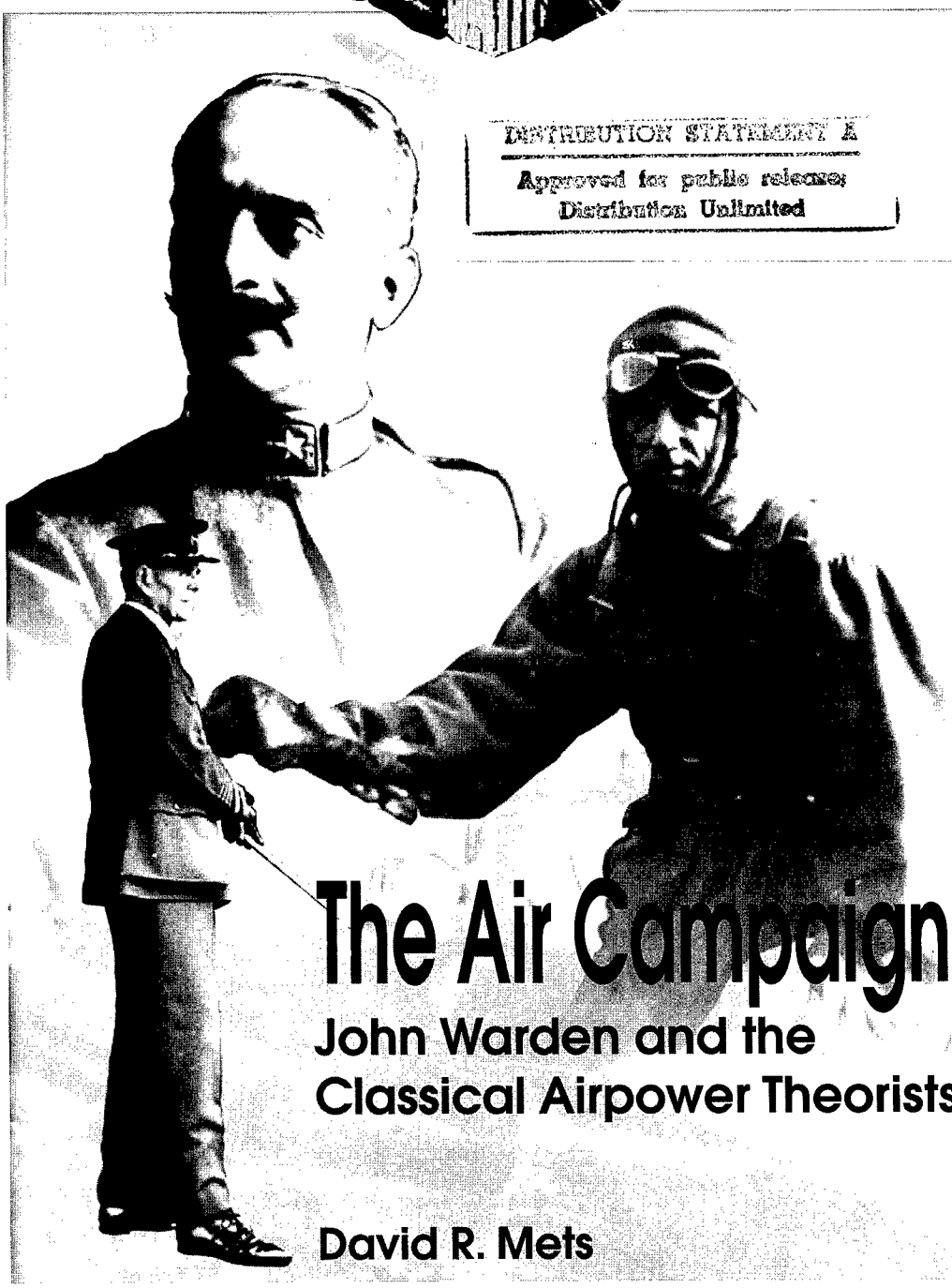

The Air Campaign

John Warden and the Classical Airpower Theorists

David R. Mets

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DAVID R. METS

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Foreword

This is the sort of monograph a senior scholar of Prof. David R. Mets's stature should write. As its title says, the study is first of all an effort to place a consequential airpower thinker in the context of the discourse. Since Professor Mets has been researching and writing about airpower history and topical studies for over forty years, he is well qualified to do the job. Beyond its surface intent, however, this study is also a forum for Mets to give forth a little on the broader meaning of the discourse and on some of its specific parts. Consequently, what starts out as an essay on Col John Warden's place in the pantheon of great airpower thinkers becomes also an opportunity to hear new things about the missions of air warfare, the historical processes that shaped airpower thought, and the reality and importance of the revolution in military affairs.

In his straightforward approach to analysis, Professor Mets begins his discussions of three better-known airpower thinkers of the 1920s—Giulio Douhet, Hugh Trenchard, and Billy Mitchell—with a close examination of their personal backgrounds. He pays particular attention to their professional education and operational flying experience. Mets then lays out the salient elements of each thinker's aerial theories, again paying particular attention to the views of each on the relationship of air warfare to warfare in general, its potential for independent decisiveness, target priorities, the air arm's suitability for organizational independence, command arrangements, and air superiority. With those bodies of theory laid out for easy summation and comparison, Dave then does the same thing for John Warden. His subsequent comparison of the four individuals—three whose context was the dawn of military aviation and one whose context included precision munitions and space surveillance—is revealing. Although Warden's professional education and direct operational experience far outshine those of his predecessors, his core theories reflect as much continuity with their ideas as they reflect differences and accommodations to contemporary

technology. These relationships are obscured sometimes by terminology differences, however, and it is one of Professor Mets's more important contributions that he cuts through them to show where Warden draws more from his predecessors than is obvious at first.

I suspect that most readers will find the style of this monograph one of its other attractive features. Despite his careful scholarship and analytical intent, Professor Mets writes in a collegial voice that engages the reader as a colleague, but without any hint of pandering. His discussion of the realities and irrealities of the ongoing discourse over the "revolution in military affairs" is particularly urbane and insightful. One has the sense of being in a comfortable place with an accomplished colleague engaged in friendly conversation—which pretty much is the nature of Professor Mets's study.

So, this is a fine piece of scholarship and an enjoyable read. I commend it to you with pride that it was accomplished during my brief tenure as dean of the School of Advanced Airpower Studies, where Dave is one of our crown jewels.

ROBERT C. OWEN, Colonel, USAF
Dean, School of Advanced
Airpower Studies

About the Author

David R. Mets

David R. Mets earned his BS from the US Naval Academy, his MA from Columbia University, and his PhD from the University of Denver. He completed a 30-year career in the US Navy and Air Force in 1979. During his career, he taught diplomatic and military history at both the Air Force Academy and West Point and served as the editor of the *Air University Review*, the professional journal of the Air Force. He holds both navigator and pilot ratings and his service also included two flying tours in Southeast Asia. He is now professor of technology and innovation at the Air University School of Advanced Airpower Studies. His published books include *NATO: Alliance for Peace* (1981); *Land-Based Air Power in Third World Crises* (1986); and *Master of Airpower: General Carl A. Spaatz* (1988).

Preface

Much has been made about the planning for and execution of the aerial dimension of the 1991 Gulf War against Iraq. A major debate both within and outside of the US Air Force has been associated with the influence of Col John Warden. He was then a member of the Air Staff in the Pentagon and theoretically without an assigned function in theater-level campaign planning. Arguments that the Gulf War was a manifestation of a revolution in military affairs (RMA) with profound implications have greatly but unnecessarily complicated the debate. Equally important is the argument that antedated the Gulf War to the effect that such conflicts between states using conventional weapons and methods are a passing phenomenon. The Gulf War might have been the last of its breed.

This monograph explores whether there is anything significantly *new* about the ideas of Colonel Warden. Are they merely the repackaged concepts of the classical airpower theorists—as championed by Giulio Douhet, Hugh Trenchard, and William Mitchell? Examining Warden's ideas might yield an improved insight regarding whether we are really in the middle of a new RMA or merely continuing an RMA that began when the Wright brothers first brought the third dimension into play in 1903. The work does not yield many firm conclusions on the related topic of whether conventional war between states is an outdated concept or whether we can anticipate more conflicts like the one with Iraq. Still, this monograph contributes significantly toward improving our guesses in that regard.

Initially this monograph establishes the context in which strategic air theory and doctrine was first articulated. Then it builds a baseline to use in evaluating the ideas of John Warden by devoting one chapter each to Douhet, Trenchard, and Mitchell. Chapter 5 compares Colonel Warden's ideas with those of the classical theorists. A conclusion, chapter 6, closes out the monograph.

Acknowledgments

This monograph grew out of several lectures I gave at the US Marine Corps Command and Staff College in Quantico, Virginia. The basic idea was generated by one of America's foremost experts on officer professional education, Dr. Donald Bittner (Colonel, USMC, Retired). The theme and structure of the work owe a great deal to him, and I am grateful for his encouragement and assistance. This work also owes much to the works of my colleagues at the School of Advanced Airpower Studies and Air University, including Dr. Bob Pape, Col Phillip Meilinger and, especially, Lt Col Peter Faber. I received further valuable critiques in preparing this manuscript from Lt Col Bruce Deblois and Maj John Brence, both of Air University. I thank them for their insights. The dean of the School of Advanced Airpower Studies, Col Robert Owen, has consistently demonstrated his true commitment to faculty research in tightly limiting the number of administrative tasks placed on his teachers. This has resulted in substantial research time for them and a flow of distinguished academic publications far above the norm. Without that commitment, neither this work nor the lectures on which it was based could have been accomplished. I must add that the school resides in the same building with the finest airpower collection on the planet, the Air University Library. The inspiration for that institution is its director, Mr. Bob Lane, who, along with his wonderful staff, do more for the study of airpower than they realize. Moreover, the manuscript has benefited greatly from the expert hand of one of the best editors in the Air Force, Dr. Richard Bailey of Air University Press, and I thank him for his patience, enthusiasm, and expertise.

Finally, the lectures were given and the manuscript written while Col John Warden was the commandant of the parent organization of the School of Advanced Airpower Studies, the Air Command and Staff College. Therefore, it is also partially dependent upon Colonel Warden's many writings and lectures as commandant. The errors and opinions expressed herein are mine alone and not representative of Air University, the US Air Force, or the Department of Defense.

Chapter 1

The Context: A Different Mind-Set

It is impossible to understand the classical theorists' perspective without understanding their times. The world, and the Western world in particular, was a far different place when they lived than it is now.

The Mind-Set in World War I

The endless blood, gore, and suffering of war on the Western Front in World War I were the major factors driving the strategic air theory and doctrine of the 1920s and 1930s. During a ten-year period in Vietnam, we suffered nearly 50,000 killed in action; moreover, those sent there went for a one-year tour with a definite date of estimated return. In the Battle of the Somme in 1916, the British (with a population base of about one-half of what ours was during our stay in Vietnam) suffered 60,000 casualties in the first hour of battle. Of this number, 21,000 were killed.[1] During World War I a soldier was sent "over there" for the duration of a conflict that had no end in sight. This situation was the worst agony in the consciousness of mankind—nothing at the time could have been perceived that would have been worse than another try at war in the trenches.[2] Practically everyone agreed that the era of total war was here to stay, that on the ground the defensive form of combat was in the ascendancy, and that the situation would go on indefinitely.[3]

The Germans had made repeated strategic bombing attacks against London and other targets with Zeppelins and later with airplanes. One reads varying interpretations on the ensuing British hysteria; namely, panic in the media, panic in the public, or panic among government officials—or some combination.[4] Wherever it originated, the image emerging for many was that the bomber could easily get through and cause

civilians to panic. That panic was the major cause of the creation of the Royal Air Force (RAF).

Twilight of the British Empire

When the Guns of August signaled the beginning of World War I in Europe, practically no one alive could recall a time when the sun did set on the British Empire, when Pax Britannia, the century of peace that had governed the world since Waterloo, was not at the root of the world order. However, since the founding of that political situation, Germany had become unified and industrialized. The United States had gone through a civil war and become an industrial giant in its own right. The United States was the world's leading agricultural power as well. Japan and Russia seemed on the verge of equally impressive industrial revolutions. Germany and the United States had great navies, and Japan was still glorying in its recent annihilation of the Russian fleet. Four years later, Britain, the world's leading capitalist nation, had shot its assets out of the mouths of cannons—and New York had become the financial capital of the industrialized world.[5] At one level, it seems British leadership understood this. However, at another level, nearly a century would pass before the British would accept completely their decline in status.

Geography

Since Pax Britannia, the world had changed dramatically in a strategic sense. A thick grid of railroads had been laid all over Europe. That yielded a strategic mobility not yet available on the battlefield, where the soldiers still marched at the same speed as Napoléon's legionnaires. At sea, too, mobility had increased enormously. This change was due to the introduction of steam. However, in one sense propulsion by coal instead of wind reduced flexibility, because it limited the time at sea and the range of ships to less than the time and range experienced by Viscount Horatio Nelson.[6] All the same, compared to the present, geography still yielded an apparent security to the United States and an insularity the great powers do not fully recall nowadays.

Total War Idea

The century prior to the American and French Revolutions had been one of limited wars. The tendency away from that trend more or less started with the nation-in-arms idea associated with the French Revolution. The war to repress the Confederate rebellion in the American Civil War was another step toward total conflict. William Tecumseh Sherman burned Atlanta and led a scorched-earth march through the South as a legitimate act of war.[7] By the time World War I commenced, the common perception held that nations, not just armies, fought one another. The worker in an ammunition factory was just as much an element of the national war-making structure as was any soldier or sailor—which made him a legitimate target in the eyes of international law.[8] By the 1920s, wars had been growing in scope and violence for more than a century, and a widespread assumption was that their devastation would become ever more total in the future. This perception was not at all limited to the military, and it remained strong at least until the Korean War demonstrated the possibility of limited wars.

Communist International

There was a pervasive feeling in Europe and the United States that the socialist movement had an enormous appeal to the working person. Numerous leaders thought that the common person was alienated from his nation in many countries—that his primary commitment was to the workers' international movement and not to his own country.[9] It was not yet clear that capitalism would be able to help alleviate the worst of the workers' woes associated with the early phases of the Industrial Revolution. The memory of the Haymarket Riots in Chicago, the Paris Commune, and other similar occurrences fed the fears of leaders and the middle class. They worried that the workers were unmotivated by patriotism and were ready to revolt at the slightest provocation. The Russian Revolution and Lenin seemed to confirm Marxist theory. A substantial red scare in Europe and America followed in the 1920s—suggesting that civilian morale was indeed fragile.[10]

Freudian Theory

The pessimism arising from the blood and gore of World War I, and from the experience of the Russian Revolution and the civil wars that followed it, was only made worse by the growing influence of Freudian psychological theory.[11] This worsening influence was especially apparent in America, where the pragmatic-rationalist tradition was so strong. The history of the United States (where land and other natural resources were abundant and the division between rich and poor was far less than in Europe) had suggested that men of goodwill could use science and common sense to overcome all sorts of problems of poverty and conflict.[12]

World War I seemed to support Freud's contention that man often makes his choices on the nonrational grounds of the subconscious. The rational, conscious part of the mind merely invents rationales for decisions arising from altogether different motivations. Goodwill, common sense, and science may not solve the problems facing humanity after all.[13] The Western world was depressed enough when the Great Depression came along to shake its confidence even further. Lenin had published his *Imperialism: The Last Phase of Capitalism* the year before Freud had published his theory in 1916.[14] Lenin predicted that capitalist giants would fall into their final conflict while competing to colonize the last scrap of undeveloped world territory for the sake of its markets and raw materials. Even further, this view held that the final conflict would destroy all capitalist states and that from the ashes would emerge the workers' utopia. In 1929 the Leninist interpretation seemed to be coming true—further shaking confidence and enhancing the view that the morale of the alienated working classes was fragile indeed. The inability of the capitalist states to cope with the Depression also seemed to confirm Freudian thinking by further suggesting that rational/scientific problem solving did not work any more.[15]

Post-World War I Posture

The degree to which the US foreign policy after World War I was isolationist has sometimes been exaggerated. Though the

League of Nations was rejected, and the war debts issue divided the United States from Europe, we Americans nonetheless remained engaged in disarmament negotiations and treaties. We remained even more engaged in the Far East and Latin America than in Europe. Yet, it is clear enough that compared to our global outlook since World War II, America was indeed isolationist. The United States looked upon the Old World as an "evil world" wherein war was eternally imbedded. Fortress America rejected collective security and vowed to take care of her own defense.[16]

GOP Economic and Tax Policy

During the 1920s in America, the Old Guard of the Republican Party was firmly in the saddle. This faction would fund national security at the absolute minimum level possible. The United States had to get back to its business, which was business. The Western world's view on taxes was still quite different from what it has become; that is, extensive taxation for social purposes is legitimate. British tax policy had been one of the roots of the American Revolution. Through most of the days of the early republic, we funded our government through external taxes like the tariff. We gave no thought to an income tax until the American Civil War. Even then, it was something most Americans deemed generally as a giant intrusion on the part of the federal government and rejected it soon after the war had ended. President Grover Cleveland brought it up again, but the courts ruled against him. It was not until World War I that an income tax was permanently installed. In the aftermath of the war, the Old Guard vowed to bring the tax rate down and to shift a substantial part of the burden away from the investing classes. Too, shifting the tax burden was one of the motives behind raising tariffs that inhibited the payment of reparations and war debts. That motive in turn led to a reduction of world trade that was one of the causes of the Great Depression and, in turn, World War II. Some interpretations held that the reduction in trade so reduced the aggregate product of the world that it stimulated a depression. Associated with all of this was a particularly strong commitment to a balanced budget and to economical

methods of providing for national security.[17] Thus, any military ideas that could argue that they were conducive to either short or economical wars would have automatic appeal.

Technology

Though aviation technology slowed a great deal from the rate of development during World War I, substantial changes were afoot in other areas. They were to have a profound effect on the Western economy and culture as well as on strategic bombing and World War II.

The year 1920 usually is cited as the time when America became more urban than rural. Huge technological and industrial transitions were afoot. The coming of the telephone and automobile transformed both our economy and our culture and founded two new and huge industries. Radio broadcasting was coming on strong in the late twenties and through the early thirties, leading the way for electronic media and stimulating changes in both society and journalism that continue today. As it is today, the perception during the period was that technology was changing the world. The changes then may have been even more acute than they are now since the country was also moving from an agrarian to an urban society. In 1938, well before the United States entered World War II, Orson Wells' famous *War of the Worlds* radio broadcast created a major urban panic. The fear of bombing was as strong then as the fear of nuclear war has been since World War II. The oil business was booming, too. First, it fueled the auto industry and second, the maritime fleet as it converted from coal to oil.[18] If technology could solve all these problems, why could it not solve the agony of war in the trenches as well? Sadly, as Michael S. Sherry has argued, in the end, American technological "fanaticism" was only conducive to a thoughtless adoption of inappropriate and inhumane strategic-bombing theory and doctrine.[19]

The Definitions

In *Makers of Modern Strategy,* David MacIsaac has complained that even after all these years, airpower theorists have not

been able to agree on a first step—a common vocabulary.[20] I agree. Imprecise definitions and multiple definitions of the same word or term make much of the literature on the sources of strategic-bombing theory and doctrine seem confusing. For my treatment, the following definitions apply.

One of the greatest vocabulary difficulties has been with the term *strategic bombing,* which has meant things from burning babies and women to long-range interdiction, and not just outside the Air Force. In this monograph I use the term to refer to bombing not intended to directly affect the battle on the surface, but rather intended to achieve more or less independent results by destroying vital centers in the enemy's homeland.

Another source of confusion has centered around the meaning of the word *tactical.* This confusion has attracted the especial interest of scholars within the Air Force community who specialize in the history of the Vietnam War. They have often called anything that is not close air support "independent," and then associated that word with strategic. Here, I stick to an older definition of tactical operations: those efforts directly associated with the battle on the surface though not necessarily against enemy units in contact with our own ground forces.

A large part of the semantic confusion has emerged from the varying interpretations of the word *interdiction.* Before Vietnam, the term almost always referred to tactical operations, but in the abstract at least it could be either tactical or strategic in character. Often among the Vietnam scholars, that distinction was lost. In other words, mining the Danube to sink the barges going up river with crude oil en route to the refineries would have been strategic interdiction; destroying the tank truck carrying the finished petroleum fuel to the tanks on the Ardennes battlefield would have been tactical interdiction. In this monograph, unless I identify it as strategic, interdiction means operations against the movement of personnel and material to or from the battlefield, or laterally behind the battlefield.

Scholars have not experienced as much difficulty understanding the definition of close air support (CAS), though the mission itself has been a major source of

controversy between the United States Air Force (USAF) on the one hand, and the other services on the other. Here, the term refers to operations against the deployed enemy when he is engaged with friendly forces on the battlefield. CAS therefore requires close coordination between the air and friendly ground forces to avoid fratricide.

A major purpose of this monograph is to refine our ideas as to whether a new revolution in military affairs is afoot, and that requires a common understanding of the meaning of a *military technical revolution.* There is not much difficulty with that term; here, it means a rapid and large improvement in the equipment used in combat and support of combat, often by the combination of several technologies in a new way over a short period of time.

Greater difficulty surrounds the meaning of the term *revolution in military affairs.* This difficulty develops because many historians are prone to find precedents for anything that ever happens,[21] while some social scientists tend to leap toward the conclusion that their own generalizations are unique in history. Usually, in addition to the military technical revolution, a revolution in military affairs requires the change in doctrinal concepts to take advantage of it, plus the organizational changes necessary to capitalize on the new technology and doctrine.[22] As we move on to establish a baseline against which to measure the ideas of John Warden with Giulio Douhet, Hugh Trenchard, and William Mitchell as representatives of the "classical" strategic airpower theorists, let us build the baseline concept of classical theory. To do this, I approach it indirectly by exploring the personal history, modus operandi, assumptions, thesis, targeting concept, and mission priorities of each. We conclude each case with a rough estimate of the impact of each theorist on his own society and on air war in general.

Notes

1. John Keegan, *The Face of Battle: A Study of Agincourt, Waterloo and the Somme* (London: Penguin, 1976), 260.

2. John D. Hicks, *Republican Ascendancy* (N.Y.: Harper & Row, 1960), 23–27, 32–33; Paul Kennedy, *The Rise and Fall of the Great Powers* (N.Y.:

Random House, 1987), 278–79; Paul Fussell, *The Great War and Modern Memory* (N.Y.: Oxford, 1975); and Keegan, 207–58, 343.

3. Irving M. Gibson, "Maginot and Liddell Hart: The Doctrine of Defense," in *Makers of Modern Strategy,* ed. Edward Mead Earle (Princeton, N.J.: Princeton University Press, 1943, 1971), 365–87.

4. Lee Kennett, *The First Air War, 1914–1918* (N.Y.: Free Press, 1991), 41–62; and Alan J. Levine, *The Strategic Bombing of Germany* (Westport, Conn.: Praeger, 1992), 4.

5. Raymond J. Sontag, *A Broken World, 1919–1939* (N.Y.: Harper, 1971), 90–96; and Kennedy, 151–58, 267–68, 280–81.

6. Kennedy, 260; and Robert K. Massie, *Dreadnought: Britain, Germany, and the Coming of the Great War* (N.Y.: Random House, 1991), 373–400.

7. R. R. Palmer, "Frederick the Great, Guibert, Bulow: From Dynastic to Total War," in *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler,* ed. Edward Mead Earle (Princeton, N.J.: Princeton University Press, 1943), 49; and Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (N.Y.: Macmillan, 1973), 144–52.

8. Hans Speier, "Ludendorff: The German Concept of Total War," in *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler,* ed. Edward Mead Earle (Princeton, N.J.: Princeton University Press, 1943, 1971), 315; Louis A. Manzo, "Morality in War Fighting and Strategic Bombing in World War II," *Air Power History* 39 (Fall 1992): 41; and Conrad C. Crane, in *Bombs, Cities & Civilians: American Airpower Strategy in World War II* (Lawrence, Kans.: University of Kansas Press, 1993), 16, attributes the idea especially to Douhet, but it was certainly widespread.

9. Sontag, 33–45; and Andrew Sinclair, *The Available Man* (N.Y.: Quadrangle, 1965), 89–90, 254–56.

10. R. J. Overy, "Air Power and the Origins of Deterrence Theory before 1939," *Journal of Strategic Studies* 15 (March 1992): 79; and Arthur M. Schlesinger Jr., *The Vital Center* (Boston, Mass.: Houghton Mifflin, 1949, 1962), xi–xvii.

11. Sontag, 185–86; and Oron J. Hale, *The Great Illusion* (N.Y.: Harper & Row, 1971), 94–102.

12. Carl N. Degler asserts that this optimistic, pragmatic, moralistic approach was not new in the Progressive Movement in the two decades before World War I, but rather was the application of older, even Jeffersonian, ideas to the problems of a new urban-industrial society. See Carl N. Degler, *Out of Our Past: The Forces that Shaped Modern America,* 3d ed. (N.Y.: Harper & Row, 1959, 1971, 1984), 401.

13. Hicks, 184–85; and Arthur M. Schlesinger Jr., *The Crisis of the Old Order* (Boston, Mass.: Houghton Mifflin, 1957), 12–45.

14. V. I. Lenin, *Imperialism: The Highest Stage of Capitalism* (N.Y.: International Publishers, 1916, 1939).

15. Sontag, 269–70; and Schlesinger, *Crisis of the Old Order,* 1–9.

16. William E. Leuchtenberg, *The Perils of Prosperity* (Chicago, Ill.: University of Chicago Press, 1958), 5–11; and Selig Adler, *The Uncertain Giant, 1921–1941* (London: Collier, 1965), 1–21.

17. Thomas H. Buckley, "The United States and the Washington Conference" (PhD diss., Indiana University, 1961), 1–29; and Leuchtenberg, 87–98.

18. Hicks, 167–78; and Leuchtenberg, 178–203.

19. Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven, Conn.: Yale University Press, 1987), chaps. 8 and 9.

20. David MacIsaac, "Voices From the Central Blue: The Airpower Theorists," in *Makers of Modern Strategy*, ed. Peter Paret (Princeton, N.J.: Princeton University Press, 1986), 625.

21. See, for example, R. L. DiNardo and Daniel J. Hughes, "Some Cautionary Thoughts on Information Warfare," *Airpower Journal* 9 (Winter 1995): 69–77.

22. I. B. Holley Jr., *Ideas and Weapons: Exploitation of the Aerial Weapon by the United States During World War I* (1953; new imprint, Washington, D.C.: Office of Air Force History, 1983), 19.

Chapter 2

Giulio Douhet

Born into a military family in Italy in 1869, Giulio Douhet served as a professional artillery officer.[1] He was never trained as a pilot but was appointed as the commander of Italy's first aviation battalion before World War I. Douhet was a prolific writer and had successfully marketed several plays and poems before the war.

A Continental Theorist

During World War I, he was so critical of the Italian army high command that he was court-martialed and imprisoned for one year. However, the Battle of Caporetto began and demonstrated that Douhet had been correct; he was later exonerated. Soon after the war, Benito Mussolini came to power and Douhet was given a place of honor, but he left the service and passed his remaining years in writing and speaking out for airpower. He brought forth his *Command of the Air* in 1921 as an official publication. American scholars were made aware of the publication soon after its release through partial translations and word of mouth, even though a published English version did not appear until 1942. Douhet died in 1930.[2]

Modus Operandi

Douhet was a talented writer and propagated his ideas mostly by the written word. He was an innovator and had the quality of a gadfly about him. He was reported to be a cranky individual and not very tolerant of fools. During World War I, as noted, his impolitic criticism of his military and civilian superiors landed him in jail.[3]

Assumptions

By most accounts, Douhet was extremely dedicated to logical thought processes—perhaps excessively so. But even the most logical processes can result in disaster if they are founded upon false or faulty assumptions. Among his most prominent misconceptions were the following statements:[4]

1. Airpower is inherently offensive; the bomber will always get through.
2. All wars will be total wars.
3. Civilian morale is unstable.
4. The hegemony of the defensive form of ground warfare is permanent.

Thesis

Douhet argued that an early air attack on the enemy's vital centers could win a humane victory, while surface forces could contain the enemy.[5] It is a stretch of the imagination for the modern reader to imagine that bombing cities could be considered a humane way of war. Yet it is more understandable if one reexamines the context in which Douhet was writing and speaking—in the presence of the recent memory of the blood and gore of the long agony in the trenches and the absence of the knowledge of Hamburg, Dresden, Tokyo, and Hiroshima. Too, the notion that the world would ever return to the kind of limited wars—of the eighteenth century—seemed quaint in the 1920s and 1930s. Thus, the idea of increased violence to be endured through only a much shorter period was not as far-fetched as many authors now believe.[6] In the words of Douhet:

> Mercifully, the decision will be quick in this kind of war, since the decisive blows will be directed at civilians, that element of the countries at war least able to sustain them. These future wars may yet prove to be more humane than wars in the past in spite of all, because they may in the long run shed less blood.[7]

Targeting

More ink has been spilled and passion expended over the proper selection of targets than over any other airpower subject. Dwight D. Eisenhower's decision to go after the

French rail yards instead of German synthetic oil plants before Overlord provides just one case in point.[8] Douhet himself made the following remark:

> All this sounds very simple; but as a matter of fact the selection of objectives, the grouping of [attack] 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.[9]

Many scholars have complained that Douhet himself was vague in this important area.[10] Indeed, his first step was to command the air, and then to proceed on to the vital industrial and civilian morale targets, with more emphasis on the latter than on the former. However, he despaired,

> the truth of the [targeting] matter is that no hard and fast rules can be laid down on this aspect of aerial warfare. It is impossible even to outline general standards, because the choice of enemy targets will depend upon a number of circumstances, material, moral, and psychological, the importance of which, though real, is not easily estimated. It is just here, in grasping these imponderables, in choosing enemy targets, that future commanders of Independent Air Forces will show their ability. [11]

Air Superiority

Douhet argued that the first step in war—gaining command of the air—is achieved best by attacking the enemy's airpower on the ground, at the airfields, and in the factories. In his mind, this is so because of the vastness of space. A bomber was but a tiny speck there, and the chances of a defensive fighter discovering it, climbing up to catch it, and still having gas enough to fight the intruder were almost zero. This conclusion fostered the notion that airpower is inherently offensive. It could fly over all enemy defenses without defeating them and still go directly to the heart of enemy power.[12]

Air Exploitation

Once command of the air is won, the next step is to exploit that advantage immediately to punish the civilians. This way, civilians will coerce their own government to come to terms to end their suffering. In fact, Douhet argued that the mere act of gaining command might be enough. Enemy vulnerability

would be so great that their leaders would soon likely recognize it and capitulate. If not, attacks on the cities and other vital targets would so depress the people that they would force the leadership to give way. This development would happen so rapidly that the total suffering would be less than it would be in the trenches—a major objective and selling point for his theory.[13]

Organization for War

As noted earlier, Douhet argued that the humane short war could not be brought about under traditional military organizations. Armies and navies were certain to employ airpower as an auxiliary to the infantryman and the battleship. According to Douhet, to bring about victory over the enemy before the collapse of one's own civilian morale would require organizing airpower under a separate air force. Only in that way could air leaders employ airpower as an independent force to achieve victory without any need for tactical victories on the sea or in the trenches.[14]

Role of Other Armed Forces

Since the time of the French Revolution at the latest, humanity has generally recoiled at the horrors of war. For most people, the next best thing to peace is a short war. Usually, those who fire the first shot, be they Confederates or the Wehrmacht, make a short-war assumption. In light of Douhet's argument that independent airpower would achieve the objective in a trice without surface struggles, anything not invested in airpower could be no more than a necessary evil. He asserted that the other armed forces were only to stand on the defensive until the air force offensive had been quickly decisive.

Force Structure

Economy of force principles therefore would be applied to armies and navies to concentrate the maximum combat power in the main attack. Douhet recognized that he was writing

from an Italian perspective. Italy was essentially an island with water on three sides and the Alps to the north. Additionally, the country was so poor that it could not afford a complete array of armed forces to act against conceivable contingencies. He did allow that other nations, like the United States, had the resources to field more than just a strategic air force and might have reason to do so.[15]

Technology

Douhet was highly assertive regarding his notion that aircraft devoted to the support of armies and navies were worse than a pure waste. He believed they detract from the main effort, which must be the battle for command of the air. In addition, aircraft concentrated in the Independent Air Force were not to be of the small fighters or attack variety. Only one type of airplane was to be required, the battle plane. This airplane must have moderate speed, long range, and heavy armor for self-protection. If escort protection were required, battle planes could be made a part of the strike package, even though these planes could be armed only with self-defense weapons. Everything not put into bombing battle planes was a diversion that would weaken the main effort and reduce the probability of success. The battle plane bombers would have to have a combination of high explosive and incendiary and gas bombs to have a synergistic effect.[16]

Impact

For some time, scholars have investigated the impact of Douhet on airpower. Whether they focused on Italy, the RAF, Germany, the United States, or World War II, scholars now have a clearer concept of the part played by Douhet in advancing a role for airpower in war fighting.

Influence on Italy

Giulio Douhet, who was explicit about a need for a dedicated organization to develop airpower, has been credited

with and blamed for a wide variety of miracles and crimes. There was an air ministry and a separate air force under Mussolini, but that arose from some other factors as well as Douhet. His homeland was never strong enough—nor did it remain in World War II long enough—to engage in any serious strategic bombing campaign. For these reasons, one must conclude that Douhet's impact at home was minimal.

Influence on Great Britain

Great Britain's RAF has been strong in denying that Douhet significantly influenced the development of its theory and doctrine. Yet, some scholars have noted similarities between Douhet and the RAF's Hugh Trenchard—especially in their passionate writing about the devastating raids on Hamburg and Dresden. Still, Trenchard's version of events differed significantly from Douhet's. He, too, hoped to undermine civilian morale but always wanted to do it indirectly through attacks on the supporting infrastructure and the like. Douhet aimed directly at civilian morale through attacks on cities. The confusion crept into postwar airpower historiography because of the RAF Bomber Command's use of area bombing on urban areas, even with the declared purpose of dehousing workers. As we shall see, area bombing came about more from the necessities of early combat than from any prewar theory and doctrine.[17]

Influence on Germany

Douhet was known early in the Wehrmacht, as early as 1920, and scholars believe he held some influence.[18] Later, the influence of Douhet and the other strategic bombing theorists had some impact on the new Luftwaffe, but the geography and military culture of Germany constrained it. If the Wehrmacht lost the first battle, then the war might be lost before any strategic bombing could begin to tell. The Luftwaffe was thus heavily structured as a tactical air force, and its sole serious strategic bombing effort was leveled against Britain early in World War II with the wrong equipment for a strategic campaign.[19] Even though its doctrine and equipment were

designed for a tactical air force, the Luftwaffe avoided attacking civilian morale in London for a time, and perhaps the biggest thing it had in common with the ideology of Douhet centered on the offensive nature of air forces. On the eve of war, as with the British up to 1937 and with Douhet, the emphasis was on bombers. However, there was little German agreement that armies and navies were defensive, as Douhet had asserted.[20]

Influence on the United States

Some members of the Bolling Commission of 1917 met with Douhet's friend Count Gianni Caproni during World War I. One commissioner, Col Edgar Gorrell, had a decided influence on the initial structuring of Air Service strategic bombing theory. Caproni was trying hard to sell his bomber to the United States, and he was closely associated with Douhet in the articulation of the Douhet theory. Some of Douhet's writings were available at the Air Service Tactical School in the early 1920s, and more of them were there in the early 1930s. Mitchell admitted much later that he had conversed with Douhet in 1922. He always had ideas in common with Douhet, despite some differences early on. Mitchell moved closer to Douhet in outlook after his 1925 court-martial.[21]

Impact on World War II

Published in 1945, *The United States Strategic Bombing Surveys (USSBS)* held that airpower, not strategic airpower, was decisive. However, it also asserted that the precision bombing of the United States Army Air Forces (USAAF) was more effective than the area bombing of the RAF, especially because civilian morale turned out to be tougher than Douhet had thought. During the first years of the war, the RAF application evolved steadily toward Douhet's view of things so that by 1942 it was fully committed to city bombing purposely to break the morale of the German worker.

It turned out that Douhet had grossly overestimated the ease with which the bomber could get through, the accuracy of the bombing, and the effect of the individual bomb. His idea

that the synergy of high explosive/incendiary/gas bombs would be decisive was never tried. Achieving air superiority through attack on the ground proved much tougher than he thought; the coming of radar made the air battle much more effective than he anticipated. Douhet grossly underestimated the impact of antiaircraft artillery (AAA).[22] His all-purpose battle plane has not yet been devised.[23]

The other services in America have been quick to identify the USAAF and the USAF with Douhet, and probably he wielded more influence than was admitted in the 1920s and later. However, many scholars have argued that the differences in his and the American approaches were more than public relations "hype" on the part of the latter. I agree. Sometimes the differences have been credited to an American view that precision bombing against key industrial targets was more efficient. Also, the arguments that US protestations that such targeting was more humane than aiming at enemy civilian morale were asserted to be more than mere propaganda. However, there has also been much overlap. This is especially true regarding notions that airpower is inherently offensive, that leaping over the ground defenses after the deep and vital targets is desirable, that command of the air comes first, and that such command is best done against the enemy air force while it is on the ground.

Some scholars have likened Britain's Hugh Trenchard to Douhet even more than they have so branded the American. Chapter 3 addresses Trenchard's ideas and influence.

Notes

1. Among the most prominent sources on Douhet are David MacIsaac, "Voices from the Central Blue: The Airpower Theorists" in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, N.J.: Princeton University Press, 1986); Bernard Brodie, *Strategy in the Missile Age* (Princeton, N.J.: Princeton University Press, 1959, 1965), 71–105; Frank J. Cappeluti, "The Life and Thought of Giulio Douhet" (PhD diss., Rutgers University, 1967); E. Warner, "Douhet, Mitchell, Seversky: Theories of Air Warfare," in *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler*, ed. Edward Mead Earle (Princeton, N.J.: Princeton University Press, 1943), 480–97; and R. Flugel, "United States Air Power Doctrine: A Study of the Influence of William Mitchell and Giulio Douhet at the Air Corps Tactical School" (PhD diss., University of Oklahoma, 1965).

2. Giulio Douhet, *The Command of the Air*, USAF Warrior Studies, eds. Richard H. Kohn and Joseph P. Harahan (new imprint, Washington, D.C.: Office of Air Force History, 1983), vi–ix; Leonard Baker and Benjamin Franklin Cooling, "Developments and Lessons Before World War II," in *Case Studies in the Achievement of Air Superiority*, ed. Benjamin Franklin Cooling (Washington, D.C.: Center for Air Force History, 1994), 10; and Frank P. Donnini, "Douhet, Caproni, and Early Air Power," *Air Power History* 37 (Summer 1990): 45–52.

3. Brodie, 82; and Donnini, 46.

4. Brodie, 80–82; R. J. Easton, "Douhet's Theories and the World War Two Air Power Campaign," *Australian Defence Force Journal* 112 (May/June 1995): 37; MacIsaac, 630; and R. J. Overy, "Air Power and the Origins of Deterrence Theory before 1939," *Journal of Strategic Studies* 15 (March 1992): 74.

5. Peter Faber, "Competing Theories of Airpower: A Language for Analysis" (paper delivered at the Air and Space Symposium, College of Aerospace Doctrine, Research, and Education, Air University, Maxwell AFB, Ala., 1 May 1996); and A. J. Forrest, "Giulio Douhet," *Australian Defence Force Journal*, May/June 1995, 4.

6. Forrest, 4.

7. Douhet, 61.

8. W. W. Rostow, *Pre-Invasion Bombing Strategy: General Eisenhower's Decision of March 25, 1944* (Austin, Tex.: University of Texas Press, 1981) gives a participant's view of the debate and provides some insight into the vast literature that has appeared on just this one case.

9. Douhet, 50.

10. Brodie, 91–93; and Faber. Robert A. Pape makes a major point that too often there has been a disconnect between targeting for military effectiveness, measured by physical damage, and targeting for strategic effectiveness, which should be measured in political outcomes. See Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, N.Y.: Cornell University Press, 1996), 57–62, passim.

11. Douhet, 59–60.

12. Phillip S. Meilinger, "Giulio Douhet and Modern War," in *A History of Airpower Theory* I (Maxwell AFB, Ala.: School of Advanced Airpower Studies, 1992–1993): 63.

13. Faber; Meilinger, 66–68; Overy, 78; and Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven, Conn.: Yale University Press, 1987), 24–25.

14. Donnini, 46; and Douhet, 55, 70–72.

15. Meilinger, 67–70.

16. Douhet, 49–55, 59, 114–17; and Brodie, 88–89, 93–95.

17. Phillip S. Meilinger, "Trenchard and 'Morale Bombing': The Evolution of Royal Air Force Doctrine Before World War II" (unpublished paper delivered at the annual meeting of the Society for Military History, Gettysburg, Pa., 13 May 1995).

18. James S. Corum argues that the Weimar Republic's military was well aware of strategic air theory in foreign lands, and it was not much fearful of it. See James S. Corum, *Roots of the Blitzkrieg* (Lawrence, Kans.: University Press of Kansas, 1992), 155–59.

19. Williamson Murray, *Strategy for Defeat* (Maxwell AFB, Ala.: Air University Press, 1983), xxiii–xxiv.

20. Thomas E. Griess, ed., *The Second World War*, vol. 1, *Europe and the Mediterranean* (Wayne, N.J.: Avery, 1984), 55–86; and United Kingdom, Air Ministry, *The Rise and Fall of the German Air Force, 1933–1945* (1948; reprint, N.Y.: St. Martin's Press, 1983), 42.

21. Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907–1960,* vol. 1, 2d ed. (Maxwell AFB, Ala.: Air University Press, 1989), 24–39. Barry Watts argues that Douhet was a much more rigid, mechanistic, and theoretical thinker than Mitchell. The latter in the earlier days, at least, had more flexibility and advanced a more practical, pragmatic approach. See Barry D. Watts, *The Foundations of U.S. Air Doctrine: The Problem of Friction in War* (Maxwell AFB, Ala.: Air University Press, 1984), 7.

22. *The United States Strategic Bombing Surveys* is a summary report of the European War. See *The United States Strategic Bombing Surveys* (hereinafter *USSBS*) 1945; reprint, Maxwell AFB, Ala.: Air University Press, 1987), 1–42.

23. James A. Parton argues that the YB-40 was an attempt to convert a standard strategic bomber to purely defensive purposes by adding a turret and the ammunition supply, but it did not succeed because of the difficulties in maintaining formation after the rest of its planes had dropped their bombs and had become much lighter. Also, the Germans quickly identified the YB as special and either avoided it or keyed in on it as the situation demanded. See James Parton, *Air Force Spoken Here: General Ira Eaker & the Command of the Air* (Washington, D.C.: Adler & Adler, 1986), 275–76.

Chapter 3

Hugh Trenchard

Born in 1873 Hugh Trenchard was well along in his military career when he learned to fly in 1913.[1] He fought much of World War I as head of the Royal Flying Corps in France and at that point was firm in his vision of aviation as an auxiliary to the Army.

British Empire Theorist

At first, he opposed the creation of an independent air force and the idea of strategic bombing.[2] He was stout in his commitment to the preferability of offensive operations for air forces—and suffered substantial losses because of it. Trenchard nonetheless wound up in command of the Independent Air Force (IAF) in France in 1918. It was created in reaction to the German bombing of London and was charged to undertake retaliatory bombing of targets in Germany.

The war ended before Trenchard's force could conduct much strategic bombing; therefore, most of its effort was in support of the armies. When Trenchard returned to the United Kingdom, he was appointed chief of the air staff of the Royal Air Force (RAF). He soon became an advocate of strategic bombing and of colonial control through the use of airpower instead of ground power.[3] He remained in his post through the first decade of the RAF's existence and was beleaguered by both the army and navy because they were generally determined to undo the creation of the RAF in 1918. He lived on for a long time after he resigned in 1926, dying in 1956. "Billy" Mitchell had a considerable acquaintance with Trenchard, who had many personal contacts among the USAAF senior officers even into World War II.

Modus Operandi

A taciturn person with poor writing and speaking skills, Trenchard achieved his objectives mainly through internal

communications without resorting to much dash and posturing. He was a conditioning factor for many years and an influence on the founding of many of the RAF's ideas and institutions. His ideas were at the center of the RAF doctrine manuals and the staff college.[4] However, for the first several years, the major occupation for Trenchard and his staff was defending the RAF against army and navy attempts to have it abolished.

Assumptions

On the surface Trenchard's assumptions seem to have much in common with the following assertions of Douhet:[5]

1. The bomber will always get through; it does not need escort.
2. Civilian morale is fragile, but the British [morale] is tougher than the German, and the moral effect of bombing is much more devastating than the physical effect.
3. The offensive is the stronger form of air war.
4. Night navigation, target acquisition, and bombing accuracy are manageable problems.
5. Air superiority is a prerequisite for all other military operations.

Thesis

Trenchard's core idea was that victory could be achieved by bombing enemy vital centers and thus breaking his will. He was a little vague from time to time on what those centers were, but Trenchard seemed to suggest that civilian morale could be undermined by attacking vital industrial and communications targets and that the resulting loss of will would cause the civilians to pressure their government into making terms.

Trenchard argued early on that the RAF could do more to maintain order in colonial areas much more cheaply than the other services.[6] His theory of air control asserted that relatively light air attacks supported by armored car ground units could achieve the same end with far fewer financial resources and people than the number the army would need.[7]

Targeting

For Trenchard, as with Douhet, the timing of operations for air superiority took precedence. However, scholars should not project RAF city bombing against morale in World War II

backward to Trenchard's time in office to make his ideas identical to Douhet's. Trenchard's targeting scheme against morale was vague, but he insisted on following international law, limiting collateral damage, selecting targets in urban areas for their military significance, and attacking vital centers in the infrastructure and production systems.[8]

Air Superiority

As noted, air superiority was a prerequisite for all other operations. Having been disappointed with airfield attack in World War I, Trenchard believed that at least part of the struggle would take place with an air battle. He asserted most strongly throughout his career that engagements over land or sea would commence with a clash of air forces for control of the air. Also, these forces would strongly tend to be determinants of the final outcome because the future course of events depended heavily on the outcome of the first collision.[9]

Air Exploitation

Both Trenchard and Douhet aimed at the collapse of civilian morale, but Trenchard wanted to achieve it indirectly through destruction of infrastructure targets and the like, while Douhet wanted to attack the people directly. Trenchard no doubt favored independent operations but made a greater allowance than Douhet did for cooperation with other services in operations against the enemy's fielded forces.[10]

Organization for War

Originally the Royal Flying Corps (RFC) commander in France, Trenchard was opposed to the creation of a single air arm and to strategic bombing, though perhaps not as adamantly as often supposed. His position developed because he believed that the British Expeditionary Force was a key—perhaps the key—to the British role in the war. He also held that the priority for the RFC had to remain the support of the ground forces. Once the war was over, though, Trenchard

became ever more firmly committed to a separate air force, strategic bombing, and defending the RAF from the depredations of the army and the navy, both of which were trying to reverse the decision.

As in America, the chief problem focused on naval aviation—but the similarity ended there. From the outset, naval aviation had been made part of the RAF; Trenchard's problem was to retain the RAF with all airpower centralized under its command. In the early part of his tenure, the declared objective was only for the RAF to train and equip forces for maritime operations that would fall under the operational control of the navy. Nevertheless, informally, it was known that he even hoped one day to acquire operational control of the aircraft carriers which were referred to within the Air Staff as nothing but floating airfields. The rationale that Trenchard's staff used most powerfully was the RAF's supposed mission to gain and maintain air superiority over land and sea. The unified control of airpower was essential to that, and ultimately it would extend to the control of the floating airdromes.[11] As in America, there had been suggestions to place all the services under a ministry of defense, but these suggestions came to naught during Trenchard's day.[12] Britain proceeded with the idea of a separate air ministry and a separate air force, but without a formal organization above to control all three services.

Although in America many of the same issues were dividing the Navy and the followers of Billy Mitchell in the Army Air Service (later Air Corps), the situation in America was quite different. The threat to the security of the American homeland was even more remote than with the British. There were great oceans, which could not be easily crossed by airpower in the foreseeable future, and the Navy was merely trying to sustain the existing system, not change it. The Navy occupied a more or less defensive bureaucratic posture. The Army's airmen, on the other hand, were trying to bring about a separate air force and a department of defense and were consequently on the bureaucratic offensive. Notwithstanding all the controversy associated with the Mitchell trial, though, the interservice rivalry probably was even more bitter in Britain than in

America. Clearly, naval aviation in the United States was forging far ahead of that in Britain.[13]

Role of Other Armed Forces

Air Chief Marshal Trenchard was well indoctrinated in ground warfare, having been an army officer himself. While World War I was still being fought, he was firm in his commitment to ground support and allowed only that "excess" aircraft could be dedicated to independent operations.

After the war, though, Trenchard increasingly argued that the role of the British army and navy was secondary and the role of the RAF and strategic attack was primary. First, by 1921 he was asserting that the RAF should be seen now as the primary instrument of defense for the British Isles and declaring that such a role would best be accomplished through an air offensive. Second, he wanted to reduce the functions of the two older services in such matters as colonial control (as noted), and coastal defense of the home islands. Third, he sought to reduce the many overseas bases and to turn their functions increasingly over to the RAF. The air arm, Trenchard insisted, could accomplish these functions more economically and effectively than the army and navy.[14] In Trenchard's day, the defense of the British bastion at Singapore was a central part of the debate.

Force Structure

After World War I, Trenchard gave a very high priority to bomber units,[15] and he found only a modicum of opposition to his ideas from either inside the RAF or outside. However, he always saw a role for fighters. Early in his tenure, plans were made for a substantial metropolitan air force known as the Air Defence of Great Britain. However, the threat seemed to diminish in the mid-1920s, and the scheme was never implemented. In part, that outcome was also due to the inability to detect inbound raids. Nonetheless, the planning that had been done proved beneficial after radar was conceived, making an air defense more feasible.

As we have seen, some scholars argue that the British lost an enormous technological lead during the tenure of Trenchard. Yet blame for the decline cannot all be laid at Trenchard's door, for these were austere times; and, before 1929 conditions were even more difficult for Great Britain than they were for the United States. Too, it was a new service and there was no immediate foreign threat. Thus, not only would investments have been theoretically desirable in the earlier phases of research and development, but also in such longer-term factors as officer education and building a base infrastructure. Some investments were made in the latter areas during the Trenchard tenure, and when the crisis came, the officer corps of the RAF enjoyed more professional development than many of those leading the Luftwaffe.[16] In addition, though the building of the wartime infrastructure to support the USAAF presence in England would be a hectic procedure, it would have been even more so without the start that Trenchard made.

Technology

As noted, scholars have argued that the British squandered a huge lead in aviation technology after 1918.[17] This conclusion can not be laid exclusively at Trenchard's door, for all the services were held to very tight budgets until after the rise of Hitler. The largest bomb in the inventory as late as 1939 was a 500-pounder[18] (Mitchell's people used several 2,000-pounders to sink the *Ostfriesland* in 1921). For all of Trenchard's former emphasis on bombers,[19] Bomber Command was not on the line until 1936; and when war came in 1939, all of its aircraft were two-engine types of unimpressive performance. (In the United States the four-engine B-17 first flew in 1935 and was on the line from 1937 forward. By 1939 the four-engine B-24 Liberator also was fresh out of the factories; the RAF did not get its first four-engine airplane into Bomber Command until 1942.[20])

Fighter Command did experience some technological triumphs in the late 1930s, but some scholars have argued that those triumphs came in spite of Trenchard and his disciples. There had been a huge emphasis during the years

prior to the rise of Hitler on the benefits of general-purpose airplanes that were economical but not optimized for any of their missions. Too, the margin in the technical sense was narrow indeed. The Spitfire and the Hurricane came on line in the nick of time. The first models of the Hurricane featuring a fixed-pitch propeller appeared later. Their engines were great, but their guns were American designs in a rifle caliber, and appeared at a time when the .50 caliber with a superior armor-piercing incendiary (API) round was readily available for the same design. In 1939 German and British fighter planes probably were the most advanced in the world. As recently as the early 1930s, however, one might argue that the United States led the surge towards monoplanes. These planes showcased all-metal construction, retracting landing gear, superior radial engines, and closed cockpits. At the same time, the German and British (and Italian and Russian) air forces were still flying the old biplanes. Of course, the biggest advance was in radar, and that, too, came just in time. The short of it is that one simply cannot blame Trenchard for failing to foresee it.

Influence on the RAF

Trenchard's influence on the country's military service was enormous. He laid down its initial institutions and doctrine. His 10-year tenure came during a period of theoretical flux and was said to have had an enormous impact on most of his officers.

Trenchard's ideas on colonial control held great appeal for Britain's politicians in that austere period because of their promised economy. His ideas were most successful in Mesopotamia, where indeed control was maintained at low cost. Nonetheless, in some other areas, these ideas flopped.[21]

Air Chief Marshal Trenchard was largely responsible for making the RAF a strategic attack force with a decided preference for the offensive that survived even the Battle of Britain. However, his ideas were modified somewhat in their application, and one would have to stretch it to make him blameworthy for the largely unsuccessful attempt to break German civilian morale with direct attacks on workers and their homes by burning down Hamburg and Dresden.

Influence on the United States

Trenchard left a substantial imprint on the United States in two ways. First, through the Air Service and Air Corps, he helped to stimulate a commitment to strategic bombardment and to reinforce the arguments for an independent air force in America. Second, through a negative example on the US Navy, he fortified the American mariners' arguments favoring the retention of aviation within the Navy, the separation in England being alleged to have spelled disaster for the Royal Navy.

Influence on World War II

As noted above, Trenchard cannot fairly be blamed for the incineration of entire German cities (insofar as it was blameworthy), though his influence in the direction of strategic attack was a factor. The *USSBS* did not favor night area attack in its judgments as much as precision daylight bombing as conducted by the USAAF.[22] Once the Battle of Britain was past, though, the RAF returned to its preference for strategic attack but was assisted in doing so by the political leadership. The impact of preference on the outcome is full of imponderables. Though the direct effects before 1942 were not that impressive, it really was the only way that Britain could attack Germany at all.

From June 1941 onward, the major concern in Britain was directed towards keeping the Union of Soviet Socialist Republics (USSR) in the war against Hitler. Stalin's major complaint was the absence of a second front, which did not become possible until the invasion of Africa in November 1942 or, in Stalin's eyes, not until Overlord in June 1944. In any event, the bomber offensive against Germany from June 1941 until November 1942 was the only way that the Allies could attempt to make combat-proof their commitment to help the USSR in the defeat of Hitler. We cannot know whether that had any impact on Stalin's thought or even if there ever had been a chance that he would yield to such thinking this side of the grave. Even more imponderable was the impact on the German people. One of the declared goals of the Allies in World War II was the extermination of German militarism; since the burning of Dresden, pacifism had been as strong in

Germany as anywhere else in Europe. That outcome might have come from the Dresden experience.

Notes

1. Some relevant sources on Trenchard and his ideas include the following: Robert Higham, *The Military Intellectuals in Britain: 1918–1939* (New Brunswick, N.J.: Rutgers University Press, 1966); Andrew Boyle, *Trenchard* (London: Collins, 1962); Neville Jones, *The Beginnings of Strategic Air Power: A History of the British Bomber Force, 1923–39* (London: Frank Cass, 1987); and Phillip S. Meilinger, "Trenchard and 'Morale Bombing': The Evolution of Royal Air Force Before World War II," *The Journal of Military History* 60 (April 1996): 243–70.

2. Jones, xii, xvi. Meilinger argues that the lateness of Trenchard's conversion to the worth of strategic bombing has been exaggerated. See Meilinger, 250.

3. Alan J. Levine, *The Strategic Bombing of Germany* (Westport, Conn.: Praeger, 1992), 5.

4. Leonard Baker and Benjamin Franklin Cooling, "Developments and Lessons Before World War II," in *Case Studies in the Achievement of Air Superiority*, ed. Benjamin Franklin Cooling (Washington, D.C.: Center for Air Force History, 1994), 10.

5. Jones, xv; and Meilinger, "Trenchard and 'Morale Bombing,'" 248.

6. David MacIsaac, "Voices From the Central Blue: The Airpower Theorists," in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, N.J.: Princeton University Press, 1986), 633; and Boyle, 520–21.

7. Boyle, 508–12.

8. Meilinger, 244, 256; and Boyle, 520–21.

9. Stephen W. Roskill, *Naval Policy Between the Wars*, vol. 1, *The Period of Anglo-American Antagonism, 1919–1929* (N.Y.: Walker, 1968), 370–71.

10. Meilinger, 258–59.

11. Roskill, 252–55, 259.

12. Ibid., 479.

13. Ibid., 526. William Trimble argues that though doubtless after World War II, the fight became at least as bitter in America as it had been for Trenchard. See William Trimble, *Admiral William A. Moffett: Architect of Naval Aviation* (Washington, D.C.: Smithsonian Institution Press, 1994), 141–66.

14. Roskill, 264–65.

15. Jones, xx.

16. Derek Wood and Derek Dempster, *The Narrow Margin: The Battle of Britain and the Rise of Air Power, 1939–40* (N.Y.: McGraw-Hill, 1961), 65–66.

17. Jones, xxii, 172.

18. Ibid., 154.

19. Levine, 7.

20. Scot Robertson, *The Development of RAF Strategic Bombing Doctrine, 1919–1939* (Westport, Conn.: Praeger, 1995), 157–65; and Dudley Saward, *Bomber Harris* (Garden City, N.Y.: Doubleday, 1985), 44–47.

21. Meilinger, 253.

22. *The United States Strategic Bombing Surveys, Summart Report (European War)* (1945; reprint, Maxwell AFB, Ala.: Air University Press, 1987), 10–12.

Chapter 4

William Mitchell

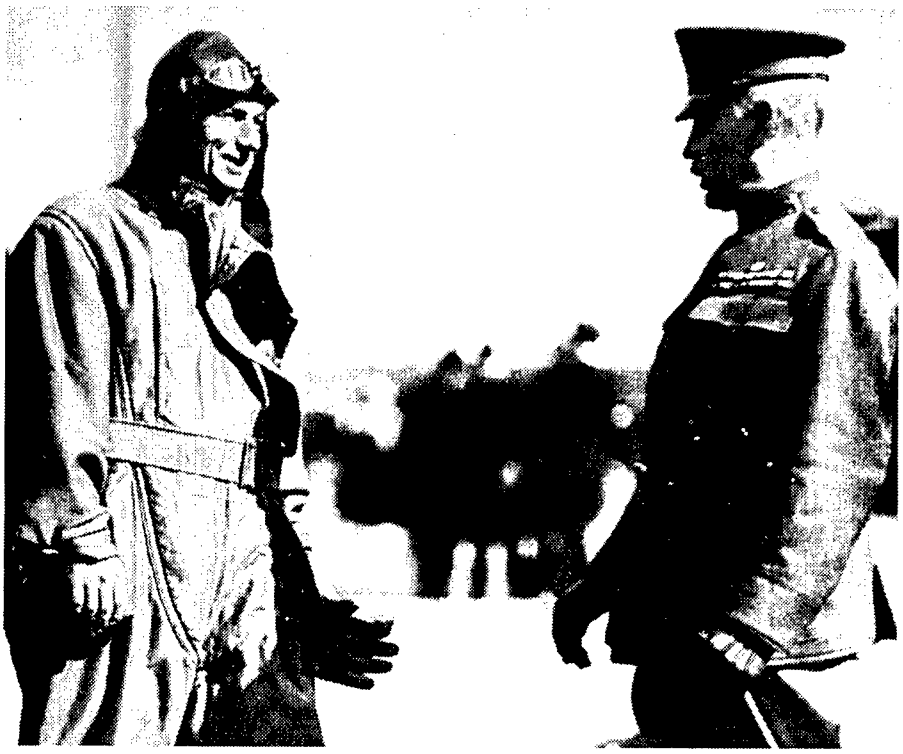
William "Billy" Mitchell was born in France in 1879 and spent the first three years of his life there.[1] He came from a wealthy and prominent Wisconsin family. His grandfather had been a railroad mogul, and his father, a US senator of the Democratic Party, was an ardent anti-imperialist. Mitchell attended private schools and had an unremarkable academic record. He was enrolled in the ancestor unit of George Washington University for three years, but did not graduate.

New World Theorist

When the Spanish-American War broke out, he left school and his father engineered a second lieutenant's commission for him in the volunteers. Mitchell did not get to Cuba until some months after the fighting was over. He did some telegraph layout work in Cuba, and later went to the Philippines at a time when the guerrilla war was resurrected and lasted longer than anticipated. In those years, he had remained in the Signal Corps. Later, he went to Alaska for a couple of years of survey work in support of laying telegraph lines, and then got involved in the actual construction.

Billy Mitchell was an athletic soul, though sometimes he had to be subsidized by his mother. He was at Fort Leavenworth, Kansas, for a while to go through the School of the Line and then the Staff College. He also taught Signal Corps subjects while he was there. His boss in those days was George O. Squier, the Army's first PhD recipient and later a general and chief of the Signal Corps. Mitchell was appointed to the General Staff at a young age, while still a captain, and was the only Signal Corps officer so assigned.

Mitchell had occasional reasons to investigate and write up aviation subjects, but displayed no particular interest in flying at that time. He made major just before the United States entered World War I. His flight training near Norfolk in 1916 amounted to a mere 30-odd hours, and he wound up paying



Brig Gen William Mitchell (left) (1879–1936) and Maj Gen Mason M. Patrick (1863–1942) at the Detroit air races in 1922. Mitchell was a firm advocate of offensive operations. More so than Douhet, Mitchell envisioned a role for pursuit and ground support air units. The airpower ideas of his boss, General Patrick, did not vary significantly from those of Mitchell but Patrick was less confrontational in promoting them. Patrick, incidentally, was Gen John Pershing's classmate at West Point, and he learned to fly in his late fifties.

for it himself. He did not receive his junior military aviator wings until September 1917. This timing may have led to his assignment as an aeronautical observer in Europe, beginning just a few weeks before our declaration of war.

Biographer Alfred Hurley says that Mitchell's foundation for professional officership included

> his patrician background, the sponsorship of a politically potent family, an engaging personality, the zeal for distinction and preference for field combat service that marks most military leaders, and a sincere desire to serve his country. The Army had furnished him with a worldwide viewpoint and an appreciation of rapid technical advances

> that was rare among his civilian brethren; his service had trained him to think in terms of mass warfare, but had hardened him in the most bitter form of modern war—guerrilla combat. Above all, Mitchell's service had taken place in a progressive climate favorable to educating the American people as to the military implications of the new century.[2]

Mitchell was in Europe when the United States entered the war, and he wound up commanding the combat aviation at the front. He returned home after the war to become assistant chief of the Air Service, first for Gen Charles Menoher and later for Gen Mason Patrick. He led an Air Service provisional brigade in the bombing tests against various naval vessels and sank an ex-German battleship with a two-thousand-pound bomb—at anchor, close to shore, and unprotected with antiaircraft artillery.[3] The isolationist mood of the 1920s made it impolitic to suggest that the United States would ever again be involved in overseas wars. A seaborne attack against the continental United States was not much of a possibility then, but that was the only threat that could be publicly addressed by either the Air Service or the Navy. Thus, Mitchell's strategic bombing ideas were discussed much less openly, and the utility of airpower in coastal defense became the major issue. He deliberately provoked a court-martial in 1925, was convicted of insubordination, and left the Army early in 1926.[4] He lived on his farm in Virginia for the rest of his life, became involved in the presidential campaign of 1932, and was disappointed that President Franklin Delano Roosevelt did not choose him as assistant secretary of war for air. Mitchell died in February 1936.

Modus Operandi

Mitchell was a showboater, one who was not at all averse to going outside channels. He used public relations extensively to try to advance his cause and published frequently in national media while on active duty. Mitchell wrote several books, some of which were published before he resigned. He used a sensationalist approach, which the Navy and soldiers oftentimes considered as firing from the hip.[5] He frequently used immoderate language and seldom paused to qualify it. He was a social lion and behaved rather like a feudal baron as he traveled about his Air Service domains.[6] From my point of view, he was sometimes too quick to reveal his hand to adversaries.[7]

Gen Jimmy Doolittle told me that he and perhaps the majority of senior Air Service and Air Corps officers came away with the opinion that Mitchell's methods more so than his ideas had done more harm than good to the service.[8]

Assumptions

The assumptions underlying Billy Mitchell's concepts of airpower in its strategic attack role seem strikingly similar to those of both Douhet and Trenchard. It is well established that he had the opportunity to learn the views of both well before his court-martial in 1925. It seems equally likely that the whole set of ideas had multiple sources for all three—as had been the case with Alfred Mahan and his theories of sea power.[9] Mitchell's assumptions included the following:

1. The coming of aviation was revolutionary.
2. Command of the air is a prime requirement.
3. Airpower is inherently offensive; the bomber will always get through.
4. Antiaircraft artillery is ineffective.
5. Airpower could defend the continental United States more economically than the Navy, and the latter's form of warfare is obsolescent.
6. Airmen are a special and elite breed of people, and they alone can understand the proper employment of airpower.
7. Future wars will be total; the ascendancy of the ground defensive will persist; everybody is a combatant.
8. Civilian morale is fragile.

Thesis

Airpower, organized into a separate, equal (to Army and Navy), and autonomous air force under a unified department of defense, could serve as the most effective and economical means of defending the continental United States. If the matter ever came to fighting an overseas enemy, airpower could decisively attack the enemy's vital centers without first defeating his armies and navies. Attacks on such vital targets would render war so decisive and quick that the total suffering would be less than otherwise . . .; therefore, such bombing would be more humane than conventional trench warfare.[10] Airpower is best generated by nations with populations that are airminded; the

United States has great potential for airpower but needs to develop it. Airpower is best controlled by an airman in a centralized way to facilitate its offensive use.[11]

Gen James Doolittle (1896–1995), circa 1935, became the commander of the largest strategic air unit in history, the Eighth Air Force, during World War II. He claimed that most senior officers of the Air Service and Air Corps shared Mitchell's ideas but that Mitchell had done more harm than good to the cause of airpower because of his confrontational method.

Targeting

Whether for motives of public relations, humanity, military efficiency, or some combination, Mitchell almost always stood squarely opposed to targeting civilians directly and generally advocated breaking their morale through the detruction of other vital centers like industry, infrastructure, or even agriculture. Mitchell's intellectual heirs at the Air Corps Tactical School refined and systematized his ideas, using the northeastern industrial triangle of the United States as the model for the development of the precision-bombing theory and doctrine.[12]

From a very early date, General Mitchell endorsed the idea of a separate air force, centralized command of airpower, and the creation of a department of defense. In public, at first, he did not dwell all that much on strategic targets as we know them today. He was more concerned with tactical functions, concentrating especially on maritime targeting. All the same, in lecturing at the Army War College in 1922, Mitchell discussed targeting thusly:

> At first it must be assumed that the hostile [to the United States] air forces will operate from airplane carriers to shore bases from Bermuda and that, as soon as possible, large concentrations of Red and

> Crimson (British) offensive aviation will be located in the Ontario Peninsula. From this Peninsula, a great percentage of aircraft factories, munition factories, industrial centers, and automobile factories will be within a radius of action of long distance aerial bombardment. Practically all the main arteries of communication between the East and West pass within easy bombing distance of the Ontario Peninsula, near the South shore of Lake Erie, in the vicinity of Sandusky, Ohio.[13]

Clearly, the ideas associated with the Air Corps Tactical School a decade later had some of their roots in the thinking of Mitchell and those around him.

Air Superiority

Mitchell was consistent in asserting that air superiority was a prerequisite for other military operations. In the general sense, he agreed with both Douhet and Trenchard in this. However, Douhet envisioned achieving command of the air through quick blows at the onset of hostilities against the enemy air forces while they were still on the ground. On the other hand, Mitchell argued that this advantage would be achieved largely through an air battle, but attacks on enemy airpower on the ground were also in his repertoire. He expressed much the same opinion in 1921:

- The principal mission of Aeronautics is to destroy the aeronautical force of the enemy, and, after this, to attack his formations, both tactical and strategical, on the ground or on the water.
- The secondary employment of Aeronautics pertains to their use as an auxiliary to troops on the ground for enhancing their effect against the hostile troops.
- Pursuit Aviation . . . is the kind designed to take and hold the offensive in the air against all hostile aircraft, and it is with this branch of Aviation that air supremacy is sought and obtained.[14]

Mitchell disclaimed the effectiveness of AAA.[15] His doctrinal descendants at the Air Corps Tactical School in the 1930s may have downplayed the achievement of air superiority in part through a great air battle, and many say that this led to a neglect of both pursuit and attack aviation in favor of strategic bombing.[16]

Air Exploitation

According to General Mitchell, once air superiority was established, it could be exploited at will in all sorts of operations against vital centers. Sometimes vaguely described, these vital centers usually were seen as industrial, infrastructure, and agricultural values, the loss of which would lead to the collapse of civilian morale. As noted earlier, Mitchell's most prominent arguments in the 1920s focused on the use of airpower in lieu of naval power in the coastal defense mission. It came to a crisis in the latter half of 1925 with Mitchell's court-martial and his later resignation. Meanwhile, President Calvin Coolidge convened the Morrow Board to consider the problem of aviation. For the most part, the board concluded that the ideas of Mitchell were not well founded and that the threat to American security was remote. It rejected most of Mitchell's ideas, though it did recommend a substantial buildup of airpower in the US services. The country seemed to accept the board's conclusions, and the Air Corps Act of 1926 reflected many of them.

For whatever reason, in Mitchell's day the idea of attacking civilians with airpower was not much discussed in public. The Douhetan idea of direct attack on civilian morale was diminished further at the Air Corps Tactical School in the 1930s by the increased emphasis on industrial and infrastructure vital centers that would undermine enemy capability to resist. Also, as time passed (especially after Hitler and the Japanese went on their rampages), the coastal defense issue waned, and defense planners paid increased attention to the offensive use of long-range airpower in overseas operations.[17]

Organization for War

As he steamed back from World War I aboard the SS *Aquitania,* Mitchell treated Lt Cmdr Jerome Hunsaker of the US Navy to his vision of airpower and the future security of the United States. Then and for the remainder of his days, Mitchell argued for a separate and equal, independent air force and for a unified department of defense. He asserted that only an airman could have the vision of the proper role of

airpower and, therefore, all military aviation should fall under the direct control of such an airman.

Even though the RAF itself was but a year old, Mitchell was using it as a proper model for the United States—and many Navy airmen were using it as a bogey to scare their own mossbacks into fighting for naval aviation.[18] Only four months after the RAF's founding, an American naval officer was complaining to the US Navy's General Board that the RAF had been a disaster.[19]

Role of Other Armed Forces

At the onset of the decade of the 1920s, Mitchell asserted that the air force would have to be primary and the Navy, especially, would have to be secondary at best. After the famous naval bombing tests of July 1921, Mitchell became increasingly strident in claiming that surface vessels could not survive air attacks. Therefore, they could not be effective in the coastal defense mission. Of course, the Air Service worked for the chief of staff of the Army—and that tended to dampen the criticisms of the airmen a bit—but the General Staff came in for some substantial heat of its own. From the beginning, Mitchell saw a place for independent missions for air forces well beyond the battlefield. But in his mind they took on an ever-increasing higher priority as time wore on—with a relative diminishment of the role of the ground army. Increasingly, he argued that enemy armies and navies had never been the ultimate objectives; the final goal always had been to change the will of the enemy, and through airpower this finally could be done without defeating his surface forces.[20]

Force Structure

At first, Mitchell advocated a preponderance of pursuit, but then increasingly emphasized the need for more bomber units. In the early 1920s, pursuit was the premier part of the force, though there were also a bomber and an attack group.[21] Doubtless there was an increasing emphasis on bomber organization and technological development, but the work with pursuit and attack aircraft never disappeared altogether

either on the line or in the curriculum of the Air Corps Tactical School.

Technology

In contrast to Douhet, Mitchell believed no single type of airplane was adequate; pursuits for command of the air were a paramount requirement, and at least in the early 1920s, Mitchell stipulated a need for both attack and reconnaissance aircraft.[22] The "Mitchellites" of the Air Corps Tactical School (and much of the rest of the air arm of the 1930s) were persuaded that technology had arrived to validate Mitchell's theories. The high-altitude, four-engine bomber (predating radar) would be so difficult for a slow-climbing fighter to intercept before the latter had to turn back for want of gas, that it seemed ever more possible that the bomber would always get through. The combination of such strike force security in daylight with the new Norden bombsights seemed to promise adequacy in both target finding and hitting to enable decisive damage in a time so short that it would be economical and humane.[23] According to Mitchell, the bombs would include high explosives, incendiaries, and gas. Mitchell had placed some emphasis on big bombs—and even on aerial torpedoes and radio-controlled guided missiles.[24]

However, for various reasons in the 1930s, Mitchell's followers placed much more emphasis on bombers than on bombs. Although there was a four-thousand-pound bomb in inventory during World War II, it was seldom used in the B-17 or B-24. The most frequently used weapon was the 500-pounder, which the *United States Strategic Bombing Surveys* judged (after the fact) as too small for most of its targets.[25] Too, radio-controlled standoff weapons were developed during World War II, but Mitchell's protégés were not all that impressed with them. Even weapons like them were not standardized until after the Korean War.

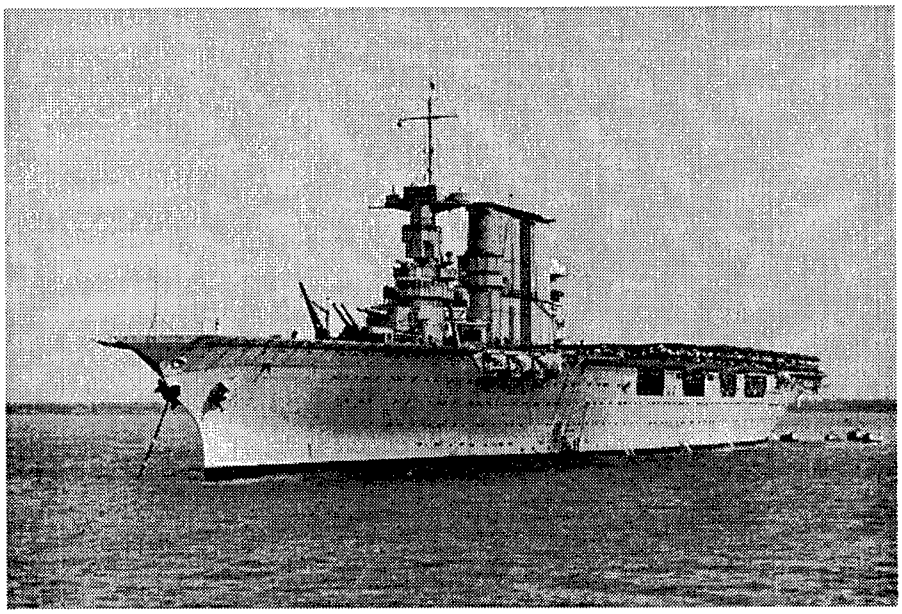
Influence on the United States

General Mitchell's economic appeal helped to commit the United States partially to inexpensive (they thought) security through airpower. According to his most prominent

biographers, Mitchell, like Mahan, was more the articulator and catalyst than the originator of new ideas.[26] The array of ideas he propounded was widely shared within the small corporate body of the Air Service, and his flamboyant style brought those notions to public attention, even though he was merely giving voice to the ideas of others. In a 1924 memorandum apparently prepared for the higher leaders of the Air Service, Gen Mason Patrick, Mitchell's boss, argued cogently that airpower should be centrally controlled by an airman coequal with the ground and sea commanders. He urged that the chief of the Air Service be made fully responsible for a separate Air Service budget proposal and a separate Air Service promotion list. Mitchell further suggested that the whole coastal defense mission be assigned to the Air Service and that its operations be centrally controlled. In this memorandum, Patrick asserted explicitly that the ultimate goal should be a separate air force with all of the country's airpower assigned and suggested that perhaps even all aircraft development should be a part of the responsibility. In the meantime, General Patrick proposed an interim measure for creating something resembling the Marine Corps within the Army for the effective development and employment of aviation.[27] There appears to be little in that proposal to which Mitchell might have objected, except perhaps the moderation implied in taking the interim step of creating an aviation corps rather than proceeding straight to the ultimate goal. Some authors say that Mitchell helped to condition American opinions so that ultimately the United States would commit to strategic bombing.[28]

Influence on the US Navy

The idea is pretty widespread that if Mitchell had not existed, the United States Navy would have had to invent him.[29] The aviators in the Navy were not much inclined to take a radical route in any event, but they had a convenient external enemy who could be used to persuade their conservative seniors and colleagues that if they did not agree to move out smartly in aviation and carriers, then Mitchell would take their airpower away from them. These Navy



The USS *Saratoga,* CV-3, was one of three prewar aircraft carriers to survive World War II (the others were the *Enterprise* and *Ranger*). The carrier, built on a battle cruiser hull because of the Washington Naval Limitation Treaty of 1922, was torpedoed repeatedly in the war, and was sunk as a target in a postwar atomic test. The 8-inch guns shown in this prewar photo were removed after Pearl Harbor in favor of antiaircraft weapons. Mitchell's vigorous approach served naval aviators well, for it helped them to pry support and money out of skeptical surface sailors. Aviators argued that if the Navy did not develop aviation, then Mitchell would succeed in taking its air arm over to a unified air service.

aviators had a practical example in the creation of the RAF, which did include naval aviation from 1918 to 1937 and which was used to terrorize the mossbacks into cooperation with naval aviators in Britain.

Influence on the United States Air Force

There cannot be much doubt that Mitchell had an enormous impact on the foundation and development of the United States Air Force—and not just the man, but also the myths surrounding him. Since the founding of the Air Force, he has been presented to the novitiates as a model to be followed. The officer of principle, it is argued, will be ready to

"fall on his sword" to advance the cause of airpower regardless of personal cost. A colonel, himself an Air Force Academy graduate and later a faculty member there, expressed his views this way:

> That face (portrait of Mitchell in the AF Academy dining hall), more than any other, is the face of airpower ascendant—American air power. It is assurance to a budding generation of military aviation specialists that things of the spirit can transcend career considerations; that nation and honor supersede the narrower traits of group conformity and safety that mark the serviceman's routine. . . .
>
> Yet he looms large there, where a thousand and more formative minds can collectively consider his compelling gaze and reflect that rugged countenance. What must the enshrinement of such a noble man mean to those still being nurtured on the rudiments of air power? Should they incline to emulate the principled performance of that exemplar? Could they succeed by doing so? [30]

Those eloquent words from a real-world fighter pilot are all the more remarkable when readers recall that the author graduated from the Academy and taught there, and has given brilliant lectures along those lines throughout the Air Force. It is all the more remarkable because his article was published in the *official* professional journal of the Air Force, and even won an Ira C. Eaker prize. However, are those notions real or mere legend?

In the first place, Mitchell built his case around the coastal defense mission against a threat that looks preposterous at this late date in the twentieth century. The US Navy could not operate on the far side of the Pacific for a long, long time after the beginning of World War II, so how could a lesser one have threatened the West Coast? Had there been the remotest chance that the British navy would appear off our shores, even it could have been turned back in short order. Besides, the British signed on to the limits of the Washington Treaty (1922) precisely because their treasury was near bankruptcy. So when the Morrow Board concluded that the British threat was a figment of Mitchell's imagination, there can be little doubt that it was correct. (The Navy people interpreted the climate similarly, it should be noted.) Moreover, World War II was to prove that battleships were much harder to sink with level bombers than Mitchell was predicting.[31] Much time would elapse before there could be any real threat of an air

force flying across either the Atlantic or Pacific with bombs enough to make any difference; that is, the threat would have to extend beyond peripheral attacks in limited weight and duration at outlying places like Pearl Harbor that only stiffened the determination of the American people.

The notion that Billy Mitchell made an enormous personal sacrifice, and, worse, that a similar sacrifice should be expected from all other officers has been exaggerated. A great many officers have improved the memory of their careers by asserting that their limitations arose from their being nonconformists who always had the good of the service and the country at heart. It is all too easy to make that assertion in one's golden years. Billy Mitchell was a rich man from a rich family. He did not have to give up his retirement pay, but he chose martyrdom by resigning. Mitchell spent the remainder on his life on a substantial estate in Virginia, where he continued his elegant life style. Thus, the absence of retirement pay was less of a factor than it would have been in the usual case.

Long before the court-martial—when General Menoher was relieved and General Patrick was brought on to take charge instead of Mitchell—Mitchell must have known that his prospects for further advancement in the Army were dim indeed. When he gave them up, Mitchell was not giving up as much as would have been the case with another officer still on the rise. Moreover, there have been those who suggested that Mitchell got what he wanted in the court-martial—a pulpit and the visibility he thought he was due. He knew well in advance that his chosen behavior was bound to wind up in a trial, something he easily could have avoided.[32] As for the other concerns, there seemed to be some virtue in being defiant toward the General Staff and the rest of the ground army. Defiance raised one's status within the Air Service and Air Corps, where the opinions of the senior airmen themselves largely governed the promotions of all except its chief and assistant chief .[33]

Notwithstanding that, Gen Jimmy Doolittle and others have argued that Mitchell's posturing did more harm than good, at least in the short term. Even at the time, such prominent airmen as Edgar Gorrell and Thomas Milling deplored

Mitchell's antics with the press and public and asserted that he had damaged the cause of airpower. Many years later, Mitchell's most trusted agent, Gen Henry A. "Hap" Arnold, admitted that economics and technology probably were the limiting factors and that Mitchell did not help the cause of airpower.[34] General Eaker and Gen Carl A. Spaatz did not agree with Arnold's observation, but Doolittle asserted most strongly that Spaatz, because of his much longer service and lower-profile methods in working within the system, had done more for the cause than had Mitchell. Doolittle also held that by far the greater part of the senior air officers agreed with him.[35]

However, in another way, Mitchell's influence lingered on for many years. The Mitchellites of the Air Corps wound up in charge once Maj Gen Oscar Westover died in an aircraft accident in 1938 and Arnold took charge. For a time, there may have been a rivalry between Frank Andrews and Arnold, but both were big bomber men, though Arnold was more closely associated with Mitchell than was Andrews.[36] Certainly, Arnold was closer to Mitchell than Westover ever had been. Arnold remained in office for seven formative years just before and during World War II, a time during which the strategic bombing theory in large part dominated the way that the USAAF fought the war.

Arnold's most trusted agent, Spaatz, himself a crony of Mitchell's (to the point that Mitchell had been his repeated houseguest), succeeded Arnold. Spaatz was the last commanding general of the Army Air Forces and the first chief of staff of the new US Air Force. He never shared the notion that Mitchell had done more harm than good, and as we noted earlier, Spaatz was a driver of the subsequent effort to get the verdict of Mitchell's court-martial overturned. Spaatz was important because he was at the helm when the initial institutions of the United States Air Force were established—with a great deal of influence from the ideas Mitchell had articulated. Mitchell might have been horrified when Spaatz split the combat power of the new USAF into three functional parts (Strategic Air Command, Tactical Air Command, and Air Defense Command—SAC, TAC, and ADC), but the primacy of strategic bombing, the offensive nature of airpower, the importance of air superiority,

and the ascendancy of interdiction over close air support were all ideas compatible with those held earlier by Mitchell.

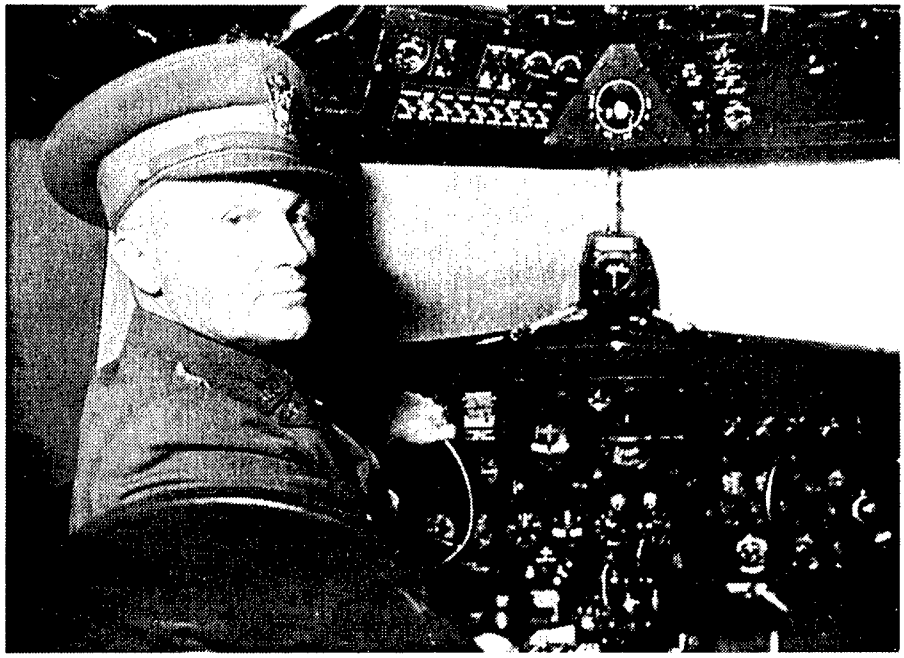
Mitchell has been accused of pilot elitism, and Carl Builder asserts that such elitism lingers within USAF today.[37] If so, I guess that would be a quality passed on by the culture of which Spaatz was a part—and Spaatz had some role in founding the Air Force Academy, wherein such elitism has often been thought to be alive and well.[38]

Maj Gen Oscar Westover (1883–1938) aboard his personal Northrop A-17, the airplane in which he was fatally injured in a crash in California in 1938. At West Point Frank Andrews had been his classmate, and they were a year ahead of Henry Arnold. Some people have noted that Westover's popularity within the Air Corps was limited because he had come to aviation late after having spent considerable time in the infantry and perhaps was insufficiently sympathetic to the Mitchell view of airpower. After Westover's death, Henry Arnold, his assistant, took over. Arnold was one of Mitchell's chief disciples.

Influence on World War II

The ideas attributed to Mitchell certainly impacted the USAAF approach to war. One of these ideas held that airpower would engage the enemy long before the armies would be able to gain contact. The idea manifested itself in the Eighth Air Force, the first large unit deployed to England. This air force was comprised mostly of large strategic bombers and fighters. It participated in an air war against Germany for two years before the armies landed at Normandy. Aviation units dedicated mostly to the support of armies did not deploy until later, largely as a part of the Ninth and Twelfth Air Forces.

Mitchell-like deployments were disrupted to some degree when international politics intervened to bring about a land campaign in Africa much sooner than war planners had



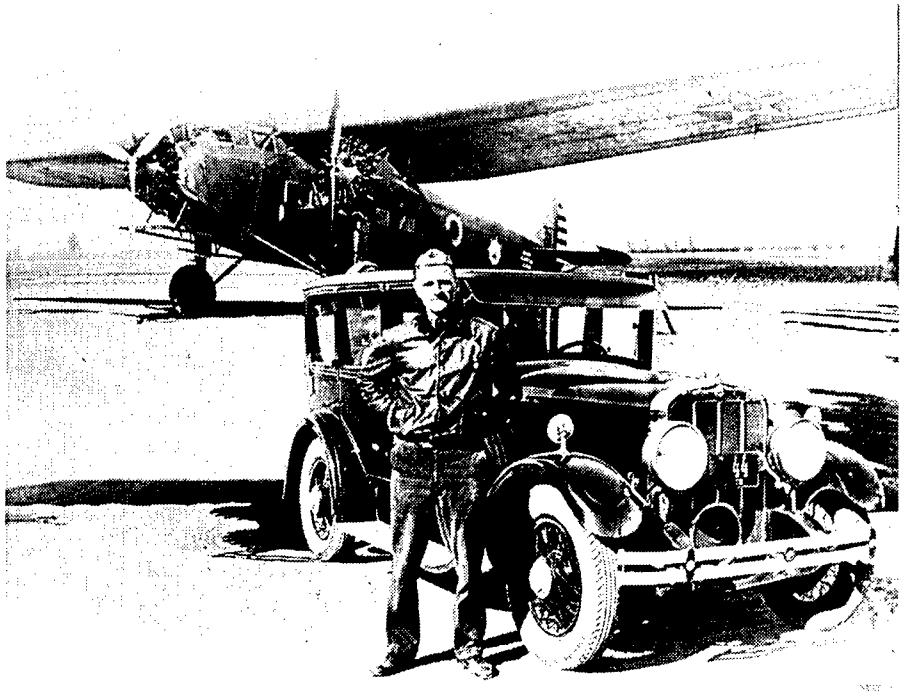
Lt Gen Frank Andrews (1884–1943) at the controls of a C-47. Commander of the GHQ Air Force while Henry Arnold was assistant chief of the Air Corps and equally (perhaps more) dedicated to the idea of strategic bombing, Andrews spent 11 years in the cavalry before coming into flying. His closest lieutenant, Hugh Knerr, has argued that Andrews and Arnold were rivals, but if that were so, it was a low-key rivalry. After Eisenhower went to the Mediterranean for the African Campaign, Andrews was brought back up to England to assume command of the European Theater of Operations. However, he soon died in an accident in Iceland while at the controls of a B-24.

intended. This eventuality caused the formation of the Twelfth Air Force from the body of the Eighth Air Force and came to justify the bomber barons when their strategic bombing campaign did not produce results as soon as many expected.[39] Mitchell would have understood the long-range, big bombers, even though they did not get through as easily as he had expected. The escort idea was considered and rejected after his tenure; so, therefore, that part of the experience cannot be attributed to him. In fact, in *Skyways*, Mitchell mentions the use of drop tanks even during World War I.[40]

The notion that navigational and bombing accuracy would be sufficient to be decisive in a short time was at least implied

General of the Air Force Henry H. Arnold (1886–1950) is shown disembarking from a C-47 in France during 1944. Arnold was widely known for his hot temper, notwithstanding his nickname "Hap." He had been the leader among Mitchell's supporters at the 1925 court-martial. Though he was generally a supporter of the strategic bombing theory, Arnold was not a doctrinaire man and probably showed greater flexibility on the subject than some of the other people at the Air Corps Tactical School. He had been in command for seven years when he turned over the reins to his chief lieutenant, Gen Carl Spaatz. Thus, for nine formative years, two of Mitchell's disciples guided the building of the foundations of the USAF, but neither was as dogmatic on strategic bombing as some critics have made them appear.

in *Skyways* and then in the Air Corps Tactical School concepts. This notion proved disappointing during the war, even to the point that daylight bombing by our strategic forces was not more accurate than that of the British Bomber Command at night in the last months of the war.[41] The quest for precision bombing was partly abandoned in the strategic war against Japan when Gen Curtis E. LeMay brought his B-29s down to medium altitudes for area-wide, incendiary attacks on Japanese cities. In addition to the bombing being less effective than Mitchell had anticipated, both the ground-



Gen Carl A. Spaatz (1891–1974) shown in this photograph with the *Question Mark* aircraft that was the receiver in air refueling tests of 1929. He had been its commander and remained aloft continuously for nearly seven days. Though he has been painted as one of the bomber barons, who directed the USAF into a dogmatic commitment to strategic bombing, Spaatz had been a fighter pilot in World War I (three kills), commanded the 1st Pursuit Group in the early 1920s, when it was the only fighter unit in the Air Service, and was in command of the Northwest African Air Force that succeeded in providing the experience base of modern tactical air doctrine.

based and air defenses proved much more effective than predicted—at least in Germany.[42]

As for Mitchell's ideas on maritime warfare, some were correct and others not. For whatever causes, the day of the battleship was done soon after the beginning of the war. Battleships under way were much harder to kill with bombers, especially level bombers, than the *Ostfriesland* had been. Later there were some additional tests, some against a more modern hull and others against moving targets. However, the damage was already done; the image of battleship vulnerability had been firmly planted in the public consciousness. To the

Marshal of the RAF, Lord Hugh Trenchard (left) (1873–1956), and Air Vice Marshal Arthur Tedder (1890–1967) in North Africa during World War II, long after Trenchard had retired. Trenchard heavily favored the offensive in air warfare, which led to heavy casualties against the Germans on the Western Front in World War I and to a strongly held commitment to strategic bombing while he headed the RAF for the decade following that war. His preference for the offensive was shared by all of the theorists discussed in this book. Tedder was Eisenhower's air commander during the Mediterranean campaigns and later rose to become marshal of the RAF. After the war he headed that service.

uninitiated, Pearl Harbor seemed to justify Mitchell, and the sinking of the *Prince of Wales* and the *Repulse* while they were under way shortly afterwards persuaded many others. Nonetheless, during the last year of the war, both the *Mushashi* and the *Yamato* were tough nuts even in restricted waters and under conditions of complete air superiority for the attackers. The *Mushashi* withstood something like 19 torpedo hits (not to mention many more from bombs) before she succumbed.[43] Nonetheless, the carriers had become the capital ships, and the battleships positioned themselves as AAA platforms and

amphibious fire support vessels from the early days of the war.

As for arguments on economical defense and humanity, airpower proved to be pretty expensive and not nearly as quickly decisive as Mitchell had thought. Partly because of that slowness, the argument that it was a more humane form of war fell by the wayside—especially since the assumption that the hegemony of the defensive form of ground war would persist proved false. Surface combat was inhumane enough, but there were seldom grim stalemates in the trenches in World War II. Further, civilian morale proved more resilient than Mitchell (and the other theorists) supposed, though the war proved as "total" as he and the others had anticipated.

Notes

1. Some of the most prominent sources on Mitchell's life and ideas include the following: Alfred F. Hurley, *Billy Mitchell: Crusader for Air Power* (1964; reprint, Bloomington, Ind.: Indiana University Press, 1975); David MacIsaac, "Voices from the Central Blue: The Airpower Theorists," in *Makers of Modern Strategy*, ed. Peter Paret (Princeton, N.J.: Princeton University Press, 1986), 624–47; William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power – Economic and Military* (1925; reprint, N.Y.: Dover Publications, Inc., 1988); William Trimble, *Admiral William A. Moffett: Architect of Naval Aviation* (Washington, D.C.: Smithsonian Institution Press, 1994); Burke Davis, *The Billy Mitchell Affair* (N.Y.: Random House, 1967); Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven, Conn.: Yale University Press, 1987), chaps. 1 and 2; Isaac Don Levine, *Mitchell, Pioneer of Air Power* (1943; reprint, N.Y.: Duell, Sloan and Pearce, 1958); and Edward P. Warner, "Douhet, Mitchell, Seversky: Theories of Air Warfare," in *Makers of Modern Strategy*, ed. Edward Mead Earle (1943; reprint, Princeton, N.J.: Princeton University Press, 1952). Admiral Moffett was Mitchell's most strident bureaucratic adversary.

2. Hurley, 15.

3. Maj Henry H. Arnold, San Francisco, to Brig Gen William Mitchell, letter, subject: Appreciation (Arnold's enthusiasm regarding Mitchell's success in the bombings), 10 August 1921.

4. An attempt was made in the 1950s by Mitchell's son and was supported by Gen Carl Spaatz to have the verdict of the court-martial reversed, but it was denied. See James H. Douglas, secretary of the Air Force, memorandum to chairman, Air Force Board for Correction of Military Records, subject: Application of Mr. William Mitchell Jr., 4 March 1958, 912–28.

5. Lt Gen James Doolittle, interviewed by author, 19 May 1982, Washington, D.C.

6. William Mitchell, Harford Hunt, M.D., to Maj Carl Spaatz, Selfridge Field, Michigan, letter. Mitchell speaks of a forthcoming visit to Selfridge Field and the need to get the accommodations and a fast car ready for his visit, and William Mitchell, in Washington, D.C., to Spaatz at Selfridge, relating to the shipment of his "horses" to Detroit in preparation for his upcoming visit, 1 June 1923.

7. Jeffrey G. Barlow, *Revolt of the Admirals: The Fight for Naval Aviation, 1945–1958* (Washington, D.C.: Navy Historical Center, Department of the Navy, 1994), 3. See also US Navy, General Board, "GB Proceedings 80," 1919, National Archives.

8. Doolittle interview; and Maurer Maurer, *Aviation in the U.S. Army, 1919–1939* (Washington, D.C.: Office of Air Force History, 1987), 113, 116.

9. Maurer, 114.

10. Mitchell, *Winged Defense*, 16.

11. This constant idea was expressed in many places. See letter to Maj Gen Mason Patrick. For a summary of Mitchell's views, see Maurer, 36, 44, 113–29; and Mitchell, *Winged Defense.*

12. The principal and almost sole work on the Air Corps Tactical School is Robert T. Finney, *History of the Air Corps Tactical School, 1920–1940*, USAF Historical Study 100, Maxwell AFB, Ala.: USAF Historica1 Division, Air University, 1955. But a new authoritative source is in the offing in Lt Col Peter Faber's dissertation at Yale. The northeastern triangle idea has precedents in the thought of Mitchell. See Brig Gen William Mitchell, lecture, Army War College, Carlisle Barracks, Pa., 24 November 1922. In this lecture, he referred to the northeast as the most vulnerable part of our country.

13. Mitchell lecture.

14. Brig Gen William Mitchell, "Tactical Application of Military Aeronautics," lecture, Army War College, Carlisle Barracks, Pa., 1921.

15. Ibid. In this lecture Mitchell responded to the question, "Would not the anti-aircraft on the ship seriously interfere with the attack?" with "No. We do not think much of anti-aircraft from any ship. During the world war statistics prove that only one-tenth of one percent of our airplanes were hurt by anti-aircraft fire. . . ."

16. Martha Byrd, *Chennault: Giving Wings to the Tiger* (University, Ala.: University of Alabama Press, 1987), 40.

17. For one first person's account of developments at the Air Corps Tactical School, see Maj Gen Haywood S. Hansell Jr., USAF, Retired, *The Air Plan that Defeated Hitler* (Atlanta, Ga.: Higgins-McArthur/Longino & Porter, 1972), 1–30.

18. Navy General Board; and Trimble, 68.

19. Cmdr H.C. Dinger, USN, testimony, "Aviation Abroad," General Board Proceedings, 23 August 1918.

20. Mitchell, *Winged Defense*, xv–xvii.

21. Futrell, 49; and Mitchell, *Winged Defense*, 164.

22. Mitchell lecture, 24 November 1922.

23. For an authoritative study on the Norden bombsight, see Steven L. McFarland, *America's Pursuit of Precision Bombing, 1910–1945* (Washington, D.C.: Smithsonian Institution Press, 1995).

24. Kenneth P. Werrell, *The Evolution of the Cruise Missile* (Maxwell AFB, Ala.: Air University Press, 1985), 2, 23, 39.

25. The largest bomb that could be carried inside the B-17 was the 2,000 pounder, and if the 4,000 pounder were loaded on the external racks, the performance would have been radically reduced, especially the range. See Edward Jablonski, *Flying Fortress* (Garden City, N.Y.: Doubleday, 1965), 315, 322; *The United States Strategic Bombing Surveys, Summary Report (European War, Pacific War)* (1945; reprint, Maxwell AFB, Ala.: Air University Press, 1987), 15, 37, 86, 91; and Lt Col A. L. Zachary, "Lecture Notes, Effects of Bombs and Fuzes," lecture, August 1945. Zachary begins the lecture by arguing that the potency of bombs had been far overestimated before World War II and that good procedure demanded the employment of the smallest bomb capable of doing the job. See also Brodie, 119.

26. MacIsaac, 631; and Hurley, 139.

27. Maj Gen Mason Patrick, memorandum for record, subject: "Reorganization of air forces for national defense," 19 December 1924.

28. See, for example, Sherry, 38. I wonder about the statute of limitations and also about the degree to which Mitchell as a proponent of strategic bombing has been overemphasized even more than he deserves.

29. Hurley, viii; and Trimble, 9–10. Capt T. T. Craven reported to his listeners that he understood that the Royal Navy had lost its aviation to the RAF precisely because it had not moved vigorously to develop it itself. See Capt T. T. Craven, USN, "Aviation," lecture, 5 August 1919.

30. Timothy E. Kline, "Where Have All the Mitchells Gone?" *Air University Review* 33 (May–June 1982): 28–32.

31. Lt Col (later general) Walter Sweeney's B-17s flying out of Midway claimed decisive hits during that battle but research after the war showed that they got few, if any. Wesley Frank Craven and James Lea Cate maintain that the exaggerated reports here were quickly picked up by the media and spread far and wide before the Navy got its story out, and that the story has been an irritant in interservice relations ever since. See Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations* (new imprint, Washington, D.C.: Government Printing Office, 1983), 457.

32. Parton says that Mitchell full well knew that he was provoking a court-martial and what the outcome would be, but persisted nonetheless. Parton reports that Eaker attributed this to a desire to get publicity for the cause of airpower and that the sacrifice of Mitchell's military career was a real one. See James Parton, *Air Force Spoken Here: General Ira Eaker and the Command of the Air* (Bethesda, Md.: Adler & Adler Publishers), 46–48.

James Phillip Tate is explicit in asserting that Mitchell was inviting a court-martial. The principal charge was that his conduct was prejudicial to good order and discipline. See James Phillip Tate, "The Army and Its Air Corps: A Study of the Evolution of Army Policy towards Aviation, 1919–1941" (PhD diss., Indiana University, 1976), 59.

33. Tate, 258–59.

34. Ibid., 67.

35. Doolittle interview.

36. DeWitt S. Copp, *A Few Great Captains: The Men and Events that Shaped the Development of U.S. Air Power* (Garden City, N.Y.: Doubleday & Co., 1980), 440–44.

37. Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force* (New Brunswick, N.J.: Transaction Publishers, 1994), 56.

38. The author has two sons who graduated from the school, both of whom became pilots and one of whom was still protesting in his senior year that he had no intention of doing so.

39. Parton, 182–83; and Hansell, 113.

40. In 1925 Mitchell cites droppable tanks as a desirable trait of new pursuits. See William Mitchell, *Skyways: A Book on Modern Aeronautics by General William Mitchell* (Philadelphia, Pa.: Lippincott, 1930), excerpts in *A History of Airpower Theory*, ed. Phillip S. Meilinger (Maxwell AFB, Ala.: School of Advanced Airpower Studies, 1992–1993), 228; and Mitchell, *Winged Defense*, 183.

41. McFarland, 190, 203–5.

42. *The United States Strategic Bombing Surveys, Summary Report (European War)* (1945; reprint Maxwell AFB, Ala.: Air University Press, 1987), 15. Kenneth P. Werrell reports that more Allied aircraft were lost to flak than to any other weapon. See Kenneth P. Werrell, *Archie, Flak, AAA, and SAM* (Maxwell AFB, Ala.: Air University Press, 1988), 57–59.

43. E. B. Potter, *Sea Power*, 2d ed. (Annapolis, Md.: Naval Institute, 1981), 342, 350.

Chapter 5

John Warden

John Warden was born in Texas in 1943. He was appointed to the Air Force Academy from Pennsylvania and graduated in the class of 1965. As noted, Carl Builder has asserted that the Air Force remains afflicted with pilot elitism,[1] and insofar as that ever was true, the 1965 Air Force Academy still epitomized that feature of the culture.[2] This is not to say that Colonel Warden himself was or is an elitist. In my opinion, he seems to be much more concerned with airpower than with flying airplanes.

Theorist or Throwback?

Warden did go directly to pilot school, after which he conducted a combat tour in OV-10s with the First Air Cavalry Division in Vietnam. Later he flew a tour in F-4Ds.[3] Warden was thus much more experienced in the trenches of airpower than any of the other three theorists we have considered. Douhet was not rated, and Mitchell and Trenchard got their wings so late in their careers that neither of them had significant service experience at the squadron level. Warden earned a master's degree in political science from Texas Tech University, graduated from the National War College, and was an F-15 wing commander at Bitburg, Germany. To some extent, we are comparing apples and oranges, but on paper Warden seems also to have more extensive formal education than any of the three classical theorists. He even traveled more widely than all, save perhaps Mitchell.

While Colonel Warden was a student at the National War College, he wrote a thesis on air operations planning at the theater level of war. Subsequently published by National Defense University Press, *The Air Campaign: Planning for Combat* has been printed in many copies.[4] Warden wrote the book before the fall of the Berlin Wall and the USSR and focused it on a European war. Several of Warden's writings after the Persian Gulf War have refined his views considerably,

but Warden's main notions were at the very least implied in his book long before such a war was contemplated or even possible. Readers cannot find nearly as much emphasis on information, air, and weapons technology in *The Air Campaign* as they can in his subsequent writing and speaking.[5]

Warden served in the rank of colonel in command of his wing in Germany. He remained in that grade when he returned to the Pentagon to head CHECKMATE, an office serving under the Air Force deputy chief of staff for plans and operations and concerned with long-range planning. Warden was serving in that capacity at the onset of the Gulf War.

At the beginning of the war, the Air Staff theoretically had no business getting involved in operational or campaign planning. The orthodox procedure was for area commanders in chief (CINC) to make plans for possible combat operations. The usual arrangement was for one of the numbered air force commanders to be designated in advance as the air component commander for each CINC. It was recommended, but was not made mandatory, that a CINC appoint an individual as the joint force air component commander (JFACC). This person would be responsible for planning and executing air campaigns in that theater. The JFACC would develop and maintain a set of contingency plans, modify or create a new one to fit the situation when a campaign was in the offing, and seek the CINC's approval of the scheme. After the approval, the JFACC would execute the plan.[6]

As it happened at the time of the Iraqi invasion of Kuwait, Gen Norman Schwarzkopf was the CINC of US Central Command headquartered at MacDill AFB, Florida. He sent the commander of Ninth Air Force, Lt Gen Charles Horner, ahead to Saudi Arabia to serve as the temporary, on-scene commander as well as the JFACC. In those early days, Horner and his staff had their hands full with deployment and beddown issues for all the services inbound to the whole theater, not to mention defensive preparations in case the Iraqis decided to invade further south. The US Central Command did have a contingency plan for war in the area, but it was an imperfect one as shown in an exercise shortly before the crisis. Therefore, General Schwarzkopf called the Air Force chief of staff for assistance in developing an offensive

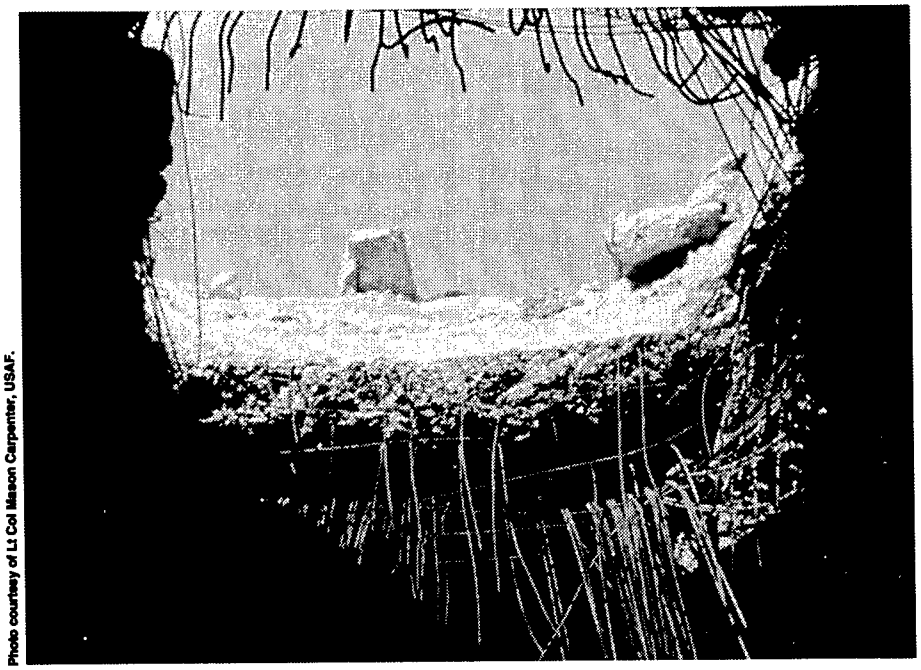


Photo courtesy of Lt Col Mason Carpenter, USAF.

Douhet thought that command of the air was best achieved by an early and massive assault on the enemy air force *while* it was still on the ground. Mitchell and Trenchard saw the virtue in that kind of attack, but maintained that the air battle might also have to be fought. The two most successful Douhet-type campaigns in history were the Israeli Air Force preemptive strike at the onset of the 1967 war and the coalition assault against the Iraqi Air Force in 1991. Shown here is the result of a PGM strike against an Iraqi aircraft shelter that had been thought to be an answer to attacks like those of 1967. John Warden shared the idea that command of the air should be won by some combination of ground attack and an air battle.

air plan. As the chief was out of town at the time of the call, the vice chief of staff, Gen John M. Loh, received the call and promised to help. He sent the task down the chain of command to Warden's CHECKMATE office, which had no formal responsibility for that work.[7]

Warden and his people already had given the subject some thought. But it was largely fortuitous that they were tasked to assist with the planning. CHECKMATE quickly generated an initial offensive operational strategic plan, which authorities in the United States approved after some changes. Warden and his assistants then carried their briefing to the theater, and after the initial delivery to General Horner, the assistants were

retained in-theater while General Horner sent the chief of CHECKMATE back to Washington. In the ensuing weeks, the plan was supplemented with many defensive and tactical features, but Warden's people were able to retain the essence of the original offensive scheme within the larger evolving plan.[8]

After the Gulf War, Colonel Warden was transferred to Maxwell Air Force Base, where he became commandant of the Air Command and Staff College (ACSC).[9] He stirred up that institution greatly, reorienting its study to focus on the operational strategy level of war and air planning at that level. Colonel Warden was highly active in bringing new educational technology to the school, and he frequently lectured there and at many other places on the art of air planning. He moved strongly to cause his students to adopt serious personal professional reading programs and to build their own professional libraries. Warden retired from the USAF in 1995 with the Air Force chief of staff presiding over the ceremony. He has continued to live in Alabama.

Modus Operandi

Warden is a hard-working, serious man. He has projected his ideas through both the spoken word in lectures and briefings and the written word in his book and articles. Warden has enormous self-assurance, and though I am not aware of any tendency on his part to kill the bearer of news he does not want to hear, I doubt that he is easily swayed from his ideas. It is clear enough that he has generated some opposition within the Air Force. He was the first commandant of ACSC in many years to retire in the rank of colonel. Opposition leveled at him by Central Command Air Force (CENTAF) heavyweights is well enough documented in the Reynolds and Mann books cited earlier.

Assumptions

As with the classical theorists, John Warden based his ideas on a set of assumptions. They include the following notions:

1. Human behavior is complex and unpredictable.
2. Material effects of military action are more predictable.

3. Air superiority is prerequisite for victory or even survival.
4. The offensive is by far the stronger form of air war.
5. Victory is and always has been achieved in the mind of the enemy commander—everything must be directed toward that end.
6. Americans are even more sensitive to friendly and even enemy casualties than ever before.

Thesis

The core ideas of John Warden are that the art of air campaign planning is vital and that once air superiority is assured, airpower can be used either in support of the other arms, or can be supported by the other arms, and sometimes can function independently to achieve decisive effects. Technology has corrected the deficiencies of the Mitchell/Air Corps Tactical School theories so that the vital centers are vulnerable at acceptable costs to the attacker. That technology also has made parallel attack (as opposed to sequential ones) more possible than ever, and that is highly desirable. The centers of gravity vary from case to case. They may be arranged in five rings. At the center are leadership targets, then means of production, infrastructure, population, and fielded forces in the outer perimeter. Almost all states and other political entities have the five rings, and they always appear with leadership at the center. In general, it is preferable to attack the rings from the center, then move outwards.[10]

Targeting

According to Warden, because of the unpredictability of human behavior and the predictability of material damage, the capability of the enemy should be targeted as the first priority. Clearly, he is even more concerned with avoiding both friendly and enemy civilian casualties than Mitchell and Trenchard were, even though Warden did not adhere to the Douhetan notion of attacking civilian morale directly. Warden believed that targeting the enemy's physical capability (as opposed to his psychological objectives) should be done with the full realization that military objectives must clearly serve the political objectives. Fewer centers of gravity (COG) exist in the middle than on the periphery; but they tend to be much more

decisive than those on the outer rings. However, attacking COG in the outer rings can yield more immediate impact than an attack on the ones at the center. Consequently, close air support can sometimes take priority over interdiction and strategic attack in a tactical emergency on the ground. Targeting the COG in any ring simultaneously is more effective than sequential targeting; targeting the objectives in all the rings in parallel, rather than sequentially, tends to be even more decisive than attacking only one ring or starting with the outer ring and proceeding inward through each ring in turn.

Air Superiority

As with the classical theorists, command of the air remains Warden's first priority for all operations in the air or on the surface, though it sometimes may be achieved in parallel attacks rather than sequential. In *The Air Campaign* Warden admits that sometimes only a local or temporary air superiority may be possible—and sufficient. As with Douhet, Warden believed that the least efficient place for achieving air dominance was in the air.[11] Sometimes an air attack can serve more than one role. For example, the destruction of finished petroleum supplies can advance an air superiority campaign as it aids the interdiction effort. (German tanks in World War II ran out of fuel on the Ardennes battlefield.) In a tactical emergency on the ground, powerful incentives can divert all other sorties to close air support right at the front. Sometimes diversion could be disastrous because it might release the enemy air force from defending its bases to missions that could bring about the total downfall of our forces, and even make the situation on the ground a greater emergency than it would be otherwise.

Air Exploitation

John Warden, like most preceding airmen, argues that air interdiction by any other name is still preferable to close air support, because it allows more targets to be killed at less cost. The exception occurs when CAS is an emergency requirement. But the choice can be highly painful for the CINC here as well. I have written elsewhere that John Warden's position on air reserves is something new,[12] but on reconsideration, I think it is

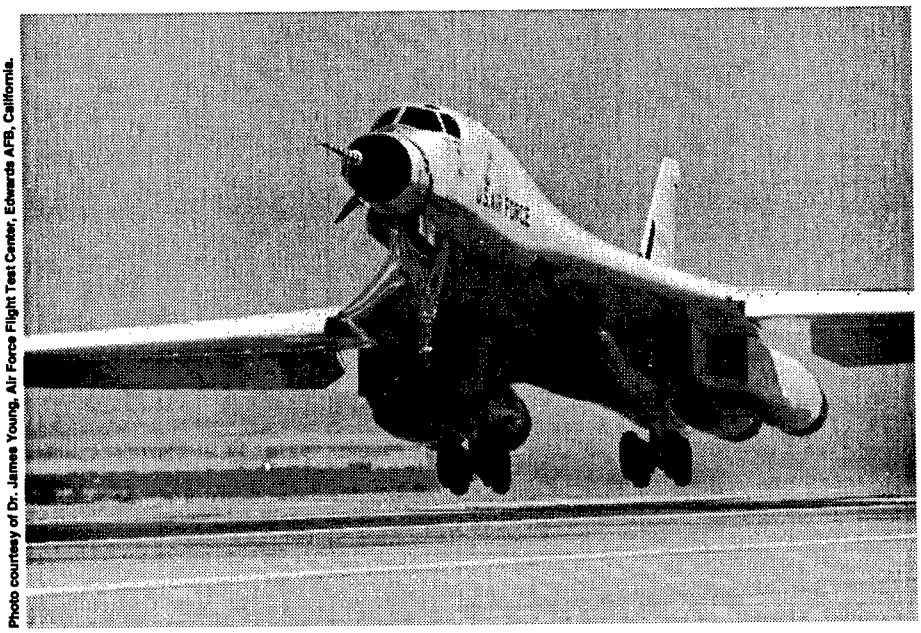


Photo courtesy of Dr. James Young, Air Force Flight Test Center, Edwards AFB, California.

This photo shows the first USAF B-1 landing at Edwards AFB, California, in 1976. Sometimes offered as an indication that the USAF was "obsessed" with strategic bombing and nuclear attack is the fact that the B-1 and B-2 were originally designed without a conventional bombing capability. Neither of them participated in the Gulf War, but lately both are being equipped for standard gravity bombing with high-explosive weapons and for the use of precision-guided munitions. The B-52 has been used for some time with conventional weapons in what can only be described as tactical operations, and similar tasks are envisioned for the newer "strategic" bombers.

more a restatement of an airman's view common all the way back to 1922 at the very earliest.[13] In the early 1920s, Billy Mitchell himself was lecturing on the need for centralized control of tactical airpower by an airman at the theater level. He maintained that the precise purpose of such control was to avoid dissipating tactical airpower's effect in penny packets. His worry was that were it parceled out to the ground commanders, it would be impossible to pry tactical airpower away from some of them to meet emergencies at other parts of the front or in the interdiction or air superiority campaigns. The same thought stimulated Warden's notions in *The Air Campaign*, where he envisions the preservation of air reserves and argues the idea as a radical one.[14] Yet, I do believe that one can argue that it is a traditional argument in another form.

Organization for War

Colonel Warden so concentrates his work at the campaign level that he does not have much to say about national organization. The creation of an autonomous air force and a department of defense had become dead issues 14 years before he went to the academy. He does assert that sometimes airpower should be applied in support of the land and sea forces, sometimes it should be supported by them, and sometimes it can be decisive if applied independently.[15] He explicitly asserts that single-service operations, even against other kinds of forces, have been and will continue to be effective sometimes.[16] That assumption leads him to suggest that jointness does not mean equal portions of the action for all services. Certainly, Warden adheres to the traditional ideal that airpower should be organized under centralized command, by an airman at the theater level. The airman should report only to the CINC.

Role of Other Armed Forces

John Warden is less vitriolic on the subject of the roles of the other armed forces than were the other classical theorists. To him, the other armed forces can function in either a supporting or a supported role, depending on the circumstances. Warden sees occasions when they conceivably will be irrelevant because airpower alone can win some campaigns. Still at all times, however, air superiority will be necessary to ensure victory. He cites historical evidence to show that victory is impossible without air superiority, even though he sidesteps the question of Vietnam by saying, "Indeed, no nation enjoying air superiority has ever lost a war by the force of enemy arms."[17]

Force Structure

Warden is orthodox in noting that a theater force is usually deployed in phases, with the forces intended for air defense in the first phase. Also orthodox is his notion that the nature of the units sent will vary in accordance with what is available and the constraints and opportunities peculiar to that theater. One of the constraints operative in the Gulf War is distance.

There is an inverse relationship between the distance and the variety and volume of forces that a nation can deploy quickly. However, Colonel Warden repeatedly suggests in *The Air Campaign,* and even more so in subsequent writings, that simultaneous operations against all the varieties of target sets can offer significant benefits.[18] So, where the lift and tanking is available, or the distance is short, the tendency would lean toward sending the greatest variety and number of forces as early as possible, always with the understanding that the priority goes to achieving and maintaining air superiority. Like almost all preceding airmen, Warden's preference for the offensive is based largely on the idea of denying the enemy the ability to react. That denial depends not only on the size and character of the forces sent to battle but also on the ability to do so early in the campaign.[19]

Technology

Warden shows a special fondness for high-tech solutions. Basic to his appeal for parallel attack is the assumption that the coming of precision-guided munitions (PGM) and stealth make possible the fulfillment of many of the older theorists' claims that the destruction of a given target required a far smaller strike force than heretofore, and with stealth no supporting aircraft is needed. At least for the time being, the bombers with stealth can get through with acceptable losses. Now bombers with PGM can get results as fast as Douhet had dreamed. A target can be taken out with far, far fewer bombs than in earlier eras. PGM makes strategic attack all the more feasible, and even makes parallel attack possible in many cases. It grants a modification of the principle of mass, for it allows sending far fewer shooters to a given target and permits the attack of many more targets at the same time, thus saturating defenses and yielding synergistic effects—concentration in time.[20]

Impact on the Gulf War

Warden's followers insist that he provided the campaign plan with its strategic dimension. On the one hand, they contend that had he not stirred the pot with a plan out of the Air

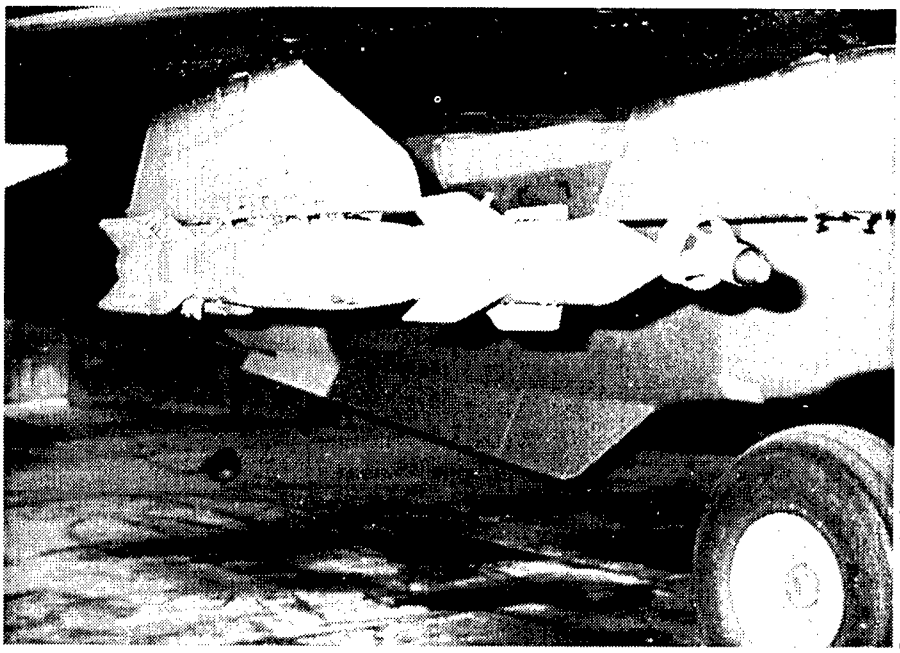


Photo courtesy of Lt Col Mason Carpenter, USAF.

Photographed here is a Paveway II laser-guided bomb on the starboard pylon of an F-111. Precision-guided missiles are the centerpieces of John Warden's theory of parallel attack. The most widely used PGM in Vietnam and the Gulf War were the laser-guided bombs. They were first dropped in South Vietnam in 1968 but did not gain notoriety until the spring invasion of that country in 1972. Their disadvantage is that they need someone to designate the target until impact; one of their advantages is that they are much cheaper than most PGM developed to date.

Staff, the result would have been purely an auxiliary effort in support of the Army. They argue that the auxiliary effort would have won, but only with many more casualties than was the case.[21] Even further, Warden's supporters acknowledge there was not much of a defensive element in his original plan. On the other hand, detractors suggest there was no way of knowing then that Saddam Hussein would be inept and let us do a six-month buildup without launching a ground assault that required other kinds of airpower in defense.[22]

Impact on the USAF

If indeed Carl Builder is correct when he argues that the Air Force has lost its doctrinal roots,[23] he should be gratified to

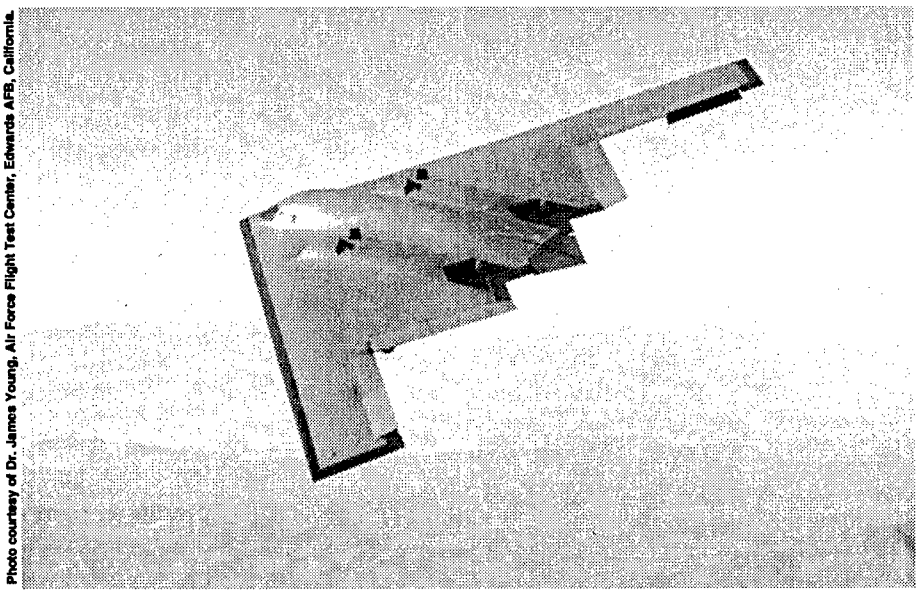


Photo courtesy of Dr. James Young, Air Force Flight Test Center, Edwards AFB, California.

Shown here is a Northrop B-2 on a test flight. Radar and other technological advancements so changed the situation that the idea that the bomber will always get through with acceptable losses was invalidated in 1943. The notion had been common to Douhet, Trenchard, and Mitchell. The losses in bombing Germany were too much to bear until ways to overcome the defenses were devised. But in the Gulf War, the F-117 did always get through—without any losses at all. Lately, John Warden and others have been arguing that the combination of stealth with precision-guided weapons and information technology will make the losses bearable and even permit parallel attack of all sorts of vital targets so rapid that paralysis will be the result. Many doubters remain.

know that Warden has stirred things up to stimulate a rediscussion of the purpose of the institution. There is not a consensus behind Warden's set of ideas, though many of his ideas are shared as company property handed down from Mitchell and his followers. It is not too much to say that most of his ideas were common to the officer corps of the interwar period and since. However, if *The Air Campaign* did no more than synthesize old ideas into a single, compact, and highly readable form, it would have much in common with *The Influence of Sea Power on History, 1660–1783*. Nothing new appeared in that book, but it had an enormous influence. Mahan synthesized old ideas into a compact and readable set of notions that had long been the basis for the success of Britain's Royal Navy and British sea power in general. His work burst upon the scene at a

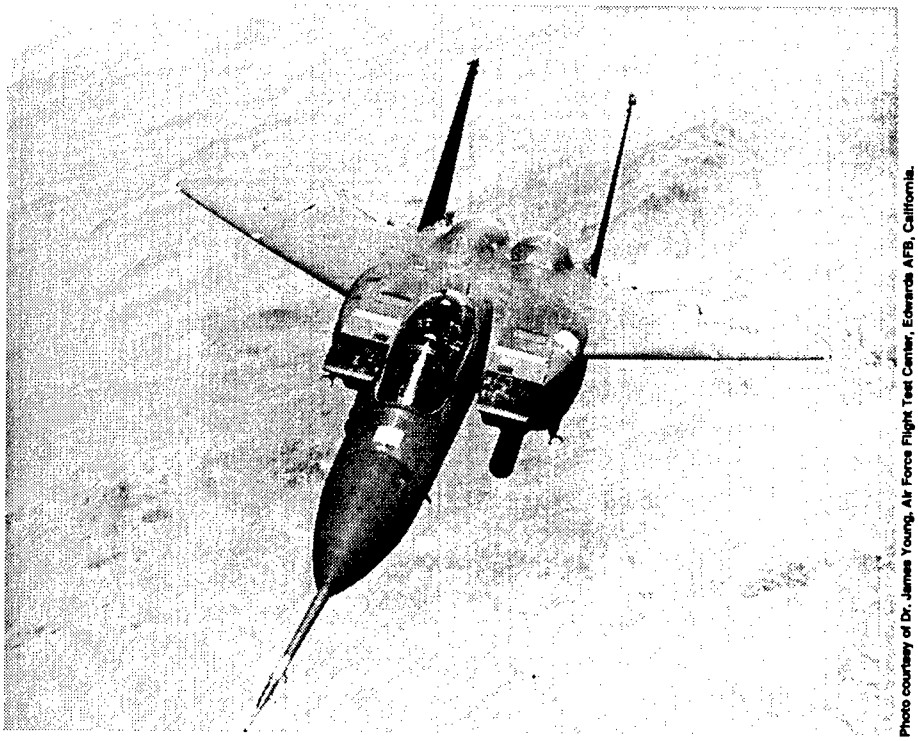


Photo courtesy of Dr. James Young, Air Force Flight Test Center, Edwards AFB, California.

This photograph shows an F-15E with low-altitude night infrared targeting and navigation (LANTIRN) pods mounted below the engine air intakes. The F-15E has a far greater carrying capability and range than does the other main air-to-ground aircraft, the F-16. LANTIRN pods are one of the components that permit the F-15E to use this mass in the darkness to help bring about the parallel attack that is a part of the Warden theory. These pods allow crews to find their way even in rough terrain and darkness and then to precisely designate targets for laser-guided bombs that might otherwise be limited to good visibility conditions.

particularly propitious time and is still a mighty influence. Mahan prepared his book for the US Naval War College, where he served on the faculty while that institution was in its infancy. In time it would grow to be one of the pillars of American sea power.

In contrast to Mahan, John Warden did not arrive at the Air Command and Staff College when it was in its infancy. However, in my opinion, it had fallen into sedentary ways. Warden did much to shake up the school. Again in my opinion, notwithstanding whether his ideas are right or wrong or new or old or

Photo courtesy of Lt Col Mason Carpenter, USAF.

Pictured above is a KC-135 refueling an F-111 during the Gulf War while an F-15E awaits its turn on the boom. Some authors argue that no potential peer competitors will be able to erode the US advantage in airpower any time soon because competitors will not be able to put together a whole system, notwithstanding the increasing availability of advanced armament technology on the international markets. Among the largest elements of the American "system of systems" are the USAF air refueling and global airlift capabilities. They give the United States a range and a reach in both strategic and tactical operations that will remain beyond the capability of even advanced industrial states for many years to come.

oversimplified or esoteric, Warden provided an invaluable service by merely stirring up the school. What follows Warden's directions will have the potential for a long-term, significant effect on America—if only to stimulate enough young majors into a serious professional study program to undermine Carl Builder's image of what the USAF officer corps is about. However, we can only venture a guess at the permanency of Warden's contribution.

Impact on the Other Services

It is impossible to know what part of the other services' responses resulted from the outcome of the Gulf War itself

and what, if any, arose from the actions and words of Warden. Yet it seems clear from the *Proceedings* articles I have seen that there is a considerable concern within the naval aviation community with building its PGM capability and for making its command, control, and communications capability more compatible with joint operations. Also, there has been some grumbling regarding dependency upon the Air Force for tanking.[24] It seems certain, though, that Colonel Warden will have to go a long way before he will have an impact on the United States Navy equal to that of Billy Mitchell.

I can't speak with much authority about the Army. I can say that some of Warden's disciples have argued that the soldiers and their slick AirLand Battle doctrine was aimed at undoing the National Security Act of 1947. I can also say that only Warden saved the Air Force from going along as a trailer in the dust of the cavalry by upstaging the air arm's fellow travelers who had been hypnotized by the Training and Doctrine Command.[25] There was grumbling from the corps commanders that they did not get a sufficient voice in targeting, but the USAF explanation was that their complaint should have been with the CINC and not with the JFACC.[26] Again, these things had little to do with Warden himself.

It is probably too soon and too presumptuous to attempt to decide whether John Warden is to be remembered as a significant airpower theorist and whether his theories are to have any long-term effect on the USAF and America. From the point of view of one who has known eight or 10 other wing commanders and four or five other commandants of the Air Command and Staff College, I believe some preliminary comments may yield some insights—we will leave the comparisons with the classical theorists for the last chapter. First, Colonel Warden was quite different from the fighter, bomber, transport, and training wing and group commanders for whom I have worked. All the others were much more concerned with on-time takeoffs and good inspections than they were with the study of war. I am not aware that any of the others had a serious personal professional reading program, though some of the others were West Pointers. It is clear that Warden was comparatively well read and more interested in the higher levels of war.

Not having seen Warden in an operational role, I find it impossible to say what sort of an administrator and manager he might have been while on the line—he would have been hard pressed to exceed at least two of my former wing commanders in that regard.

His real-world combat-flying experience, along with his professional studies and purposefulness, made him stand apart from the other commandants in my experience. Most of them were impressive officers, but none took such an active role in lecturing and reforming the curriculum. None of them did as much to attempt to get his charges started on a serious, personal, and lifelong program of the study of war. None of the commanders in my experience did nearly as much to move the college out of its existing ways and into new studies and procedures—with both good and bad effects, I suppose.

It would be amazing if *The Air Campaign* were to have an effect as pervasive and long lasting as *The Influence of Seapower*, but *The Air Campaign* is worth reading and none of the other commanders or commandants I have known ever wrote a book at all. With that much said, I shall now move on to a chapter of conclusions in which we shall compare Warden's thought with that in our baseline of classical theorists. That will provide some insights as to whether there is a new revolution in military affairs afoot, or whether we are merely witnessing an extension of the one that began with the Wright brothers in 1903. Or perhaps, one might be inclined to say that there really is nothing new under the sun.

Notes

1. Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force* (New Brunswick, N.J.: Transaction Publishers, 1994), 56.

2. I make this statement on my own authority as I was on the faculty at the time Warden graduated and then held both navigator and pilot ratings. (I did not know Warden personally until much, much later.)

3. The OV-10 is a twin-engine, turboprop aircraft designed specifically for the forward air control mission.

4. John A. Warden III, *The Air Campaign: Planning for Combat* (Washington, D.C.: National Defense University Press, 1988).

5. Col John A. Warden III, USAF, "The Enemy as a System," *Airpower Journal* 9 (Spring 1995): 40–55; John A. Warden III, "Air Theory for the

Twenty-first Century," in *Challenge and Response: Anticipating US Military Security Concerns*, ed. Karl P. Magyar (Maxwell AFB, Ala.: Air University Press, August 1994), 311–32.

6. Air Force Manual 1-1, *Basic Doctrine of the United States Air Force*, vol. 2 (Washington, D.C.: Department of the Air Force, March 1992), 263–67, describes the peacetime and wartime duties and responsibilities of the commanders in chief. See also James A. Winnefeld, Preston Niblack, and Dana J. Johnson, *A League of Airmen: U.S. Air Power in the Gulf War* (Santa Monica, Calif.: RAND, 1994), 55–62.

7. Thomas A. Keaney and Eliot A. Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis, Md.: Naval Institute Press, 1995), 22–32.

8. Richard T. Reynolds, USAF, *Heart of the Storm: The Genesis of the Air Campaign Against Iraq* (Maxwell AFB, Ala.: Air University Press, 1995); and Edward C. Mann III, *Thunder and Lightning: Desert Storm and the Airpower Debates* (Maxwell AFB, Ala.: Air University Press, 1995) contain descriptions generally favorable to Colonel Warden and to the strategic part of the air campaign.

9. And my boss's boss, be it noted.

10. The ideas expressed in this paragraph are at the very least implied in *The Air Campaign*, but they are refined and more clearly stated in Warden's post–Gulf War writings cited above.

11. Warden, *The Air Campaign*, 13–24, 41.

12. David R. Mets, review of *The Air Campaign*, by John A. Warden III, in *Friday Review of Defense Literature*, 17 November 1989, 2.

13. Brig Gen William Mitchell, lecture, Army War College, Carlisle Barracks, Pa., 24 November 1922, 52.

14. Warden, *The Air Campaign*, 115–27.

15. Ibid., 11.

16. Ibid., 145.

17. Ibid., 154.

18. John Warden, "Employing Air Power in the Twenty-first Century," in *The Future of Air Power in the Aftermath of the Gulf War*," eds. Richard H. Shultz Jr., and Robert L. Pflatzgraff Jr. (Maxwell AFB, Ala.: Air University Press, 1992), 73.

19. Warden, "Air Theory," 324.

20. Ibid., 326. The idea is not at all new, for the *USSBS* explained the greater effects of a smaller tonnage of bombs on Japan than on Germany in terms of time compression. See *The United States Strategic Bombing Surveys, Summary (Pacific War)* (1945; reprint, Maxwell AFB, Ala.: Air University Press, 1987), 86.

21. See also Winnefeld, 66, 86–87.

22. Ibid., 85–86.

23. Builder, xiii.

24. US Navy, Strike Fighter Squadron 87, "Aircraft—Yes! Tactics—Yes! Weapons—No!" US Naval Institute *Proceedings*, vol. 118 (September 1991):

55–57; RAdm Riley D. Mixson, US Navy, "Where We Must Do Better," US Naval Institute *Proceedings*, vol. 117 (August 1991): 38–39; and Brig Gen M. T. Hopgood Jr., US Marine Corps, "Experience: Handle with Care," US Naval Institute *Proceedings*, vol. 119 (October 1991): 81–82.

25. Mann, 60.

26. Rick Atkinson, *Crusade: The Untold Story of the Persian Gulf War* (Boston, Mass.: Houghton Mifflin, 1993), 223.

Chapter 6

Conclusions

Chapter 1 established the context to build a baseline of the ideas of the classical airpower theorists and to compare the ideas of Col John Warden to that baseline. Next, we determined whether those ideas were new or merely the repackaged notions of Douhet, Trenchard, and Mitchell. Finally, we intended to develop insights as to whether there is a revolution afoot in military affairs. If there is, when did it start, and what is its nature?

It seems to me that all three of our classical theorists founded their analyses and proposals on sets of assumptions that had a great deal in common. Douhet, Trenchard, and Mitchell all seemed to assume that future wars would be total—that limited wars had been peculiar to the time between the end of the Thirty Years War and the coming of the French Revolution. In this area, there was wide agreement among the publics of the developed nations. Clearly, Warden agrees with modern conventional thinking on this point: total or general war in the foreseeable future is not at all likely. There is nothing radical about that notion for a person of Warden's generation, even though the total war assumption was commonly accepted until after the Korean War. Its significance, however, has diminished rapidly since the late 1950s. Martin van Creveld, John Keegan, and Carl H. Builder, among others, have been suggesting that state-on-state war, even at the limited level, is increasingly obsolescent.[1] John Warden makes a cogent argument in *The Air Campaign* that there will be many nonstate conflicts in the future, but the focus of that book and most of his subsequent writings and lectures have been on the campaign against a conventional state.

Related to the notion that wars would be total, the classical theorists assumed that all wars would be against advanced industrial powers—and for that reason, many critics have accused the USAF of becoming totally obsessed with that idea.[2] It would be remarkable if John Warden were to believe as much still, after having flown a combat tour over Vietnam.

Nevertheless, he was as committed to the notion that there are identifiable, interdependent, and vulnerable vital centers, or centers of gravity, as were Mitchell and his followers at the Air Corps Tactical School. As we have seen, in Warden's view, even nonstate actors have such centers of gravity.

We noted in chapters 2 through 4 that the classical theorists assumed civilian morale was weak and vulnerable, though they proposed somewhat different methods for undermining it. John Warden adheres to a similar notion, repeatedly asserting that US public opinion cannot tolerate numerous casualties among our own forces, and even among enemy forces, much less enemy civilians. Also, as we have seen, he has argued that the North Vietnamese did not overcome our clear air superiority through military means but rather by indirectly undermining American civilian morale by other methods. He rejects the great battle thesis of Clausewitz in favor of avoiding combat wherever possible on exactly those grounds.[3]

Douhet, Trenchard, and Mitchell were unified in recognizing there had been a revolution in warfare. They believed airpower had introduced a fundamental change through which it would be *the* decisive factor while other forms of military power would be reduced to secondary roles at best or to irrelevance at worst. That rub led to the dramatic bureaucratic battles of the 1920s and late 1940s. It appears that Warden is less assertive in all of that, no doubt, because the issue is no longer relevant—both the Royal Air Force and the United States Air Force are so thoroughly entrenched that their organizational imperatives no longer seem like a life-and-death matter. Warden allows that though air superiority is always the primary concern for all the services, once it is established, there are those times when airpower can and should occupy a supporting role. It is fair to suggest, though, that his variance with the classical airpower thinkers is a matter of degree. Probably, it is valid to assert that his concept would prefer airpower in a supported role, and sometimes in an independent role because of its putative economy in lives, time, and even treasure. Warden is explicit in his agreement that a technological revolution has taken place and that it has revolutionized war.[4]

All three of the great airpower thinkers of the 1920s were utterly persuaded that airpower is inherently offensive. Douhet, especially, asserted that armies and navies had been reduced to a strictly defensive role. Mitchell and Trenchard were a little less adamant on the point but clearly asserted that the other services were destined to become secondary in the scheme of things. John Warden could hardly be more in agreement on the notion that air forces are inherently offensive—although he does grant that the other forces can have offensive roles, and even be the supported forces in such roles. But he is clear enough that the air forces should be the instrument of choice in many, if not most, circumstances.

World War I had been such a revolting experience that most of the civilized world reacted strongly against it. This reaction took a variety of forms, to be sure, as with the League of Nations and the disarmament efforts of the interwar period. But a major selling point among the classical airpower thinkers was that wars were probably inevitable. In that case, the air forces could overfly the assumed bloody stalemate on the ground to bring the future ordeal to a quick, though horrible end—so quick that the total suffering would be much less than any war resembling World War I. One of Warden's major selling points is similar. The technology of stealth has come along to much reduce the agonizing losses we suffered over Germany in World War II. Precision munitions and the technology of information have come along to enable true precision strikes with high-explosive (instead of nuclear) weapons that will avoid the terrible collateral damage experienced in Tokyo, Dresden, and Hiroshima in 1945. As with the classical theorists, we can make this same comparison with much more rapid application of force and without the need to grind down armies and navies slowly before going at the true centers of gravity.

Colonel Warden, as we see above, was a practical aviator from the beginning. He was introduced to the theory and technology of airpower as a cadet and went on through pilot school and into combat flying at the squadron level—in the Vietnam arena, where he could hardly have mistaken the enemy as an advanced industrial power. He also had acquired the advanced professional education now fairly common among senior officers.

Douhet had command experience, even held the reins of an aviation unit, but he was never trained as a crew member. He doubtless had some technical expertise associated with his work as an artilleryman. Neither Mitchell nor Trenchard had service in aviation at the squadron level. Mitchell had some experience in the most technical part of the US Army, the Signal Corps. So we can see that Warden had the best educational and experience base of the four theorists we have studied herein. Does educational achievement make a difference?

The three classical theorists made predictions that were not fulfilled in the great test of World War II. None other than Bernard Brodie asserted that it had been a fair test.[5] To some extent, all were overoptimistic as to what technology could do for the offense and denigrated what it might do for the defense. Radar alone made a huge difference, and the antiaircraft systems were much more effective in both the airborne and the ground-based versions than Douhet, especially, dreamed possible. They all overestimated the power of the individual bomb and the abilities of crews to find and hit targets. The Americans, especially, overestimated the power of self-defending bomber formations. Also, not one of the theorists fully grasped the importance of target selection, which implied better intelligence than was available. Douhet emphasized the vulnerability of morale, and the other two classical theorists asserted the vulnerability of industrial and infrastructure targets as well as their importance to civilian morale. They all overestimated the power of civilian morale to influence the behavior of totalitarian leaders.

John Warden has lived in a different context than did the thinkers of the 1920s. That difference alone makes our comparison into an apples-and-oranges exercise to some extent. Still, he sees civilian morale, at least on our side, as a fragile target. He also has a high estimate of the power of technology and clearly feels that it has now reached the point that it fulfills the predictions of his classical predecessors—that it has consummated the revolution in military affairs, if only we will follow up with the doctrinal and organizational changes that implies.

The major organizational change pursued by Douhet, Trenchard, and Mitchell is now a moot issue; an independent

air force under a department of defense has existed for decades. Yet, the Goldwater-Nichols Act of 1986, among other factors, has shifted much of the war-fighting power to the chairman of the Joint Chiefs of Staff and to the area commanders in chief, almost all of whom have been Army or Navy officers. The last three chairmen have been soldiers, and the commanders in chief of the most important areas have almost always been Army generals and Navy admirals (the exception being USAF Gen Lauris Norstad, who was commander in Europe during the 1950s). Both Warden and Mitchell would agree that as long as this trend continues, the possibility of a campaign in which the air forces are the supported elements or of an air-only campaign will never be seriously considered. Generals Arnold and Spaatz in 1947 agreed that two services would do no longer. They preferred one, but if that were not possible, then it would have to be three. The latter alternative is what they got. Maybe it is time to return to 1947 and rethink the number of services needed.

As noted, Warden asserts that the military technological revolution is here—that technical change has passed the dividing line between evolution and revolution, wherever that is. He believes the final element is the doctrinal change necessary to capitalize on it. I suppose that is the whole point of *The Air Campaign.* Much of the USAF has accepted the notion that sometimes air forces should be the supported elements and that ground and naval forces sometimes can be the supporting elements. Many in the USAF would assert that sometimes there will be a possibility of a decisive "air-only" campaign. The trick for Warden and his disciples is to persuade the USAF doubters and most of the folks in the other services of the validity of those notions.

So, where do we stand? In my opinion, strategic airpower was frustrating to the airmen in World War II, and afterwards it was never more than one of the decisive factors. Arguably, strategic airpower never was applied in Korea, Vietnam, or any of the Arab-Israeli wars. The strategic bombing purists would argue that the vital centers were located either in the USSR or Communist China and that whatever occurred in Asia or the Middle East was not strategic bombing. A consensus permeates military thought that British area/morale bombing

was less effective in World War II than American precision bombing. Still, some people would argue that the ineffectiveness of strategic bombing then provides little proof that it would never work. Assertions that it was tried again in Vietnam or Desert Storm are pure nonsense.

Another consensus is that tactical airpower was a smashing success in World War II, even though it proved to be all but disappointing in Korea and Vietnam, especially in its interdiction role. Often, those disappointments and interdictions in the Italian Campaign of World War II have been used as a basis for discrediting the potential of interdiction, usually in favor of close air support. However, in my opinion, we skew those arguments by leaving out the interdiction of the Afrika Korps's lines of communications across the Mediterranean, and the great successes in the campaigns against Normandy and across France, as well as those that isolated Japanese garrisons all over the Pacific.

The jury is still out on the effectiveness of strategic attack in Desert Storm. Warden and his disciples assert that it was a decisive factor there. Some critics assert that tactical airpower was the difference. Others argue that no conclusion is valid because any strategy would have worked.[6] Still others argue that the experience does not prove that airpower works because Desert Storm was not a great victory.[7] My position is that the declared objectives were achieved and that airpower came as close as it ever has to being decisive in that effort, albeit that the notion that any strategy would have worked has merit.

In nonconventional conflicts of any magnitude there is apparently a consensus that airpower cannot be decisive. It can play no more than a supporting role in such wars. Speed and flexibility in both firepower and logistics can help a great deal. Judgments here are bound to be vague if only because one cannot define *nonconventional* in advance. One might argue, though, that the experience in Vietnam suggests that tactical airlift was the one element that yielded a universal good.

Was the coming of the technology of aviation and the accompanying strategic theory a revolution in military affairs? Again, it depends on one's definitions and criteria. In my mind, just going to the third dimension and being able to threaten the core values of the enemy society directly was a

military technical revolution. It took a long while to persuade the majority of the society—and longer still to convince most of the members of the armed forces who were not airmen—but that was partially achieved between 1921 and 1947. The consequent organizational change came in the latter year in America, but the disappointments in Korea and Vietnam, along with various bureaucratic impediments, inhibited the full acceptance of the theory. Certainly, Desert Storm does not do much to persuade the doubters; especially since the notion that any strategy would have worked against that kind of incompetent enemy is too strong. But, as Thomas Keaney and Eliot Cohen have asserted, if it happens again, the attractiveness of many of John Warden's arguments will be hard to resist, even among nonairmen.[8]

Is John Warden the fourth great airpower theorist? Clearly, almost everything in his writing and speaking has precedents dating all the way back to the 1920s. He has much in common with the teachings of the Air Corps Tactical School and even Billy Mitchell himself. Nevertheless, these similarities do not necessarily disqualify him from the ranks of the important theorists for, as we noted, there was nothing new in the concepts of Mahan, either. Too, Billy Mitchell was less important as an original thinker than as an advocate of a set of ideas that were the corporate property of the Air Service. However, in Warden's case, I would suggest that *The Air Campaign* is worth reading for all those who have a professional interest in national security studies.

Notes

1. John Keegan, *The Second World War* (N.Y.: Penguin Books, 1989), 594–95. Martin van Creveld, "High Technology and the Transformation of War," in *The Royal United Services Institute Journal*, vol. 137 (October 1991): 76–81, and (December 1992): 61–64, gives his standard argument that high technology designed for the defeat of other great power states has made conventional war impossible; therefore, only low-intensity conflict lies in the future, and there the record shows that the irregulars usually win. Van Creveld believes that is because our technology is not designed to defeat them, and it must be refocused to do so to preserve security—through better means of identifying the foe. See also Carl H. Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S.*

Air Force (New Brunswick, N.J.: Transaction Publishers, 1994), 11. Builder suggests that Desert Storm may have been the last of the old-style wars.

2. Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (N.Y.: Free Press, 1989), 206–10; Earl H. Tilford Jr., "Reexamining the Allied 'Victory' in the Gulf War," in *The Eagle in the Desert*, eds. William Head and Earl H. Tilford Jr. (Westport, Conn.: Praeger, 1996), 267–68; and Earl H. Tilford Jr., *Setup: What the Air Force Did in Vietnam and Why* (Maxwell AFB, Ala.: Air University Press, 1991), 285. Tilford was formerly employed as a professor at the Air Command and Staff College while John Warden was the commandant.

3. John Warden, "Employing Airpower in the Twenty-first Century," in *The Future of Air Power in the Aftermath of the Gulf War*, eds. Richard H. Shultz Jr. and Robert L. Pflatzgraff Jr. (Maxwell AFB, Ala.: Air University Press, 1992), 62.

4. Though I think I see precedents for almost all of Warden's ideas, and I suppose I believe that he is more the manifestation of a continuing revolution in military affairs that started with the Wright brothers than the beginning of a new one, I note that many of his followers assert that the classical theorists were quite different in that they emphasized destruction while Warden pursued paralysis. Also, Warden's folks assert that his emphasis on a consistent pursuit of the enemy leadership differed from Douhet, who struck at civilian morale, and many Americans, who sought the physical nodes of enemy industrial and infrastructure systems. See David S. Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis* (Maxwell AFB, Ala.: Air University, 1995); and Jason B. Barlow, "Strategic Paralysis: An Airpower Strategy for the Present," *Airpower Journal* 7 (Winter 1993): 4–15.

5. Bernard Brodie, *Strategy in the Missile Age* (1959; reprint, Princeton, N.J.: Princeton University Press, 1965), 101.

6. Kenneth S. Brower and Steven L. Canby, "Weapons for Land Warfare," in *The Future of Smart Weapons: Proceedings from an AAAS Annual Meeting Symposium Held in Chicago, Illinois, in 1992*, ed. by the American Association for the Advancement of Science, Washington, D.C., 1992, 1.

7. Jeffrey Record, *Hollow Victory: A Contrary View of the Gulf War* (Washington, D.C.: Brassey's, 1993); and Caroline F. Ziemke, "A New Covenant? The Apostles of Douhet and the Persian Gulf War," in *The Eagle in the Desert*, eds. William Head and Earl H. Tilford Jr. (Westport, Conn.: Praeger, 1996), 292.

8. Thomas A. Keaney and Eliot A. Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis, Md.: Naval Institute Press, 1996), 209.

Bibliography

The literature on the four individuals covered in this book and on the subject of air theory and doctrine is huge—much too large to be covered herein. For those desiring a more comprehensive survey, start with the footnotes and bibliographies of the books listed below by Alfred Hurley, Michael S. Sherry, David MacIsaac, Alan J. Levine, and Conrad C. Crane. What follows is a brief listing of the works I have found most useful for this study.

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