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AERIAL BOMBARDMENT OF CIVILIAN AND MILITARY OBJECTIVES

FRANK E. QUINDRY*

Efforts toward universal peace have had opposing effects. Attempts have been made to outlaw war because it is uneconomical and is the agency for saddling heavy burdens upon succeeding generations, in addition to bringing temporary suffering and mental anguish to the generations engaged therein. Men shudder at the horrors of future conflicts and seek to avoid war as the only means of saving civilization from a complete overthrow. The horrors of the next great war, contemplated to destroy civilization and to bring another era of "dark ages", arise from the realization that its two main agencies will be; (1) the use of destructive gases, and (2) aerial bombardment. Of these two agencies the latter is regarded as the most significant, due to the fact that the gases may be spread by use of airplanes over vast areas of productive and inhabited country and explosives of great destructibility may be dropped from the air upon defenseless cities and towns unless, by reason of international agreements observed by combatant nations, the future operations of aerial bombardment components of armed forces are restricted within some humane limits.

The purpose of this article is to call attention to recent attempts at regulating aerial bombardment, and the difficulties encountered in arriving at any satisfactory rules, as well as to suggest the most effective regulations commensurate with present conceptions of military science, and the methods of enforcing observance of such rules as may be adopted by the nations.

I.

Conditions Necessitating Regulations.

The first requisite of rules of warfare is that they be practicable and easily understood. Also they should aim to bring into accord the views of the nations, based upon their varying philosophies of war, and their notions of national defense, based upon their sizes, geographic locations, industrial development, colonization and foreign trade policies, and the offensive attitudes of neigh-

*Member of the Michigan Bar. Formerly pilot First Pursuit Group, Selfridge Field. First Lieutenant, Air Corps Reserve, U. S. A.

boring countries. These principles demand utmost consideration in the adoption of any rules in order to lessen the likelihood of their being violated because of unforeseen exigencies in a future major conflict.

During the Great War there was considerable divergence of opinion between the Central Powers and the Allies as to what were legitimate means and objects of attacks. The German aerial operations were in keeping with their philosophy of war which is expressed by Clausewitz thus: "In war the use of force is absolute; all concessions to humanity, except as expedience dictates, are a weakness calculated to delay the end, and thus intensify the sum of human suffering."¹ The German War Book states that "War is waged not merely with the hostile combatants but also with the inanimate military resources of the enemy. This includes not only the fortresses but also every town and every village which is an obstacle to military progress. All can be besieged and bombarded, stormed or destroyed, if they are defended by the enemy and in some cases even if they are only occupied."² And further it states that "A prohibition by international law of the bombardment of open towns and villages which are not occupied by the enemy, or defended, was, indeed, put into words by the Hague Regulations, but appears superfluous, since modern military history knows of hardly any such case."³

In the first month of the war German bombs fell on Antwerp without careful aiming at any objective of military importance, and on August 30, 1914, Paris was bombed in the same indiscriminate manner. Similar raids were carried out against other French towns, most of the casualties being among civilians.⁴ The Germans sought not only to destroy important military bases but also to weaken the morale of the French and English civilian populations, the result desired being to bring about internal coercive pressure against the governments of the Allies. The moral effect attained partially justified the reasons for the indiscriminate bombing since it brought about severe criticism by the civilians of their own governments and their own air forces.⁵ However, the attempt to weaken the civilian morale by bombardment from the air brought about a result

1. F. N. Maude, "The Bombardment of Open Towns," in the *Contemporary Review*, Sept., 1918, 114:275.

2. J. H. Morgan, *The War Book of the German General Staff*, 1915, p. 103.

3. *Ibid.*, p. 108.

4. M. W. Royse, *Aerial Bombardment*, 1928, pp. 175-177.

5. J. M. Spaight, *Air Power and War Rights*, 1924, pp. 9-11.

opposite from that desired. It added seriously to the already unfavorable public sentiment toward Germany, particularly in the United States, and it incurred greater hatred and bitterness on the part of the civilians who were exposed to the bombardment.⁶ But the air attacks against London and Paris did result in a distinct military advantage to Germany.⁷ In order to defend these cities large numbers of men and great quantities of fighting equipment were retained at home, thus reducing the enemy opposition in the theatre of operations.⁸ Whether Germany could have achieved the desired results of a general crushing of civilian morale if more aerial equipment had been available is purely conjectural.

The rules of the British and American manuals of war expressly condemned the German view and followed the Hague rules.⁹ Article 25 of the Hague Rules Relative to Bombardment in Land War provides: "The attack or bombardment, by any means whatever, of undefended towns, villages, dwellings, or buildings is forbidden." Number twelve of the Rules of Land Warfare of the United States Army, 1917, provided that military necessity admitted the direct destruction of life or limb of armed forces and also of other persons where such destruction was unavoidable. It further allowed the destruction of property, and the obstruction of lines of communication and the withholding of sustenance or means of life of the enemy.¹⁰

Allied bombardment of German towns continued from the raid on Dusseldorf in September, 1914, followed by others on Cologne, Freiburg and several hundred other centers of industry in the Rhineland and Saar districts and the Lorraine-Luxemburg regions, throughout the war.¹¹ Their activities seem to have been governed by the value of the target from the point of view of military significance.¹² The moral effect produced among the German people

6. "Mr. Wilson's Hint to European Bomb Droppers," in the *Literary Digest*, Dec. 12, 1914, 49:1161.

7. *Bombardment Aviation*, Air Corps Tactical School text, Feb., 1931, p. 12.

8. *J. M. Spaight*, op. cit., pp. 10, 202. *Bombardment Aviation*, op. cit., pp. 12-13.

9. *James W. Garner*, *The German War Code*, 1918, p. 27.

10. *Charles Chaney Hyde*, *International Law*, Chiefly as interpreted and Applied by the United States, 1922, Vol. II, p. 300.

11. *M. W. Royse*, op. cit., pp. 183-184. *Aeroplanes Caproni*, Official Communiqués, Bombarding Actions, August, 1915—28 Feb., 1918.

12. *J. M. Spaight*, op. cit., pp. 198-200. *M. W. Royse*, op. cit., p. 193, "In general one principle seems to have been followed in the war: that military objectives could be bombed wherever found, regardless of their location, and it seems regardless of the injury to non-combatants and private property."

who were in the proximity of the air raids resulted in a military advantage to the Allies in addition to the disablement of German industrial material. It created a demand for international agreements to restrict aerial bombardment of cities and brought pressing demands upon the German military staff for protection. The populations in large areas over which raids were conducted were terrified to the point of panic even though the objectives were nowhere near them.¹³ The tangible results of the moral effect are listed in the report of the G-2 Section of the General Staff of the A. E. F. In addition to the huge cost of defending German cities with searchlights, anti-aircraft artillery and machine guns "there was a loss of production in almost every factory city that was bombed or that is in the vicinity of a city which was bombed," bonuses had to be paid to employees to induce them to remain at the factories, "the morale of the fighting forces as well as that of the civilian population was lowered by the air raids," and "a great deal of inconvenience was caused to the enemy, such as the congestion of railroad traffic, which cannot be expressed in terms of money."¹⁴

Aerial warfare serves a commander differently from the other weapons at his disposal and it seems inevitable that its use will bring about changes in the conduct of war generally. Statements of Marshall Foch illustrate the changing methods of warfare: "On one side: intensive use of human masses fired by strong feelings, absorbing every activity of society and conforming to their needs the material parts of the system, such as fortification, supplies, use of ground, armaments, encampments, etc.

"On the other side, the 18th century side: regular and methodical use of these material parts which became the foundation of various systems, differing of course with time but aiming always to control the use of troops, in order to preserve the army, property of the sovereign, indifferent to the cause for which it fights but not without some professional qualities, especially as regards military spirit and tradition."¹⁵

That Foch realized another change was about to occur is indicated by his declaring that "The potentialities of aircraft attack on a large scale are almost incalculable, but it is clear that such attack, owing to its crushing moral effect on a nation, may impress

13. *J. M. Spaight*, op. cit., p. 11.

14. *Bombardment Aviation*, op. cit., p. 14.

15. *Ferdinand Foch*, *The Principles of War*, translated by J. de Morin, p. 32.

public opinion to the point of disarming the Government and thus becoming decisive."¹⁶ The plans of the Allies for a huge aerial offensive in 1919 is further indication of the adoption of a changed plan of warfare.¹⁷ It is to be noticed in the later statement made by Foch that he attaches importance to aerial attack for the purpose of weakening the morale among civilians of the enemy nation. He evidently considered that the use of aircraft on a large scale for this purpose could facilitate the sudden delivery of a blow which might conceivably defeat the enemy government before it had an opportunity to mobilize its armed forces.

The necessity for establishing rules of international law governing aerial bombardments arises from the divergence of views of nations and of individuals within the nations. There is no dispute that *military objectives* are the legitimate subjects of aerial attack. The differences in opinion arise from the attempts to define "military objectives." One view is that only those things *directly* connected with the operations of military forces are proper objectives, and civilians within the immediate vicinity of such targets are likewise subject to bombardment, due to practical considerations. Another view is grounded on the proposition that all national resources, even those *remotely* connected with the military operations, are military objectives and the civilian population must necessarily suffer. This latter view is enforced by the present tendency of conscription of all resources by the various nations in the event of war.

The difficulty in promulgating rules and regulations agreeable to the conflicting views is best expressed by a supplemental note of the Report of the Commission of Jurists which reads:¹⁸ "The subject of bombardment by aircraft is one of the most difficult to deal with in framing any code of rules for aerial warfare. The experiences of the recent war have left in the mind of the world at large a lively horror of the havoc which can be wrought by the

16. Lord Thomson, *Air Facts and Problems*, 1927, p. 32. Cf. "Consultation de M. W. Royse," *La Protection des Populations Civiles Contre Les Bombardements*, Geneve, 1930, p. 85.

17. *Bombardment Aviation*, op. cit., p. 15. Winston S. Churchill, "Shall We Commit Suicide," pamphlet reprinted from *Nashe's Pall Mall Magazine*, Sept. 24, 1924, "The campaign of the year 1919 would have witnessed an immense accession to the power of destruction. Had the Germans retained the *morale* to make good their retreat to the Rhine, they would have been assaulted in the summer of 1919 with forces and by methods incomparably more prodigious than any yet employed. Thousands of aeroplanes would have shattered their cities . . ."

18. "General Report of the Commission of Jurists at the Hague," in supplement of *American Journal of International Law*, 1923, 17:250.

indiscriminate launching of bombs and projectiles on the non-combatant populations of towns and cities. The conscience of mankind revolts against this form of making war in places outside the actual theatre of operations and the feeling is universal that limitations must be imposed.

"On the other hand, it is equally clear that aircraft is a potent engine of war, and no state which realizes the possibility that it may itself be attacked, and the use to which its adversary may put his air forces can take the risk of fettering its own liberty of action to an extent which would restrict it from attacking its enemy where that adversary may legitimately be attacked with effect. It is useless, therefore, to enact prohibitions unless there is an equally clear understanding of what constitutes legitimate objects of attack, and it is precisely in this respect that agreement was difficult to reach."

II.

Natural Influences Restricting Indiscriminate Aerial Bombing

Practical considerations make it inevitable that civilians and private property within the immediate vicinity of a bombardment objective will be subject to destruction. This has been proven not only by the operations of aerial bombardment units in the Great War where inaccuracy was flagrant, but by the experiences of artillery where guns firing at ranges of twenty-five miles and more could not possibly be expected to hit the target with even a high percentage of the shells fired. There are, however, certain limiting influences to the use to which a commander will put his destructive means. The most important of these influences are what are known as principles of war, though not "principles" in the strict sense of the term. They are conclusions based on the experiences of successful commanders throughout history of the better practices of conducting a war. Exact definitions would not be practicable for they must be interpreted in the light of history. However, certain of these principles must be considered in the abstract with reference to aerial bombardment.

A fundamental principle of war is explained by Marshall Foch as follows: "In war everything is co-related. Every move has some reason, seeks some *object*, once that object is determined it decides the nature and importance of the means to be employed."¹⁹ It is more easily understood by calling it the *singleness of the ob-*

19. *Ferdinand Foch*, op. cit., p. 18.

jective, which means that one chief result must be aimed at and deviation therefrom or vacillation may bring about defeat. The ultimate object is the restoration of peace on satisfactory terms.²⁰ In the attainment of the object of war Clausewitz says: "to employ all the forces which we can make available with the utmost energy. In every modification which manifests itself in these respects, there is a shortcoming as respects the object. Even if the result is tolerably certain in itself, it is extremely unwise not to use the utmost efforts to make it perfectly certain; for these efforts can never produce injurious effects. Let the country suffer ever so much by it no disadvantage can arise from that, because the pressure of the War is sooner removed."²¹ Even though one country might possess a large air force and the opposing nation none at all, a resort to indiscriminate aerial bombardment among civilians would be a dispersion of effort contrary to the principle of singleness of the objective which demands that all efforts be concerted toward a definite goal.

The dispersion of effort also violates another principle of war. It is called *economy of forces*. Marshall Foch explains it as follows: "If you said that it is the art of spending one's forces, of not dispersing one's forces, you would only say a part of the truth. You might come nearer to it if you defined it as the art of knowing how to spend, of spending to good purpose, of drawing all possible advantage from the resources at hand."²² Consequently, even though a nation possessed an unlimited air force it would not be good policy to use it without regard to obtaining maximum results. In addition to this, regardless of the strength of a single nation it is probable that it will never have enough bombardment equipment to strike *all* targets. Necessity demands that it be used in close accordance with the principle of economy of forces and directed only at *vital* objectives.²³ In the history of maritime warfare coastal cities, even though they contain a large percentage of the total population of various countries, have not suffered from indiscriminate bombardment in spite of the development of long range guns, due to such natural influences.²⁴

The use of gas in aerial warfare, however, may negate the

20. F. Maurice, *Principles of Strategy*, 1930, p. 68.

21. *Von Clausewitz, On War*, translated by J. J. Graham, 1911, Vol. III, pp. 209-210.

22. *Ferdinand Foch*, op. cit., p. 50.

23. *Bombardment Aviation*, op. cit., p. 69.

24. J. M. Spaight, *Air Power and the Cities*, 1930, pp. 164-165.

restriction of economy of forces somewhat.²⁵ Lewisite gas, which is very deadly, will undoubtedly be used, as will mustard gas which causes severe burns.²⁶ These gases are heavier than air so that they will penetrate the deepest cellars and mines. A combination of demolition bombs and mustard gas would make rehabilitation of rail centers or important factories impossible for days following the attack. Gas can be manufactured in great quantities in a short time.²⁷ An attempt was made by the treaty concluded at Washington in 1922 to prohibit "the use in war of asphyxiating, poisonous or other gases or other analogous liquids." The treaty has been ratified by the United States, the British Empire, Italy and Japan, but France indicates strongly that she will not accede to it, thus making it ineffective for any of the others. France's objection, however, appears to be on account of the presence of the submarine prohibition clause, because she has ratified the Geneva Protocol To Prohibit the Use of Poisonous Gases and Bacteriological Methods of Warfare, promulgated on June 17, 1925, which has already been ratified by twenty-seven nations. But the United States is not a party to the Geneva Protocol. So far as the United States is concerned, there exists no rule or regulation prohibiting the use of poisonous gases in warfare. However, since this country has expressed its national policy in the treaty of 1922, it will not exercise the initiative in the use of gas,²⁸ but will probably use it in case of reprisals, since it is available through an extensive Chemical Warfare Service, which is in disregard of the spirit of the convention.²⁹

But even if gas should be used in facilitating destruction over wide areas, there is still another principle of war which will exercise a restraining influence on the use of bombardment aviation. This is the principle of *public opinion*. Although the result aimed at may be the crushing of the morale of the enemy civilian population, still the effect may be to harden the resistance of the nation attacked. Due to the great number of citizens of neutral nations dwelling in all important urban centers, the complications certain to arise from indiscriminate bombing are perhaps the most potent deterrent. The loss of a friendly neutral power is too great a

25. *M. W. Royse*, op. cit., p. 216.

26. *Amos A. Fries and Clarence J. West*, *Chemical Warfare*, 1922, pp. 22-23, 380.

27. *Ibid.*, 380.

28. *Lectures on International Aerial Regulations, 1930-1931*, Air Corps Tactical School.

29. *M. W. Royse*, op. cit., p. 219.

sacrifice for a combatant nation to hazard. In the Great War public opinion in the United States was turned against Germany by her misdeeds in marching through Belgium and in resorting to unrestricted submarine warfare.³⁰

A further restraint is the fear of reprisals and counter reprisals which, unfortunately, are sanctioned by international law and which may take any form of warfare, regardless of that applied by the enemy.

In addition to the restrictions already mentioned there will always exist certain mechanical obstacles, either in the limitation of the offensive machinery or in the development of new defensive mechanism. For example, the present bombardment airplane is limited to a radius-of-action of four hundred miles and its speed and bomb-load capacity are restricted. Judging from recent trans-oceanic flights, it may be expected that the radius-of-action will be increased. And it is rumored that various defenses in the form of electric rays for acting upon the ignition system of motors,³¹ gases which will prevent combustion in the cylinders of motors, artificial fogs, and gas neutralizing agencies have been developed.³²

III

Attempts to Regulate the Conduct of War

The movement toward alleviating the sufferings of individuals in war stricken areas gained its first impetus when M. Duvant, a physician in Geneva, having witnessed the horrors of the battlefield at Solferino, exerted his efforts to bring about the first Geneva Convention in 1864. This convention dealt only with the treatment of wounded, laying down humane rules of battle.³³

The First Hague Conference in 1899 was the first to deal directly with aerial bombardment. A prohibition for a period of five years was declared against the discharge of projectiles or explosives from balloons or by other new methods of a similar nature. A like declaration was prepared at the Second Hague Conference in 1907. It was to be in force until the close of the Third Hague Conference, which has never been held. A number of States signed it and before the outbreak of the European War it had been ratified or acceded to by Belgium, Bolivia, Brazil, China, Great Britain,

30. *F. Maurice*, op. cit., p. 28.

31. *Weber's Weekly*, Chicago, June 14, 1924.

32. *Chicago Herald-Examiner*, August 2, 1931.

33. *W. P. Morris*, "War and the Law of Nations," in the *Lakeside Monthly*, Sept., 1872, 8:163.

Haiti, Siberia, Luxemburg, the Netherlands, Nicaragua, Norway, Panama, Portugal, Salvador, Siam, Switzerland and the United States. However, since the convention was not binding on any of the contracting States where any of the belligerents were not parties thereto, it was not effective during the Great War. The universal employment of aerial warfare during that conflict has established beyond question the legitimacy of such practice.³⁴

The Hague rules were adopted at a time when aviation for military purposes was considered of little practical value. In 1899 airplanes were looked upon as flights of the imagination and as having little chance to succeed, even though gliders had been flown for many years. Balloons had been in existence for over one hundred years but they could not be used for bombing because, being dependent upon the wind, they were uncontrollable and could not be returned to their own forces upon completion of a bombardment mission. However, in the case of the glider, all that was lacking was a propelling device which would make it practical as a machine of destruction.³⁵ The ostensible reason for the Hague rules regarding aerial bombardment was that the inaccuracy of such bombing would result in injury to objects disconnected with the conflict.³⁶ But the real reason was very probably the impracticability of military aviation at that time, and the fact that it was in such an experimental and uncertain stage that the Powers were content to wait until it was developed more fully.³⁷ This is evidenced by the five year limitation period in the First Hague Convention of 1899, the further period of limitation imposed by the Second Hague Convention in 1907 and the lack of unanimous ratification by the States represented therein, and the tactics which were actually employed during the Great War in aerial operations.

The foundation for the present conception of rules of warfare is to be found in the Brussels Convention of 1874.³⁸ It provided that: "fortified places alone could be besieged. Towns, agglomerations of houses or villages which are open and undefended, cannot be attacked or bombarded."³⁹ However, the distinction drawn between those towns which were fortified and those which were not was not based merely upon humanitarian reasons. At that

34. G. D. Nokes and H. P. Bridges, *The Law of Aviation*, 1930, p. 131.

35. M. W. Royce, op. cit., p. 33.

36. Arthur K. Kuhn, "International Aerial Navigation and the Peace Conference," in the *American Journal of International Law*, 1920, 14:369.

37. M. W. Royce, op. cit., p. 50.

38. Ibid., pp. 6-7.

39. Official Documents, in the *American Journal of International Law*, April, 1907.

period land warfare was of a much different character than it was in the recent war.⁴⁰ The defenses consisted of a chain of fortresses and fortified cities, and for the invader to be successful he had first to break this defense by storm and siege of the key fortresses. Generally, therefore, the bulk of the population was left relatively unmolested because they presented no primary military objective. Unfortified cities were not attacked because they were not of sufficient military importance, and all that was necessary to take them was to march in without the necessity of resorting to bombardment.⁴¹

The Hague Conference of 1907 indicates a different view of bombardment from that taken by the Brussels Conference. Article 1 of the Hague Convention of 1907 Respecting Bombardment by Naval Forces in Time of War provides: "The bombardment by naval forces of *undefended* ports, towns, villages, dwellings, or buildings is forbidden." Article 25 of the 1907 Hague Rules Relative to Bombardment in Land War similarly provides: "The attack or bombardment, by any means whatever, of *undefended* towns, villages, dwellings, or buildings is forbidden." The test of immunity from bombardment adopted at the Brussels Conference in 1874, namely, whether or not the place was fortified,⁴² was discarded, because at the end of the nineteenth century warfare no longer centered about fortified cities. Increased ranges in guns and the development of field tactics had taken the place of sieges and storms of fortified units, and towns and places of no previous tactical importance had assumed positions vital to the military situation.⁴³

That the test of "undefended" was inadequate, particularly for air warfare, was clearly shown by the results of military operations during the Great War. The defense against aerial attack is not primarily dependent upon anti-aircraft artillery and machine guns on the ground, but is probably more dependent upon counter-aerial attacks by the defended locality's pursuit planes which patrol and strive to protect vast territories. Consequently, even though a town has no ground defenses, the fact that aerial defenses are available makes it, technically, a defended town.⁴⁴ But this does not mean that the defense airplanes can prevent the enemy air

40. *M. W. Royse*, op. cit., p. 155.

41. *Ibid.*, p. 151.

42. Official Documents, *loc. cit.*

43. *M. W. Royse*, op. cit., p. 156.

44. *J. M. Spaight*, *Air Power and War Rights*, 1924, p. 197.

force from getting through to its objective even though the defense has, for the time being in that locality, what is called "control of the air." Control of the air means that the side having superiority in aerial strength can successfully repel most of the enemy attempts at aerial invasion and can reasonably ensure success of its own missions over the territory of the enemy. However, even when they do not have control of the air, enemy airplanes can get through to their objectives by taking cover of darkness, meteorological and physical conditions, and by daring flights. Regardless of the amount of aerial power that can be amassed on one side, the vastness of the air makes it impossible to block all enemy aerial operations.⁴⁵ Consequently, it is evident that the test of "undefended" is inadequate as applied to aerial warfare, for in spite of a strong aerial defense, the enemy cannot be completely prevented from bombing otherwise defenseless objectives.

During the Great War aerial attacks by both the Allies and the Central Powers were made on many places and towns undefended by ground forces within the precept of the Hague rules. It apparently made little difference whether or not they were defended.⁴⁶ "It appears that each of the belligerents selected bombardment objectives at considerable distances to the rear of the enemy's advanced positions. They included principally, lines of communication, industrial centers, and to some extent airdromes. The pressure of the ground situation in vital stages throughout the war often, of necessity, diverted attacks from the former objectives to those in the immediate combat zones of the ground forces. It was recognized, however, that bombardment aviation could contribute most to the general situation by bombing the vital objectives upon which the ground troops were dependent for transportation and fabrication of supplies."⁴⁷

At the Washington Conference in 1921-1922 an attempt was made to place a limitation upon aircraft. The attempt failed because, as was pointed out by the committee appointed to consider it, civilian as well as military aircraft possess military value, and a nation's air force is dependent upon the commercial aircraft industry for its airplanes. Since it is not practicable to restrict commercial enterprises, it was found impossible to satisfactorily limit the air forces of nations.⁴⁸ "The only result was the resolution adopted by the Conference providing for the future setting up of a com-

45. *Squadron Leader*, *Basic Principles of Air Warfare*, 1927, pp. 12-13.

46. *J. M. Spaight*, *op. cit.*, pp. 195-211.

47. *Bombardment Aviation*, *op. cit.*, p. 11.

48. *M. W. Royse*, *op. cit.*, pp. 206-208.

mission to consider: '(1) whether existing rules of international law adequately covered "new methods of attack or defense resulting from the introduction or development, since the Hague Conference of 1907, of new agencies of warfare"; and, if they did not, (2) "what changes in the existing rules" ought in consequence to be adopted as a part of the law of nations.'"⁴⁹

When the Commission of Jurists met at the Hague in 1922-1923 they naturally looked to the results of the Great War in their attempt to formulate rules for aerial bombing. The outstanding feature of those aerial activities was the claim of each belligerent that the places bombed were *military objectives*. Consequently, that term was made the test in their rules of the legitimacy of aerial bombardment targets.⁵⁰ This indicates a new development in warfare. We have already observed how the test laid down in the Brussels Convention of 1874 was embodied in the word "unfortified" and how the word "undefended" was substituted by the Hague Rules of 1907.

"There were four main viewpoints which the commission took of the work before it: (1) humanitarian; (2) national point of view of the respective delegations; (3) the juridic point of view with regard to the laws of war; (4) the combatant point of view with regard to the conduct of war, in which the combatant services considered their respective nations both as neutral and as belligerent."⁵¹ "The Commission as a whole was of the opinion that the draft of a war code governing aviation should not contravene in principle or in any important respect the rules already governing other forms of warfare by land and sea, but should extend the accepted principles of aviation so that the laws of war might be a unity in applying to all kinds of agencies of war. . . . The essential thing was that the belligerent effort should be directed against objectives whose damage or destruction was in accordance with the principles of warfare already accepted."⁵² "With regard to the revision of the laws of war from the humanitarian point of view, all nations and all members of each delegation were agreed that it was desirable that the laws of war should be such as to prevent suffering of persons or destruction of private property, ex-

49. Ibid., pp. 210-211. *Wm. L. Rodgers*, "The Laws of War Concerning Aviation and Radio," in the *American Journal of International Law*, 1923, 17:629.

50. General Report of the Commission of Jurists at the Hague, Article 23, paragraph 1, loc. cit.

51. *Wm. L. Rodgers*, loc. cit., p. 632.

52. Ibid., p. 635.

cept such as was inevitable for the accomplishment of the war objective."⁵³

The following Rules of Aerial Warfare were recommended by the Commission:⁵⁴

"Article 22. Aerial bombardment for the purpose of terrorizing the civilian population, of destroying or damaging private property not of military character, or of injuring non-combatants is prohibited.

"Article 23. Aerial bombardment for the purpose of enforcing compliance with requisitions in kind or payment of contributions in money is prohibited.

"Article 24. (1) Aerial bombardment is legitimate only when directed at a military objective, that is to say, an object of which the destruction or injury would constitute a distinct military advantage to the belligerent.

(2) Such bombardment is legitimate only when directed exclusively at the following objectives: military forces; military works; military establishments or depots; factories constituting important and well-known centers engaged in the manufacture of arms, ammunition or distinctly military supplies; lines of communication or transportation used for military purposes.

(3) Bombardment of cities, towns, villages, dwellings or buildings not in the immediate neighborhood of the operations of land forces is prohibited. In cases where the objectives specified in paragraph 2 are so situated, that they cannot be bombarded without the indiscriminate bombardment of the civilian population, the aircraft must abstain from bombardment.

(4) In the immediate neighborhood of the operations of land forces, the bombardment of cities, towns, villages, dwellings or buildings is legitimate provided that there exists a reasonable presumption that the military concentration is sufficiently important to justify such bombardment, having regard to the danger thus caused to the civilian population.

(5) A belligerent state is liable to pay compensation for injuries to person or to property caused by the violation by any of its officers or forces of the provisions of this article.

"Article 25. In bombardment by aircraft, all necessary steps must be taken by the commander to spare as far as possible buildings dedicated to public worship, art, science, or charitable purposes, historic monuments, hospital ships, hospitals and other places

53. *Ibid.*, p. 632.

54. General Report of the Commission of Jurists at the Hague, *loc. cit.*

where the sick and wounded are collected, provided such buildings, objects or places are not at the time used for military purposes. Such buildings, objects and places must by day be indicated by marks visible to aircraft. The use of marks to indicate other buildings, objects, or places than those specified above is to be deemed an act of perfidy. The marks used as aforesaid shall be in the case of buildings protected under the Geneva Convention the red cross on a white ground and in the case of other protected buildings a large rectangular panel divided diagonally into two pointed triangular portions, one black and the other white.

"A belligerent who desires to secure by night the protection for the hospitals and other privileged buildings above mentioned must take the necessary measures to render the special signs referred to sufficiently visible.

"Article 26. The following special rules are adopted for the purpose of enabling states to obtain more efficient protection for important historic monuments situated within their territory, provided that they are willing to refrain from the use of such monuments and a surrounding zone for military purposes, and to accept a special régime for their inspection.

(1) A state shall be entitled, if it sees fit, to establish a zone of protection round such monuments situated in its territory. Such zones shall in time of war enjoy immunity from bombardment.

(2) The monuments round which a zone is to be established shall be notified to the other Powers in peace time through the diplomatic channel; the notification may not be withdrawn in time of war.

(3) The zone of protection may include, in addition to the area actually occupied by the monument or group of monuments, an outer zone, not exceeding 500 meters in width, measured from the circumference of the said area.

(4) Marks clearly visible from aircraft either by day or by night will be employed for the purpose of ensuring the identification by belligerent airmen of the limits of the zones.

(5) The marks on the monuments themselves will be those defined in Article 25. The marks employed for indicating the surrounding zones will be fixed by each state adopting the provisions of this article, and will be notified to other Powers at the same time as the monuments and zones are notified.

(6) Any abusive use of the marks indicating the zones referred to in paragraph 5 will be regarded as an act of perfidy.

(7) A state adopting the provisions of this article must abstain from using the monument and the surrounding zone for military purposes, or for the benefit in any way whatever of its military organization, or from committing within such monument or zone any act with a military purpose in view.

(8) An inspection committee consisting of three neutral representatives accredited to the state adopting the provisions of this article, or their delegates, shall be appointed for the purpose of ensuring that no violation is committed of the provisions of paragraph 7. One of the members of the committee of inspection shall be the representative (or his delegate) of the state to which has been entrusted the interests of the opposing belligerent."

The adoption of the test of the "military objective" has been looked upon with approval.⁵⁵ However, as we have seen in comparing the German and Allied notions of military objectives, the great difficulty comes in defining the term satisfactorily to all concerned. The commission attempts to define it in Article 24, paragraph 2. But this definition seems too narrow, since it does not include objectives which were considered legitimate during the Great War and which, under present conceptions of the methods of warfare and the immense and complex organization required to conduct a war, will necessarily be vital to the military situation. During the Great War an aqueduct north-west of Constantinople, supplying water to the city, was bombed. Other objectives were blast furnaces, a boot factory, electric works, power stations and installations, gasworks and gas conduits, grain silos, iron works and foundries, magneto works, mercury mines, motor works, oil tanks, petroleum or benzol depots and refineries and wells, a post office, steel works, a sulphur factory, warehouses, a water reservoir, waterworks, and "industrial zones" and factories without specification as to the precise nature of the objectives.⁵⁶ None of the above would be permitted under Article 24, paragraph 2. Paragraph 3 of the same article is satisfactory as far as humanitarianism is concerned, but it does not take into account the practical considerations of warfare. The populations of large cities are almost entirely dependent upon the existence therein of the great factories

55. James W. Garner, "Proposed Rules for the Regulation of Aerial Warfare," *American Journal of International Law*, 1924, 18:56. Elbridge Colby, "Laws of Aerial Warfare," 10 *Minnesota Law Review* 323, March, 1926. But see Paul Whitcomb Williams, "Legitimate Targets in Aerial Bombardment," in the *American Journal of International Law*, July, 1929, 23:574. J. M. Spaight, "The Doctrine of Air Force Necessity," in *British Year Book of International Law*, 1925, p. 4.

56. J. M. Spaight, *Air Power and War Rights*, 1924, pp. 233-235.

and other industries. One such business may employ several thousands of civilians who must necessarily live in the vicinity of it. The great industries are the most important to a nation in producing the machines of destruction or in producing the machinery which in turn makes the weapons of war. No large city will be without them. Its population could not exist without them. At the same time, the destruction of those industries will necessarily be vital to the military situation. Consequently, on the basis of self-preservation alone, no nation will refrain from attacking such objectives merely because they are surrounded by enemy civilian population. This will make indiscriminate bombing inevitable.

All of Articles 24, 25, and 26 are subject to an extremely potent objection, namely, the danger of reprisals which in turn would lead to counter-reprisals and eventually to a degenerated method of warfare wherein no rules would prevail except those imposed by self-preservation motives, and barbarity would be the only outcome. As we have seen, the nations will not be kept within the bounds imposed by the Commission's definition of a military objective, nor will they refrain from attacking places vital to the military situation because of the danger to civilians in the immediate vicinity. Violations which would be sure to ensue if these rules were put in force would undoubtedly call forth reprisals.

Article 25 provides for the sparing of certain classes of places. During a bombardment mission it will frequently be impracticable to discriminate in their favor unless they are far removed from the vicinity of the objective, even if they are marked as provided in both Articles 25 and 26. The pilot of the bombardment plane will be too much absorbed in maneuvering for position, and will usually be in the gravest of danger from enemy aircraft and anti-aircraft machinery. In a fight, particularly when his life is in danger and killing is the order of things, a man is not his normal self. Even though he may think calmly he is working under a tension which makes him an insane person as compared to what his mental condition would be if he could deliberately and carefully and without personal danger set about his task. It is extremely unlikely, therefore, that there would not be some infractions of the rules sufficient to impel the enemy to retaliate in probably a worse violation of the rules of warfare.

It seems almost needless to point out that Article 23 is of little avail. It is an attempt to adapt an obsolete rule of naval warfare to a phase of aerial warfare which practically cannot exist, or

which is at least very unlikely to ever occur, since the airplanes would have no means of enforcing compliance with requisitions.

IV.

Distinction Between Combatants and Non-Combatants

The principal argument against the bombardment of cities and towns is that the non-combatant population will suffer. The Report of the Commission of Jurists carefully provides against bombardment when it will endanger civilians who are not within the theatre of operations. The reason for the prohibition of bombardment from balloons laid down by the first Hague Conference was based on the same idea, namely, that non-combatants not connected with the conflict would suffer. The rules of Naval Warfare and of Land War are based upon the same principle of humanitarianism.

It has been customary in modern times for the nations to declare that they were not at war with the *people* of the enemy nation, but with the enemy *government*. A recent example of this is to be found in President Wilson's War Message to Congress. Theoretically, this may be true, but it is hardly necessary to point out that the German Government survived only as the agent of the German people, that they supported it industrially as well as in a military way, and that they were compelled to suffer the economic coercion of the British naval blockade necessary to force their government, as their agency, to sue for peace. The works of Grotius reveal no such distinction between the government and its people, and there is no evidence that the armies of Wallenstein, Gustavus Adolphus, Turenne, Marlborough, and Frederick the Great were taught to discriminate between combatants and non-combatants.⁵⁷

In early civilization the only distinction was between those capable and those not capable of bearing arms, by reason of sex, age, or physical disability. Every man was expected to go to the defense of his country.⁵⁸ In Ancient Greece, warfare was characterized by merciless fighting, the taking of few prisoners, the killing of prisoners in cold blood, the selling of men, women, and children into slavery, and the habitual laying waste of the lands of the enemy.⁵⁹ As compared with ancient warfare, that of mod-

57. *W. P. Morras*, loc. cit., p. 165.

58. *Première Partie*, "Usages of War," in the *Quarterly Review*, 1871, 130:472.

59. *H. R. James*, "Usages of War in Ancient Greece," in the *Edinburgh Review*, Jan., 1918, p. 77. *Helen H. Law*, "Atrocities in Greek Warfare," in the *Classical Journal*, Dec., 1919, pp. 132-147.

ern times is much more humane. However, the reasons for both may probably be based on the exigencies of the differing military situations, or sociological development.

Historically there seems to be no other conclusion but that there has never been a distinction made between combatants and non-combatants, except as was justified by military circumstances. Commanders of military and naval forces have never hesitated to destroy private property and devastate the lands of the enemy when the military situation permitted and demanded it.⁶⁰ Sherman's march through the South in the Civil War is an example of this.⁶¹

In the Great War every belligerent was compelled to restrict consumption of certain products and to regulate all articles serviceable in war, as well as the raw materials from which these articles were made. This was particularly true of Germany, due to the British naval blockade.⁶² Conscripting merchantmen and mounting guns on them was equivalent to violation of the Declaration of Paris. The same was true in the cases of the mining industry and others which were necessary to support the manufacture of munitions and supply fuel for factories. Among the citizenry certain persons, such as fishermen, cattle-breeders, farmers, and technicians, had to be kept out of the army to continue their civilian occupations in support of the military organization.⁶³

One of the reasons for the existence and maintenance of Germany's enormous fighting machinery was the previous fostering by that state of its industrial resources.⁶⁴ Germany was so situated geographically that she had to be virtually independent as far as industrial necessities were concerned. One of the first steps taken by the British Navy was to establish a sort of quasi-blockade of Germany which was already practically surrounded by enemies on the land. However, in addition to the blockade, agreements were reached with neutral interests which resulted in stopping a great deal of trade to Germany before shipping ever took place. The

60. J. M. Spaight, "The Doctrine of Air-Force Necessity," in the *British Yearbook of International Law*, 1925, p. 3.

61. Liddel Hart, *Decisive Wars of History*, 1929, pp. 130-133.

62. G. Blanchon, *The New Warfare*, translated by Fred Rothwell, 1917, p. 55.

63. *Ibid.*, pp. 49, 53.

64. *The Tariff Commission* (London), "The War and British Economic Policy," 1918, p. 34. "It is now generally recognized that the naval and military organization of Germany could never have been brought to the point of perfection which has been reached in recent years and evidenced since war began, had it not been for the national recognition in that country of the close connection between economic and defensive policy, and the unceasing care with which the resources of the State have been used to foster these great industries."

agreements were generally reached with representative neutral merchants or shippers. The underlying principle was that the consignees or shippers would guarantee not to permit the goods imported into neutral countries to be delivered to Germany.⁶⁵ The agreements were, of course, voluntary but were advantageous to the neutral shipper since he thereby avoided the risk of seizure and confiscation or lengthy detention. Furthermore, Great Britain was able to hold the blockade, not only with much less difficulty and expense, but without incurring the enmity of neutral countries.

However, large quantities of foodstuffs and other commodities continued to reach Germany until the United States became a belligerent.⁶⁶ With the most important neutral nation on the side of the Allies, Great Britain was able to tighten her blockade grip. Germany's economic resources were so drained by 1918 that she could no longer continue the war except by the last desperate military offensive on the western front. When this failed, the morale of the German nation reached an inevitable collapse.⁶⁷

"Under modern conditions of transportation and large-scale machine production it is possible for a nation to throw its entire productive energy into the fight. The victory depends not only upon placing in the field soldiers who are most valorous, but also upon turning out the most destructive shells in quantities sufficient to deluge any or all parts of the enemy's line at will, the largest quantity of railway equipment and auto trucks with which to make its artillery and infantry more mobile than those of the enemy, the largest quantity of airplanes with which to observe the enemy's movements, to bomb him behind his lines, and to bring down the planes which serve him for similar purposes. The world supply of coal and metals is concentrated upon these tasks; therefore one must add the building of merchant ships, transports, and a navy as instruments required for the transportation of raw materials and the finished products of munitions industries as well as men from all parts of the world. The successful accomplishment of this portion of the military program demands the diversion to munitions industries, including shipping, of millions of workers and of great quantities of all sorts of raw materials and products in the early stages of manufacture which would otherwise have been consumed in various ways by the civilian population. At the same time the transfer of men to the army and to munitions industries, the di-

65. *J. M. Spaight*, *Aircraft and Commerce in War*, 1926, pp. 73-87.

66. *Ibid.*, pp. 75-76, 81.

67. *Liddel Hart*, *op. cit.*, pp. 208-231. *F. Maurice*, *op. cit.*, pp. 30-31.

version of materials from the manufacture of farming implements to munitions, the devastation of fertile lands by the armies, and the exigencies of the shipping situation all serve to make the problems of feeding and clothing the civilian population—which is manning the munitions industries—of paramount importance.”⁶⁸

General Summerall recognized the importance of economic support by the civilians at home when he said: “Unless the country as a whole accepts the fundamental proposition that the entire United States will prosecute a war with the same spirit of self-sacrifice as the sailors and soldiers, the accountability for failure cannot be laid to the armed forces.”⁶⁹

Conscription systems which have been recently initiated by several of the major powers indicate a general acceptance of the fact, that, in future large wars, civilians must contribute practically as much as the armed forces. The French Chamber of Deputies passed an act in 1928 corresponding with the general view of the importance of war-time industrial and social mobilization. The act provided that all French citizens not soldiers could be utilized for the national defense according to their qualifications, without distinction of age or sex.⁷⁰ In Italy recently a bill was introduced by the Minister of War which proposed putting all citizens and factors of production at the disposal of authorities during hostilities so as to lend support to moral, intellectual and material activities, to reduce expenditure and consumption, to prevent acts tending to weaken the resistance of the country, and to command implicit obedience. The bill provided for compulsory service by all civilians, regardless of sex, between the ages of fourteen and seventy, and also for service by all public and private industries and organizations.⁷¹ In the United States the plan for direct control of industries is to place officers in charge who have received special training during peace-time as Reserve Officers. Under this plan many industrialists have accepted commissions in the Organized Reserve Corps.⁷²

Considering the economic structure of a nation during a modern war and the conscriptive systems which will probably be em-

68. C. E. Ayres, “The Dependence of War Upon Economic Organization,” in *Readings in the Economics of War* (Edited by Clark, Hamilton, and Moulton), 1919, p. 99.

69. *Chicago Herald-Examiner*, Sept. 29, 1927.

70. *Chicago Daily News*, Feb. 9, 1928.

71. *Chicago Daily Tribune*, May 9, 1931.

72. *Chicago Evening American*, March 20, 1931. A. B. Quinton, Jr., War Planning and Industrial Mobilization, in the *Harvard Business Review*, Oct., 1930, pp. 8-17.

ployed by all nations, it is difficult to determine whether the civilian who helps supply the fighting forces is any less dangerous to the success of the opposing army than the soldier who operates the mechanical instruments of destruction. The situation seems almost analogous to the ordinary case at common law where A gives B a weapon, or the means to obtain one, and in turn B promises to kill C. Clearly A is no less at fault than is B.

Not only does history discredit the idea of a distinction between combatants and non-combatants, but when a distinction has been made it has not been for the benefit of the non-combatant, and modern indications are that the non-combatant in the future will become embroiled in a major conflict more than ever before. Logically, there is no reason to regard him as less an offender than the soldier, or sailor or airman who wields the weapons of destruction

V.

Potentialities of Aerial Bombardment

The ultimate object of a war is the establishment of peace on satisfactory terms. The means, however, with which to accomplish this end are in dispute. One hundred and twenty years ago Clausewitz outlined three principal objects in the conduct of War:⁷³ "(a) To conquer and destroy the enemy's armed force. (b) To get possession of material elements of aggression. (c) To gain public opinion. (2) To attain the first of these objects, the chief operation must be directed against the enemy's principal Army, or at least against a very important portion of the hostile force; for it must be beaten before we can follow up the other two objects with success." This is the view taken by the orthodox military and naval men.⁷⁴ The testimony of Major-General C. P. Summerall in the Hearings of the President's Aircraft Board in 1925 is illustrative:⁷⁵ "We hear much said about enemies bombing our cities. I do not understand that in war it is in accordance with the laws or rules of war to bomb cities or areas occupied by non-combatants. My impression of the fortification of our harbors was that they were fortified not to keep our cities from being shelled by an enemy's fleet and transports, thus making them a base for operations against our citizens. I do not believe that we are preparing to bomb enemy

73. *Von Clausewitz*, op. cit., pp. 209-210.

74. *J. M. Spaight*, *Air Power and the Cities*, 1930, pp. 110-112.

75. Quoted by *Spaight* in his *Air Power and the Cities*, 1930, p. 8, from *Hearings of the President's Aircraft Board* (Morrow Board), Washington, 1925, I, 1231, 1235.

cities occupied by non-combatants and defenseless people. . As far as we are concerned, in war the only object is the enemy's army. . . . I do not believe that civilized war in which we may be engaged is going to attack undefended cities and kill women and children. If our enemy does that, while it will be sad for us, it will bring about his defeat all the quicker. . . . The objective has always been and always will be the enemy's army. If that falls, everything falls."

In spite of the view that the enemy's army presents the primary objective, the General Staff of the United States Army in 1929 laid plans before the President for the expenditure of \$13,000,000 for permanent anti-aircraft defenses for the principal inland cities, explaining that coastal defenses are useless as a protection to the interior since the development of aeronautical warfare during the Great War.⁷⁶ The General Staff evidently realizes, even though the United States now enjoys comparative isolation, that enemy airplanes will be able to reach our inland cities in spite of the existence of coastal defenses and a field army. Otherwise, the expenditure of huge sums of money at this early date would, obviously, be wasteful. This indicates not only that civilians are liable to attack from the air, but that previous conceptions of the theatre of operations during a war are undergoing changes. The establishment of inland defenses requires a great withdrawal of troops and materiel from the field forces which would otherwise occupy the front lines, as in the Great War. No doubt large armies will exist in the future, but it is likely that they will be smaller than in the last great conflict, due to the necessity of inland defenses and the augmentation of the air forces. It will be remembered that the old test of "undefended" was employed in the Hague rules. The establishment of permanent anti-aircraft defenses for inland cities clearly makes those cities *defended* under the old test and hence liable to attack, because the theatre of operations, which formerly was supposed to occupy only that area within the vicinity of troop movements, has undergone a change, and now each defended city presents a separate individual theatre of operations.

The science of war can be divided into what is called grand strategy, strategy, and tactics. Grand strategy is the combining of all instruments available to a country in enforcing its national policy, and should so regulate their use as to secure a future prosperous state of peace.⁷⁷ War is merely one of the instruments of

76. *Chicago Herald-Examiner*, June 24, 1929.

77. *Liddel Hart*, op. cit., p. 150. *F. Maurice*, op. cit., p. 63.

national policy which takes up the sword in place of the pen.⁷⁸ Strategy, in its narrow sense, means "the distribution and transmission of military means to fulfil the ends of policy."⁷⁹ Tactics is the state of war in which the military instrument merges into actual fighting.⁸⁰ An example of grand strategy has been observed in the Great War where the Allied naval blockade, trade agreements with neutrals, and the spreading of propaganda unfavorable to Germany among neutral countries brought about the collapse of German power although she still had a great army in the field. In future major conflicts there is every reason to suppose that military aviation may be used against the internal organs of an enemy nation in strategical cooperation with a naval blockade in order to hasten the final submission of that nation.

In the Great War the multitude of troops on the battle-front compelled the commanders on both sides to concentrate upon the development of the ground situation. Accordingly, bombardment airplanes were used to enhance the effectiveness of the ground forces. It was only, however, during the intensive ground fighting of 1916 that the immediate tactical situation predominated and all aviation units were used in its support.⁸¹ But it was recognized that the full effect of military aviation was not gained in that manner, and that it could aid most by disrupting lines of communication in the rear areas and by destroying factories and airplanes on the ground.⁸² This employment of military aviation is strategy in the strict sense of the term for, according to Napoleon's dictum, the secret of war lies in its communications. "The line of supply may be said to be as vital to the existence of an army as the heart to the life of a human being."⁸³ Bombardment aviation occupies the same position with relation to the ground forces as does the navy which is a strategic weapon used to ameli-

78. *Von Clausewitz*, op. cit., p. 130.

79. *Liddell Hart*, op. cit. See *G. F. R. Henderson*, *The Science of War* (1916 Malcom ed.), pp. 39-40.

80. *Liddell Hart*, op. cit.

81. *Bombardment Aviation*, op. cit., p. 5.

82. *Ibid.*, p. 7.

83. *G. F. R. Henderson*, op. cit. "Just as the duellist who finds his adversary's point menacing him with certain death, and his own guard astray, is compelled to conform to his adversary's movements, and to content himself with warding off his thrusts, so the commander whose communications are suddenly threatened finds himself in a false position, and he will be fortunate if he has not to change all his plans, to split up his force into more or less isolated detachments, and to fight with inferior numbers on ground which he has not had time to prepare, and where defeat will not be an ordinary failure, but will entail the ruin or the surrender of his whole army."

orate the military situation for the land forces. At the same time, the navy and the air force each has its own system of tactics for carrying out its respective missions.⁸⁴ The aerial bombardment branch of the air force is its basic arm, and there is a necessary degree of coordination between it and the observation and combat branches.⁸⁵ Each branch in turn has its own distinct system of offensive and defensive tactics, just as do the troops on the ground and the ships of war at sea.

Those who have advanced the orthodox view that the opposing army presents the primary objective and that the air forces will not attack cities and towns remote from the theatre of ground operations have evidently considered that the opposing army means the hostile ground force. If, by the opposing army, they mean the hostile air force and anti-aircraft, then the orthodox view would seem to be very nearly correct. However, the tactical situation at which the air force aims is not the defeat or route of the hostile air force, but is the *control of the air*. As long as the enemy has a single plane he is still relatively free to travel through the air, in spite of the strength of the opposing air force, and has a reasonably good chance of reaching an objective. Therein lies the difference between the air forces and the ground forces. The latter have it in their power to absolutely prevent enemy troops from getting through to objectives behind the lines, while the air forces can never be sure that enemy airplanes will not get through. Thus, the conclusion is reached that civilians will be liable to bombardment attack, and enemy airplanes can reach them even when the enemy air force is technically defeated, that is, when it does not have control of the air.

VI.

Accuracy in Aerial Bombing

There was much inaccuracy in bombing during the Great War, due to crude implements, and the result was a great amount of injury to non-combatants and destruction of private property within fairly wide areas surrounding the objectives. In future warfare there will be a greater percentage of hits, due to technical improvements in bombing equipment, but errors will always be present to a certain extent. In 1915 the introduction of pursuit airplanes compelled the aerial bombardment units on both sides to

84. *Bombardment Aviation*, op. cit., p. 76.

85. *Ibid.*

continue their operations under cover of darkness because of the heavy casualties suffered in daylight operations.⁸⁶ Due to poor visibility at night the bombing errors were numerous. Under present conditions the same result will necessarily be attained, particularly by the side which does not have control of the air, since it will be unable to operate in the daytime and must resort to the cover of darkness. Normally in daylight bombing operations the airplanes fly in formations of not less than seven⁸⁷ and probably not more than forty. These formations are for the purpose of giving reasonable assurance of the successful culmination of their missions, and for the mutual protection of the planes therein. Generally they will be used to attack precision targets of narrow dimensions which will not be attacked at night unless daytime attack is impossible. Broad area targets will normally be attacked at night, when the missions will be conducted by individual planes. Sometimes several will strike simultaneously. Formations at night are inadvisable because navigation lights are necessary on dark nights, and formations, even without lights, are more easily seen from the ground on bright moonlight nights than are single planes. Besides, the necessary dispersion of bombs dropped is obtained as easily by individual bombing as by formation bombing. At night bombing from high altitudes may be made more accurate by the use of parachute flares, with delay apparatus for lighting them, which will illuminate wide areas beneath them.⁸⁸

Whenever possible bombardment airplanes will probably seek the higher altitudes, since they will thereby be afforded greater safety from anti-aircraft artillery and will be in a more advantageous position with relation to hostile pursuit airplanes. At great heights objects on the ground naturally appear very small and indistinct, even on a clear day. This will increase the error in bombing, as also will the currents of air the bombs encounter on the way down.

A great many objectives, such as factories, will be found in the midst of thickly populated and built-up cities. A flight over New York City, Detroit, Chicago, St. Louis, Cleveland, Los Angeles, or even a smaller city, is all that is necessary to convince one of the great difficulty in even distinguishing where the target is located, although its exact location may have been previously determined on a map or aerial photograph. Add to this the fact that the pilot

86. *Ibid.*, p. 4.

87. *Ibid.*, p. 81.

88. *Ibid.*, pp. 114-115.

will probably be fighting for his life while trying to get into position to bomb the target, and it is plainly evident that indiscriminate bombing cannot be avoided within the immediate vicinity of the objective. Cities of vital importance will seldom be unprotected by anti-aircraft artillery or pursuit airplanes.

Low altitude flights will usually be made by bombardment airplanes only when, due to meteorological conditions, high altitudes cannot be reached. There are several advantages to low flying, although there is the disadvantage that the morale of the bombing personnel will be seriously impaired, since they know that if the pilot is killed or disabled they will probably all die in the crash which is certain to follow, because they will be too close to the ground to be able to use their parachutes for escape.

Below an altitude of twenty thousand feet the danger from anti-aircraft fire and attack by pursuit planes increases, unless extremely low altitudes are resorted to and the planes fly barely above the tree tops. At such low altitude the danger from anti-aircraft and machine gun fire is practically eliminated, because the planes are going so fast and are so close that the ground guns cannot be trained on them. Also attack by pursuit planes is rendered less effective because their superiority depends on the speed attained in a dive. They must start to pull up out of the dive, however, several hundred feet above the ground in order to avoid crashing. Consequently, by the time they have reached the low-flying bombers they are practically on the same level with them and are without much greater speed, thus presenting excellent targets to the gunners aboard the bombardment airplanes.

It would seem that with the planes flying at low altitudes the accuracy in bombing should increase. However, unless the bomb is equipped with an instantaneous fuse or an arresting device when dropped, it will roll across the ground for an undetermined distance. If an instantaneous fuse is used the plane itself will be destroyed, since it will still be within the effective range of the bomb when it explodes. To prevent this, a delay of at least fifteen seconds is necessary for the plane to get beyond the danger area.⁸⁹ During this time the bomb may roll entirely away from the target.

In tests conducted by the Air Corps in 1927 a bridge, presenting a target four hundred feet wide, was bombed by highly trained personnel from an altitude of six thousand feet. They expected 11 per cent hits based on calculations as to the probable error. The

89. *Ibid.*, pp. 116-117.

observed hits were 27 per cent of the bombs dropped.⁹⁰ Even under these conditions, where the bombs are dropped from a relatively low altitude and by especially trained personnel, a great majority of them will hit only in the vicinity of the objective.

Cloudy weather is another cause for inaccuracy in bombing. During the Great War there were innumerable cases where the bombs were dropped and the airmen reported that observations were impossible or difficult because of adverse weather conditions.⁹¹

Danger to non-combatants will inevitably result from the explosion of the bombs even though they hit fairly close to the target. The most effective bomb against materiel is the demolition bomb which ranges in standard sizes from 100 pounds to 2000 pounds. The destructive effect is produced by the detonation of the high explosive content, which is usually T. N. T. When detonation takes place above the ground, fragments are thrown at high speed further than the effectiveness of the blast, but within a limiting radius the blast is far more effective than the fragments.⁹² The maximum danger radius from fragments ranges from one thousand to two thousand yards. But the percentage of personnel which will be hit at ranges of 500, 1000, and 2000 yards is very small, probably averaging from .5 per cent to 2 per cent. The blast effect on personnel ranges from 40 feet for the 100 pound bomb to 110 feet for the 2000 pound bomb. It is not properly used, however, when applied against personnel,⁹³ as special fragmentation bombs are available for that purpose.

From the foregoing, the conclusion is obvious that anyone or anything within the immediate vicinity of a bombardment objective will be in imminent danger of destruction.

VII.

Objectives of Vital Military Importance

Judging from the results of bombing operations during the Great War and the present economic development due to mechanized warfare,⁹⁴ the logical objectives in the future will be those places *vital* to a nation in maintaining and producing war *materiel*.

90. Ibid., p. 67.

91. J. M. Spaight, *Air Power and War Rights*, 1924, p. 223.

92. *Miscellaneous Ammunition—Bombs for Aircraft*, War Department, TR 1370-G, Oct. 25, 1930, p. 8.

93. *Bombardment Aviation*, op. cit., p. 47.

94. F. Maurice, op. cit., pp. 19-20.

The Report of the American Aviation Commission to Congress, 1920, says: "It has been proved within the experience of every nation engaged in the war (1914-18) that two years or more of high pressure effort have been needed to achieve the quantity production of aircraft, aircraft engines, and accessory equipment. The training of personnel, including engineering, production, inspection, maintenance and operating forces—consisting of some 50 distinct trades and some 75 industries—has proved itself a stupendous task when undertaken upon the basis of war emergency alone."⁹⁵ If seventy-five industries are required for the support of aeronautics alone, then there are hundreds of others necessary for all of the other military activities, and each has its essential supporting industries upon which it is dependent for raw material or parts. The whole mass in turn is supported by the producers of food and other commodities for the consumption both of civilian workers and the fighting forces. It has been suggested that merely because the Great War involved so much of the economic element, there is no reason to believe that wars in the future will necessarily be dependent upon economic organization.⁹⁶ This might be true if the methods of warfare consisted mainly of hand to hand combat. However, warfare has developed into combat, not between individuals merely, but between machines of complicated designs which are controlled by men who are not, strictly speaking, personally engaged in the fighting. "The successful nation is the one which can invent new weapons of offense faster than the enemy can devise means of defense and at the same time protect itself not too tardily from the new offensive weapons of the enemy."⁹⁷

It is almost impossible to determine in every case whether an objective is of *vital* military importance or not. Very often it will depend on immediately surrounding circumstances. There are, however, certain objectives which are obviously essential to military operations and which are undisputably legitimate targets for aerial bombardment. The troops, both reserve and those on the battle-front, in armed defensive and in armed offensive positions wherever they may be found; artillery; ammunition dumps; supply depots; tanks and armored cars; airplanes on the ground; railroads leading to the troops; railroad rolling stock; highways used in supplying the troops; water supplies for the troops; vehicles on the highways;

95. *Squadron Leader*, op. cit., pp. 23-24. See also *Aeronautics Trade Directory*, Aeronautics Bulletin No. 3, U. S. Department of Commerce, Aeronautics Branch, July 1, 1930.

96. *Elbridge Colby*, loc. cit., p. 320.

97. *C. E. Ayres*, loc. cit., p. 102.

electric power lines supplying electricity to the troops; telephone and telegraph lines; radio stations; and any other objects, the destruction of which will tend to weaken the resistance or offensive power of the troops, all fall within the category of targets which should be legitimate objects of aerial bombardment.

In view of the need for machinery in the conduct of a war, other targets, disconnected from the troops themselves, have become just as important to the strength of the armed forces as the equipment with which they fight. Factories which provide airplanes are just as vital as the airplanes themselves, which are clearly legitimate targets when close to the line of battle. The same is true of factories manufacturing ammunition and armaments. Each of these factories is dependent upon certain raw products or manufactured parts. For example, airplanes for war use must be equipped with instruments. Therefore, instrument factories will be proper objectives. They also require motors, which are manufactured separately from the airplanes. The motors require the separate production of ignition and carburetion equipment. The structure of a plane must be built of special metals which must be provided by metal works. Cloth is generally used to cover the airplane structure, thus requiring the cooperation of linen mills. The cloth, when applied, must be especially treated with dope which is manufactured by paint factories. The propellers, whether made of wood or of steel, are made by separate factories. Similarly, wheels, brakes, and tires are all produced by different industries. The wings are usually made of wooden ribs and spars which can only be obtained from high grade special wood supplied by a large number of enterprises in the lumber business. In order to assemble all these materials and parts, transportation facilities are necessary. Therefore, railroads, rolling stock of railroads, terminal points, highways, and trucks become *vital* outside the military area of operations.

Other war machinery will be similarly dependent upon rail and highway transportation, and a vast number of industries, such as those mentioned in regard to the manufacture of airplanes, will be called upon to supply the necessary parts and raw materials. The most outstanding of these are armament factories. Blast furnaces and iron works will be essential in supplying iron products used in war and in machinery to make war weapons. The steel works will be of utmost necessity to provide material for the manufacturers of guns and practically every armament used in warfare. Mines producing nearly every kind of metal will be worked under

high pressure for raw materials necessary in manufacturing war materials. The oil fields, oil tanks, and oil and gas pipe-lines will all be supplying heat, fuel, and lubricants to the industries producing war materials. Water-power projects, electric power stations, lines, and terminal houses will supply power for motors, lights, telegraph, telephone, radio, electric railroads, and any number of enterprises, the destruction of which will be vital to the military success of the enemy. Even the clothing, the rubber, and the leather businesses will be called upon to supply materials to clothe the fighting forces, and to provide gas masks and other such equipment. Dye factories will supply coloring for clothing and for camouflaging war equipment. The paint industries will provide paints with which metal and wooden parts must be covered to prevent corrosion and decay. Chemical factories can easily be converted into destructive gas producers. Granaries and warehouses contain produce which, if not destroyed, will be used by the fighting forces. There are many other industries, too numerous to mention, which would directly contribute to the support of the conduct of war. These are given as illustrative of the immense internal structure of industry which is as vital to the success of the opposing forces as are the field armies themselves. Practically all such industries and facilities as those suggested above were considered important objectives during the Great War and, accordingly, suffered from aerial bombardment.⁹⁸

There is more doubt about certain other objectives being considered vital to the military situation. A list of these follows, by way of illustration: the homes of workers in the vital industries, factories producing food for the consumption of both civilians and the armed forces, factories producing articles having practically no value to the military forces, farms, orchards, cotton plantations, cattle ranches, and other places the bombardment of which would merely result in obstructing economic organization to a slight extent and terrorizing a portion, if not all, of the civilian population.

There are a few objects which, among civilized nations, are never considered legitimate prey for destruction during war-time. These include monuments, places of public worship, charitable institutions, and hospitals. The rules of war already in existence will protect these places whenever possible. The intentional destruction of them would bring down the wrath not only of the nations to which they belonged, but also of neutral countries and individuals everywhere, including the citizens of the State which would resort

98. *J. M. Spaight*, op. cit., pp. 226-235.

to that type of warfare. An example of atrocious conduct somewhat similar to the killing of wounded in hospitals is to be found in the war between China and Japan. The Chinese generals offered rewards for the heads of Japanese generals, and for the hands and heads of prisoners. This resulted in hideous slaughters of non-combatant Chinese by the infuriated Japanese soldiers who otherwise observed the rules of war as adopted in Europe.⁹⁹

The doubtful group of objectives previously mentioned seem to be too indirectly connected with the production of war machinery to warrant the economic use of aerial bombardment against them. They are mainly those which support the great mass of civilians who have little connection with the conflict. It would be wasteful to drop bombs upon such places, because these same bombs could be used to much greater advantage on places of vital military importance.

Another reason for not bombing these so-called doubtful objectives is that they form the very framework of the economic and social organization of the nation. War is merely an instrument of policy which is used when everything else fails in diplomatic intercourse between nations. Grand strategy makes use of war and any other method to produce one result, namely, ultimate prosperity and a state of peace. It is not to the interest of any nation to produce an economic and social upheaval in another country, for there is too much interdependence, economically, between all the nations of the world. Each is dependent, to a certain extent, upon each other country as a market for its products or as a place to purchase products not made at home or raw materials with which to manufacture articles which in turn may be exported to some other country. It is a complex scheme of circularization of finance and produce. This is illustrated by present conditions in all the civilized countries of the world—all are touched to some extent by the economic depression. In Germany it has nearly brought about a state of social collapse as well, and if this comes to pass, a wave of communism may spread throughout Europe. The nations realize the danger to themselves from this threat to Germany, and it is significant that the United States, isolated as she has pretended to be, took the initiative in bringing about a debt moratorium in Germany's favor, and that France, Germany's traditional enemy, has considered lending her immense sums of money to re-

99. T. E. Holland, "International Law in the War Between Japan and China," in the *Fortnightly Review*, June, 1895, 63:915-916.

establish her credit and prevent the complete collapse of the German nation.

Among the group of doubtful objectives is one which has been condemned by the Commission of Jurists,¹⁰⁰ but which may possibly be made an objective in future warfare. Von Hoppner, who commanded the German Air Forces, and Von Tirpitz have stated that the reason for the bombardment of London was that it was the center of the war strength of the Allies and that the objective was to crush the will of the English people to continue the war.¹⁰¹ The Germans were limited in the amount of aerial bombardment which they could use in this fashion. The fact is therefore noteworthy that, "With improved bomb sights, racks, and bombs, it is apparent that the damage suffered by London throughout the war did not equal that which could be caused by one heavy bombardment group with modern equipment."¹⁰² Fifty-two present day bombardment airplanes could deliver an equal load in one mission. However, in spite of this capacity to deliver attacks on large cities without regard to a vital military objective, it is improbable that such bombardment will be resorted to—the reason being that it would be a dispersion of effort not justified by the returns. As has already been pointed out, every city will contain certain objectives which will be vital and therefore legitimate. It seems sufficient, therefore, to concentrate on bombing these objectives and, inasmuch as the cities contain the bulk of the population of most nations, to accept the natural effect upon the morale of civilians in the vicinity as sufficient to crush the will of the nation to continue the war.

Judging from experiences in the Great War and from the plans of all nations for the conscription of industry in the next major conflict, it seems certain that those industries which directly aid in the production, maintenance, supply, or transportation of war material will be considered vital military objectives and, therefore, subject to aerial bombardment. It is somewhat difficult to determine what industries directly aid in military production. However, it seems that this class would include any enterprise which, within the period of a few months or even two or three years, would be capable of producing or aiding in the production of any armament or equipment for use by the armed forces in strengthening their defensive resistance or their offensive powers. Any industry which

100. General Report of the Commission of Jurists at the Hague, Article 22, loc. cit.

101. *J. M. Spaight*, op. cit., p. 202.

102. *Bombardment Aviation*, op. cit., p. 13.

would naturally be included in a national conscription of industry would, logically, be a military objective.

The capitols and political centers of nations constitute other vital objectives which do not come under the category of industrial centers but which, in a way, are related to them, because they govern their existence and the existence of the armed forces, besides unifying the efforts of all the civilians and military forces. The destruction of these places would not be decisive by any means, but would serve to disrupt the entire organization of the country and to demoralize it.

VIII.

Conclusions

In conclusion let us recommend points which should be included in suitable rules for aerial bombardment. Bear in mind that they must be broad and elastic enough that commanders will not violate them under the exigencies of war, thus opening the door to reprisals; that they must be few in number so as to be easily kept in mind; and that they shall be acceptable to all nations, regardless of their varying philosophic views of war and their policies of national defense. Rules of warfare will only be observed when they are the products of the enlightend conscience of civilized mankind.

Rules for aerial bombardment should embody the following principles:

(1) Aerial bombardment must be conducted in a humane manner with due regard to the lives and property of civilians.

(2) There must be no aerial bombardment for the *sole* purpose of terrorizing the civilian population, although, when objectives vital to the military situation are subjected to bombardment, terrorization and injury may legitimately result to civilians within the immediate vicinity.

(3) Places which are not vital to military success and which do not serve directly in the production, supply, or transportation of war materiel or personnel must not be the object of aerial bombardment, but when such places are in the immediate vicinity of legitimate objectives they are liable to be bombed.

(4) The objectives to be considered *vital* should include: armed forces, political centers, and all industries and facilities which would naturally be included in a national industrial conscription or mobilization system in time of war.

(5) Suitable penalties must be provided, which apply to the commanding officers and to the pilots and bombers alike, and anyone violating the rules should be treated as a war criminal.

The rules, which may elaborate the foregoing principles, should be only such as can be considered practicable from every angle. They should be no more than general guides to the ethical conduct of aerial bombardment operations. There will be no judges except those who are giving or executing the commands, and their minds will not be functioning normally in the heat of battle. There will be sufficient tendency to become lax in the enforcement of any rules, as was experienced in late stages of the Great War when prisoners were compelled to do work of a military nature, strictly contrary to the rules of war, and were frequently killed in cold blood so they would not have to be taken back of the lines in accordance with the rules. Another example was the use of explosive bullets, which was in violation of rules of warfare.

Naturally, there will always be some individuals who will violate any rules that could possibly be agreed upon. This is just as true in times of peace, when every nation has a serious problem in dealing with its law-breakers. Consequently, we cannot attempt to make the rules for the benefit of those who will break them regardless of what they contain. A sufficient deterrent must be provided for those who will comply with a rule only when they are placed in personal danger by disregarding it. For this reason it is recommended in the foregoing list of principles that those persons who violate the rules shall be treated as war criminals.

The purpose of rules is to guide the belligerents as nations and to prevent wrongful acts by concerted action. A war is not fought by the individuals but by the national unities, which, like boxers, must conform their movements to the principles of fighting, and in addition must observe such regulations as are commensurate with good-sportsmanship and as are needful to maintain their own self-respect and the respect of others.

The conclusions we have reached do not provide for very much protection to civilian populations, since the greater part thereof resides in cities where legitimate objectives will be located. Also the principles suggested leave many loop-holes of which an unscrupulous belligerent could take advantage. However, every civil legal system is elastic to the extent that advantage may be taken of technicalities by those who will engage in sharp practices.

A curtailment of aerial bombardment by international regulations beyond the principles recommended would create a worse

situation. Reprisals would become frequent and soon a war would develop into base barbarity with no rules governing. If reprisals could be outlawed, then the objection would be withdrawn. But human nature is such that whenever one opponent resorts to unfair tactics the other will retort in the same manner. It is better to have a few rules that are at least restraining to a slight extent than to have none at all.

Some writers take the view that rules are useless and that our civilization is doomed unless war is outlawed entirely. The outlawry of war seems to be psychologically impossible. In time of war any of its instruments become uncontrollable by rules except when natural influences restrict their use. Just as the Frankenstein monster pursued its maker to destruction, so may man-made machines bring about the destruction of man. However, war has never been a complete destroyer of peoples.

The purpose of rules of war should be to take cognizance of all natural influences and attempt to alleviate as much injury and destruction as possible.