.[2] In order to crush the monarchists'

[1] F. Lana de Terzi, *Prodomo, ovvero saggio di alcune invenzioni nuove*, cited in R. Strehl, *Der Himmel hat keine Grenzen: Das große Abenteuer der Luftfahrt* (Düsseldorf: Econ, 1962), 20–6; a reproduction of Lana's 'aerial chariot' can be found in F. Howard and B. Gunston, *The Conquest of the Air* (London: Paul Elek, 1972), 9.
[2] See P. Banet-Rivet, *L'aéronautique* (Paris: L.-Henry May, 1898), 247–51.

revolt in Toulon in 1793, the Montgolfier brothers submitted a project to the National Convention for attacking the town from the air.[3] Half a century later, during the 1849 siege of Venice, the Austrian military used fire balloons to bomb the city into submission, but the accuracy of targeting was so poor that the army decided not to use the device any more.[4] The same year, the French doctor Auguste Boissonneau developed the idea that the ability to drop bombs from balloons would signify the ultimate end to all possibilities of waging war – an argument that would have great prominence in the debates about the military uses of aircraft.[5] The first practical attempts to use balloons for military purposes were made during the American Civil War and the siege of Paris in the Franco-Prussian War, where balloons were employed to assure communication with the besieged capital.[6] In 1884, French military engineers Charles Renard and Arthur Constantin Krebs launched the first dirigible, *La France*.[7]

At the end of the nineteenth century France was undoubtedly the most air-minded nation in the world, and few would have thought that the Italian military would become the first to experiment with aerial bombing in 1911. However, other European armies reacted quickly and immediately set up ballooning units in order to catch up with the French in aeronautical matters. So did the Italian War Ministry.[8] On 6 November 1884 an 'aerostatic section' and a 'specialists' brigade' (*brigata specialisti*) were created in Rome to carry out experiments concerning the military usage of the new device and to develop adequate materiel.[9] If ballooning was to have any military use, it was, moreover, necessary to develop doctrinal concepts. The first attempt was made during the same year, 1884. In the service review, *Rivista di artiglieria e genio* (*Review of Artillery and Combat Engineering*) Captain Lo Forte dealt with 'L'aeronautica e le sue applicazioni militari' ('Aviation and Its Military Applications').[10] Aviation, in the opinion of Lo Forte, would

[3] P. Facon, *Le bombardement stratégique* (Monaco: Rocher, 1996), 21.
[4] H. Kronberger, *Das österreichische Ballonbuch* (Vienna: Hora, 1987), 58.
[5] A. Boissonneau, *Des moyens de pacification générale, ou exposé de deux propositions propres à paralyser les guerres intestines et internationales* (Paris: Hennuyer, 1849).
[6] Howard and Gunston, *The Conquest of the Air*, 31–2.
[7] L. M. Winter and G. Degner, *Minute Epics of Flight* (New York: Grosset & Dunlap, 1933), 49–50.
[8] L. Kennett, *The First Air War, 1914–1918* (New York: The Free Press, 1991), 3.
[9] Ufficio Storico dell'Aeronautica Militare, ed., *Cronistoria dell'aeronautica militare italiana*, 3 vols. (Rome: Aeronautica Militare, Ufficio Storico, 1972), Vol. I, 7. A detailed account of the organization of the Italian air services can be found in A. Fraschetti, *La prima organizzazione dell'aeronautica militare in Italia dal 1884 al 1925* (Rome: Stato Maggiore Aeronautica, Ufficio Storico, 1986).
[10] F. Lo Forte, 'L'aeronautica e le sue applicazioni militari', *Rivista di artiglieria e genio* 3 (1884).

probably be used in future wars and might give 'a not inconsiderable element of superiority to those armed forces that best know how to use it'. The author examined the question of whether the aeronautical devices should be dirigibles or not. He rejected the idea of installing a motor because this would make the balloon heavier than necessary, and he deemed a helix moved by muscles sufficient. Lo Forte then distinguished between the use of balloons in the field and in fortresses. In the first case balloons should serve essentially as a means for reconnaissance missions, in which they could, at least in part, replace the cavalry. Each corps of armed forces should comprise two balloons and be equipped by four men: two officers charged with reconnaissance and telegraphy, and two non-commissioned officers (NCOs) as pilots. As for fortresses, each should be equally equipped with balloons, but much larger and thus heavier than those employed in the field in order to be able to transport manpower, ammunitions and foodstuff. The concrete realizations of these ideas were, however, slow to occur in Italy. France having taken the lead in aeronautical technology, it took the Italians ten years to construct the first civil balloon entirely produced in Italy, and the first military device only flew in 1899. However, Italy very quickly made up for this technological delay, with Italian balloon technology being characterized by the close interaction of military and private initiatives. During the first years of the twentieth century, the considerable figure of some ninety-eight airships were built in Italy.[11]

The first book-long appraisal of the military uses of aviation is Giuseppe De Rossi's *La locomozione aerea: Impiego dei palloni in guerra* (*Aerial Locomotion: The Use of Balloons in War*) from 1887. In De Rossi's view, gas balloons are preferable to hot-air balloons and they should be employed primarily for reconnaissance purposes, including topographical and photographical recognition, but also for communication. De Rossi also underlines the 'effect on morale' that aviation is expected to have on troops. As for aerial bombing, however, 'very few examples can be given of attempts to use moored balloons to launch bombs or other explosive projectiles down on to troops or cities below'. Dirigibles would be needed to be able to carry out missions of this kind, and these could have a tremendous impact on future wars:

> If, in a war fought today in Europe between two continental powers, one were to have at its disposal a fleet of high-speed dirigible balloons, capable not only of cutting off the enemy's retreat and destroying its railway communications

[11] A. Curami, 'La nascita dell'industria aeronautica', in P. Ferrari, ed., *L'aeronautica italiana: Una storia del Novecento* (Milan: Franco Angeli, 2004), 13–42.

but also of taking an active role in combat as bombers, then that nation would be certain of victory.[12]

The use of such airships would be twofold. On the one hand, they should attack the enemy communication lines, streets, bridges, railways and strategic reserves. On the other, they should be used for close support missions, or for bombing fleets or cities. As can be seen from the quotations above, some of the essential questions of air power had already been addressed as early as 1887. Indeed, De Rossi mentions missions that would today be labelled air support, as well as tactical and strategic bombardments.

Also in 1887, as well as in the following year, the first three Italian balloons – though not of Italian construction – were employed for military missions, in the first Eritrean campaign of 1887–8. The colonial mission consisted of the reoccupation of the territory, which the Italians had lost after the defeat of Dogali (27 January 1887), where 548 Italians had been killed by irregular Ethiopian fighters. During the 1887–8 campaign, when balloons were employed, the Ethiopian army did not even approach the Italian expeditionary corps: it was therefore difficult to draw any conclusions about the military usefulness of the new device. However, Italian observers insisted on the 'effect on morale' of airships on the enemy troops. It seems that this was the first time that this kind of argument – which was to become pivotal in the debate – was used in official Italian correspondence.

> Once the emperor and his army had arrived near the Italian camp, the Italian general caused a balloon to be sent up in order to observe the enemy from above. The effect of the balloon was to alarm the Ethiopian soldiers who, without listening to their commanders, began to turn back towards their homes, saying: 'We can face an army of men, but not an army of God which comes from the sky' … If a bomb had fallen from the balloon, the entire armies of Begemder and Wollo would never have fired so much as a single rifle shot; only the soldiers of Tigray would have stayed to fight.[13]

The balloon was thus used for purposes of reconnaissance; but Italian observers immediately mentioned the possibility of launching explosives from the air. It does not seem, however, that these very different uses and the military possibilities they offered were the subject of any doctrinal reflection. This was certainly understandable given

[12] G. De Rossi, *La locomozione aerea: Impiego dei palloni in guerra* (Lanciano: Barabba, 1887), 91.
[13] Report by Count Pietro Antonelli to the Italian Foreign Office, 10 June 1888, cited in A. Lodi, *Storia delle origini dell'aeronautica militare*, 2 vols., Vol. I (Rome: Bizzarri, 1976), 34.

the rudimentary state of the materiel in 1887–8. Such lack of theorization, however, prefigured what was going to happen to many air services in the world in subsequent years. Another early publication that merits mention is a memorandum presented by Eduardo Guzzo to the Congress of Italian Architects and Engineers in 1892. From an entirely technical point of view, Guzzo maintains that balloons will be superseded by airships, and these in turn by aeroplanes.[14] In an article published in the *Rivista di artiglieria e genio* in 1896, Captain Tommaso Crociani was the first to use the expression *dominio dell'aria* (command of the air), which was to become the title of Giulio Douhet's major book as well as an issue particularly debated in strategic thinking in Italy and beyond.[15] However, the expression does not really have a meaning other than the technical one.

As a result of this short overview of publications on the military uses of aviation at the end of the nineteenth century it becomes clear that the Italian military was aware of them. De Rossi's work in particular already pointed to issues that were to become pivotal in later debates on air power. However, aviation at this time was almost exclusively understood as a tactical rather than a strategic weapon. Both the use of balloons for reconnaissance and the idea of launching bombs on battlefields or on besieged fortresses are limited to a tactical employment of aeronautical means. This was a crucial difference between late-nineteenth-century military ballooning and air-power concepts as they were to be developed and put into practice during the twentieth century. In the period between the First and the Second World Wars, air forces all over the world, though to different degrees, set up strategic doctrines that involved the strategic use of aeronautics. These military doctrines implied the idea that air power used independently from operations on the ground or at sea could bring about decisive results in war. The question that has to be addressed is thus how this strictly tactical use in support of traditional operations on the ground or at sea was replaced by the new idea that wars could be won in the air. What kind of changes in the character of war permitted such an evolution?

When the first military balloons were employed towards the end of the nineteenth century, military thinking was far removed from endorsing a vision of 'total war' that would become typical of military thinking and strategy in the years surrounding the First World War. In the

[14] E. Guzzo, 'L'aeronavigazione: Memoria presentata al XV Congresso degli architetti e ingegneri, VII sezione', 18 April 1892, cited in F. Botti and M. Cermelli, *La teoria della guerra aerea in Italia dalle origini alla seconda guerra mondiale (1884–1939)* (Rome: Stato Maggiore Aeronautica, Ufficio Storico, 1989), 7–8.

[15] T. Crociani, 'Il dominio dell'aria', *Rivista di artiglieria e genio* 4 (1896).

period, roughly speaking, between the Thirty Years War and the First World War, war was conceived as a struggle between sovereign states, and the civilian populations had, by right and in principle, to be protected as much as possible from the hostilities. A thinker like Jean-Jacques Rousseau thus affirmed that war was a relation between states and not between individuals.[16] After the interlude of the revolutionary and Napoleonic wars, which put an emphasis on the role of the 'nation' in politics and warfare, strategic thinking and political practice returned decisively to a state-centred vision in which the civilian population tended to be excluded from military action.[17] This remains true even if mass conscription as a legacy from the revolutionary period functioned as an existential linking of the citizen to the 'nation' and, in the case of war, to the causes for which the war was fought. Europe perceived itself as a region that was in fact united by shared fundamental principles, even if the nature of these principles varied over time. The religious basis of the *res publica christiana*[18] thus tended to be replaced by a more secular foundation in the form of 'civilization',[19] or what came to be labelled as 'civil society'.[20] However, all these founding principles relied in the last instance on a similar political, economic and social order.[21] This is exactly why the French revolutionary wars had such an enormous impact on European politics: with the French Revolution, the founding principles of the political, economic and social order were no longer unquestioned.[22] However, it is also true that the Vienna Congress closed the historical interval of the revolutionary period and that international politics returned wholesale to their former condition after 1815.

[16] J.-J. Rousseau, *Du contrat social*, I.4: 'La guerre n'est donc point une relation d'homme à homme, mais une relation d'État à État.'
[17] J.-Y. Guiomar, *L'invention de la guerre totale, XVIIIe–XXe siècle* (Paris: Editions du Félin, 2004), 229–86.
[18] A. Saitta, *Della res publica christiana agli Stati uniti di Europa: Sviluppo dell'idea pacifista in Francia nei secoli XVII–XIX* (Rome: Edizioni di storia e letteratura, 1948).
[19] See J.-J. Rousseau, 'Extrait du Projet de paix perpétuelle de M. l'abbé de Saint-Pierre', in *Œuvres complètes*, 3 vols., Vol. II (Paris: Seuil, 1971), 332–52 (336).
[20] See for instance Adam Ferguson's *An Essay on the History of Civil Society* of 1767.
[21] C. Schmitt, *Der Nomos der Erde im Völkerrecht des Jus Publicum Europaeum* (Berlin: Duncker & Humblot, 1988), 175.
[22] German journalist Wieland thus wrote in June 1794 that the French had declared 'civil war' on the rest of the world, and that this global civil war could only end with the reversal of all existing constitutions: 'Die Franzosen selbst haben den gegen die vereinigten Mächtn, ja, in der Trunkenheit ihres tollen Freyheits- und Gleichheitseifers, allen Staaten der Welt einen Krieg angekündigt, der nur mit dem gänzlichen Umsturz aller jetzt bestehenden Verfassungen aufhören sollte.' C. M. Wieland, *Ueber Krieg und Frieden: Geschrieben im Brachmonat 1794*, Vol. XXIX of *Sämtliche Werke* (Leipzig: Göschen, 1797), 496–7.

Nevertheless, these affirmations need qualification since they hold true only within the European centre and were never applicable in the European periphery. To the extent to which the limitation of warfare within Europe relied on the common ground of similar social organization and a shared civilization, the non-European 'others' were excluded from this habitual settlement and equally from codified international law.[23] Hence, the practice of colonial war has always been very different from the limited forms of warfare that were, at least in principle, applied in Europe. Outside the European centre, the civilian populations have never been considered as having a right to protection from military action. Military theorists were quite explicit about the differences between 'regular' warfare in Europe and colonial expeditions. In his *Small Wars: Their Principles and Practice*, British Colonel C. E. Callwell wrote in 1896 that a 'real war'

> may be terminated by the surrender or capitulation of the hostile sovereign or chief, who answers for his people; but in the suppression of a rebellion the refractory subjects of the ruling power must all be chastised and subdued … the main points of difference between small wars and regular campaigns … are that, in the former, the beating of the hostile armies is not necessarily the main object even if they exist, that effect on morale is often far more important than material success, and that the operations are sometimes limited to committing havoc which the laws of regular warfare do not sanction.[24]

Within Europe, the enemy was considered to be a *justus hostis* (just enemy) as long as the war was fought between sovereign states and their regular armies. The attribute of justice distinguished an enemy from a rebel or from a criminal. In colonial campaigns outside Europe, on the other hand, the enemy was not honoured as 'just'. Englishman James Anson Farrer thus wrote in his *Military Manners and Customs* of 1885 that in the practice of colonial warfare the military had used to consider war as a punitive expedition against criminals and rebels. It would demand unconditional surrender on humiliating terms instead of seeking a solution to hostilities that would safeguard the honour of the opponent.[25]

[23] One of the very first to denounce this fact was the Swiss Johann Caspar Bluntschli, in his 1868 *Das moderne Völkerrecht der civilisierten Staaten als Rechtsbuch dargestellt*: 'Das Völkerrecht ist nicht auf die europäische Völkerfamilie beschränkt. Das Gebiet seiner Herrschaft ist die ganze Erdoberfläche, so weit auf ihr sich Menschen berühren'; 3rd edn (Nördlingen: Beck, 1878), 62.

[24] C. E. Callwell, *Small Wars: Their Principles and Practice*, ed. D. Porch (Lincoln: University of Nebraska Press, 1996), 41.

[25] J. A. Farrer, *Military Manners and Customs* (London: Chatto & Windus, 1885), Chapter 6, 'Barbarian Warfare', 155–84, esp. 165.

Interestingly enough, it was in the United States of America and in Russia, and thus on the margins of the European centre, that the fissures in this picture first occurred. As a matter of fact, America was outside the sphere of European international law, even if the United States gradually came to be assimilated to civilized Christendom.[26] As for Russia, it had always been considered on the margins of Europe: not really 'civilized' like the other nations in Europe, but nevertheless geographically close and of Christian faith.[27] The first incidents to be mentioned took place precisely during the Napoleonic wars, that is, in the 1812–15 war between Britain and the United States of America. British naval forces heavily bombed Washington, Baltimore and other cities.[28] This fact is fundamental: long before becoming an issue of air power, the bombing of cities was an issue of naval war. It was certainly also possible to bomb cities with traditional artillery forces from the ground, but it was the naval and not the artillery precedent that turned out to be decisive for the filiation with air power. In the view of the naval theorist Alfred Thayer Mahan, these bombardments on American cities were intended 'to bring the war home to the experience of the people'.[29] As stated by Theodore Roosevelt, in 1813, British forces under Sir George Cockburn 'destroyed towns and hamlets and worked considerable havoc throughout the country that lay within striking distance of tide-water … Usually Cockburn and his followers refrained from maltreating the people personally, and most of the destruction they caused was at places where the militia made some resistance.'[30] The association of resistance by militia forces and indiscriminate bombing of towns is certainly not a fortuitous one. It is in the principles of militia forces and conscripted armies that any strict distinction between the civilian population and the armed forces becomes problematic. However, as both Mahan and Roosevelt admit, the British forces seem to have made an effort not to hit the civilian populations unnecessarily and deliberately. According to Mahan, there was 'a wish to deal equitably with individuals'.[31] However, as the

[26] See Schmitt, *Der Nomos*, 262.
[27] See T. Hippler, 'La "paix perpétuelle" et l'Europe dans le discours des Lumières', *European Review of History–Revue européenne d'histoire* 9/2 (2002): 167–82.
[28] J. M. Spaight, *Air Power and the Cities* (London: Longmans, Green and Co., 1930), 24–6.
[29] A. T. Mahan, *Sea Power in Its Relations to the War of 1812*, 2 vols. (London: Sampson Low, Marston & Co., 1905), Vol. II, 331, cited in Spaight, *Air Power and the Cities*, 24.
[30] T. Roosevelt, *The Naval Operations of the War between Great Britain and the United States, 1812–1815* (London: Sampson Low, Marston & Co., 1910), 114, cited in Spaight, *Air Power and the Cities*, 24–5.
[31] Mahan, *Sea Power in Its Relations to the War of 1812*, 336.

contemporary British historian Hewson Clarke pointed out, the purpose of these bombardments must have been to induce the inhabitants to bring pressure on the American government either to make peace or to withdraw troops from the theatres in Canada in order to ensure homeland security against naval raids.[32]

It was during the Crimean War (1853–6) that Russian coastal towns were subject to bombardments, mainly by the British fleet, the most significant events being the bombings of Odessa in 1854 and of Taganrog in 1855. According to the air-power theorist James Molony Spaight, the defence of Odessa was 'more nominal than real, and the circumstances were to all practical purposes analogous to those of the bombardment of an undefended town'.[33] The same year, an American vessel bombed and later destroyed by fire the unfortified and undefended town of Greytown (San Juan del Norte) in Nicaragua. The British protested against an event 'without precedent among civilised nations'.[34] The bombing of the Chinese city of Canton by a British vessel in 1856 was another famous case, provoking the parliamentary defeat of the Palmerston administration, which had approved the bombing. Chinese authorities had seized the crew of a British vessel. The British consul intervened and the Chinese released the prisoners, but the governor failed to furnish apologies and guarantees for the future, and this is why the city was bombed. Under heavy attack in Parliament, the British government denied that Canton had been indiscriminately bombed. Nevertheless, Bernal Osborne also justified the bombing: 'Talk of applying the pedantic rules of international law to the Chinese!'[35] The circumstances of the bombing of the Japanese coastal town of Kagoshima in 1863 were similar to those that had led to the bombing of Canton, with the important difference that batteries on the shore fired on the British ships. Owing to bad weather conditions, British fire destroyed most of the town. The subsequent debate saw the emergence of the doctrine of military objective, according to which non-legitimate targets may be damaged as an unintended side-effect of the shelling of military objectives. However, a Foreign Office representative also implicitly recognized that this principle had to be qualified, inasmuch as the rule of proportionality between the military advantages sought and the collateral damages had to be observed. Similar cases of bombardment

[32] H. Clarke, *The History of the War from the Commencement of the French Revolution to the Present Time* (London: Kinnersley, 1816), 74.
[33] Spaight, *Air Power and the Cities*, 41.
[34] *Ibid.*, 40. [35] *Ibid.*, 51.