

## **Airmindedness**

### **An Example**

The study of aerospace warfare leads to a particular expertise and a distinctive point of view that Gen Henry H. “Hap” Arnold termed *airmindedness*.<sup>1</sup> The perspective of airmen is necessarily different; it reflects the range, speed, and capabilities of aerospace forces, as well as threats and survival imperatives unique to airmen.<sup>2</sup> Airmindedness is much harder to convey than the perspectives of soldiers and sailors for several reasons. The viewpoint of the soldier and sailor—bounded by the apparent horizon—is part of everyday life and instinctive understanding; few have ever operated an aircraft or contemplated the problems of aerial warfare; and few popular sources of information reflect an airman’s perspective.<sup>3</sup>

Airmen should understand, honor, and apply the various useful views of war resulting from the different operating environments within the profession of arms. For instance, since naval theory describes operations in a continuous medium (in the case of “blue-water” operations), it anticipated much aerospace theory.<sup>4</sup> Nevertheless, because airmindedness distills the understanding and imperatives unique to airmen, it is different from surface perspectives and may be best expressed in comparison to those more traditional views. The interpretations airmen may draw from the principles of war are an example.

### **The Objective**

*The objective is always important, but it is especially so in aerospace warfare because of the range of options available.*

*Aerospace forces can pursue tactical, operational, or strategic objectives—or all three at the same time.*

Since aerospace vehicles can be used to observe or attack anything within their radius of action and can be used to do far more than simply observe and attack, they can be directed to serve an immense array of

purposes. Aerospace power may be applied systematically, for example, to speed the political, economic, psychological, or military collapse of an enemy (and within each category there are numerous ways to go about attaining the chosen objective).<sup>5</sup>

Because aerospace forces can be employed in a variety of ways, at any chosen time, and against any target within their operating radius, they can be employed at all levels of war. They can undertake high-leverage strategic operations in independent campaigns. They also may be applied at the operational and tactical levels against enemy military forces in a joint or combined theater campaign. Given sufficient superiority in numbers relative to the enemy, all three types of operations may be pursued simultaneously.<sup>6</sup> Giulio Douhet concluded that

as a matter of fact the selection of objectives, the grouping of zones, and determining the order in which they are to be destroyed is the most difficult and delicate task in aerial warfare, constituting what may be defined as aerial strategy. Objectives vary considerably in war, and the choice of them depends chiefly upon the aim sought, whether the command of the air, paralyzing the enemy's army and navy, or shattering the morale of civilians behind the lines. This choice may therefore be guided by a great many considerations—military, political, social, and psychological, depending upon the conditions of the moment.<sup>7</sup>

The diverse capability of aerospace forces makes choosing the best purpose for their application, and the best scheme to accomplish that purpose, the focal question for aerospace strategy and campaign planning. Given clear and attainable objectives, subordinates can prepare their forces, respond to opportunities, and generally support the attainment of the objective in ways that centralized plans may not anticipate. An understood objective allows diverse forces to operate together in mutual support or in mutually reinforcing operations. Without such an understanding, flexibility and responsiveness are reduced.<sup>8</sup>

The most common sources of failure in aerospace campaigns have been following unsound objectives and failure to pursue the objective consistently. When the Luftwaffe switched objectives several times

in the Battle of Britain (from antishipping operations to neutralizing the Royal Air Force to bombing Britain's cities), it repeatedly abandoned previous gains and allowed the Royal Air Force to recover.<sup>9</sup>

*Airmen are not constrained to achieving tactical objectives as a prerequisite to obtaining strategic objectives.*

Aerospace power brings options to strategists that were formerly unavailable, including capabilities to attack targets without first overcoming surface defenses. The speed of aerospace operations makes defending against them far more challenging than defending against surface-mounted attacks.<sup>10</sup>

### **The Offensive**

*Aerospace forces are inherently offensive—even when defending, they attack.*

The effectiveness of aerospace forces results from operating in air and space where they can exploit their speed, range, and maneuverability to achieve surprise and other advantages. Sitting on the surface they cannot achieve these advantages and are at their most vulnerable, as they can be attacked both by aerospace and surface forces. In defensive operations, aerospace forces are at their best when they retain as much initiative as possible, detecting and sorting targets in time for systematic engagement.<sup>11</sup> The more aerospace forces are compelled to react to enemy initiatives, the more they give up the advantages of situational awareness, time, and pursuit of the objective and the greater the risk of fratricide. As Douhet put it,

an aerial force is a threat to all points within its radius of action, its units operating from their separate bases and converging in mass for the attack on the designated target faster than with any other means so far known. For this reason air power is a weapon superlatively adapted to offensive operations, because it strikes suddenly and gives the enemy no time to parry the blow by calling up reinforcements. The striking power of the airplane is, in fact, so great that it results in a paradox: for its own protection it needs a greater striking force for defense than for attack.<sup>12</sup>

*Aggressive defeat of the enemy's aerospace forces is the airman's first priority in warfare—it makes all other operations possible.*

The need for a counterair offensive was recognized early in the First World War when Winston Churchill recommended offensive antiair operations against German bases. “But after all, the great defence against aerial menace is to attack the enemy’s aircraft as near as possible to their base of departure.” In addition to attacks on bases, Churchill directed establishment of a barrier combat air patrol, communications arrangements, an alert force for point defense, and ground defense measures.<sup>13</sup> In modern usage, preparation for offensive operations extends to suppression of enemy aerospace defenses. Suppression may be required before or with counterair campaigns to make succeeding operations feasible, affordable, or more effective.<sup>14</sup>

### **Unity of Command**

*Unity of command is important for all forces, but it is critical to prudent employment of aerospace forces.*

*Aerospace power is the product of multiple aerospace capabilities. Centralized command and control is the key to fusing these capabilities.*

*The momentary misapplication of aerospace forces is much more likely to have immediate strategic consequences than is the case with surface forces.*

The requirement to unite aerospace forces in a separate service to capitalize on their military potential was first articulated by the Smuts Committee during the First World War.<sup>15</sup> Experience in that war indicated that both the German and French air efforts were hampered by subordination to surface components.<sup>16</sup> Air forces in the Second World War operated under different degrees of unity, but the Imperial Japanese Army and Navy air forces were probably most subordinate to surface commanders and produced the most fragmented efforts. Each force was an auxiliary of a larger service which was almost

autonomous (the army and navy were subordinate only to the emperor), and there was little coordination between the services, even at the strategic level. When two diverse strategies were proposed in 1936, “both the army and the navy got their way—with disastrous consequences.”<sup>17</sup>

Another striking example of aerospace power’s misapplication was the poorly conceived dispersal of the French air force when Germany invaded France in May 1940. Although French air forces were numerically superior, the French command could not communicate with them. Thus, French air units had to operate autonomously. Spearheaded by well-coordinated air and armor operations, the German offensive swept over France with comparatively little interference from the French air force.<sup>18</sup>

Aerospace power can create unintended strategic and political changes; this is potentially the most costly form of its misapplication. As one example, the failed Bay of Pigs operation gave the Soviet Union a pretext for expanding support to Castro’s government in Cuba.<sup>19</sup> Decisions to employ aerospace forces, with their speed, range, and lethal potential, almost always have strategic content and place a premium on thinking through the consequences.

## **Security**

*The lethality of aerospace forces makes the security of friendly forces from enemy airpower a paramount concern.*

*Security may require the elimination of the enemy’s aerospace capabilities.*

The security of all types of armed forces is predominantly shaped by the aerospace situation—the relative capabilities of the opposing sides to operate aerospace forces. These capabilities, of course, include applying firepower against any target within range at any time, but an aerospace force’s “lethality” must be understood to encompass much more than the immediate physical damage it can inflict.

Situational awareness at the theater level is provided primarily by aerospace platforms due to their advantages in elevation and long-range view. By the start of World War I, there had been sufficient progress in aviation to foresee that commanders would place a premium on aerial surveillance and reconnaissance—and that maintaining one's own situational awareness and denying it to the enemy would require control of the air.<sup>20</sup> Forces possessing advantages in surveillance and reconnaissance can screen friendly operations and detect enemy initiatives early so they can be parried or defeated.

The advantages aerospace forces provide in security for all components of friendly power extend to offensive and defensive operations, as well as command and control. Even when airborne command and control functions were limited to radio communications, they provided significant leverage for both surface and aerospace forces. One example was the use of a primitive radio-relay platform, Mosquito Mellow, to control air support and compensate for an overcentralized and inflexible command and control system during the Korean War.<sup>21</sup>

Defending against aerospace attacks is the second-best solution to creating security for friendly forces. The best solution is eliminating the enemy aerospace threat, as was first realized in World War I.<sup>22</sup>

## **Surprise**

*Surprise depends on initiative and is made more attainable by the versatility of aerospace power.*

*Where, when, or how an enemy is struck is relatively independent of where and how aerospace forces are postured. Choice of time and place always rests with the commander of superior aero- space forces.*

*Compared to land and sea forces, terrain and distance are not inhibiting factors for aerospace forces.*

*Surprise is aerospace power's strongest advantage.*

The ability to move, with no lateral restrictions, throughout the aerospace medium gives aerospace forces mobility advantages. The short time it takes aerospace forces to travel a given distance, when combined with fluidity of approach, gives aerospace forces exemplary ability to exploit the initiative. The challenge of securing an area from aerospace forces is a heightened case of the defender's basic dilemma.<sup>23</sup> (Defending against aerospace forces, one must defend everything for if defenses are concentrated, they can be bypassed; yet, if defenses are uniformly distributed, aerospace forces can attack high-value targets with no penalty in increased risk.) The commander of superior aerospace forces compounds the defender's problem by retaining the choice of the time, place, and degree of concentration of aerospace efforts. With aerospace control, commanders can exploit successes, channel enemy responses, and create new dilemmas for the enemy.<sup>24</sup>

### **Simplicity**

*Planning, logistics, and administrative support are complex for all types of forces but, generally, are less so for aerospace forces compared to surface forces possessing equivalent combat power.*

*The fluid, featureless, boundless nature of the aerospace environment makes the execution of aerospace operations elegantly simple compared to that of surface forces.*

Once aerospace forces are established with the logistical and other support capabilities needed to sustain operations, they provide an immense array of capabilities to the commander. Given their flexibility, they can be rapidly redirected. A premier example of this attribute was Gen George C. Kenney's airlift operation into Dobodura, in Papua New Guinea, in 1942 and 1943. The airlift operation used both bombers and transport aircraft, escorted by fighters, to move in engineering forces. Once a complex of bases was established, the entire Fifth Air Force was able to engage in

long-range attacks, airborne insertions, offensive counterair operations, antishipping strikes, escorted aerial resupply sorties, surveillance and reconnaissance, and air cover for a series of amphibious landings.<sup>25</sup> Each of these major operations was directed using simple mission orders to the responsible commander. The array of potential missions for aerospace forces places a premium on unambiguous orders to get the most from each mission.

### **Mass and Maneuver**

*The speed with which aerospace forces maneuver in three dimensions allows them to achieve mass faster than surface forces.*

*The commander of forces operating in three dimensions does not sacrifice maneuver when mass is achieved—mass and maneuver can be employed simultaneously.*

*The simultaneous employment of mass and maneuver by aerospace forces creates tremendous leverage when applied against surface forces.*

The advent of aerospace power has greatly complicated the ability of surface forces to concentrate or move. The potential fluidity of aerospace operations compels the surface defender to devote disproportionate resources to defense against aerial attacks.<sup>26</sup> The ability of aerospace forces to sustain controlled flight allows them to concentrate or disperse to the degree needed in seconds or minutes, rather than hours or days, and to reposition at the theater level in hours.<sup>27</sup> Thus, for the combatant having aerospace control, no concentration of enemy forces, supplies, or assets is immune from attack, and forces on the move are particularly susceptible to attack. One of the best descriptions of aerospace dominance was provided by Gen Frido von Senger und Etterlin who, as the commander of the XIV Panzer Corps, faced Allied air attacks:

*The enemy's mastery of the air space immediately behind the front under attack was a major source of worry to the defender, for it prevented all daylight*

movements, especially bringing up of reserves. We were accustomed to making all necessary movements by night, but in the event of a real breakthrough this was not good enough. In battle of movement, a commander who can only make the tactically essential moves by night resembles a chess player who for three of his opponent's moves has the right to only one.<sup>28</sup>

In the face of enemy aerospace superiority, surface forces must disperse, move cautiously, constantly watch the skies, and divide their attention between aerospace and surface threats. Even then they may be vulnerable to annihilation, as was the case for Iraqi ground forces during Operation Desert Storm.

### **Economy of Force**

*It is ironic that this principle was so well developed before the advent of airpower. It describes precisely the greatest vulnerability of aerospace power. The misuse of aerospace power can reduce its contribution more than enemy action.*

*Because aerospace power is precious, it must be conserved by caring and competent airmen.*

Aerospace power's ability to perform a tremendous array of missions, to achieve strategic results, to increase freedom and security for operations of all types of forces, and to respond quickly to taskings place it in high demand to satisfy many needs. The temptation to appease competing desires by apportioning forces to satisfy many requesters at once, to fragment the aerospace effort, is something aerospace commanders should constantly guard against. Liddell Hart, one of the two primary modern exponents of the principle of economy of force considered it "the supreme principle of war—a law embracing and controlling all other principles." Liddell Hart clarified what he meant by this description: "Economy of Force involves the correct distribution and employment of all resources in order to develop their striking power to the utmost."<sup>29</sup> J. F. C. Fuller, the other modern advocate of the principle, "actually exalted this principle to the position of the law of war."<sup>30</sup>

Aerospace forces have been most effective and efficient when their employment has been concentrated in purpose and time, and aerospace forces have usually been concentrated in disposition (as in large formations) and method.<sup>31</sup> The optimum method for employing aerospace forces depends on circumstances, but unwieldy large formations (such as the World War II Balbo of 60 fighter aircraft)<sup>32</sup> and insufficient packets (such as the Luftwaffe's special weapons flights)<sup>33</sup> indicate the excesses at the extremes.<sup>34</sup>

#### Notes

1. Gen Henry H. "Hap" Arnold, *Third Report of the Commanding General of the Army Air Forces to the Secretary of War* (Baltimore, Md.: Schneidereith, 12 November 1945), 70.

2. Col Dennis M. Drew, "Joint Operations: The World Looks Different from 10,000 Feet," *Airpower Journal*, Fall 1988, 4–16.

3. W. Barton Leach, "Obstacles to the Development of American Air Power," *The Annals of the American Academy of Political and Social Science*, May 1955, 67–75; excerpted in *The Impact of Air Power: National Security and World Politics*, ed. Eugene M. Emme (Princeton, N.J.: D. Van Nostrand Co., Inc., 1959), 805–13.

4. Sir Julian S. Corbett's description of the degrees of the control of the sea (enemy control, enemy working control, control in dispute, friendly working control, friendly control) anticipates degrees of aerospace control discussed in Col John A. Warden III, *The Air Campaign: Planning for Combat* (Washington, D.C.: National Defense University Press, 1988), especially 13–14 and 20–21. For a summation of Adm Alfred Thayer Mahan and Corbett's thoughts, see B. Mitchell Simpson III, ed., *The Development of Naval Thought, Essays by Herbert Rosinski* (Newport, R.I.: Naval War College Press, 1977), especially the editor's introduction.

5. Theories of employing airpower to attain different objectives are surveyed in David MacIsaac, "Voices from the Central Blue: The Air Power Theorists," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, N.J.: Princeton University Press, 1986), 624–47. See also the bibliographical essay, 917–22.

6. A good example is the Overlord invasion and Cobra breakout; summarized in Sir Robert Saundby, "The Uses of Air Power in 1939–1945," in Emme, 216–25. Warden, 129–51, discusses objectives and orchestrating operations to attain them.

7. Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari (New York: Coward-McCann, Inc., 1942; new imprint, Washington, D.C.: Office of Air Force History, 1983), 49.

8. Although Clausewitz is best known for his insights into war as an extension of policy, objectives are a recurrent and dominant theme throughout *On War*. Peter Paret notes in “The Genesis of *On War*” Clausewitz’s intention to revise *On War* primarily to better distinguish between types of war, “each according to the purposes involved.” Paret expresses puzzlement that war’s political character would only be treated as “a second major theme.” Clausewitz’s order of priority distinguishes the priorities of military theory from those of political science. Carl von Clausewitz, *On War*, ed. and trans., Michael E. Howard and Peter Paret (Princeton, N. J.: Princeton University Press, 1984), 22.

9. See, for example, Adolf Galland, “Defeat of the Luftwaffe: Fundamental Causes,” *Air University Quarterly Review* 6, no. 1 (Spring 1953): 18–36.

10. Douhet, 52–55.

11. Warden, 65–76.

12. Douhet, 16.

13. Winston S. Churchill, Air Defense Memoranda of 1914, memo of 5 September 1914, quoted in Emme, 27–29. See also Warden, especially 40–42.

14. Since World War I, US airmen have suffered significantly greater losses to surface defenses than to enemy aircraft. Kenneth P. Werrell, *Archie, Flak, AAA, and SAM: A Short Operational History of Ground-Based Air Defense* (Maxwell AFB, Ala.: Air University Press, 1988), 183.

15. “The Second Report of the Prime Minister’s Committee on Air Organization and Home Defence Against Air Raids,” 17 August 1917, summarized as “‘Magna Carta’ of British Air Power” in Emme, 33–37.

16. James M. Spaight, “The Coming of Organized Air Power,” in Emme, 41–44.

17. Ronald H. Spector, *Eagle Against the Sun* (New York: Vintage Books, 1985), 33–42. In Overy’s view, “Other air forces were not immune from internal rivalry, but only in Japan did such rivalry seriously affect the performance in the air war.” R. J. Overy, *The Air War* (New York: Stein and Day, 1980), 133.

18. Len Deighton, *Blitzkrieg* (New York: Alfred A. Knopf, Inc., 1980), 269–70.

19. Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force*, vol. 2, 1961–1984 (Maxwell AFB, Ala.: Air University Press, 1989), 36.

20. Maj Gen Edward Altham Latham, *The Principles of War Historically Illustrated* (London: Macmillan, 1914), 106–4.

21. J. Farmer and M. J. Strumwasser, *The Evolution of the Airborne Forward Air Controller: An Analysis of Mosquito Operations in Korea*, Memorandum RM-5430-PR (Santa Monica, Calif.: RAND, October 1967), 37–39.

22. The Churchill memorandum of September 1914, cited above, is an early example. Churchill, as minister of munitions in 1917, prepared an even more interesting (and more often quoted) memorandum proposing an air offensive to gain

control, as well as operations to exploit that campaign including interdiction and close support.

On the assumption that these more sanguine views are justly founded, the primary objective of our air forces becomes plainly apparent, viz., the air bases of the enemy and the consequent destruction of his air fighting forces. All other objectives, however tempting, however necessary it may be to make provision for attacking some of them, must be regarded as subordinate to them.

Digested as “The Possibilities of an Air Offensive in 1918” in Emme, 37–40.

23. This dilemma has been explained by many military theorists; its extension to airpower theory is clear in Douhet, 17, 54.

24. On deception, see Warden, 162–65.

25. Maj Charles M. Westenhoff, “Aggressive Vision,” *Airpower Journal* 3, no. 3 (Fall 1989): 34. General Kenney’s lively chronicle, George C. Kenney, *General Kenney Reports, A Personal History of the Pacific War* (New York: Duell, Sloan and Pearce, 1949), contains numerous examples of how this great air commander streamlined organizations and operations to better accomplish his missions.

26. Douhet, 54.

To defend effectively all areas threatened by such an Air Force would require a defensive force equal to the total combat strength of the attacking Air Force, multiplied by as many times as there are defensive positions to be protected. To obtain even this negative result it would be necessary to spend an enormously greater amount of resources than the enemy had to spend to obtain a positive result.

27. *Ibid.*, 49.

28. Frido von Senger und Etterlin, *Neither Fear or Hope* (New York: E. P. Dutton Co., 1964) quoted in Lt Col Price T. Bingham, “Ground Maneuver and Air Interdiction in the Operational Art,” *Parameters*, March 1989, 16–31, and in Warden, 90.

29. Basil H. Liddell Hart, *Thoughts on War* (London: Faber and Faber, Ltd., 1944), 180.

30. J. F. C. Fuller, *The Foundations of the Science of War* (London: Hutchinson & Co., Ltd., 1923), 16.

31. “If a single lesson can be learned in military history, it is that the key to winning battles is to have greater forces at the key location than does the enemy.” Warden, 78–79.

32. Group Captain J. E. Johnson, *Wing Leader* (New York: Ballantine Books, 1957), 48.

The Germans fell into the trap of trying to operate their fighters in formations of up to sixty strong, the same size as one of our Balbos of five squadrons. These cumbersome gaggles denied to the enemy fighter pilots those essential and inherent qualities of their aircraft—speed, surprise, and maneuverability—and they fell easy prey to the ranging and aggressive American fighters.

33. Gen Karl Koller, “Germany’s Defeat in the Air,” in *Emme*, 320–22.
34. *Warden*, 67–68, treats the problems of fighting outnumbered.