

AIRPOWER

Spring 1998

JOURNAL



Invention

Limits of Technology

TECHNOLOGY

Equipment

Budget
Budget Process

Capability

Creativity
Reason
People
Experience
Passion

Creativity
People
Passion
Experience
Reason

AIRPOWER'S
MAXIMUM
POTENTIAL

Applied

Principles and Tenets

and Potential

Technolo
drives
Theory

Train, Equip, Organize

Understand the Art of War



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Flight Lines

LT COL JAMES W. SPENCER, EDITOR

Giants in the Land!

THESE DAYS IT SEEMS that everyone has an op-ed on the problems with the military. They warn of giants in the land: the decline of the warrior culture, caving in to feminism, and attacks on the relevance of character and values. I enjoy reading them as much as you do. My favorites—Kate O’Beirne (*National Review*), Walter McDougall (*Commentary*), Wesley Pruden, and Suzanne Fields (*Washington Times*)—package their reasoning in something instructor pilots hopefully gave up years ago: fear, sarcasm, and ridicule. Unfortunately for many of you, we can’t publish fear, sarcasm, and ridicule. We report our ideas in a format that’s sensitive to the dialectic—we present both sides.

We need you to come forward with cogent arguments that are well researched and documented to prove that the warrior culture—the American fighting man’s and woman’s way of war—is or isn’t on its way out. Are we too hunkered down in our “don’t ask/don’t tell” or counterfeminist revetments to even comment? We’ve received a number of innovatively thoughtful spleen-ventings, but usually all we can offer in response is some gel caps. Your ideas need to be professionally presented, or they’re no better than the “I feel better” pieces that run in *Air Force Times*. We’ve said it before—scholarship and passion are not mutually exclusive.

The media types are running polemic after polemic, castigating our civilian leadership. A large percentage of the executive branch and Congress lack military service, but the media isn’t going to convince them of the existence of any cultural incorrectness if the media’s support resembles flubber. In the early part of this century, A. J. Liebling first popularized the notion of criticizing the free press. A reporter himself, he once said, “Freedom of the press

is limited to those who own one.” If I owned some of the press, I wouldn’t sleep at night. Although its commentaries are fun to read, the media isn’t convincing anyone on this story for us. Besides, you should “never argue with people who buy ink by the barrel.”

We need to hear from you on this subject very soon. From what we’ve seen already, we could conclude that there *are* giants in the land. Sensitive to the dialectic, we could be wrong. Give us something we can run. Need a place to start? Consider the advice of Merrit Malloy: “What we might consider is how we are good rather than how good we are.”

Of Legacies and Hope

When I received the singular honor of being selected for this position, I was once again experiencing the rare privilege of living out a chosen dream. The dream has since become reality, and the three complete volumes of *Airpower Journal* that record my name as editor will be conveniently easy to point to someday on a distant library shelf. Collectively, they represent—in microcosm—the professional era they chronicled.

Having had the very great fortune of working as caretaker of the professional dialogue during General Fogleman’s tenure as chief of staff, I can understand why it’s easy to see our success. From the confusion of our information-warfare cover on the Spring 1995 issue, to the clarity of four colors, to the expansion in our size and editorial focus, to the advocacy of a reinvigorated editorial-board process, to flagship publication status, to the increased readership garnered by our award-winning web site, it’s easy to see why we’re pleased with this body of work.

All commanders or division chiefs desire to conclude their tour of duty with a planned departure or a scheduled change-of-command ceremony. It appears mine will end that way in the next several months. That's part of the process of being selected to the next higher grade—an experience I share with only three other incumbents in the 50-year history of USAF professional journals.

It doesn't seem right that General Fogleman's departure was more hastily arranged. Although he confidently predicted that his action would be a "one-day" media event, the lingering effects of the professional echoes he left behind continue to gently remind us of how right he was for our times and how good he was for our service. Members of Congress bristled over the general's *nerve* (synonym for *mettle* or *grit*), but it seems as if the Washington elite has been only slightly annoyed by one man of principle whose earlier-than-expected retirement represents a casual irritant to agendas that rarely included his stock-in-trade—his military advice.

What hope is there for his successor? Should we ask the 107 highly promotable captains who won't be majors or the scores of

top pilot-training graduates who won't be fighter pilots? If the new chief completes his tour on time, will it mean that he will have acquiesced in the face of similar circumstances?

What hope is there for my successors? I've taken the risk of more than slightly annoying the Washington elite by happily engaging in controversial dialogue, but I did so under the provision of top cover—from the chief of staff on down. Nevertheless, we inexorably remain a wholly owned subsidiary of the parent company that could, and should, remain the object of routine criticism from our published ideas. Will my successors commute to work wearing any less of a smile than mine?

Privately, I'll appropriately thank the people at Air University and the College of Aerospace Doctrine, Research, and Education who have supported me so well. But when I leave, I will pay them no greater honor than to declare to you that not once was I told what to print and not once was I told how to print it by anyone in my chain of command. That is the best legacy any incumbent could leave. That is the legacy I hope for my successors—and for their chiefs of staff. □



Ricochets and Replies

We encourage your comments via letters to the editor or comment cards. All correspondence should be addressed to the Editor, Airpower Journal, 401 Chennault Circle, Maxwell AFB AL 36112-6428. You can also send your comments by E-mail to editor@max1.au.af.mil. We reserve the right to edit the material for overall length.

NO ATTACK?

I am concerned about the quality of the articles that are released by your publication. In the article "'Handmaid' of the Army? The American Perception of German Bombard-

ment Doctrine prior to the Battle of Britain" (Summer 1997), Capt Alexis Grynkewich mistook the state of Air Corps attack aviation in 1939. He wrote that "the Air Corps needed the parenthetical clarification due to the lack of dedicated attack aircraft in its own inventory" (page 61). I take exception to this statement. The following attack aviation units were in the Air Corps at that time: 3d Attack Group, Barksdale Field, Louisiana (8th, 13th, and 90th Attack Squadrons); 17th Attack Group, March Field, California (34th, 73d, and 95th Attack

Continued on page 104

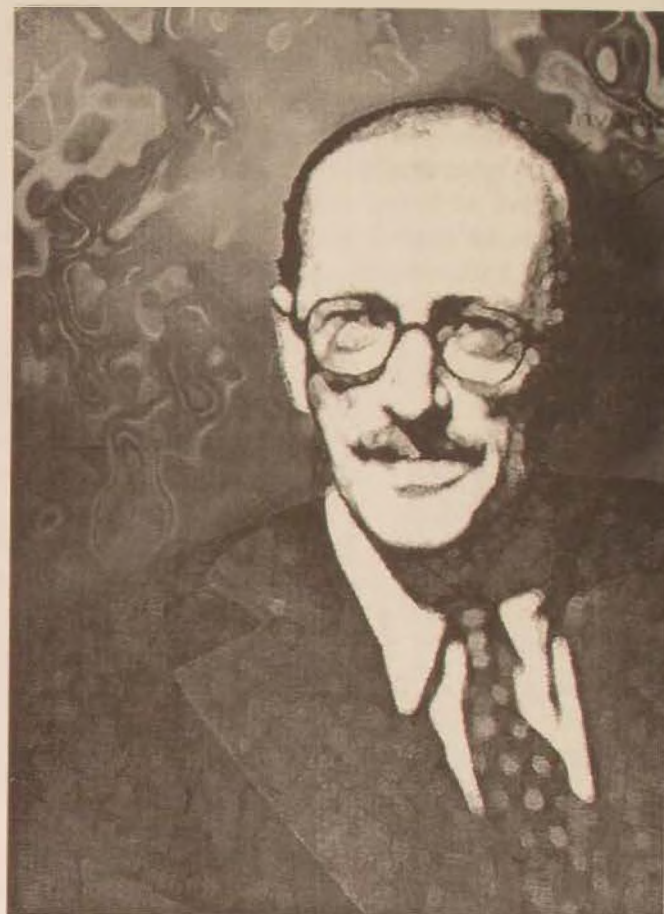
In Search of High Ground

The Airpower Trinity and the Decisive Potential of Airpower

LT COL DAVID K. EDMONDS, USAF

THROUGHOUT HISTORY, military leaders have sought better ground, usually higher ground, from which to fight. Great military theorists proclaimed the benefit of the high ground. With the advent of aircraft, that high ground became the air. With this in mind, many of the early airpower theorists saw the great potential in exploiting this new dimension and promised that airpower would be the preeminent instrument of battle.

Unfortunately, in the early days of airpower, these promises rang hollow, as theory was ahead of capability. Nations were chasing the technology that would allow the capability to live up to the promising early theories. In the United States, even when the capability existed during the Korean and Vietnam wars, the practice of airpower had not been developed sufficiently; nor was the political situation suitable to



exploit airpower's unique characteristics on which the theory was based.

The evolution of three key elements—*theory, technology, and practice*—is critical to the evolution of airpower, just as it is for other elements of military power. If airpower is to be employed to its maximum potential in combat, each of these elements must evolve in concert with each other. Individually, the theory, technology, and employment practice of airpower are continually evolving; therefore, the challenge is to have them converge at the right time and place and to maintain that balance. When this has occurred, as it did for Israel during the 1967 Arab-Israeli War, in the Bekaa Valley in 1982, and for the United States during the recent Persian Gulf War, airpower has exhibited its maximum potential and has been decisive in the final outcome of each war. Of course, airpower's success in any war is founded dur-



ing the years that precede the war. Since combat situations are separated by longer periods of peacetime, the intervals between wars need to be exploited to ensure that airpower is ready when the need arises again.

This article introduces an original construct to explore the relationship of the key elements of airpower and to create a better understanding of the factors necessary for the most effective employment of airpower in combat. This construct—the Airpower Trinity, consisting of *theory*, *technology*, and *practice*—is derived from the concept of the Clausewitzian Trinity. After an introduction of the Airpower Trinity, the evolution of these key elements is reviewed. This review reveals the criteria and circumstances required for balance among the three. Finally, it provides a look into the future of airpower, exploring how the balance can be maintained in peacetime and exploited in war.

The art of employing troops is that when the enemy occupies high ground, do not confront him.

—Sun Tzu

The Clausewitzian Trinity and Airpower

The first theories and principles of airpower, the newest military instrument, flowed naturally from the existing warfare theory, written primarily by such land power theorists as Carl von Clausewitz, Sun Tzu, and Sir Basil Liddell Hart. Largely as a response to World War I, the development of airpower began in earnest to enable direct strikes on the enemy's ability to wage war by leapfrogging conventional ground battles. At the same time, ironically, Clausewitz's principles were criticized, primarily by Liddell Hart, for causing this bloody and costly war. However, Clausewitz's reputation was never seriously hurt because his basic concepts of warfare are not only valid, but timeless—particularly the concepts embodied in his trinity. He defined the essence of warfare through a trinity comprised of *primordial violence and passion, chance and probability influenced by creativity, and an instrument of policy*

*subjected to reason alone.*¹ The Clausewitzian Trinity, depicted in schematic form in figure 1, is a construct used at the National War College to illustrate these three elements—the passion, the reason, and the chance of war—and the associated links among them.

The interaction among these three elements, as represented by the connecting arrows, depicts the critical relationship that creates a "paradoxical trinity" of these dominant tendencies. Clausewitz states:

These three tendencies are like three different codes of law, deep-rooted in their subject and yet variable in their relationship to one another. A theory that ignores any one of them or seeks to fix an arbitrary relationship between them would conflict with reality to such an extent that for this reason alone it would be totally useless.²

Accordingly, they shape the battlefield; if one element gets out of balance, then, as Clausewitz warns, war has the tendency to spiral out of control. He uses the metaphor of three magnets

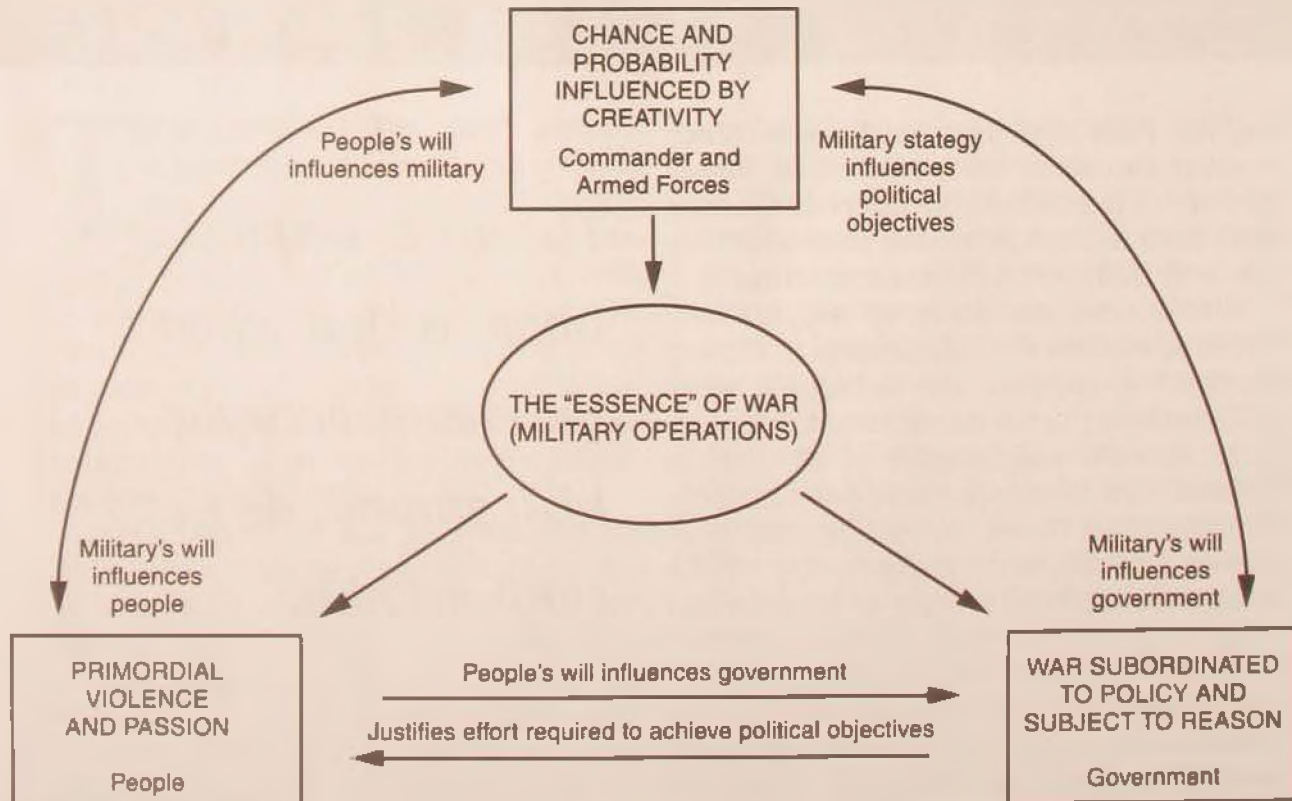


Figure 1. Clausewitzian Trinity

to maintain the necessary balance: "Our task therefore is to develop a theory that maintains a balance between these three tendencies, like an object suspended between three magnets."³ War was allowed to spiral out of control in World War I as the element of *primordial violence and passion* overwhelmed the element of *reason*, which should maintain war as subordinate to policy.

Clausewitz further identifies the elements: the *primordial violence* mainly concerns the people; the *chance and probability* embodies the commander and his army (in the generic military sense); and the *reason* is the responsibility of the government alone.⁴

The arrows (and specifically the direction of the arrows) graphically display the relationship and interaction critical to maintaining this balance. The *War subordinated to policy and subject to reason* tenet is where political objectives are defined by the government; the link to the *Chance and probability influenced by creativity* (the military) is that military strategy is shaped by political objectives. This relationship between the military and the government is defined profoundly by Clausewitz's declaration that "the first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish by that test the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature."⁵

Although people are inherently a part of all the elements, public opinion (the people's will) influences the government and justifies the effort required to achieve the political objectives. Clausewitz's best-known quote, "War is merely the continuation of policy by other means," links the *reason* to the *violence*. Policy is set by the government and should subordinate war to reason. The "other means" is violence, and in that element, passion can cause people to disregard reason. As will be discussed later, these two elements and their relationship got out of balance during the Vietnam War. Just as witnessed in this conflict, the people's will definitely influences both the military and the government—a very critical relationship for success. Thus, the Clausewitzian Trinity depicts the

necessary and critical relationships that link together the three elements of the government, the people, and the military to keep war in balance. Maintaining this balance restrains war, a stated—if not always practiced—goal for both political and military leaders following World War I.

The people's will, one of the hardest factors to predict correctly, will more likely remain strong and positive when war is restrained by maintaining the necessary balance. Airpower's capability, when used to its maximum potential, can be a primary factor in maintaining the necessary balance in the Clausewitzian Trinity. The government, and thus the military, could exploit airpower at the strategic level. It promises an improved chance of victory with fewer casualties through its inherent capabilities such as speed, flexibility, and maneuver in a new dimension.

Many of Clausewitz's key concepts, such as concentration of force, centers of gravity, unity of command and effort, the culminating battle, and the moral and physical aspects of war, were reflected in airpower theory. Liddell Hart's indirect approach is particularly suited to airpower's capability. After the protracted bloodshed of World War I, airpower theory promised speed, not just to and on the battlefield, but, more significantly, to victory. But, if the advocates push theoretical promises too far in front of practice and technology, as in World War I, airpower cannot live up to its decisive potential.

The Airpower Trinity: An Initial Construct

Clausewitz's Trinity defines the *essence* of war; the Airpower Trinity defines the *essence* of airpower through the critical (and paradoxical) relationship between *theory*, *technology*, and *practice*. Figure 2, in an initial construct, draws a parallel between these two trinities. The associated links necessary to balance these elements and provide airpower with maximum potential (center) will be added in a subsequent figure. Clausewitz's Trinity deals with political and psychological factors such as reason, passion, and creativity;

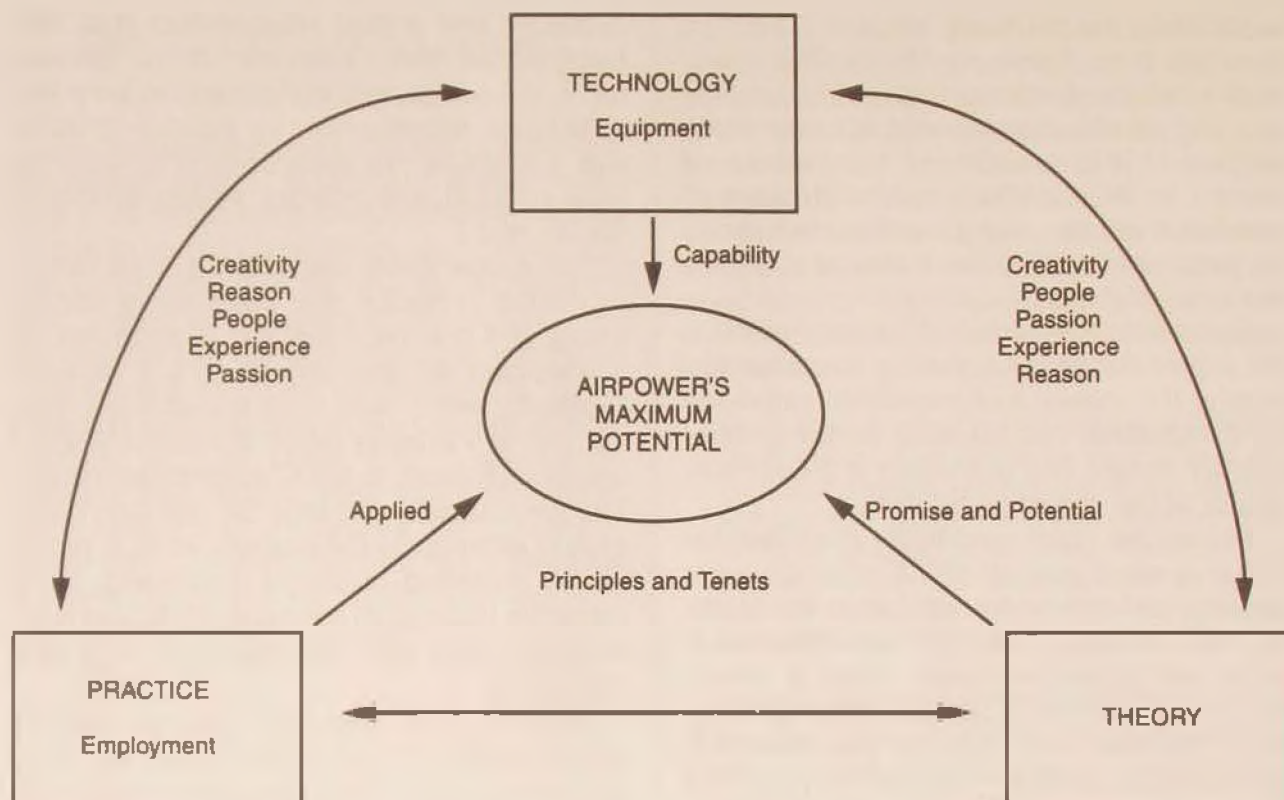


Figure 2. Airpower Trinity

these factors are also embodied in the Airpower Trinity and exert similar influences. Creativity, for example, can "open up new doors" in the development of new technologies, spur new concepts for the practice of employing new technologies, and conceive of a new theory for the use of airpower. Leadership and people—critical and necessary ingredients to employ airpower to its maximum potential—are among the other factors that pervade the trinity. Finally, experience is particularly important to the development of employment practices and is an excellent complement to reason.

Like the universality of Clausewitz's principles, the key elements comprising the Airpower Trinity are applicable to other services and forms of warfare. Land and sea warfare depend on the blend of *theory*, *technology*, and *practice* as well. The proper relationship and evolution is similarly critical to the maximum use of these military instruments in a joint campaign. Although this article does not ex-

plore the concept, a logical extension would be a "Joint Force Trinity" construct of these elements, with the "essence of war" at the center. This would be helpful for the integration of new and advanced technologies into weapon and support systems across the spectrum of joint military force.

The Airpower Trinity: The Relationship among Theory, Technology, and Practice

As with the interconnecting relationships in Clausewitz's Trinity, the relationship among the three elements is the critical part of the Airpower Trinity. Figure 3 adds the connecting links that define this relationship. The interaction among these three elements, as represented by the connecting arrows, reveals a paradoxical relationship: each element can evolve independently at its own pace, yet critical, dependent relationships exist among

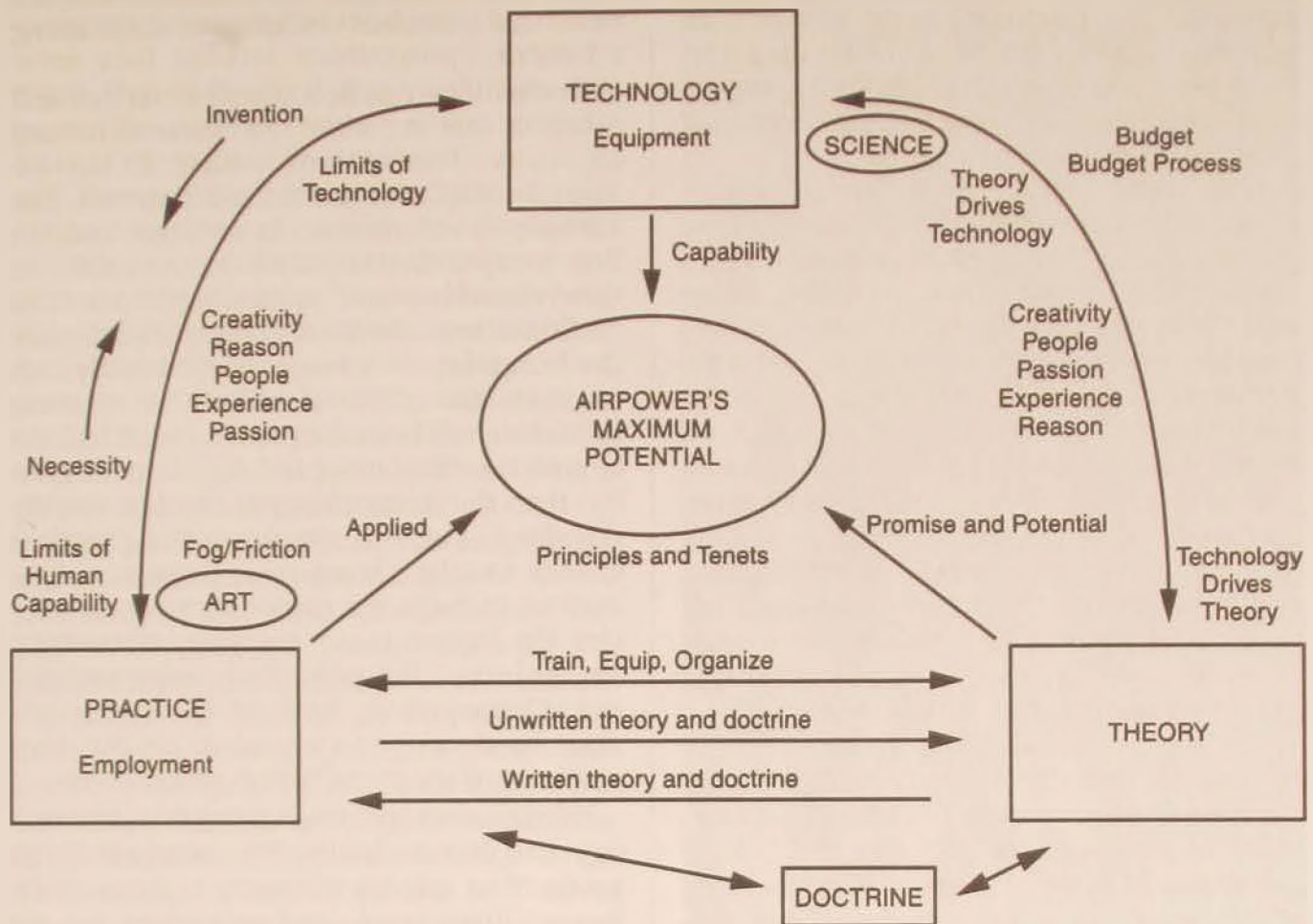


Figure 3. Airpower Trinity

them. Clausewitz's statement above about the reality of the relationships among the three tendencies of his trinity is directly applicable here. *Theory, technology, and practice* are "deep-rooted in their subject and yet variable in their relationship to one another. A theory that ignores any one of them or seeks to fix an arbitrary relationship between them would conflict with reality to such an extent that for this reason alone it would be totally useless."⁶ Accordingly, the Airpower Trinity does not ignore this critical relationship as each element evolves and seeks to define the major factors necessary to maintain the proper relationships.

The *Theory* element provides reason (parallel to the element in the same position in Clausewitz's Trinity) to the Airpower Trinity

as it defines the promise and potential of airpower. It also drives *technology* by establishing the requirements of the capability; additionally, it presents a necessary conceptual framework to the *Practice* element. Doctrine and theory, obviously, are not exactly the same, but doctrine is derived from theory and practice. Hence, note its relative position in the Airpower Trinity and the "back-and-forth" interaction of doctrine, theory, and practice. The debatable position of doctrine in the trinity comes from our lack of focus on it in the past. Gen Ronald R. Fogleman, former USAF chief of staff, explains that the "Air Force traditionally has not thought a lot about doctrine." He further states that the early airmen leaders used theory to develop employment practices and doctrine and "had doctrine in

their heads—they lived it and passed it on.”⁷ Consequently, doctrine has not always been written. Recently, the Air Force set up a doctrine center to help formulate and integrate doctrine into Air Force operations—leveraging the trinity’s three key elements.

The *Technology* element, through equipment and systems, provides the capability to reach airpower’s maximum potential. Technology, with its foundation in science, inherently involves reason, but it also requires people with creativity to produce useful inventions. Although mostly “pushed” by the requirements of promising theory, technological advancements sometimes can push theory to keep up with emerging capabilities. For example, as satellite technology rapidly opens up new opportunities for information and weapons use, the theory of airpower has been pushed (particularly from the viewpoint of those wearing pilot’s wings) to include space and war-fighting concepts in space.

Another factor that affects the development of technology is the available budget for research and development (R&D) and procurement of new systems. Although not a large percentage of the total life cycle cost for a wing of 72 fighter aircraft, for instance, this “up-front” investment of R&D and procurement sometimes does not compete well with current readiness and quality of life budget demands.⁸ This becomes a particularly contentious issue when the overall budget is declining, as it has been in recent years. Consequently, the available budget to explore new technologies has been reduced. When this is combined with the lack of a peer competitor on the near horizon, increased modernization funding to keep our technological edge is a difficult position to support. These budget constraints will have a significant effect on the development of the technologies required for such capabilities as space-based weapons, stealth precision strike platforms, and integrated satellite and aircraft laser systems. Additionally, the budget process between the Department of Defense (DOD) and Congress can sometimes result in inconsistent outcomes and lengthy acquisition programs. This can lead to systems that the services either do not want or have incorporated but will be

out-of-date by the time the system reaches the field. This is another challenge to maintaining a balance.

Technology can become so advanced and complex that it presses the limits of human capability. This is most evident in the advanced cockpits of future fighter aircraft. The amount of information is so huge and the flow so rapid that the pilot has a more difficult time absorbing and processing it all. This “information overload” could marginalize the technological advance. Additionally, not only are the physical structures of these fighter aircraft becoming more “stealthy,” the aircraft can “pull more Gs” (the force of gravity) than the human body is capable of withstanding. Even as employment practices change to take advantage of these advances, such as through the use of unmanned vehicles, the human is still necessary somewhere “in the loop.” This potentially limits technology. Consequently, both of these elements must be developed in tandem so that they maximize their contribution to airpower.

While necessity fosters invention, technology also has its limits. The ultimate “high ground” to employ airpower is from space, but satellites, lasers, and spaceships are not yet advanced enough in the operational area to do the practical weaponized missions. The key is that as *technology* advances, it must be through concurrent and integrated development with *theory* and *practice*. If not, the Airpower Trinity will not be in balance to “feed the center.” Together the elements shape airpower’s potential. Without this synergy, airpower will not provide its maximum potential—the ability to restrain warfare through quick, decisive, and low-casualty outcomes. The balance of *theory*, *practice*, and *technology* will be attained only through the lessons of history that follow.

Beginning the Journey of Airpower Evolution: World War I and World War II

The evolution of the *theory* of airpower, the *technology* that enables capability, and em-

ployment *practice* took time. Each of these elements developed individually, but there were also natural relationships between them that influenced this evolution. Airpower changed the conduct of war immediately at the tactical level; airpower as a decisive factor at the strategic level took a bit longer to emerge. However, in comparison to the history of warfare, the time frame was relatively short—about 75 years (from World War I to Desert Storm). And, in several limited cases, airpower provided strategic decisiveness earlier than that. The challenge, of course, is to ensure that airpower evolution continues such that it provides its maximum potential in future conflicts.

In World War I, application of early theory did not immediately make airpower a decisive factor. Clausewitz, obviously, did not address airpower specifically, and a translation of his theories to this instrument had not yet happened. Since there was no written airpower *theory*, development happened concurrently with *practice*, and, even then, it was not widely disseminated. The three elements of the Airpower Trinity were not in balance. The potential promised by the early advocates was way “out in front” of what *technology* could provide. This lack of technological capability restrained employment. During the ensuing years, airpower enthusiasts such as Giulio Douhet, Gen Billy Mitchell, and Sir Hugh Trenchard addressed airpower theory directly—using many of Clausewitz’s concepts of warfare. These men recognized that airpower, with its ability to maneuver in the new dimension of air, was the technological advancement to change the face of the World War I battlefield, despite these initially limited results. They promised that the next war would be different.

In the years leading up to World War II, Army Air Corps strategists at the Air Corps Tactical School (ACTS) developed and taught five core principles, derived from Mitchell’s vision, to guide the development of airpower:

1. Modern great powers rely on major industrial and economic systems. . . . Disruption and



Gen Benjamin D. Foulois at Colombey-les-Belles, France, during World War I. The early airmen leaders used theory to develop employment practices and doctrine and “had doctrine in their heads—they lived it and passed it on.”

paralysis of these systems undermines both the enemy’s *capability* and *will* to fight.

2. Such major systems contain critical points whose destruction will break down these systems, and bombs can be delivered with adequate accuracy to do this.
3. Massed air forces can penetrate air defenses without unacceptable losses to destroy selected targets.

4. Proper selection of vital targets in the industrial/economic/social structure of a modern industrialized nation, and their subsequent destruction by air attack, can lead to . . . victory through air power.
5. If enemy resistance still persists after successful paralysis of selected target systems, it may be necessary as a last resort to apply force upon the sources of enemy national will by attacking cities. (Emphasis in original)⁹

These principles seemed also to reflect the pages on "center of gravity" and "national will" in Clausewitz's *On War*.¹⁰ Moreover, as a foundation for strategic bombing during the war, the principles reflected the core belief in the decisive nature of airpower. In particular, the statement that the "proper selection of vital targets . . . and their subsequent destruction by air attack, can lead to . . . victory through air power" (principle 4) implied that victory could be achieved following this prescription.

However, again, the Airpower Trinity was not in balance. The theory derived from the ACTS principles was valid and proven in later conflicts, but "victory through air power" did not occur in World War II. Airpower did make significant contributions—in some battles at the tactical level; others, such as in the ultimate surrender of Japan, at the strategic level. In *practice*, airpower was a part of the overall campaign in most battles, but it was not employed to utilize its maximum potential. *Theory* required airpower to be a primary and integral part if it was to be a decisive factor in the joint campaign. There were some attempts by joint staffs, most notably the British joint staff, in operations; however, the lack of centralized control of air assets severely limited effectiveness and positive impact. The promises of Douhet, Mitchell, and the ACTS were not fulfilled.

The reality of employment *practice* proved more difficult and complex than *theory* suggested. Again, *technology* limited capability. Even with the most sophisticated bomb-sight, World War II aviators were unable to deliver the promised precision bombing. This capability was a must to fulfill the

ACTS fourth principle (and promise). Additionally, the "will of the people," a critical relationship in Clausewitz's Trinity, significantly affected the balance of the Airpower Trinity as well. Two occurrences in the use of airpower by the enemy forces reveal the complex nature of balancing theory and practice.

Intended to have a positive effect, the bombing of Pearl Harbor and the air strikes on London during the Battle of Britain had unexpected and opposite effects for the Japanese and the Germans. In each case, the intent was to use airpower strategically, to destroy the will of the people to resist. Yet, these bombings solidified rather than shattered public will. In fact, the reaction of the American people to the Pearl Harbor bombings pushed the wavering Roosevelt administration into the war. Clearly, the leaders of Japan and Germany did not fully understand the nature of war with regard to the will of the people. However, an important lesson about employment was universally learned: air superiority was a requirement for any successful operation. Still, airpower theory promised more than air superiority. The good news was that the vision of that fully realized promise could be seen more clearly at the end of the war.

Korea and Vietnam: Limited Wars, Limited Use

In the Korean and Vietnam limited wars, with their unclear nature and restrained conduct, Clausewitz's Trinity was forced out of balance.¹¹ Political objectives (*reason*) were not properly connected to military objectives and employment (the other two elements). In the Airpower Trinity, *technology* had closed the gap between promise and capability (for example, jet engines significantly improved speed, and upgraded weapons delivery systems provided more precise bombing). But even with this technological advantage, airpower was not employed as an intended decisive factor. Even though tactical employment of airpower saved the US Army from defeat early in the Korean con-

flict, airpower was not an integral part of Gen Douglas MacArthur's overall battle plan. Also, this conflict occurred relatively soon after the establishment of the United States Air Force as a separate service, at a time when early emphasis was on strategic nuclear deterrence and heavy bombers.

The Vietnam War, also fought in the shadow of the cold war, saw airpower employed in a limited and disparate fashion—like the rest of the US military force. Airpower had not been “unleashed” to fully exploit its capabilities for maximum impact. This was primarily due to political considerations (White House control of targeting, etc.) that impacted and constrained *employment practice*—a critical element of the Airpower Trinity. Also, the lack of centralized control over all the air assets again diluted the ability to maximize the force. Air campaigns like Rolling Thunder and Linebacker, while accomplishing some limited tactical success, could not provide a decisive factor without integration into an overall joint war effort.

Israeli Success in the Six-Day War and the Bekaa Valley: Airpower Trinity in Balance

The maximum potential of this unique capability is achievable. The success of Israeli airpower in the 1967 Arab-Israeli War and the Bekaa Valley air campaign in the 1982 Lebanon war showed that airpower could be a decisive factor. These successes occurred when the available *theory*, *technology*, and *practice* concepts supported each other in the strategic application of airpower. Airpower had finally fulfilled the early promises, albeit on a relatively small scale. In both conflicts, the Israeli leaders showed a clear understanding of Clausewitzian theory; the trinity and its linkages; Liddell Hart's indirect approach; and the principles of surprise, deception, and concentration of forces that airpower could exploit. They also understood the elements of the Airpower Trinity and their relationships.

At 0745 on Monday, 5 June 1967, Israel used the element of surprise (the principle of war that is airpower's strongest advantage)¹² to launch a preemptive strike at two dozen Arab air bases in Egypt, Syria, Jordan, and Iraq. This precisely timed and coordinated strike consisted of two 80-minute attacks that destroyed the offensive potential of the Arab air forces. In this first three hours of the war, 387 Arab aircraft were destroyed, and Egypt's air force, the largest in the Arab world, went from 520 planes to 220.¹³ With early air supremacy, the Israeli Air Force (IAF) could provide timely interdiction and close air support that enabled the ground forces to accomplish magnificent feats.

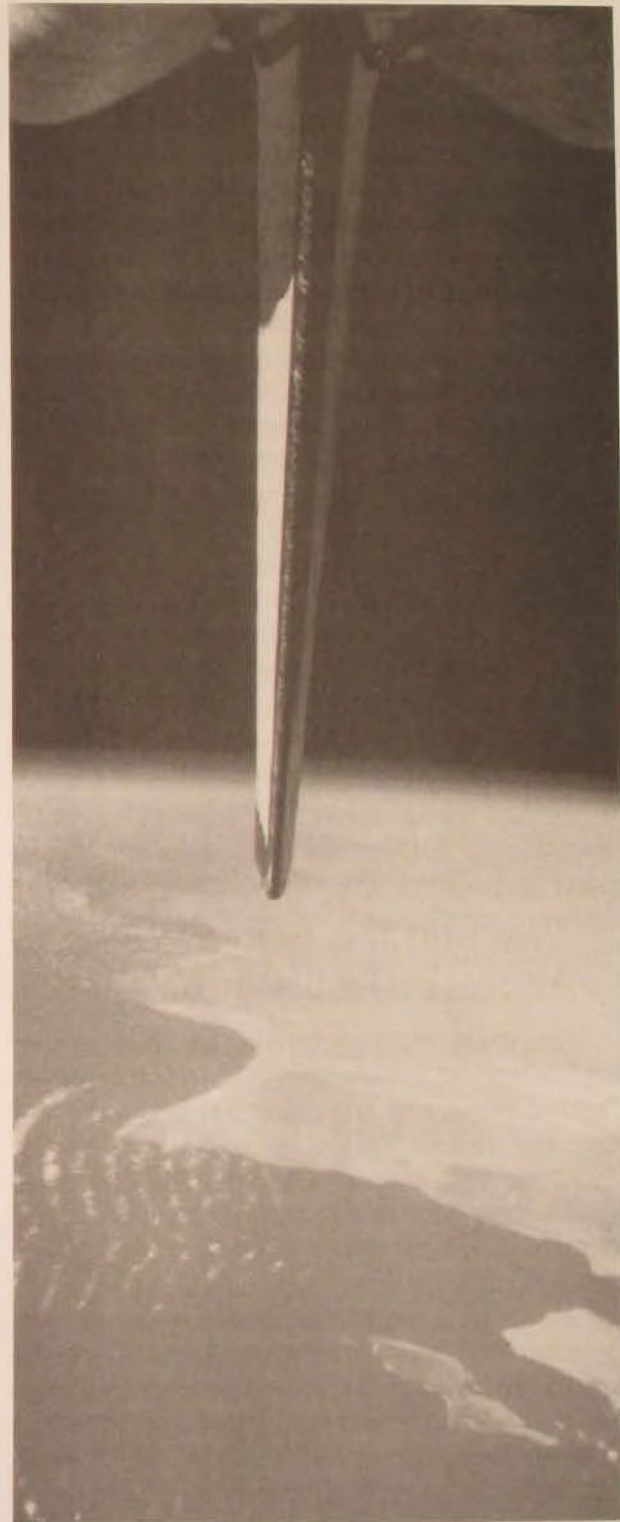
General Hod, commander of the IAF, when asked how it managed such unprecedented success, stated four key reasons: sixteen years of planning for the initial 80 minutes, good intelligence about the enemy, flexible and centralized control of the air assets, and skilled execution.¹⁴ Although the Israeli strategy relied heavily on Liddell Hart's theory (when using its inherent advantage of surprise, airpower is both the ultimate indirect approach and a critical force multiplier for a numerically inferior military), Clausewitzian theory was clearly recognized (war plans supporting clear political objectives, and the criticality of the human factor in war). Strategically, Israel knew that victory had to be quick and decisive.¹⁵ Surprise was the key to success; airpower, with its speed, range, flexibility, and ability to directly attack enemy centers of gravity, was the only force that could provide a decisive blow. Airpower sealed Israeli victory within hours of the first strike. This was the promise of airpower *theory*; the available *technology* provided the necessary capability; and the IAF pilots exploited both in their *employment practice*. The Airpower Trinity was in balance at this point in time.

The Israeli air operation over Lebanon in 1982, although very limited in scope, objectives, and the number of participants, requires mention in light of the decisive nature of airpower for at least three reasons. First, airpower probably prevented a future

war with the absolute destruction of the Syrian forces. Accomplished very quickly and with very few casualties, the air war in the Bekaa Valley exhibited almost perfect employment by the IAF in the eight-minute battle. Second, this air campaign constituted the first full-scale test of current-generation American *technology* in tactical aircraft and weapons.¹⁶ But, although there were lessons to be learned about technology of weapons and equipment, a more important lesson was about airpower employment *practices*. High-technology weapons are required in a real-time electronic warfare environment, but to be decisive, airpower still must be employed using the basic principles of war. Third, it was also about the human factor in war. In the end, despite divergent military philosophies and more sophisticated American equipment, the Syrians were simply outflown and outfought by the Israelis.

Desert Storm: Our Theory, Practice, and Technology Balanced in the Airpower Trinity

In August of 1990, Saddam Hussein boldly stated, "The United States relies on the Air Force and the Air Force has never been the decisive factor in a battle in the history of wars."¹⁷ He was right about the United States Air Force up to that time, but he obviously was not a student of the evolution of airpower—or, for that matter, of military strategy. Consequently, Saddam lived to regret his statement. From the first-night reports of F-117s and Tomahawk cruise missiles striking Baghdad (via live CNN reporting) to nightly precision bombing videos, it became evident that this war was different. The United States was at a point in time when *theory*, *technology*, and *practice* converged at the right time and place to allow employment of airpower to its maximum potential. The Airpower Trinity was in balance and, as such, played a prime role in the balance of



The Oman Coast and Saudi Arabia from shuttle Columbia. While necessity fosters invention, technology also has its limits: the ultimate "high ground" to employ airpower is from space, but satellites, lasers, and spaceships are not yet advanced enough in the operational area to do the practical weaponized missions.



Some observers maintain that airpower alone, for all practical purposes, won the Gulf War.

the Clausewitzian Trinity. As David Hackworth concluded, "Air power did a most impressive job and virtually won this war by itself."¹⁸ Based on the objectives of this war, airpower could not have "won it by itself," but it was the decisive factor in the quick, low-casualty allied victory.

While airpower *theory*, in general, promised the decisive battle, written US Air Force doctrine was mired in the cold war.¹⁹ The basic doctrine manual, Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, was dated 16 March 1984 and had not changed significantly since 1959.²⁰ Consequently, approaching the Persian Gulf War, airpower leaders did not have a written doctrine on which to base a conventional air campaign plan. However, they did have unwritten doctrine that had been developed through their many experiences and study of the best concepts of such theorists as Clausewitz, Liddell Hart, and, of course, Mitchell and Douhet. Luckily, there were Air Force leaders, like the early airmen, who understood these concepts of theory and had them "written down in their minds," Gen Chuck Horner, Brig Gen Buster Glosson, and Col John Warden to name the most visible. Colonel Warden had laid the foundation of an air campaign in his book *The Air Campaign: Planning for Combat*. He led the joint working group that took his European theater plan and built the initial part of the comprehensive, integrated Desert Storm air campaign.

These leaders certainly understood Clausewitz's concept of the center of gravity (see endnote 10). Warden's modified and updated version of the center of gravity with his five concentric rings became the central focus of the air campaign.²¹ Gen Colin Powell, commenting on Warden's concept at one of the first strategy-planning meetings in August 1990, stated that "Warden's approach could destroy or severely cripple the Iraqi regime."²² It remained the heart of the air campaign. With initial domestic public support tenuous due to a vivid memory of the protracted and costly Vietnam War, a quick crippling of Iraq's war-fighting capability was required. Additionally, the fragile nature of the coali-

tion added a further requirement for a quick war, with low loss of allied lives and minimal collateral damage. A mandate from the United Nations and our allies—as well as domestic public support—gave the United States the opportunity to "unleash" airpower. To sum up the philosophy in true Clausewitzian sense, General Powell explained the battle plan: "We were using our airpower first . . . to render the enemy deaf, dumb, and blind. . . . Our strategy in going after this army is very simple; first we are going to cut it off, and then we are going to kill it."²³

The air campaign was carried out by an employment concept of simultaneous and synchronized strikes, mass and concentration of forces, surprise and deception, outstanding intelligence, and flexibility through centralized control—all universal principles of warfare. As with the evolution of *technology*, these employment *practices* were perfected over many years. Airpower clearly benefited from a transformation in the way US forces train for combat. This was true for the entire joint arms team. As one Army general officer stated, "We didn't start winning this war last August. We started winning this war ten to fifteen, if not twenty years ago."²⁴ This applied to Air Force training as well.

Doctrine had advanced, not in the written form of AFM 1-1, but in other written forms such as journals and reports. This was supported by changes in employment *practices* at large-scale exercises like Red Flag, which began after the Vietnam War, and significant organizational changes in flying units in the early 1990s. Finally, probably the key reason for airpower's decisive nature was the centralized control of all air assets by one commander, the joint force air component commander. Through one integrated air tasking order for all coalition air forces, General Horner directed air assets to the missions that would provide the most decisive impact. At long last, the *theory* element and the *practice* element were in balance with the *technology* element.

"The technology finally caught up with the doctrine," proclaimed Gen Michael Dugan, former Air Force chief of staff, as he asserted

the vindication of precision bombing.²⁵ Dramatic improvements in precision weapons and stealth technology provided the necessary means to reach the ambitious ends of the air campaign. Attacking the will of the populace, while minimizing collateral damage—once only a promise—was now a reality. Additionally, *technology* improvements in many other areas like communications, sensors, and aircraft production and maintenance resulted in superior intelligence and situational awareness, nearly flawless synchronization of simultaneous missions, very high aircraft sortie rates, and even immediate bombing results sent to leaders in Riyadh and Washington. This minimized the “Dover factor” (bodies arriving at Dover AFB, Delaware) by reducing the loss of American lives and the “CNN factor” (immediate, real-time TV coverage) by providing very successful targeting video. Airpower provided an overwhelming, technologically superior, decisive force—the American “way of war” continually promoted by General Powell.

The Future for Decisive Airpower

“Billy Mitchell was right.” Hung above the door at USAF’s Air Command and Staff College during Desert Storm, this saying is finally more than theory—at least for this war. Airpower can and did provide a decisive contribution to the final outcome of that war. However, now in another period of peacetime, the challenge is to keep the elements of the Airpower Trinity in balance for the next war.

In the expected conflicts of today and tomorrow, airpower, like land or sea power, cannot provide the sole means to all ends. Depending on the purpose and nature of the conflict—and the intended political objectives—the relative importance and contribution of air, land, and sea forces vary. These forces are intended to work together to achieve the military objectives. However, even if one of the goals is to move an enemy’s army, airpower can provide the decisive means to this end. Without it, the accom-

plishment of that objective may be threatened or require a very high price in terms of lives lost and material resources expended. To this end, employment *practices* must keep pace with *theory* and *technology* advancements to ensure that the Air Force fights Powell’s “way of war.”

United States airpower doctrine (AFM 1-1, March 1992) describes the basic principles and tenets for the effective application of airpower. The unique capability of airpower to operate from the “high ground” means that it can be employed quickly, anywhere needed, against any facet of enemy power.²⁶ Derived through experience, this current doctrine, dynamic and flexible like airpower, allows for advances in technology and threats, as well as changes in warfare. It reflects a core belief in the decisive nature of airpower with the definition of strategic air warfare as

air combat and supporting operations designed to effect, through the systematic application of force to a selected series of vital targets, the progressive destruction and disintegration of the enemy’s war-making capacity to a point where the enemy no longer retains the ability or the will to wage war.²⁷

Theory and doctrine will continue to evolve, as they must, to maximize and exploit the capability of airpower.

According to Clausewitzian theory, the *nature* of war is timeless. But not so for the *conduct* of war—it changes with advances in technology. In turn, *technology* drives *practice*, with *theory* a critical factor in both. Desert Storm, a balance of airpower *theory*, *technology*, and *practice*, could be the culmination of a technological revolution, a midphase test of the evolution, or the verge of the next revolution in weapons and warfare. As weapons become more precise, with better standoff capability, satellites will move the “high ground” further up into space. This development, along with the development of information warfare, will very likely make tomorrow’s wars quite different from the ones we know. Employment *practices* and *theory* (and doctrine) will become more critical as future *technology* promises a capability to conduct

warfare more cleanly—in a precise, limited, almost bloodless fashion—and quickly.

Future Air and Space Operations

This question about whether Desert Storm and the technologies employed constitute a revolution in military affairs (RMA) has been widely discussed. Certainly, these technological advances resulted in a high-intensity battlefield, a "hyperwar," that was a profound change in the conduct of war. James Fitzsimonds, an Army officer writing in a 1995 article, described many of the advanced technologies used during Desert Storm that will shape the future battlefield:

Advanced sensors and communications now provide much greater information about the enemy as well as a higher degree of operational control over our own forces. Stealth and precision-guided warheads have reduced

significantly the number of platforms and amount of ordnance necessary to destroy individual targets. Conventional weapon lethality has increased, while attrition and collateral damage have been significantly reduced. These developments portend perhaps an entirely new regime of high-technology warfare in the early 21st century.²⁸

Lt Gen David McCloud, USAF, director of JCS J8, echoed this assessment, listing stealth, computer systems, lasers, and information systems as revolutionary technologies that will help change the future battle space. His definition of a "revolutionary technology" focused directly on the operational environment: a technology that war fighters can use. The opportunity that the United States has to merge these technologies into future weapon systems means, according to General McCloud, that the "relative U.S. military capabilities will undergo stunning improvements by 2010."²⁹

Whether we have experienced an RMA or not, one thing on which everyone can agree



Billy Mitchell was right.

is that the battlefield will be different in the future. The CJCS's *Joint Vision (JV) 2010* recognizes this fact and sets the goal of "full spectrum dominance" by the United States across the range of military operations in the future. Gen John Shalikashvili's vision is American capability to dominate any opponent—full spectrum dominance is to be the key characteristic for our armed forces to achieve this vision. *JV 2010* provides the conceptual template to "leverage technological opportunities to achieve new levels of effectiveness in joint warfighting." Each service, through the application of new operational concepts, is expected to develop its "unique capabilities within a joint framework of doctrine and programs." These new operational concepts are dominant maneuver, precision engagement, full dimension protection, and focused logistics. Power projection remains one of two fundamental strategic concepts of our military strategy; accordingly, long-range precision capability is a necessary integral part of power projection and is a "key factor in future warfare."³⁰

Airpower will play a significant role in achieving this goal. The USAF follow-on strategic vision to "Global Reach-Global Power" was recently published under the title *Global Engagement: A Vision for the 21st Century Air Force*. This USAF vision for the first quarter of the twenty-first century states that full spectrum dominance depends on the inherent strengths of modern air and space power—speed, global range, stealth, flexibility, precision, lethality, global/theater situational awareness, and strategic perspective.³¹ While air and space power resides in all the services, the US Air Force is the lead service for employing this capability. Hence, its vision and planning for the future will be used in this discussion.

This new vision details how the US Air Force fits into the national security strategy of "Engagement and Enlargement" and the national military strategy (NMS). The NMS centers around two major concepts to meet the security challenges of the new century: global presence and power projection. Since these challenges will occur across a wide range of contingencies, the joint force commander

will demand flexible capabilities. The Air Force contributes these capabilities to the joint team through its "core competencies" of air and space superiority, global attack, precision engagement, rapid global mobility, agile combat support, and information superiority. Former secretary of the Air Force Sheila Widnall points out that coping with the new challenges and their effect on the battlefield "was no accident." The Air Force anticipated this new way of war because "of vision, systematic planning and investing in our people, and the right modernization programs."³²

The Airpower Trinity— Maintaining the Balance

Maintaining the balance in the Airpower Trinity requires deliberate planning and execution. *Vision* has been the word used in most of the documents relating to future operations. Vision is not exactly the same as *theory*, but for the purposes of projecting the future, the airpower advocates of today—our airpower theorists—use *vision* to explain what airpower hopes to do for warfare. This is where *vision (theory)* pushes *technology* to produce the necessary capability, but this vision is possible only when the advocates have some glimpse of the "art of the possible."

For example, with such a glimpse, the authors of *Battlefield of the Future: 21st Century Warfare Issues* identified four new potential warfare areas: space warfare, precision strike, dominating maneuver, and information warfare.³³ Space warfare, by extension, is in airpower's domain (more specifically, air and space power's domain in the future). George Friedman, who heads the Strategic Forecasting Group, argues in his book *The Future of War* that "the age of the gun is over and the future is the age of precision-guided munitions or smart weapons. He who controls space controls the battlefield." He adds that the United States will have the edge in the twenty-first century due to high-speed missiles and space-based reconnaissance to gather information and quickly disseminate it.³⁴ Precision strike, dominating maneuver,

and information warfare are not the sole domain of airpower; however, airpower will play a significant role in each and a major role in the precision strike area. While all of these areas are supported by the core competencies of the US Air Force, precision strike is the farthest along conceptually and practically. This allows a look at the future potential of airpower from the familiar perspective of the present.

By 2020, new technologies that will enable precision strike could provide commanders with "wide-area surveillance and target acquisition, near-real-time responsiveness, and highly accurate, long-range weapons" to achieve strategic effects at intercontinental distances.³⁵ This will be a dramatic increase in capability. In 1943, the US Eighth Air Force prosecuted only 50 strategic targets in an entire year. In the first 24 hours of Desert Storm, the coalition air forces prosecuted 150 strategic targets. By the year 2020, the potential could exist to prosecute five hundred strategic targets in the first minute of a war.³⁶ This accomplishment will come only from the synergistic effect of linking the technologies required in all of these new warfare areas. For airpower to live up to its potential in this vision of warfare, *technology* will have to produce the necessary capabilities. It seems the technological advancements, thus far, make that highly probable.

These current technological advancements are so rapid and dramatic, a potential problem is that employment *practices* may not be able to keep up with that pace. Since the "cause and effect" relationship discussed earlier between *theory* and *technology* keeps these two elements more closely in balance, the more critical relationship is between *technology* and *practice*. And *technology* will be the driver in this relationship. The development of employment *practices* to take advantage of this advanced technology will be required for airpower to make the *vision* a reality. Consequently, new operational concepts and organizational modifications may provide greater leverage for future success than the technologically advanced systems themselves.

As the future battle space becomes more lethal and complex, the technologies required to survive in this environment will likely result in systems that are not compatible with manned flight. New operational concepts will increasingly employ unmanned systems to reduce the loss of life, to utilize technologies that exceed the limits of human capability, and to meet signature requirements in a more stealth-necessary environment. The organizational modifications required to operationalize these concepts have already begun in the US Air Force. The first unmanned aerial vehicle (UAV) squadron has been established at Nellis AFB, Nevada. The establishment of the squadron and the location are significant because this organizational modification strikes directly at the heart of the founding identity of the US Air Force: the pilot in the cockpit (with a scarf flowing in the breeze). Not only will this challenge the core institutional culture, it will challenge the warrior ethos.³⁷ How ironic that the first UAV squadron is at Nellis AFB, the "home of the fighter pilot." The development of UAV technology and practices is an example of where concerted effort, planning, and leadership will be required to keep the Airpower Trinity in balance.

Conclusion

The synergistic evolution of three key elements—*theory*, *technology*, and *practice*—is critical to the evolution of airpower in order to achieve its maximum combat potential. This is the essence of airpower—a force that can provide a decisive factor to the outcome of conflict. This article introduced the Airpower Trinity, originating from the concept of the Clausewitzian Trinity with his "three magnets balancing the trinity." This new construct explores the relationship of *theory*, *technology*, and *practice* to the essence of airpower. As in the Clausewitzian Trinity, the interaction among these elements must produce a balance of the Airpower Trinity. This is necessary for the maximum effective employment of airpower in combat. When this has occurred, as it did for Israel in the 1967 Arab-Israeli War, the Bekaa Valley in 1982, and for the United States during the recent Persian

Gulf War, airpower exhibited its maximum potential and was decisive in the final outcome of each war.

The balance of *theory, technology, and practice* is a necessary ingredient for success in subsequent wars. The future battle space will be a new regime of high technology and complex warfare—extended into space, with more precision strike and greater demand for accurate and timely information. Full spectrum dominance,

the *JV 2010* objective for this battle space, depends on the inherent strengths of airpower. This *theory and practice* must stay in balance with the rapidly changing *technology*. Attention in the future to the concept of the Airpower Trinity will ensure *air and space power* provide a decisive factor in future conflict. And, once developed, the "Joint Force Trinity" could prove the sine qua non of future victories. □

Notes

1. Carl von Clausewitz, *On War*, trans. and ed. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 89.
2. *Ibid.*
3. *Ibid.*
4. *Ibid.*
5. *Ibid.*, 88.
6. *Ibid.*, 89.
7. Gen Ronald R. Fogleman's commander's call remarks to National War College, 18 February 1997. With regard to the early airmen leaders, he referred to those in 1945, the 1960s, and the mid-1970s.
8. *Ibid.* To put the R&D and procurement costs of new tactical air (F-22, F/A-18 E/F, and JSF) into perspective, General Fogleman presented a comparison of modernization costs (R&D and procurement are the primary ones) to the total cost over a 35-year life span of several major weapons and their organization, such as an F-22 fighter wing, an aircraft carrier, or a heavy mechanized division. The intent was not to compare a heavy mechanized division to a fighter wing on any type of cost-benefit relationship, but rather to show that the "up-front" costs in all of these capabilities are rather low compared to the cost to maintain the capability over a 35-year life span.
9. Haywood S. Hansell Jr., *The Strategic Air War against Germany and Japan: A Memoir* (Washington, D.C.: Office of Air Force History, 1986), 9-10.
10. Clausewitz defined center of gravity as "the hub of all power and movement, on which everything depends . . . the point against which all our energies should be directed." Clausewitz, 595-96.
11. Dr. Ilana Kass, Seminar M, 28 October 1996, National War College, Washington, D.C.
12. This is true according to AFM 1-1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 1, March 1992, 16. Most aviators believe flexibility is the key to airpower. Flexibility allows for surprise.
13. "Israel's Swift Victory," *Life*, Special Edition, 1967, 40.
14. Randolph and Winston Churchill, *The Six Day War* (Boston: Houghton Mifflin Company, 1967), 91-92.
15. Israeli cabinet members were terrified at the prospect of a premature cease-fire. They remembered when US pressure forced defeat on them (with the British and the French) in 1956 when victory was only hours away. The Israeli plan in 1967 was based on the belief that time would be short and victory would have to be as swift and decisive as possible. Randolph and Winston Churchill, 93.
16. "U.S. Arms Used in Lebanon War Outstrip Soviets," *Wall Street Journal*, 5 August 1982.
17. "Excerpts from Interview with Hussein on Crisis in Gulf," *New York Times*, 31 August, 1990, A-10.
18. David H. Hackworth, "Lessons of a Lucky War," *Newsweek*, 11 March 1991, 49.
19. See earlier remarks by USAF chief of staff. Doctrine can be written, like AFM 1-1, or unwritten, like that practiced by airmen day-to-day.
20. Mark A. Clodfelter, "Of Demons, Storms, and Thunder: A Preliminary Look at Vietnam's Impact on the Persian Gulf Air Campaign," *Airpower Journal* 5, no. 4 (Winter 1991): 27.
21. Colonel Warden discusses his concept of center of gravity in his book and adds that it is the point where the enemy is most vulnerable and where attacks will have the best chance of being decisive. For Desert Storm, he defined the enemy's center of gravity to consist of five concentric rings: (from the center out) leadership, production facilities, infrastructure, population, and fielded military forces. The vital targets were at the center and should be attacked first, or at least simultaneously. Something that airpower could do was to concentrate force at the decisive point. John A. Warden III, *The Air Campaign: Planning for Combat* (Washington, D.C.: National Defense University Press, 1988), 9-11; and Clodfelter, 23.
22. Colin L. Powell with Joseph E. Persico, *My American Journey* (New York: Random House, 1995), 473.
23. *Ibid.*, 509-10.
24. Bard E. O'Neill and Ilana Kass, "The Persian Gulf War: A Political-Military Assessment," *Comparative Strategy*, April-June 1992, 227.
25. Michael Dugan, "First Lessons of Victory," *US News and World Report*, 18 March 1991, 36.
26. AFM 1-1 (1992), vol. 1, 5.
27. *Ibid.*, vol. 2, 302. This doctrine also identifies on page 116 at least three decisive uses for the capability of airpower forces.
28. James R. Fitzsimmonds, "The Coming Military Revolution: Opportunities and Risks," *Parameters*, Summer 1995, 30.
29. Lt Gen David McCloud, lecture, National War College Class of 1997, 13 March 1997.
30. Chairman, Joint Chiefs of Staff, *Joint Vision 2010* (Washington, D.C.: Joint Chiefs of Staff, 1995), 1-11.
31. *Global Engagement: A Vision for the 21st Century Air Force* (Washington, D.C.: Department of the Air Force, 1997), 7.
32. John A. Tirpak, "The Air Force Today and Tomorrow," *Air Force Magazine*, January 1996, 20.
33. James Blackwell et al., *The Revolution in Military Affairs, Battlefield of the Future: 21st Century Warfare Issues* (Maxwell AFB, Ala.: Air University Press, 1995), 75.
34. "Why the 21st Could Be the American Century," *Parade/Washington Post*, 6 April 1997, 8.
35. Blackwell, 79.
36. *Ibid.*, 78.
37. Michael G. Vickers, *Warfare in 2020: A Primer* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 1996), 7.



Transformational Leaders and Doctrine in an Age of Peace


Searching for a Tamer Billy Mitchell

MAJ WILLIAM C. RYNECKI, USAFR

THIS ARTICLE IS about three interwar transformational American military leaders: Maj Gen John A. Lejeune, Marine Corps commandant; Adm William A. Moffett; and William "Billy" Mitchell. This 20-year interlude between the world wars marked a time of great social,

economic, political, and technological change in the developed world. During that "age of peace," these men individually and collectively saved, changed, and created military institutions and fundamentally redefined the air doctrine of the US Marine Corps, Navy, and Army Air Corps.¹ The doctrinal seeds were

¹I would like to thank Maj John Reese for his invaluable guidance on Adm William A. Moffett, Mr. Budd Jones for allowing me to change course relatively late in the academic year and giving me great sources and encouragement to carry on, and Captain Tomislav of the Croatia Air Force for his invaluable technical assistance.



Upon the fields of friendly strife are sown the seeds that, upon other fields, on other days will bear the fruits of victory.

—Douglas MacArthur

planted in response to the force-on-force carnage of World War I, the ideas germinated in the rough growing season of the interwar period, and the blooming of doctrine during World War II with its actual employment on the battlefields and oceans of the world.

These men are still important and relevant today because they influenced two important areas. The first area is doctrine—how their service should best go about doing its mission when defending the United States. The second area is their influence on organization, training, allocation of resources, force structure, and personnel. These issues are very much a part of the “jointness” debate, particularly the doctrinal debate within the Air Force today.

The fundamental question this article attempts to answer is, In times of great change, how do successful transformational military leaders guide or attempt to guide their services through these periods? To answer this question as the Air Force turns 50 and prepares for a new century, the article follows these three extraordinary leaders from their early years during the interwar period, examines their doctrinal legacy, and parlays their experience into lessons learned.

While not as famous (or infamous) as some “great captains” in military history, John Archer Lejeune, William Moffett, and Billy Mitchell compare favorably with history’s great contributors to military theory and doctrine. They were contemporaries and made their mark by influencing future service organization and doctrine during their lifetime. Also, their influence on service doctrine and

organization did not manifest itself in combat effectiveness or institutional recognition until after all three were long retired or deceased.

During the 1920s, General Lejeune led the Marine Corps through the institutional equivalent of wintering at Valley Forge. He fostered a climate in which the Marine Corps redefined itself to adopt amphibious assault and maneuver warfare doctrine, ultimately saving the corps. Admiral Moffett walked softly but carried a big institutional stick in mastering the Washington political scene as head of the Navy’s Bureau of Aeronautics—a venue that allowed him a secure institutional forum to champion the airplane’s role in revolutionizing naval warfare. And, finally, General Mitchell campaigned relentlessly to heighten what he considered to be institutional neglect of airpower’s potential in warfare. He argued vehemently for an independent air force to effectively manage this new dimension in military technology. But, like many of history’s forward thinkers, Mitchell did not live to see his dream realized.

The journey with these remarkable men begins with John Archer Lejeune. Of the three, Lejeune is the most revered of the trio due to his lasting impact on the daily life of the corps, including the emphasis on extemporaneous speaking by its officers, the establishment of the first professional military journal (the *Marine Corps Gazette*), and the initiation of the tradition of formally celebrating the corps’s birthday on 10 November anywhere in the world where two or more marines gather.



John Archer Lejeune

In the final analysis the size of the Marine Corps will be determined by the American people. We must consider, therefore, how we can retain and if possible increase the affection and esteem in which the Marine Corps is now held by the American people.

—John A. Lejeune

"Somewhere in their history," writes Tom Clancy, "the members of the [Marine] Corps seem to have gotten a reputation for being simple-minded jarheads," when in fact they "have been among the most innovative of the world's military forces."² The man most responsible for initiating that doctrinal innovation and sustaining a measure of intellectual rigor in the service was General Lejeune, the 13th commandant of the Marine Corps.

Although Lejeune grew up poor in post-Civil War Louisiana, he retained happy childhood memories of gathering honey and hunting small game with his dad. In 1881 Lejeune became a military cadet at Louisiana State University. Three years later, he entered the US Naval Academy, Class of 1888. Following graduation, his mandatory cruise, and another set of rigorous exams, Lejeune found that he "nurtured a growing dislike for life at sea and the Navy in particular."³ So he fought hard, showing shrewd political skills that he would employ throughout his career, to secure a commission in the Marine Corps. This was a career decision newly opened to his year group, but it was highly unusual by Navy standards. Lejeune personally made his case to the Bureau of Navigation chief, who ultimately allowed Lejeune to transfer

services but told the persistent cadet, "You have too many brains to be lost in the Marine Corps."⁴

Early assignments took Lejeune to the western United States, the Caribbean and Cuba during the Spanish-American War, and Mexico at the beginning of the Mexican Revolution. Several years later, he impressed many by his performance at Army War College. At the time, he was one of the few marines to attend senior service school. From 1915 to 1917, Lejeune served as assistant to the commandant, where he learned the intricacies of Washington political life. Prior to US involvement in World War I, Lejeune commanded the Overseas Depot at Quantico.⁵

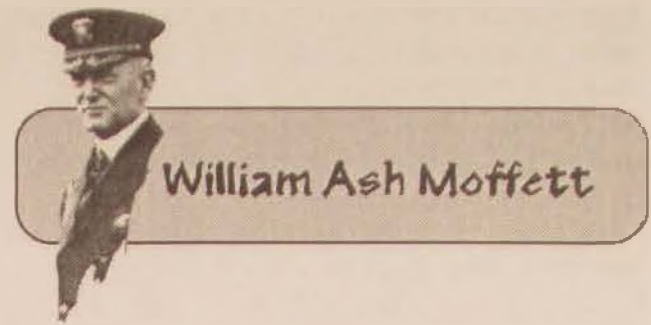
Brigadier General Lejeune arrived in France in June 1918 and quickly made an impact. The American Expeditionary Force (AEF) commander, Gen John Pershing, resisted attempts by the Marine Corps leadership, including Lejeune, to employ the corps in an amphibious role in the Baltic or Adriatic Sea. Pershing argued that "our land forces must be homogeneous in every respect" and advised against their use as a separate division.⁶ Lejeune's reputation among the AEF senior staff, many of whom he knew from Army War College, was impeccable. In Europe, Lejeune commanded the Army's 64th Infantry Brigade and the 4th Marine Brigade before earning his second star and assuming command of the 2d Marine Infantry Division on 28 July 1918.⁷ Even though he would later serve nine years as Marine Corps commandant, Lejeune considered this the pinnacle of his military career. The 2d Division conducted sustained ground operations with distinction in France. Unlike Pershing's style of intimidating subordinates, Lejeune chose to lead by gaining the "loyalty and devotion of his men."⁸ From the Armistice to the middle of 1919, Lejeune's division occupied an area around the bridgehead at Coblenz on the Rhine. He returned from Europe later that year. After meeting with President Woodrow Wilson and the man he would soon replace as Marine Corps commandant, Maj Gen George Barnett, Lejeune re-

turned to Virginia and assumed command of the new Marine training center at Quantico.⁹

It is said that successful military officers, in addition to being extremely capable, have mentors who help them along. In Lejeune's case, his relationship to Secretary of the Navy Josephus Daniels was key. Daniels had admired Lejeune's straightforward and professional style when Lejeune served as assistant to the commandant from 1914-17. In addition, Lejeune had an impressive war record, a great mind, and the leadership skills necessary to run the corps. Daniels had never supported General Barnett as commandant. In fact, Barnett had gotten the job over Daniels's objections. In the summer of 1920, when it appeared that a Republican would capture the White House, Daniels ousted Barnett and replaced him with Lejeune, whom the Democrats supported.

Lejeune's change of command was as unceremonious as it was brief. Before noon on 30 June 1920, Lejeune reported to Barnett's office. Barnett asked him why he failed to inform him of Daniels's plot. Lejeune replied that his hands were tied. Barnett ordered Lejeune to stand at attention in front of his desk. The outgoing commandant charged his subordinate with disloyalty, unprofessional conduct, and being a false friend. At twelve o'clock, Barnett ordered an aide-de-camp to remove one star from his (Barnett's shoulders) and marched out of the office without so much as a handshake with Lejeune.¹⁰

After Warren Harding's election in November, the Senate set aside Lejeune's confirmation until the new president took office. On 4 March 1921, Lejeune, still unsure of his future, headed to the Capitol to attend Harding's swearing-in ceremony. As the crowds gathered, Navy Secretary-designate Edwin Denby approached Lejeune. Denby came right to the point: "General Lejeune, would you serve as Commandant of the Marine Corps during my administration?"¹¹ Meanwhile, across town at the Navy Department, Adm William Moffett was preparing to take over as head of the newly created Bureau of Aeronautics.



Naval aviation's striking power, versatility, and mobility are essential for controlling the seas and littoral areas while defending the fleet and other friendly forces in assigned operating areas against all enemy threats.

—AU-16, *Employment of Navy and Marine Forces*

Like Lejeune, William Moffett grew up in the South and graduated from the Naval Academy when Capt Alfred Thayer Mahan was still on the faculty. Following graduation in 1892, Moffett followed the typical career path of mostly sea duty interrupted with the occasional shore assignment. He made a name for himself in this "Battleship Navy" when he first became aware of the potential of naval aviation for fleet defense as commandant of the Great Lakes Naval Training Center for naval aviators and mechanics. At Great Lakes, Moffett earned a reputation as a brilliant administrator during the naval aviation buildup for World War I. He became good friends with chewing-gum magnate William Wrigley Jr. and aviation trainee Joseph Pulitzer, editor of the *St. Louis Post-Dispatch*. Both would later help Moffett keep his job as head of the Bureau of Aeronautics. By early 1918, some two thousand aviation students were in training.¹²

After the war, Moffett gained a key assignment as commander of the battleship *Mississippi*. While skipper of the *Mississippi*, he witnessed the battleship *Texas* operating with "flying-off platforms" that enabled small aircraft to be flown off the ship. But the wheeled planes could not recover on the platforms, having to either land ashore or ditch alongside the ship after completing their missions. Not to be outdone, Moffett had his men build flying-off platforms on his ship. The *Missis-*

issippi operated with a pair of Sopwith Camels while in Guantánamo, Cuba.¹³ The dual experience at the Great Lakes Naval Training Center and the aircraft tests off the battleship inspired Moffett, who was slowly becoming a naval airpower enthusiast.

In early 1919, Lt Comdr Jerome Hunsaker returned from Europe aboard the same ship as Army general and airpower advocate Billy Mitchell. Hunsaker warned his superiors that Mitchell meant business. In early April that year, Mitchell appeared before the Navy's General Board and testified that warships could not effectively defend themselves from air attack and that land-based aircraft could defend the nation's coastlines out as far as one hundred miles.¹⁴ That claim rankled the stodgy naval leadership. But more alarming to naval aviators were Mitchell's calls that "they [the Navy] and their airplanes . . . be incorporated into an independent air force."¹⁵ For Moffett, Mitchell's assertions represented an institutional slap in the face regarding the Navy's institutional prerogatives to defend the fleet with its organic, land-based air arm and the evolving aircraft carrier.

After he relinquished command of the *Mississippi* in December 1920, Moffett was selected by Adm Robert Coontz, chief of naval operations, to be director of naval aviation. The job carried little administrative authority as part of the all-powerful Bureau of Navigation. That soon changed. Mitchell's calls for a separate air arm, combined with congressional will to focus on the development of military aviation, brought the issue front and center in Washington. The new Harding administration supported congressional efforts to establish a "centralized Bureau of Aeronautics in the Navy Department." Edwin Denby, the new secretary of the Navy, considered the bureau a vital necessity. By April 1921, Moffett, who came into the job somewhat ambivalent about airpower, was soon a true believer in naval aviation and testified before Congress in support of the separate bureau. An opponent of Mitchell, Sen. Miles Poindexter (R-Wash.) made an impassioned speech on the Senate floor supporting the

bureau. In mid-July, both houses passed the bill, and President Harding signed the law that created and established in the Department of the Navy a Bureau of Aeronautics headed by a chief and appointed by the president for a four-year term. After Harding appointed Moffett to his first term, Presidents Calvin Coolidge and Herbert Hoover reappointed him.¹⁶

Moffett realized relatively late the significance of airpower in both its offensive role and as a weapon for fleet defense. In fact, many historians argue that Billy Mitchell was responsible for making Moffett and the Navy what Mitchell's biographer Alfred Hurley calls being "air conscious." No matter the real reason for his conversion, Moffett, armed with his newfound authority, was more than ready for the battle with Mitchell to decide institutional control over this emerging technology.

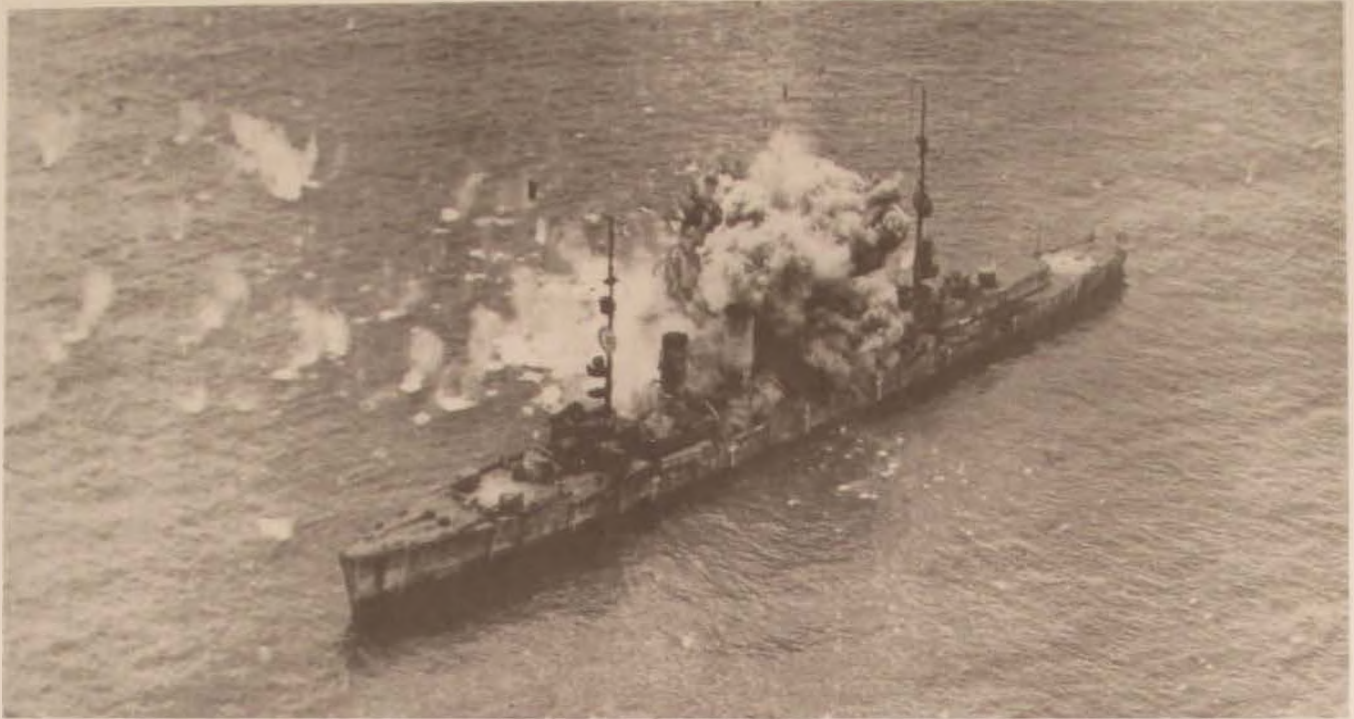


William "Billy" Mitchell

A man might be a flyer and still be an egregious ass. In fact, I think there have recently been some instances of that kind.

—Sen. Miles Poindexter

Mitchell, born in France in 1879, came into a world of some comfort. His grandfather was a self-made millionaire and his father a United States senator—circumstances Mitchell would later call a "fair foundation" upon which he built his aviation career.¹⁷ Searching for an active life, Mitchell found his niche in the Army during the Spanish-American War and gained a commission in the First Wisconsin Volunteer Signal Company in the Signal Corps, the Army branch that would soon oversee the evolving airplane. Unlike Moffett and Lejeune, who earned their commissions at the prestigious and rigorous Naval Academy,



General Mitchell's bombing tests. Many historians argue that Billy Mitchell was responsible for making [Admiral] Moffett and the Navy "air conscious."

Mitchell obtained his commission with relative ease. "Influence," he once wrote, "cuts a larger figure in this war than merit."¹⁸ So from his earliest experiences, born into a family of wealth and receiving a commission through influence, one can trace the roots of Mitchell's proclivity for getting his way and having a lack of respect for institutional prerogatives.

Mitchell earned his wings at his own expense in early 1917. But it soon paid dividends. Either through merit, extraordinary luck, or his family's political influence, the War Department sent him to Europe as an aeronautical observer. He arrived in France just two weeks before the United States declared war on Germany. During the war, Mitchell commanded an Army engineer regiment in General Lejeune's 2d Division and headed the Army Air Service in France. He was less interested in regular Army command of troops, focusing instead on learning more about the application of airpower in war. He also became somewhat of an Anglophile. "In questions ranging from their grooming of horses to their worldview, Mitchell believed

the British to be vastly superior."¹⁹ The impressionable Major Mitchell flattered Maj Gen Hugh Trenchard, commander of the Royal Flying Corps in France, into revealing his views on the role of the air weapon of the present and of the future. Mitchell even took on some of Trenchard's blunt personality traits.

Alfred Hurley writes that the British general believed intensely, and influenced Mitchell's belief, in the air offensive and that command of the air over the battlefield was possible only through "relentless and incessant offensive."²⁰ Other early theorists also influenced Mitchell. Giulio Douhet and Basil H. Liddell Hart claimed strategic airpower was "the only solution to the grisly indecisiveness of ground warfare."²¹ After the Royal Air Force (RAF) was created in 1918, Winston Churchill, minister for war and air, declared that "the first duty of the RAF is to garrison the British Empire."²² The RAF was initially created to hold down costs of maintaining order in the British Empire, although another principal employment doctrine the RAF developed between the wars stressed independent air operations against

the enemy's material and moral resources. Heavily influenced by Trenchard, Douhet, Liddell Hart, and by RAF operations during the war and after, Mitchell began to form ideas on how airpower applied to defending the United States.

Mitchell drew many of his ideas from Trenchard, especially the fundamental conclusion that airpower was primarily an instrument for offensive, not defensive, employment. Mitchell embraced Trenchard's concepts on air supremacy and demonstrated them as chief of the Air Service, 1st Brigade. By the time of the Saint-Mihiel offensive of September 1918, Mitchell was chief of the Air Service, First Army, American Expeditionary Force.²³

During the war and shortly after, four fundamental points (while not defined as such at the time) became clear in Mitchell's mind and would guide his zealous advocacy in the years to come. First and second, he was convinced the airplane represented a military technology revolution which would, in turn, prompt a revolution in military affairs. Third, this new technology must be used offensively to gain command of the air. And finally, an independent air force would be necessary to consolidate the revolutions and theory into sound employment doctrine. Armed with this revelation, Mitchell returned home from the war like an evangelist who had seen the light and was more than ready to preach the faith to the ignorant.

Mitchell kept his brigadier general rank after the war. But regardless of Mitchell's success, the War Department considered him a loose cannon and placed him under the supervision of a nonflyer, Maj Gen Charles Menoher, the new director of the Air Service.

Disaster and Technology: The Roots of Doctrine after the Great War

This war has marked us for generations. It has left its imprint upon our souls. All those inflamed nights of Verdun we shall rediscover one day in the eyes of our children.

—Artillery Lieutenant de Mazonod

The human suffering and physical devastation personally witnessed by Mitchell and Lejeune in Europe, and watched closely by Moffett at Great Lakes, impacted them as much, if not more, than the European political and military leaders who had so badly miscalculated. The three men were determined that if another world war came, their service would not repeat such carnage. Therefore, the theoretical approach to war and ways to incorporate emerging land and air technology had to be explored. The climate for seriously exploring these issues existed in the interwar period due to the rare convergence of disaster and technology—a convergence that would profoundly impact Marine Corps amphibious doctrine as well as Army and naval aviation doctrine.

It seemed like a good idea to the European powers when they jumped naked into the "briar patch" in 1914. But the human and material costs of the war were staggering. Considering all those killed or wounded in action and civilian deaths resulting from disease, famine, privation, and wartime birth defects—the final casualty list for the war and beyond might have been as much as 60 million people. Some economists have calculated the war cost the world economy \$260 billion, which "represented about six-and-a-half times the sum of all the national debt accumulated in the world from the end of the eighteenth century up to the eve of the First World War."²⁴ The reverberations of that war were felt most strongly in Europe, where leaders pledged it would never happen again. The war had also profoundly changed America. The nation was now a reluctant world power.

For some, the Great War represented a chasm between the simple nineteenth-century world of their youth and the industrialized postwar "Roaring Twenties" America. Writers like Willa Cather and F. Scott Fitzgerald lamented the loss of their uncomplicated world. Cather expressed that feeling best in her Pulitzer-prize-winning novel *One of Ours*, about Nebraskan farm boy Claude Wheeler. "The army, the war, and France," she wrote, "combined to give Claude the youth he had never

had." When he had had it, he might die. Indeed, Willa Cather insists it was best he should. When he is killed in the fall of 1918, it was "believing his own country is better than it is, and France better than any country can ever be. These beliefs would have perished had he seen the postwar world."²⁵ Postwar America was a place of extraordinary social, economic, and technological change. It was "an age of peace."

Billy Mitchell hardly lamented the passing of the stuffy nineteenth century. He celebrated the new age of high technology and all of its possibilities. Mitchell was a realist who believed the war to end all wars did not live up to its name and that the so-called peace treaties that ended it did not herald a return to world peace. His experience in the war convinced him that in the next world war, which was inevitable, airpower would prevent the 1914–18 carnage from reoccurring.

"During the 1920s, the most sensational episodes in American aviation were Mitchell's demonstration in 1921 of how bombers could sink battleships and Charles Lindbergh's flight across the Atlantic in May 1927."²⁶ In discussing Billy Mitchell's impact during the volatile postwar era, historian Michael Sherry asked, "How could individualism persist in the wake of mass war and in the midst of mass culture?"²⁷ In general, he says, the American public came to accept the bomber as an instrument of warfare due in part to the heroics of Mitchell and Lindbergh. Although the concept of future aerial war was purely abstract for most Americans, they felt a sense of security in airpower, and their attraction to it deepened during the 1920s.²⁸

"Almost from the beginning," writes Isaac Don Levine, another Mitchell biographer, "Mitchell's struggle for air power took on the character of a challenge to sea power . . . especially the battleship."²⁹ Here lies the crux of the institutional battles for control of whether the Army and Navy would maintain separate air arms or whether airpower would be controlled by an independent air force. President Harding encouraged the military to plan new strategies and move into new weap-



In short, the Air Force needs a tamer Billy Mitchell.

ons development, especially after limits on capital ship development were agreed to by the world naval powers participating in the Washington Naval Conference, which his administration had sponsored. Harding became a strong advocate of airpower and was intrigued by Mitchell's ideas.³⁰ Already the line was being drawn all over the world between the two schools of thought on the issue of capital ships. Mitchell's vision of national defense deepened the line, and his drive to demonstrate that the battleship was a weapon of the past was calculated to bring the conflict to a head.³¹

Mitchell's public campaign for government-sponsored bombing tests on Navy battleships finally paid dividends in early 1921. The *New York Times* editorialized that the nation could not afford to ignore Mitchell's claims.³² Mitchell won this battle with the Navy but would lose the ensuing bureaucratic war. In addition, Mitchell's demands for bombing tests woke up the Navy to the

significance of aviation—to what Alfred Hurley calls the Navy's "aviation consciousness." In pursuing this new consciousness, the Navy had the clear advantage in institu-

Mitchell's battles with Moffett and the Navy and his public airpower advocacy eventually led the Army to successfully marginalize his influence within the institution by trying him for insubordination.

tional and bureaucratic infrastructure to successfully battle Mitchell. In July 1921, Congress authorized the Bureau of Aeronautics to be headed by Admiral Moffett, who proved to be a shrewder campaigner than Mitchell and one of his most formidable antagonists.³³ While the airplane fascinated Mitchell and most Americans, it heightened Navy awareness to the implications of airpower to fleet defense and caused huge fissures within the Navy bureaucracy. Moffett's biographer, William Trimble, argues that as chief of the Bureau of Aeronautics, Moffett's considerable political skills enabled him to successfully wage a three-front campaign to make Washington more conscious of naval air.³⁴

He had first to confront some of the lower-ranking true believers like Henry Mustin and Kenneth Whiting, both naval aviators and "ardent converts to aviation and unswerving in their certainty that the airplane would revolutionize naval warfare."³⁵ Some of them advocated establishing a separate aviation corps within the Navy, which Moffett opposed. He felt separation would prevent the full integration of aviation into the fleet. Then there were the "battleship admirals" who scorned naval aviation and ran the all-powerful Bureau of Navigation, which had a virtual stranglehold on personnel selection, assignment, and promotion. Finally, on the third front was Billy Mitchell. Mitchell argued that the airplane and the airship brought an

entirely new dimension to warfare and that aviation alone could fight and win the nation's wars. He believed that long-range bombers had such enormous destructive capacity that neither navies or armies could resist it. Mitchell believed strongly that to fully realize airpower's military potential, it was necessary to have a separate air force "supplied with the most up-to-date equipment, flown by trained air personnel, and led by officers who were unencumbered by ties to either the Army or the Navy."³⁶

During the tumultuous 1920s, Moffett deftly choreographed the growing airpower debate in the Navy's favor by simultaneously succoring his naval aviation colleagues, soothing the admirals who were battleship curmudgeons, and bureaucratically outmaneuvering Billy Mitchell.

There was no professional love lost between Moffett and Mitchell. Their most public confrontation came during the Washington Naval Conference when they both served on a special subcommittee to consider the quantitative and qualitative limitations of aircraft. As Moffett recalled, "When Mitchell breezed in with a secretary, all ready to take the chair, I inquired by what authority he pretended to assume the chairmanship. He mumbled something about rank. 'Since when,' I demanded, 'does a one-star brigadier rate a two-star admiral?' That stopped him."³⁷ To keep him out of more mischief, Mitchell was whisked off to Europe on an inspection tour of military aviation facilities. Maj Gen Mason Patrick represented Army aviation for the balance of the conference.³⁸

The Doctrine Articulated

The history of warfare is the history of doctrine. . . . We have a doctrine for landing on beaches, a doctrine for bombing, a doctrine for AirLand Battle. . . . What is missing . . . is a doctrine for information.

—Paul Strassmann

Few doubt Mitchell's genuine belief in the efficacy of strategic airpower to strike enemy

vital centers and the need for an independent air force to most effectively employ the newest weapon the military instrument possessed. Nonetheless, Mitchell's battles with Moffett and the Navy and his public airpower advocacy eventually led the Army to successfully marginalize his influence within the institution by trying him for insubordination. Mitchell knew that his public statements left the Army little choice but to act. He calculated that the publicity of a trial and beyond, although leaving him virtually irrelevant within the institution, would further his goals for airpower and allow him the freedom to speak his mind through the media and organizations such as the American Legion and what we know today as the Air Force Association. At the same time, Lejeune and Moffett, while equally frustrated by the bureaucratic tangling over their attempts to shape and influence service doctrine regarding amphibious warfare and naval aviation, successfully made their case within institutional boundaries.

As Sir Michael Howard points out in his brilliant Chesney Memorial Gold Medal Lecture in 1973, "The military profession is, like other professions, also a bureaucracy, and bureaucracies accommodate themselves with great difficulty to outstanding original thinkers. Such people tend to be difficult colleagues, bad organization men."³⁹ Mitchell was well ahead of his time in advocating strategic bombing, in warning of the threat from Japan, in recommending a department of national defense, and in encouraging jointness. While none of these ends were evidence of original thinking, much of what he advocated had considerable merit and was worth serious consideration. But his means in advocating and publicizing his views were fundamentally flawed.

As late as 1928, the Army General Staff viewed airpower as essentially an auxiliary function and gave observation planes priority over bombers at budget time. Mitchell saw it quite differently. Influenced as he was by Giulio Douhet and Hugh Trenchard, Mitchell did not deny the usefulness of observation, pursuit, and short-range bombardment, but

believed that military aviation's greatest potential lay in its offensive capability. The outcome of a war could be decided by long-range bombers.⁴⁰

His brash style when advocating airpower while on active duty continued afterward in a series of articles, speeches, and radio broadcasts. Mitchell argued that "the air force has ceased to remain a mere auxiliary service for the purpose of assisting an army or navy in the execution of its task."⁴¹ In two articles in *Collier's* magazine, he made an impassioned case for an air force to deny enemy air attacks and used New York to illustrate his vital centers theory. Mitchell pointed out that attacks on civilian populations would have enormous impact on the outcome of a conflict and should be considered a key center of gravity.⁴²

Even with Mitchell officially out of the Air Service, students and faculty at the Air Corps Tactical School (ACTS) at Maxwell Field, Alabama, agreed with Mitchell's assertions of striking the enemy's vital centers instead of undertaking massive battles of attrition. ACTS theorists argued that the key to victory in modern warfare relied upon destruction and/or paralysis of a country's supporting infrastructure. The most suitable objectives for this purpose were the hostile air force, troops, supplies, lines of communication, and industrial and transportation centers. ACTS integrated the theories of Douhet, Trenchard, and Mitchell and added a rigorous system analysis of an adversary's ability to conduct and sustain war, thus ultimately creating its strategic bombardment theory.⁴³

Because Mitchell could no longer directly influence airpower theory after leaving the Army, ACTS became the key link that translated his and other early airpower theorists' ideas into doctrine. The four ACTS instructors who wrote Air War Planning Document-1 (AWPD-1) in just nine days in 1941 made their own theoretical contributions to the document but relied heavily on the ideas of Mitchell and others to flesh out their recommendations. The plan, however flawed, became the blueprint for the generally successful employment of airpower in World War II.⁴⁴

Mitchell's efforts to impact airpower theory as a uniformed officer, while unorthodox, undoubtedly generated much-needed debate on the subject among the sometimes moribund War and Navy Department bureaucracy. This is best illustrated by a cartoon in Mitchell's *Winged Defense*. It shows War and Navy Department bureaucrats in bed together fast asleep, oblivious to the sun rising outside their window announcing "the flying age" as hundreds of airplanes zoom overhead.⁴⁵ His dream of an independent air force would not come true until 11 years after his death on 17 February 1936. "Those who saw him in his last days," Hurley concludes, "reported that he remained adamant to the end."⁴⁶

As adamant as Mitchell remained in calling for the creation of an independent air force, Marine Corps commandant Lejeune dedicated all his energies to saving the Marine Corps from the cutting-room floor, thanks in large part to Maj Earl H. "Pete" Ellis, "a brilliant but behaviorally erratic strategist."⁴⁷

Ellis's 1921 paper, *Advanced Base Operations in Micronesia*, advocated amphibious attacks to secure advanced naval bases. It shocked the conventional world. Andrew F. Krepinevich Jr. offers this analysis:

[Ellis] argued that the Marine Corps' future did not rest upon its ability to conduct sustained ground operations, as it had done with distinction in France during World War I. Nor did it lie in earlier missions, such as the *defense* (his italics) of advanced bases for the Navy. Rather, Ellis argued that in the future the Marines would confront fundamentally new and different kinds of strategic and operational challenges. Principally, he was concerned about the potential threat the Japanese Empire posed to American interests in the Far East. In a conflict with Japan, the Marines' mission would be to assault heavily defended Japanese bases and capture them, thereby permitting the United States to project its power across the Pacific.⁴⁸

Coming just six years after the British debacle at Gallipoli, Ellis's vision "might have appeared more akin to madness."⁴⁹ Far from scrapping Ellis's ideas, Lejeune was intrigued by the possibilities of amphibious warfare

and, upon taking over as commandant, created the Expeditionary Force in 1921, based at Quantico, Virginia. For the next three years, the Expeditionary Force maneuvers were an annual social and military event.

The 1922 exercise took place at Gettysburg, Pennsylvania, and was observed by President Warren G. Harding, Gen John J. Pershing, and Assistant Navy Secretary Franklin D. Roosevelt. At Gettysburg and other Civil War sites, Marines carefully reenacted the Civil War action, and then demonstrated how the battle would be fought with modern weapons. A year earlier, the Expeditionary Force set out from Quantico for the Civil War site of the Battle of the Wilderness. During the so-called Wilderness Maneuvers, Marines delighted the crowds with an occasional aerial or tank attack. Capt John H. Craige, writing in the *Marine Corps Gazette*, summed up the corps's feeling after the Wilderness Maneuvers: "Considered from many viewpoints the manoeuvres [sic] proved completely successful, and the highest value not only to the force at Quantico, but to the Corps as a whole. In the first place, the exercises furnished a sensational demonstration of the fitness of the Marine Corps and its readiness to take the field in any emergency, conducted under the very eyes of the President, his Cabinet and of Congress."⁵⁰

Even though the corps would be unable to continue annual training of the Expeditionary Force concept due to its requirement to support operations ranging from chasing Nicaraguan guerrillas to garrisoning forces in China, the Marines by late 1924 had essentially sold Lejeune's Expeditionary Force to the Coolidge administration and a stingy Congress.⁵¹

Lejeune espoused the concept of amphibious attacks to secure advanced naval bases and made it "the cornerstone of the Corps' operational concept for the future."⁵² The current commandant, Gen Charles C. Krulak, says that from the combined efforts of Lejeune and the Fleet Marines "came the foundation of the seminal document, *The Tentative Manual for Landing Operations*, from which the Marine Corps developed the doctrine, tactics, and equipment requirements that allowed the Ma-

rine Corps and the US Army to successfully project amphibious power in every theater of World War II."⁵³ Fleet Marine Forces Manual (FMFM) 1, *Warfighting*, codifies Krulak's comments into clear doctrine: "The Marine concept of winning . . . is a doctrine based on rapid, flexible, and opportunistic maneuver." Maneuver "shatters the enemy's cohesion through a series of rapid, violent, and unexpected actions which create a turbulent and rapidly deteriorating situation with which he cannot cope."⁵⁴

Finally, the contributions of Adm William Moffett to the Navy's overall doctrine of fleet defense and force projection rank with the contributions of Mitchell and Lejeune. Moffett led the Navy's Bureau of Aeronautics for 12 years as its chief proponent for fleet aviation and "maintained the delicate balance of personal and organizational priorities better than any other military officer of his generation."⁵⁵ From his early battles with Mitchell, the Washington Naval Conference, the construction of the carriers *Langley*, *Saratoga*, and *Lexington* through the depression years and into the first days of the Roosevelt administration, Moffett operated adroitly around the civilian and military bureaucracy in Washington and knew how to get what he wanted.

In September 1925, two incidents shook naval aviation. The crash of the airship *Shenandoah* killed most of its crew, and a PN-9 en route to Hawaii went missing for a few days. Billy Mitchell, who had been exiled to Fort Sam Houston in San Antonio, Texas, reacted to the incidents by unleashing his pent-up frustration. Mitchell said the crashes demonstrated "the incompetence, criminal negligence and almost treasonable administration of our national defense by the Navy and War Departments." Two weeks later, in stark contrast to Mitchell, Moffett appeared before the Navy's General Board. In his soft Carolina Low Country style, he reiterated the fundamental soundness of his long-term plans for naval aviation and assured the board that lessons had been learned from these accidents. It represented a setback, not the end of naval aviation. These comments soothed the board's anxieties during a difficult period

in naval aviation when the public spotlight shown brightly on the growing pains of military aviation generally.⁵⁶

At that same hearing, Moffett discussed how he planned to equip the *Saratoga* and *Lexington*.⁵⁷ "He wanted the ships to carry significant numbers of strike aircraft organized into two bomber squadrons for each carrier."⁵⁸ Moffett believed that the *Lexington* in particular embodied the principle of the offensive in naval warfare. "I am convinced," he said, "that a bombing attack launched from such carriers from an unknown point, at an unknown instant, with an unknown objective, cannot be warded off" by any conventional defensive measures.⁵⁹ It became clear as the *Lexington* and *Saratoga* entered service in 1927 that there was an offensive role for the carrier beyond only supporting battleships in fleet engagement. In their November 1927 report, the General Board formally acknowledged as much, concluding that "the aircraft carrier, operating fighters and bombers well in advance of the battle fleet, was likely to play a major role in future naval actions."⁶⁰

Moffett's ideas are still applicable today in discussing employment of naval air. "Carrier or Amphibious Ready Group-based aircraft may well be the first, and perhaps the only, tactical aircraft suitable and available for employment in an emergency situation arising in a remote area of the world."⁶¹

All three men had differing styles and approaches to essentially the same problem: redefining how their service would employ forces or weapon systems in the next war that all three men knew was inevitable. But it was probably Billy Mitchell, the most recalcitrant of the trio, who was thinking way out-front. While he espoused a separate air arm, he was also thinking jointness. Among all his rhetoric are some jewels like warning of a Japanese air attack on Hawaii and recommending a national department of defense rather than separate services each with a cabinet-level secretary. Mitchell might have approved of the Goldwater-Nichols Act, which further weakened the power of the service secretaries and chiefs of staff in favor of empowering regional war-fighting commanders. As the new cen-

ture approaches, where does the Air Force stand in what is truly becoming what Mitchell envisioned, a joint US national defense force?

In 1947 the newly independent Air Force won the battle for hearts and minds but lost the doctrine war.

Doctrine in the New Century

Any Air Force which does not keep its doctrine ahead of its equipment, and its vision far into the future, can only delude the nation into a false sense of security.

—Hap Arnold

General Arnold's comments more than a half century ago still ring true today. What can be learned from studying how other leaders in other times in other services faced doctrinal challenges in similar transformational times? A great deal. The end of World War I and the end of the cold war have many similarities worth noting. American taxpayers are demanding value for money in the services they pay for and, in an "age of peace," defense expenditures are closely scrutinized. As Carl Builder has pointed out, the Department of Defense is no longer in a seller's market where a bill for the high cost of defense is simply presented to the American taxpayer for payment. It is now a buyer's market, where more frugal taxpayers have set a limit as to how much they will pay for defense in a post-cold-war world.⁶² Today's Air Force must be cognizant of this paradigm shift in taxpayer attitudes.

The United States is moving from a manufacturing base to an information-based economy, and, as in the interwar period, the militaries must be able to adapt to warfare and tactics unknown in the twentieth century. To make this transition with as little disruption as possible, all services, particularly the Air Force, must embrace technological change but at the same time anticipate what Samuel P. Huntington predicts. He says, "Cultural

communities are replacing Cold War blocs and the fault lines between civilizations are becoming central lines of conflict in global politics."⁶³ That means future wars, perhaps internecine struggles within nation or blocs, will not necessarily be solved by technology.

After World War II, the newly independent Air Force broke into two camps, the Strategic Air Command and the Tactical Air Command, straying away from theory and doctrine toward an allegiance to the weapon system or "career field." In 1947 the newly independent Air Force won the battle for hearts and minds but lost the doctrine war. The efforts of Lejeune, Moffett, and Mitchell can be useful in the Air Force's attempt to reconcile its service doctrine with the logical and statutory requirements that it be a joint capability. In that sense, it should be simpler than the bureaucratic wrangling that occurred in the 1920s and 1930s. But it is not that simple. The very definition of doctrine is debatable, and doctrine as a topic in the Air Force is often an uncomfortable conversation.

I. B. Holley's best definition of doctrine in his voluminous writing on the subject is simply "that mode of approach which repeated experience has shown *usually* works best" (emphasis in the original).⁶⁴ Gen Ronald Fogleman, in an address last year to the Air Force Air and Space Doctrine Symposium, took Holley's writings on airpower doctrine a step further into the joint arena. "Air Force doctrine," argued Fogleman, "should provide an integrating framework to tie together the various elements of the Air Force team, to show how these elements work together, and provide a basis for integrating airpower with other forms of combat power in joint operations."⁶⁵ This is a tall order for a uniformed service with few leadership development opportunities and a corporateness more enamored with technology than relevance.

The United States Air Force of the late twentieth century faces a challenge for its very survival as an independent service. Richard Szafranski and Martin Libicki argue that "tomorrow's Air Force must posture itself to command the 'high ground' . . . the 'infosphere.'"⁶⁶ They go on to say that "central

to a redefinition of the Air Force is [a clear understanding of] what it means to be an airman."⁶⁷ This basic redefinition must be addressed before an "infosphere" Air Force can be achieved.

To survive, the institution must pursue two seemingly incompatible objectives simultaneously: become a lean and traditional military organization operated like an innovative, profit-making private corporation. In order to meet that challenge and sustain the necessary changes, the Air Force needs transformational leaders to take the organization where it would not otherwise go on its own. The service must author and publish a widely accepted, thoroughly credible, easily understandable, and user-friendly joint airpower doctrine that can be articulated clearly and convincingly by everyone in the organization. Military doctrine watchers have argued that doctrine "gives commanders standards for a common, effective approach to warfare."⁶⁸ But, more importantly, its worth corresponds directly with how well it is known and understood.

Perhaps the Air Force as an institution, as presently organized and constituted, is incapable of producing such transformational leaders or joint doctrine to guide it. If so, the organization must change. It must dramatically change and cultivate leaders to develop, shape, and institutionalize airpower doctrine to a point where its discussion comes as natural to everyone in the Air Force as executives

at American Express talk about the credit card industry. The leaders of the twenty-first century must articulate Air Force core competen-

Perhaps the Air Force as an institution, as presently organized and constituted, is incapable of producing such transformational leaders or joint doctrine to guide it.

cies to its three core constituencies: shareholders (the American people); board members (the administration and Congress); and employees (the officers, NCOs, and civilians). Air Force leaders must be cultivated with a sound joint doctrinal foundation because personalities and doctrine matter in shaping an organization's success or failure, particularly during this transformational post-cold-war period.

Only strong, transformational leadership with the necessary political skills to navigate the institutional minefields that lay ahead can convince the war fighter, the administration, and Congress of airpower's doctrinal soundness in the joint arena. They, in turn, must convince the taxpayers of airpower's intrinsic value to the nation's defense. In short, the Air Force needs a tamer Billy Mitchell. □

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Mediocrity knows nothing higher than itself; but talent instantly recognizes genius.

—Arthur Conan Doyle



The Development of Royal Air Force Strategic Bombing Doctrine between the Wars

A Revolution in
Military Affairs?

DR. SCOT ROBERTSON

The strategy and operations of any war can be understood only in the light of conditions of the ten or twenty years before its beginning. Technology, organization, doctrine, training, command and staff appointments—all the essentials of action in war—are put in place and developed in peacetime. The testing experience of combat will bring about change, but prewar elements continue to affect many events throughout the longest of conflicts.

—Peter Paret

[The military] is like a sailor navigating by dead reckoning. You have left the terra firma of the last war and are extrapolating from the experiences of that war. The greater the distance from the last war, the greater become the chances of error in this extrapolation. Occasionally there is a break in the clouds: a small-scale conflict occurs somewhere and gives you a "fix" by showing whether certain weapons and techniques are effective or not: but it is always a doubtful mix. . . . For the most part you have to sail on in a fog of peace until at the last moment. Then, probably when it is too late, the clouds lift and there is land immediately ahead; breakers, probably, and rocks. Then you find out rather late in the day whether your calculations have been right or not.

—Sir Michael Howard

PETER PARET'S COMMENT regarding the factors that affect strategy and operations in war—the idea that they have their roots in one or two preceding decades—is particularly apropos today. From Vancouver to Vladivostok and from Tallinn to Tirana, military establishments are wrestling with complex factors that will influence the way armed forces organize, plan, and equip themselves to fight future battles.

This planning environment is shaped by two competing, some might even say contradictory, considerations. The first is the aftermath of the cold war, which brought with it an understandable desire to reduce the expense associated with large and technologically sophisticated armed forces. This desire is neither new nor even remarkable. It has been a hallmark of the aftermath of most modern conflicts. The second shaping consideration arose from the conduct of the Persian Gulf War. Military establishments around the world watched the performance of the coalition force in awe. This performance was characterized by a degree of technological sophistication, married to doctrinal and operational concepts, that resulted in a new vision of what high-intensity, fast-paced operations of the future might entail.

This planning environment, with its twin imperatives of demobilization and modernization, which now occupies the collective minds of armed forces across the world, is not

new. In fact, it is a theme that has been played out many times before. Following the conclusion of most major conflicts of the past few centuries, armed forces have confronted the two problems of reducing their establishments and at the same time adjusting to new realities.

In the contemporary United States and elsewhere, we are witnessing a vigorous debate, driven by the desire to master the problems of reduction in force structure, while at the same time assuring that armed forces make the best use of technological and doctrinal changes brought to light in the Persian Gulf War. This debate turns on the prospects for what has come to be termed a revolution in military affairs (RMA), defined as "a major change in the nature of warfare brought about by the innovative application of technologies which, combined with dramatic changes in military doctrine, and organizational concepts, fundamentally alters the character and conduct of operations."¹ So far, however, the debate has not reached definitive conclusions. As Jacob Kipp noted recently, "the exchanges have become increasingly intense. The two positions, pitting advocates against doubting Thomas's, contrast a revolutionary interpretation as opposed to an evolutionary one."² Undoubtedly, this debate will continue in the years to come.³ Given the ongoing debate and the uncertainty regarding its resolution, we would be wise to pause and con-

sider the factors that will drive the debate, and that will come together to influence its outcome. For this purpose, it may be instructive to draw on historical experience, whose record is at least somewhat clearer.

Such a use—or perhaps misuse—of history may be frowned upon in some quarters. To a certain extent, this is a valid criticism. As Sir Michael Howard has observed, “It is safer to start with the assumption that history, whatever its value in educating the judgement, teaches no ‘lessons,’ and the professional historians will be as sceptical of those who claim that it does as professional doctors are of their colleagues who peddle patent medicines guaranteeing instant cures.”⁴ Although this is a sound cautionary proscription, Sir Michael recognized that in the military context, there are unique circumstances in which historical study can prove not only helpful but perhaps indispensable. He characterized the situation confronting the military profession as one in which “there are two great difficulties with which the professional soldier, sailor, or airman has to contend in equipping himself as a commander. First, his profession is almost unique in that he may only have to exercise it once in a lifetime, if indeed that often. . . . Secondly the complex problem of running a [military service] at all is liable to occupy his mind and skill so completely that it is easy to forget what it is being run for.”⁵

Faced with this enigmatic situation, armed services find it difficult to consider future requirements removed from the hurly-burly of day-to-day problems. In the absence of the opportunity to hone skills and judgement on the battlefield, military services need to look to their equivalent of the laboratory, which in some cases is derived from the body of past experience—that is, history. The study of history can suggest relevant questions to ask, enumerate certain principles worthy of further investigation, and—perhaps most importantly—sharpen the ability to make judgements regarding complicated and incomplete information. One can examine numerous historical instances for insights into the problems associated with an RMA. One such historical case study is that of the development

of strategic bombing doctrine in the Royal Air Force (RAF) between the two world wars.

Development of Strategic Bombing Doctrine

The day may not be far off when aerial operations, with their devastation of enemy lands and destruction of the industrial and populace centres on a vast scale, may become the principal operations of war, to which the older forms of military operations may become secondary and subordinate.

—Smuts Committee Report, 1917

Future weapons will be able to strike enemy forces at great distances. In mid- or high-intensity combat, it may not always be necessary to physically occupy key terrain on the ground, vital airspace, or critical chokepoints at sea in order to control them. While wars will still be won only when soldiers occupy the enemy's territory, it may not be necessary in every case to “close with” the enemy in order to destroy him.

—Adm David Jeremiah, 1993

From the last months of the Great War, down to the outbreak of the Second World War, the notion of strategic bombing had held out great prospect and at the same time had cast a pall. On the one hand, the development of strategic bombing forces had apparently heralded a new era in which war would become a simpler task. Extensive land and naval forces were no longer considered necessary. Victory would go to the side that could master the skies and take the war to the very heart of the enemy nation. On the other hand, fear of a strategic bombing duel exercised a paralyzing restraint on British foreign policy.⁶ That fear, furthermore, weighed heavily on the minds of British politicians and the public alike. Once it became evident that war loomed on the horizon, air war terrified people most. They would have to make preparations, both to prosecute and endure a strategic bombing duel.

Even though Bomber Command eventually undertook a massive nighttime area bombing campaign against Germany during



At the outbreak of the Great War, expectations of what aircraft might contribute were modest. The general consensus was that aircraft could best serve as observation platforms, but beyond that, little was expected.

the Second World War, the results of that campaign were neither decisive nor consistent with prewar expectations. How was it that this transpired? There are no short, simple answers to this question. What emerges from an examination of the development of the idea of strategic bombing in the British context is a complex web of competing explanations. Yet, when the many strands are unravelled, the pattern that remains is of a disjunction between theory and doctrine. In that sense, then, one might reasonably suggest that this was a case of a *revolution* gone awry.

This article focuses on the means by which the RAF sought to advance its *revolutionary* ideas regarding strategic bombing. It endeavors to consider the complex interrelationship of forces and factors that led the RAF to pursue its particular approach to strategic airpower. Prior to delving into this, however, one must set out a framework for this analysis. Without one, the overwhelming number of factors to consider would make the task very nearly impossible.

In a recent study on military innovation, Alan Beyerchen developed a simple schematic that can be extremely helpful in untangling

the complex and often overlapping factors at play. This schematic seeks to establish a hierarchical framework that recognizes the relationships in the traditional strategy-operations-tactics trinity. However, rather than viewing it as a simple hierarchical framework, Beyerchen sees it—at least in the context of the process of military innovation and revolution—as a triangular relationship. In this relationship, each component has the potential to affect the other two. Moreover, Beyerchen proposes two additional ways of considering the process of military innovation and revolution. Although these are based on the traditional distinction among strategy, operations, and tactics, they may prove more useful in revealing the essence that underlies the process of innovation or revolution. The first of these sets out the triangular relationship among context, procedures, and equipment. The second alternative entails establishing the relationship among technological change, operational change, and technical change.⁷

The remainder of this article emphasizes the first of these triangular representations—namely, that among context, procedures, and equipment. In other words, it seeks to

examine the context within which the RAF attempted to develop its revolutionary ideas about strategic airpower, doctrinal considerations, and, although only fleetingly, equipment aspects. It is about the theory and development of an "idea" of war. It is an attempt to consider how those people responsible for the RAF as a collective professional body—the Air Staff—sought to prepare for a future war, for, in essence, the strategic bombing pundits were pushing the notion that the advent of airpower constituted an RMA.

Early strategic theorizing in the RAF drew heavily on the limited experience of "strategic" bombing in the First World War. That experience profoundly influenced much of what followed in the two decades leading up to the Second World War. One must note, however, that many of the conclusions regarding the potential future use of airpower were derived from a cursory examination of the historical record. In that sense, then, analysts flouted the Clausewitzian dictum regarding the search for first principles through rigorous historical examination and critical analysis to determine cause and effect. Although it is not necessary to delve deeply into the details of aerial operations during the First World War, one must review some of the important developments that emerged as the air weapon began to make its presence felt.

At the outbreak of the Great War, expectations of what aircraft might contribute remained modest. The general consensus was that aircraft could best serve as observation platforms, but beyond that, people expected little of them. With the emerging stalemate of trench warfare, the airplane began to show itself as a weapon of great potential. When it became obvious that aerial reconnaissance was invaluable for artillery spotting, and thus dangerous to troops on the ground, each side began to search for ways to drive off the enemy's observation aircraft. They did this first through ground fire and then by mounting machine guns on aircraft themselves—hence, the development of the pursuit role for aircraft.

The next development involved employing aircraft as ground-support weapons. In

this role, aircraft either operated directly against troops or slightly to the rear, attacking supply dumps and communications facilities. It was a short step from this—what is now termed close air support—to taking up longer-range operations, attacking targets far from the location of the fighting at the front. These operations that were directed further to the rear constituted the first attempts at "strategic" operations. Both Germany and Britain experimented with this use of airpower, but, in strictly operational terms, neither achieved a great deal of success.⁸

This situation changed when Germany undertook raids on the United Kingdom, first with zeppelins and then with Gothas. With this, Germany brought the war directly to London and the southeast. Up to then, with the war taking place across the English Channel, the British public had not been directly threatened with physical harm. In political terms, the German air raids against the British Isles produced a serious crisis of confidence that threatened to undermine the ability of Britain to carry on with the war effort. The public became alarmed and outraged, and the government reacted with panic. The prevailing feeling in political circles was that if the German raids continued unabated, the British will to continue the war would crumble. Hence, steps were taken to cope with the threat posed by German aerial raiders.⁹

Again, telling this story in great detail is not necessary. In the first instance—the zeppelin raids—air defense measures had some limited success in dealing with the lumbering giants. Then with the appearance of the fixed-wing Gotha bombers, the situation deteriorated. In particular, two raids on London—the first on 13 June 1917 and the second on 7 July 1917—stand out as important landmarks. Both raids revealed the shortcomings of existing defensive measures. The British had too few anti-aircraft guns and fighters, and the organization of the warning system left much to be desired. As Sir Charles Webster and Noble Frankland noted, "These raids and the subsequent . . . attacks of the autumn did much to determine the future of the British Air Service."¹⁰ A political hue and cry resulted,

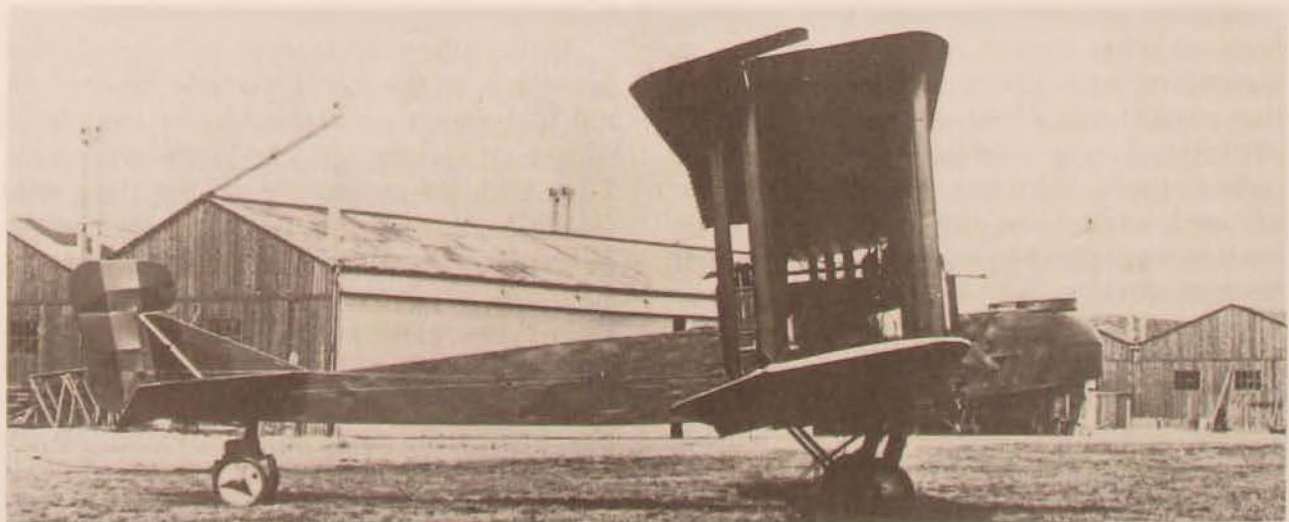
subjecting the air services to intense scrutiny and criticism. People branded the air defense measures as inefficient and ineffective, and questioned the overall direction of the air war. One must recall that at this juncture, the Cabinet and the High Command had engaged in a running battle with Sir Douglas Haig over the course of events on the western front. While politicians called for better defenses at home, Haig and his air advisor Maj Gen Hugh Trenchard, commander in chief of the Royal Flying Corps, resisted every request for the transfer of aircraft from the western front to the home front. Trenchard viewed defense as a misuse of aircraft, offense being their only proper role. Compromise took the form of the creation of the RAF.

At the end of the war, the unbridled hostility of the two older services and the equivocal attitude of the government towards the continued independence of the RAF seemed certain to assure that its existence as a separate service would be very short indeed. Despite this, Trenchard set out to protect the continued independence of the RAF. Perhaps recognizing the difficulty of arguing for independence on the basis of the importance of strategic bombing, he cast about for alternatives. This search was coloured by one major government policy designed to direct defense policy in the postwar period—the much vil-

fied Ten-Year Rule,¹¹ which stated, "It should be assumed for framing revised estimates, that the British Empire will not be engaged in any great war during the next ten years, and that no Expeditionary Force is required for this purpose."¹²

Undoubtedly, the object of the Ten-Year Rule was financial. At a time of austerity, but also at a time when the responsibilities of the defense services had taken on even greater scope, the government had to find a formula to govern the financial call that the defense services could make on the budget. In the political atmosphere of the time, one in which the prevailing sentiment was to get back to business as usual, it was politically dangerous to adopt a policy that would sanction "high" defense spending. Against this backdrop, Trenchard set out to find new roles for the RAF, roles that would justify its continued existence.

Conscious of the need for financial restraint, Trenchard astutely shaped a policy that did not run afoul of the limits imposed by the Ten-Year Rule. In fact, Trenchard framed a policy that would yield the RAF new independent roles and save the government money. He outlined his views on the future of the RAF in a memorandum of August 1919, writing that "hostilities ceased before the evolution of the independent Air Force had



The Gotha—Imperial Germany's strategic bomber. While the public was alarmed and outraged (by the zeppelin and Gotha raids), the government reacted with panic. The prevailing feeling in political circles was that if the German raids continued unabated, the British will to continue with the war would crumble.

reached a point which enabled sure deductions to be drawn as to the value of independent aerial operations. . . . But there can be no doubt that we must be prepared for long distance aerial operations against an enemy's main source of supply and Naval ports."¹³

Such a statement contains little to which one can take exception. In fact, had Trenchard and the RAF adhered to its spirit, perhaps they would not have lost sight of what should have been their central concern—the preparation of an efficient and effective air force capable of undertaking long-range aerial operations. Trenchard did pay lip service to this objective in a later memorandum, published as a command paper, in which he outlined the steps needed to create such a force. Research and development in navigation, wireless telegraphy, photography, and engineering, along with the fostering of an "air force spirit" were accorded special emphasis, as was the need for staff and training colleges.¹⁴ In the financially straitened circumstances of the time, however, Trenchard recognized that such projects remained beyond the meagre means of the first few peacetime budgets.

The long-term objective remained the creation of an air force capable of undertaking independent strategic operations, but the need of the moment called for blunting the attacks of the army and navy. Trenchard chose to employ the instruments of air control or imperial policing. Malcolm Smith has attributed the inception of the scheme for "air control" to Winston Churchill, who gave backing to the idea at the Cairo Conference in March 1921, but the idea itself had been mooted much earlier, in Trenchard's memo of 14 August 1919.¹⁵ The memo stated that "since the Armistice . . . events in the near East and India have tended to show that against a semi-civilized enemy unprovided with aircraft, aerial operations alone may have such a deterrent effect as to be practically decisive."¹⁶

Air control took on ever-increasing importance as it became apparent that army and navy attacks on the independence of the RAF would not diminish over time. In air control,

Trenchard saw the possibility of reducing the considerable cost of policing the empire and the newly acquired Mandated Territories, thereby demonstrating to the government the value of the RAF.

It is important to understand the nature of air-control operations, for in this sphere the RAF gained virtually all of its peacetime operational experience, and nearly all of the later senior RAF officers served at one time or another in areas where they gained some experience with air-control operations. It would be foolish to attempt to deny the initial importance of air-control operations, serving as they did to impress upon the government the importance of maintaining an independent air force. However, one might legitimately question the extent to which the operational experience gained in this role influenced later considerations of strategic theory and doctrine. It would seem that people in positions of responsibility within the RAF and the Air Ministry lost sight of the fact that air-control operations were, in the first instance, an administrative tool in a bureaucratic battle. Had they not lost sight of this fact, then the air-control experiment would have remained just that—an experiment and an expedient. Instead, the experience gained in air-control operations would unduly influence the theory and doctrine of strategic bombing in the larger sense.

Air control contributed markedly to the difficult and expensive task of policing the empire.¹⁷ Moreover, it did so at a reduced cost to the government, which in itself was important. Be that as it may, the operational experience gained in air control was never likely to provide much in the way of guidance to the larger and more central question of how to develop the aerial weapon for service against a first-class power in any future war. Air control was carried out in what can only be described as an artificial environment, one that would hardly exemplify the environment that would confront the RAF in operations against a major enemy. As Malcolm Smith has commented, "the success of Air Control lay in the fact that retaliation [against the British] was virtually impossible."¹⁸



An RAF Hawker Fury, one of the later models used in imperial policing. Since the Armistice, events in the near East and India tended to show that against a semicivilized enemy unprovided with aircraft, aerial operations alone may have such a deterrent effect as to be practically decisive.

This very fact should have limited the extent to which lessons were drawn regarding the efficacy of bombing. Bombing recalcitrant tribesmen who could mount no effective opposition was one thing, but it should have been obvious that undertaking bombing operations against an enemy capable of mounting some form of defense—either passive or active—would be a completely different thing. Over time, this essential difference became blurred, first as the RAF began to rearm in the early 1930s and then in the later 1930s as it undertook the arduous task of preparing Bomber Command for its role as a strategic force. One should not take this as a suggestion that air-control operations were completely devoid of value to the RAF, for that is not the case. Air-control missions provided a valuable opportunity to acquire operational experience during peacetime. Furthermore, they allowed for experimentation with equipment and methods of bombing, despite the meagre budget for research and development and the limited time available in an operational squadron.

It is important to understand the evolution of the Air Staff's theory, given that belief in the offensive power of the bomber provided

the rationale—at least in the collective mind of the Air Staff—for the independence of the RAF. This becomes all the more vital in light of the fundamental impact that notions of airpower had on the overall approach to British security policy throughout the interwar period. Recent historical research has revealed the extent to which the bomber cast a long shadow over considerations of British security and foreign policy.¹⁹ What remains to be considered is the extent to which this fear was self-generated. If one can argue that the Air Staff contributed to the process whereby exaggerated fears of the bomber served to unduly influence British security policy throughout the interwar period, then the Air Staff must bear considerable responsibility for the consequences of its actions.

Pursuing this line of inquiry is difficult for a number of reasons. In the first place, it is not really possible to speak of a uniform theory of airpower to which the Air Staff subscribed for most of the period in question. Rather, the theory of the strategic offensive in Britain evolved over time. The entire British approach was, to an extent, reflected in the thinking of Hugh Trenchard while he was chief of the Air Staff from 1919 to 1929, and

after his retirement when he continued to exert a powerful public and private influence. Trenchard's thinking evolved to such an extent that he soon became a Cassandra for the overwhelming power of the bomber. Unlike Giulio Douhet, however, Trenchard did not outline his theories of airpower in a single volume; furthermore, he altered them substantially over time. His claims regarding the power of the bomber grew ever more extreme because he had to press constantly for the right of the RAF to exist in the face of attacks by the Admiralty and War Office on the air force's independence.

Another factor complicating any discussion of the Air Staff's theory of the strategic offensive is the extent to which unofficial ideas concerning aerial warfare began to compete with the "official" theory. In part, the rise of nonmilitary ideas stemmed from the fact that during the early years of the interwar period, the Air Staff remained busily engaged in its internecine bureaucratic battles. Consequently, it had little time to devote to the task of developing a doctrine of strategic airpower. Even so, nonservice commentators would undoubtedly have pressed their own views concerning the development of airpower, for it had apparently altered the entire basis of British security policy. The notion that Britain was vulnerable—that it was no longer an island—had a profound impact on the British people. Barry Powers wrote that "this cliché represented a generalised viewpoint; in this case that England's defensive security was lost with the development of the airplane and that England existed thereafter in grave jeopardy. This fundamental shift in England from confidence to insecurity about its defensive position was of major consequence during the interwar years."²⁰ Such a viewpoint pervaded British society. Malcolm Smith has commented that "the idea of aerial bombardment was almost as haunting an aspect of contemporary culture as nuclear weaponry was to become later."²¹

A final factor to consider is that development of the theory of the strategic offensive coincided with the RAF's early successes in air control throughout the empire. These opera-

tions were taken by the Air Staff as a vindication of its confidence in the overwhelming power of the bomber. This, coupled with the staff's interpretations and analysis of the con-

The development of theory of the strategic offensive coincided with the RAF's early successes in air control throughout the empire. These operations were taken by the Air Staff as a vindication of its confidence in the overwhelming power of the bomber.

tribution of airpower during the Great War, made the future seem clear—at least to the Air Staff. Airpower, particularly strategic offensive airpower, held the key. Defense against this new and potentially devastating weapon seemed impossible; thus, the only apparent recourse entailed relying upon the counteroffensive potential of the bomber.

In retrospect, these analyses were flawed. They failed to take account of the totality of the brief experience of airpower in the British context. Airpower advocates chose to focus only on those aspects that sustained their views. The inability or unwillingness to subject their notions regarding airpower to the kind of serious scrutiny suggested by Clausewitz was a major shortcoming that plagued the Air Staff's efforts. The role of strategic airpower during the Great War was marginal, and air-control operations, although providing a valuable opportunity to gain operational flying experience, resulted in a false understanding of the requirements for carrying out a strategic offensive.

Despite these limiting factors, Trenchard and the Air Staff felt justified in developing a rudimentary theory of the strategic offensive. This theory turned on the potential of independent air operations directed against the enemy's morale and economic resources. Its development was aided—even driven—by the

desire to avoid the slaughter of trench warfare. Furthermore, the Air Staff emphasized that aerial operations would preclude the necessity for a "Continental" commitment. David MacIsaac wrote that the essence of the Air Staff's theory was that "air attacks aimed at the sources as opposed to the manifestations of an enemy's strength . . . would produce a much swifter and hence in the end more humane decision."²²

Thus, the theory of the strategic offensive, with its roots in the final years of the Great War, flourished in the bureaucratic battles of the early 1920s. Although many things would change from the mid-to-late twenties down to the outbreak of the Second World War, the fundamental essence of the theory remained unchanged. What remains is to consider the means by which the Air Staff and the RAF sought to transform a theory of war into a doctrinal reality.

Understanding how the Air Staff came to its "theory" of airpower is useful, but one also needs to understand how it set out to create a doctrine for the application of airpower. In modern warfare, theory without doctrine is a dangerous proposition. Without doctrine, the application of a particular theory relies on vague general principles rather than on a previously worked out method. As Clausewitz noted, the role of theory is not to prescribe but to act as a guide in the study of war. Theory yields the fundamental truths that serve as a foundation for doctrine.

Given that the Air Staff placed its greatest emphasis on the offensive capabilities of strategic airpower—that is, the employment of the bomber force against targets such as enemy industry and civilian morale—one would have expected the Air Staff to devise and test the tactics necessary for such an offensive. But the consensus among historians is that tactics, by and large, were an underdeveloped facet of RAF policy during the interwar period. The official historians wrote that "until two years before the war the operational and technical problems of the strategic offensive had been neglected, and even later no real attempt was made to solve them by more realistic operational exercises. . . . The result was that as late

as 1939 the Air Staff had little realization of the tactical problems raised by the strategic plans."²³

It is of course true that only a major war could have provided the real test—not only of the tactics necessary for a strategic offensive but the very theory as well. Deprived of a major war and deprived even of operations against an opposing air force, the Air Staff was left to develop tactics through exercises. Yet, this was a curious aspect of the overall approach to airpower adopted by the RAF. The Air Staff expended considerable effort in defining the theory but almost no realistic effort in exploring the tactics necessary to translate the strategic hypothesis into sound doctrine.

Clearly, a revolutionary strategy such as the one expounded by Trenchard and his colleagues in the aftermath of the First World War demanded a thorough consideration of the tactics required to effect it. If the net result of Trenchard's strategic thundering was that traditional British defense policy was no longer sufficient and that British strategy would have to be remade to take account of the radical new threat from the air, then one would expect that the Air Staff would base its prescriptions for the future on more than mere hypothesis. Yet, in sum, that was what emerged from the interwar period! The concept or hypothesis based on the experience of the First World War was elevated to the level of dogma. As Williamson Murray put it,

the myopia of the Air Staff hindered the development of a broadly based conception of air power in Great Britain. . . . Moreover . . . the evidence of World War I did not provide clear, unambiguous evidence on the impact of air power. But when all is said and done, too many of those in higher positions in the Air Staff between the wars allowed doctrine to become dogma and failed to examine the assumptions on which they based their air strategy in light of the current capability and the difficulties that emerged just in peacetime flying.²⁴

Once strategy became overborne by dogma, tactics became dogmatic as well. The net effect was that the rudimentary tactics designed to effect the strategic offensive fell far short of requirements.

How, then, did the Air Staff approach the development and testing of tactics? What were the parameters within which tactical development took place? What were the results? During peacetime, one can test a strategic theory only through exercises, which can take a number of forms. The most commonly understood type of exercise is a full-scale operational one involving large formations engaging in a mock battle. Yet, this is the rarest form of exercise, due to the expense and the disruption caused to the regular training program. Furthermore, exercises of this type are more often designed to confirm rather than test a theory.

Less ambitious exercises that have specific objectives, such as testing a particular tactic or the potential effect of a particular piece of equipment on existing doctrine, may have a greater influence on the development of tactics and doctrine. These forms of exercises and trials have, or should have, a more telling influence and as such are of greater utility than their more glamorous counterpart—the mock battle. One must sound a note of caution about the role and value of exercises. An exercise is fraught with many limitations, not the least of which is its inescapably artificial nature. It cannot replicate wartime conditions; hence, its value is limited by the degree of vision and foresight brought to the exercise by its planners. This being said, one should consider the tests, trials, and exercises undertaken by the RAF.

Between 1927 and 1935, the RAF undertook a series of large-scale exercises, the very nature of which revealed the state of Air Staff thinking and also served to confirm the latter's preconceptions. The stated objective of many of the exercises was to test arrangements for the air defense of the United Kingdom.²⁵ One must, however, adopt a cautious attitude when considering the "defensive" nature of the exercises. In the strategic vernacular of the Air Staff, the term *defensive* had a rather complicated meaning. On one level, the object was to provide for the immediate defense of the country by engaging enemy attackers over Great Britain. This was not, however, viewed with favor, since the Air Staff

believed it a misuse of airpower. That the Air Staff contemplated it at all was a response to public and governmental reaction to the pros-

The myopia of the Air Staff hindered the development of a broadly based conception of airpower.

pect of a mutual bombing contest in which impairing civilian morale became the ultimate objective of both sides. In effect, defense of this kind sought to forestall collapse of the public's will to continue a future war in the face of anticipated casualties. The Air Staff accepted it as a political necessity, although not one that should swallow much of the staff's scarce resources.

The other level on which the Air Staff considered the "defensive" capability of airpower involved the notion of the "offensive-defensive" or the "counteroffensive"—what Malcolm Smith has termed the theory of strategic interception.²⁶ This form of defense relied upon the anticipated ability of the RAF to bring overwhelming pressure to bear upon the source of any enemy's offensive potential through aerial attack. The RAF would force the enemy from its own air attacks onto the defensive. This notion occupied the core of the Air Staff's strategic thinking, and the object of most of the large-scale exercises was to test the RAF's capability to implement such an "offensive-defensive."

It should surprise no one, then, that the results of the exercises were taken as evidence of the veracity of the Air Staff view, even though exercise design exhibited numerous shortcomings, to say nothing of the interpretation of the results. Other doctrinal considerations also suffered from the tendency of theory to become dogma. Not the least of these were the capabilities and tactics of bomber formations. Carrying out a strategic offensive required the solution of a number of problems. Two stand out as fundamental to

the "offensive." The first of these was the question of how the bomber force would reach the general target area intact. Assuming that the Air Staff could work out a solution to the first question, the second question involved a consideration of how to deliver the attack itself. For the Air Staff to give meaning to its theory, it had to come to grips with these issues. The means and extent to which it did so—or, more correctly, failed to do so—reveal just how far the Air Staff allowed theory to unduly influence doctrinal considerations.

It is possible to suggest a number of reasons why the RAF and the Air Staff failed to appreciate the difficulties and complexities of the doctrinal and planning processes. One explanation might be that the intellectual approach was fundamentally absent from the British experience. In fact, they lacked experience with the type of staff work that would have contributed to the development of an intellectually sound approach to air warfare. Thus, the Air Staff was incapable of making the linkage between "strategy" and "operations." It persistently failed to understand the importance of defining precise targets—hence its predilection for abstractions such as "Germany" rather than a "real" target such as a factory or even a city. Had the Air Staff been capable of progressing beyond this, it might have been in a position to formulate plans that addressed the specific requirements of operations.

Another possibility is that the Air Staff was so enamored with the apparent simplicity of its theory of strategic airpower that careful and detailed planning seemed unnecessary. A final possibility, one that may in fact be most instructive, is that very few of the people on the Air Staff possessed any degree of experience with planning at the strategic level. For the most part, those who made up the Air Staff during the first few years of the RAF's independent life possessed only operational experience. In effect, the Air Staff drew primarily from a pool of operational flyers. During the First World War, Royal Flying Corps, Royal Naval Air Service, and, later, RAF officers did not participate directly at the general-staff level. Rather, they acted as air advisors to the

general staff. As such, they did not benefit from the evolution of the general staff as a body.

This was further compounded by the officers' preparation for Air Staff work. Attendance at the Staff College was determined, in part, by a qualifying exam in which candidates were required to consider the problems involved with large-scale air war. One recurring question concerned the "correct" policy or doctrine for the RAF. The examiners' reports make clear that they were seeking a particular answer—namely, that the only appropriate use for airpower lay in the offensive against enemy morale. If admission to the Staff College depended on an unquestioning acceptance of established doctrine, then the Staff College merely turned out staff officers unprepared to critically examine the central tenets of their profession.²⁷ One can say that this lack of planning experience at the strategic and operational levels contributed greatly to the deficiencies of the RAF in developing a realistic understanding of airpower and, consequently, a doctrine for prosecuting air warfare.

This article has attempted to suggest some of the underlying reasons for the RAF's flawed approach to strategic airpower. The central conclusion is that the RAF as a collective body never fully appreciated the fact that what emerged from the experiences of the First World War was only a theory—a hypothesis that required considerable effort to transform it into a doctrine of strategic airpower which could serve in operations. The belief that strategic airpower would be "decisive" became an article of faith. One is forced to conclude that in its eagerness to force the pace of the *revolution*, the RAF neglected to carefully consider the means of transforming a revolutionary ideal into a practical reality.

Put simply, the RAF's theory of the strategic offensive was not a theory in the Clausewitzian sense. Rather, it was merely a hypothesis. In other words, the Air Staff failed to appreciate the importance of applying critical analysis to the matter of airpower and its place in the defense hierarchy. Instead, airpower advocates seized upon the experience with "stra-

tegic" bombing during the First World War as a means of ensuring the survival of the air force as an independent service. This was not necessarily a negative factor, but in the absence of a thorough exploration of the record of airpower during the First World War, it led to unwarranted conclusions. For instance, no one paid much attention to the fact that British defenses had succeeded, ultimately, in

The Air Staff, as a collective body, lacked the intellectual rigor and insight to subject its hypothesis to test and experiment.

coping with the German bombing offensive, albeit at tremendous cost and effort. In the absence of such consideration, it was a fairly straightforward step to the conclusion that the "offensive" application of airpower was the only possible course to take.

From such an intellectual origin, the airpower pundits used their "theory" of strategic airpower for all manner of purposes. They employed it as a tool in the fight against the army and navy, and developed the concept of air control to illustrate the power of aerial bombardment. Using crude calculations of the German offensive in the First World War, the experience of air control, and the "Continental" air menace, the RAF ensured that it would survive. Unfortunately, what first served as a tool in an administrative battle assumed the mantle of infallibility, and the suspect "theory" would ultimately have a profoundly unsettling effect on British politicians and the public alike. It was, however, a theory that lacked substance.

The effect of this lack of substance is most obvious in the area of doctrinal development. The Air Staff failed to comprehend the simple fact that doctrine does not flow automatically from theory. Yet, from the moment that Trenchard declared that the "moral" effect of aerial bombardment was vastly superior to the physical, and that the only proper use of



The "fighter" that isn't. Of the several barriers to innovation, "perhaps the most obvious is a wilful desire to discard history or to twist its lessons to justify current doctrine and beliefs." The second is institutional rigidity.

airpower lay in the strategic offensive, the Air Staff assumed it possessed a "doctrine" to carry out its vision of air warfare.

Upon reflection, however, those fiercely held convictions proved unfounded. Again, the Air Staff, as a collective body, lacked the intellectual rigor and insight to subject its hypothesis to test and experiment. Furthermore, it persistently failed to realize the deleterious effect its particular theory had on the development of the air force. The RAF was left with a hollow shell. Virtually every aspect of force development suffered. Doctrine in the true sense of the word was nonexistent. As a consequence, the more practical aspects of force development were not dealt with in a coherent and intelligent manner. Instead, when they were dealt with at all, they received the fleeting attention of an Air Staff not inclined to view the concept of strategic airpower critically and not prepared to come to grips with some of the more obvious shortcomings of its strategic thought.

The concrete manifestations of this uncritical approach revealed themselves in equipment policy, tactical development, and operational planning. In each case, the dogmatic and doctrinaire attitude of the Air Staff to the larger idea of "airpower" resulted in entire avenues of inquiry, research, and development being overlooked, closed off, or ignored. For instance, the prevailing belief that defense against the bomber was, if not impossible, then a misuse of airpower, resulted in the design and production of bombing aircraft that were slow, lightly armored, and outgunned.

Furthermore, a review of the operational exercises undertaken by the RAF throughout the interwar period reveals how faulty assumptions led to a simplistic notion of what was necessary to undertake a strategic offensive. This created a spillover effect that impaired doctrinal and tactical development. Not only did it suffer under the crushing burden of strategic orthodoxy, but the operational and other exercises, which should have served as a test bed for doctrine, were used instead as a vehicle for the Air Staff to trumpet its own theory. This created the situation

whereby neither the Air Staff nor Bomber Command was fully aware of the requirements for a strategic offensive. When they did turn—belatedly—to consider the specific requirements, the magnitude of the task was too great. The failure throughout the 1920s and early 1930s to take up the larger questions of airpower and examine them rigorously made itself felt during the period of rearmament and expansion, and well into the Second World War itself.

A Framework for Considering Revolutionary Developments

What insights might one draw from this historical example? In a recent study on military innovation during the interwar period, Williamson Murray notes that "to understand innovation . . . one must not lose track of the fact that the interplay among human factors, uncertain knowledge, misreadings of the past, [and] political and strategic parameters placed innovation on a complex playing field in which not only were the players uncertain of the future, but they were often more concerned with immediate problems than with long-range changes."²⁸ This observation is a trenchant statement of the problems confronting military planners. It is often difficult enough to sustain the current force, let alone attempt to envisage long-term influences that may affect the future nature of war through technological, doctrinal, or organizational developments. As Murray reflected, the problem is a case of military planners endeavoring to prepare for a war that will occur

1. at some indeterminate point in the future,
2. against an unidentified opponent,
3. in political conditions that cannot be accurately predicted, and
4. in an arena of brutality and violence which one cannot replicate.²⁹

These obstacles are very real, and in every sense, they plagued the RAF between the wars. As such, it is possible to appreciate the magnitude of the problem that confronted the Air Staff as it sought to carve out a place for

airpower. Nevertheless, the Air Staff experienced relatively little success in translating a revolutionary idea into a force capable of capitalizing on the flexibility and power of strategic bombing. Thus, one may be justified in searching for some basic principles or touchstones when considering the prospects held out by reputed revolutionary developments. Although this may entail falling into the trap of "drawing lessons," there is really no other alternative.

What factors and influences are central to the process of translating a "revolutionary" development into a capable force structure? One may suggest a number of generalizations as being central to a successful revolution in military affairs. Williamson Murray and Allan Millet, as well as Stephen Rosen,³⁰ have addressed these matters on several occasions. Murray claims that revolutionary innovation "appears largely as a phenomenon of top-down leadership that is well informed about the technical as well as conceptual aspects of possible innovation."³¹ He points out, however, that there are numerous examples in which top-down leadership, while certainly present, failed to deliver, citing as a case in point the RAF and strategic bombing. Murray noted that in this instance "top-down leadership had a disastrous impact on the process of innovation."³²

A second general consideration is that of the military culture in which a revolution or innovation is being contemplated. "One of

the most important components of successful innovation in the inter-war period had to do with the ability of officers to use their imaginations in examining potential innovations."³³ Clearly, in the case of the RAF between the wars, one cannot say that it lacked imagination in thinking about airpower. Apparently, however, this imaginative thinking was largely one-dimensional. Having succeeded in convincing many people of the potential power of the bomber, those charged with translating this potential power into real power stopped short. They did not follow through with the doctrinal and technical study necessary to make the idea of strategic bombing a reality.

Two final matters deserve consideration. Both are negative influences that contribute directly to the failure of a revolutionary development. One is the misuse of history. Murray has stated that of the several barriers to innovation, "perhaps the most obvious is a wilful desire to discard history or to twist its lessons to justify current doctrine and beliefs."³⁴ The second is institutional rigidity. "Rigidity is undoubtedly a fact of life in many military organizations—one which has exercised a consistent and baleful influence over institutional capacity to innovate."³⁵ In the case of the RAF between the wars, both of these factors exerted a considerable negative influence on the development of strategic bombing doctrine. □

Notes

1. This definition, developed by the Office of Net Assessment, US Department of Defense, is reproduced in Earl H. Tilford Jr., *The Revolution in Military Affairs: Prospects and Cautions* (Carlisle Barracks, Pa.: United States Army War College, Strategic Studies Institute, June 1995), 1.

2. Jacob W. Kipp, "The Revolution in Military Affairs and Its Interpreters: Implications for National and International Security Policy" (paper presented at a joint conference of the Foreign Military Studies Office and the Academy of State Management of the President of the Russian Federation, Moscow, September 1995), 1.

3. For a full discussion of the notion of a revolution in military affairs, see several of the papers presented at the Fifth Annual Conference on Strategy held at the US Army War College in April 1994: Paul Bracken and Raoul Henri Alcalá, "Whither the RMA: Two Perspectives on Tomorrow's Army" (Carlisle Barracks, Pa.: US Army War College, Strategic Studies Institute, July 1994); Jeffrey R. Cooper, "Another View of the Revolution in Military

Affairs" (Carlisle Barracks, Pa.: US Army War College, Strategic Studies Institute, July 1994); David Jablonsky, "The Owl of Minerva Flies at Twilight: Doctrinal Change and Continuity and the Revolution in Military Affairs," *Professional Readings in Military Strategy*, no. 10 (Carlisle Barracks, Pa.: US Army War College, Strategic Studies Institute, May 1994); and Michael J. Mazarr, "The Revolution in Military Affairs: A Framework for Defense Planning" (Carlisle Barracks, Pa.: US Army War College, Strategic Studies Institute, June 1994).

4. Sir Michael Howard, "The Lessons of History," in *The Lessons of History* (New Haven, Conn.: Yale University Press, 1991), 11.

5. Sir Michael Howard, "The Use and Abuse of Military History," *Journal of the Royal United Services Institute for Defence Studies* 107 (February 1962): 6.

6. See Uri Blazer, *The Shadow of the Bomber: The Fear of Air Attack and British Politics, 1932-1939* (London: Royal Historical Society, 1980).

7. Alan Beyerchen, "From Radio to Radar: Interwar Military Adaptation to Technological Change in Germany, the United Kingdom and the United States," in Williamson Murray and Allan R. Millett, *Military Innovation in the Interwar Period* (Cambridge: Cambridge University Press, 1996), 265-99. See, in particular, 267-68 for an overview of the parallel means of examining the problem of military innovation and revolution.

8. There are numerous accounts of the development of British airpower during the Great War. See, for instance, Sir Walter A. Raleigh and H. A. Jones, *The War in the Air: Being the Story of the Part Played in the Great War by the Royal Air Force* (Oxford: Clarendon Press, 1937); Neville Jones, *The Origins of Strategic Bombing* (London: Frank Cass, 1973); and Sir Maurice Dean, *The Royal Air Force and Two World Wars* (London: Cassell, 1979).

9. Readers seeking greater detail on this should consult any of the following: Andrew Boyle, *Trenchard* (London: Collins, 1962); Raleigh and Jones; Sir Charles Webster and Noble Frankland, *The Strategic Air Offensive against Germany, 1939-1945*, vol. 1 (London: Her Majesty's Stationery Office, 1961); Dean; Malcolm Cooper, *The Birth of Independent Air Power: British Air Policy in the First World War* (London: Allen & Unwin, 1986); idem, "Blueprint for Confusion: The Administrative Background to the Formation of the Royal Air Force, 1912-1919," *Journal of Contemporary History* 22, no. 3 (1987): 437-53; and John Sweetman, "The Smuts Report: Merely Political Window Dressing?" *Journal of Strategic Studies* 4, no. 1 (1981): 152-74.

10. Webster and Frankland, 35.

11. Perhaps the best single account of the Ten-Year Rule is John R. Ferris, *Men, Money and Diplomacy: The Evolution of British Strategic Foreign Policy, 1919-1926* (Ithaca, N.Y.: Cornell University Press, 1989).

12. CAB-23, War Cabinet minutes, "A" series, 616A.

13. Chief of the Air Staff, AIR 8/2, memorandum, subject: Status of the RAF, 14 August 1919.

14. Chief of the Air Staff, Comd. 467, memorandum, 25 November 1919.

15. Malcolm Smith, *British Air Strategy between the Wars* (Oxford: Clarendon Press, 1984), 22-23.

16. AIR 8/2 memorandum.

17. For details of some of the operations, see Dudley Saward, *Bomber Harris* (London: Sphere Books, 1984); Air Marshal Sir Robert Saundby, *Air Bombardment: The Story of Its Development* (London: Harper, 1961); H. M. Hyde, *British Air Policy between the Wars* (London: Heinemann, 1976); and Jafna L. Cox, "A Splendid Training Ground: The Importance to the Royal Air Force of Its Role in Iraq, 1919-1932," *Journal of Commonwealth and Imperial History* 13, no. 2 (January 1985): 157-84.

18. Smith, 29.

19. See Blaler.

20. Barry Powers, *Strategy without Slide-Rule: British Air Strategy, 1914-1939* (New York: Holmes & Meier, 1976), 110.

21. Smith, 1.

22. David MacIsaac, "Voices from the Central Blue," in Peter Paret, ed., *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Princeton, N.J.: Princeton University Press, 1986), 633.

23. Webster and Frankland, 107.

24. Williamson Murray, *Strategy for Defeat: The Luftwaffe, 1933-1935* (Maxwell AFB, Ala.: Air University Press, 1983), 330.

25. See, for instance, the report on the 1927 exercise by Flt Lt W. T. S. Williams, "Air Exercises, 1927," *RUSI Journal* 72 (November 1927): 741.

26. See Smith, 44-75.

27. For a full discussion of the recruitment of officers to the Staff College, see A. D. English, "The RAF Staff College and the Evolution of the RAF Strategic Bombing Policy, 1922-1929" (MA thesis, Royal Military College, Kingston, Ontario, 1987), particularly chap. 4.

28. Williamson Murray, "Innovation: Past and Future," in Murray and Millett, 303-4.

29. *Ibid.*, 301.

30. Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, N.Y.: Cornell University Press, 1991).

31. Murray, "Innovation," 306.

32. *Ibid.*, 308.

33. *Ibid.*, 312.

34. *Ibid.*, 320.

35. *Ibid.*, 322.

*The radical of one century is the conservative of the next.
The radical invents the views. When he has worn them
out, the conservative adopts them.*

—Mark Twain (Samuel Clemens)



Fodder for Professional Development

Reference Works for the Air Warrior/Scholar

DR. DAVID R. METS*

NOW HERE IS the ultimate challenge for a reviewer: write a piece on reference books that is interesting enough to get even a single person to read it! Still, in some ways, browsing the Internet is like passing the time of day with a random trek through some reference works, and it can be interesting—even to those of us not given to the accumulation of trivia. But more important to you air warrior/scholars are the efficiencies that a good desk set of reference books can introduce to your profes-

sional development program. It can save you untold trips to the library, even when there is one within reach. It can help you get into the habit of a skeptical (not a cynical) approach to the study of war. Doubtless, there are as many armchair generals as admirals, and their pontificating certainly bears checking.

So one of the purposes of this review-article is to weigh the value of three new reference books as candidates for inclusion in your personal professional library. Another is to suggest some ways that you can use reference

*I wish to thank my colleague Dr. Karl Mueller for his valuable assistance in preparing this (and other) manuscripts. Without him, both the style and the substance would be less than it is; the remaining faults are certainly my own.

works to enhance your own participation in the intellectual life of the Air Force. Finally, I offer a list of 10 books I would recommend for the personal reference desk set of the professional student of air war. I limit my discussion to works that are focused on the military art; the officer also will certainly want to acquire a more generic set of references appropriate to all professions and to thinking citizens. Increasingly, the latter are available in an electronic format that is much more economical in space, time, and money than the hard copy, but authoritative reference works specializing in air war are still largely confined to the printed page. I have arbitrarily omitted bibliographies. They become dated so rapidly, and the building of electronic databases in libraries, along with their electronic finding aids, has reduced the utility of the old hard-copy bibliographies in searches of airpower literature.

What Should a Reference Book Be?

There is some virtue in concocting a catchy title. If you don't somehow capture your audience's attention, there will be no transfer of knowledge—nor even any entertainment. But that is the province of novels, biographies, articles, and TV shows—not of reference works. For the latter, a title should be comprehensive and accurate. It should tell the audience what the work is about.

A reference work should be new; it should not merely duplicate something that has already been done just for the sake of keeping the presses running. We have wall-to-wall encyclopedias of World War II, many of them accurate and with all the other virtues of good references. But how much is enough?

Compilers deserve our pity. If they include too much, reviewers will thrash them for being uneconomical or obsessed with meaningless trivia. Further, their work will be too bulky to be hauled all over the world in the hold baggage of Air Force practitioners—not to mention too expensive for their budget. If compilers do not include enough, they will

be bashed for being too sketchy—purveyors of abstractions of no use in the real world.

Compilers have no dilemma when it comes to quality. There is no choice to be made. Either their reference works are accurate or they are not reference works. The point seems lost on many people. Accuracy is painful. Accuracy is expensive. Because the fundamental purpose is to produce a *reference* for use in checking the accuracy of other works, precision must be the paramount value. That brings me to the first new book under review.

The Biographical Dictionary of World War II Generals and Flag Officers: The U.S. Armed Forces by R. Manning Ancell with Christine M. Miller. Greenwood Publishing, 88 Post Road West, Box 5007, Westport, Connecticut 06881-5007, 1996, 706 pages, \$95.00.

The authors rightly claim that their dictionary entailed an enormous amount of labor; they (and the publisher) wrongly claim that it is needed and definitive. At \$95.00, it is certainly too expensive for your desk set. In any event, there are already many worthy reference books on World War II that contain most of what is in this book. Moreover, the pattern for assembling entries is not uniform. The Battle of Midway does not appear in the Raymond Spruance entry, but Ploesti does appear in the Uzal Ent piece. Command of the Third Fleet does appear in the William Halsey entry, but command of the Fifth Fleet (same ships) does not appear under Spruance. Sometimes books authored by the subject of the entry are mentioned, sometimes not (e.g., *The [Lewis] Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe, 3 October 1941–8 May 1945* and Haywood Hansell's *The Air Plan That Defeated Hitler*).

The prime requirement—the accuracy of the work—is poorer than in many other World War II references. A common and trivial mistake is leaving the "s" off "Army Air Forces" (AAF)—in this day of computers, the error occurs hundreds of times throughout the book. James Chaney is cited as assistant chief



William Kepner is shown here alongside a Boeing P-26 "Peashooter" in the early 1930s. Kepner started out as a combat marine in the trenches in World War I, came into flying as a balloon pilot, and won fame after he took command of 8th Fighter Command from Frank Hunter in the summer of 1943. Kepner led the 8th through the great battles of the following winter that won air superiority for the Allies. Later he was at the head of Air Proving Ground Command and retired as a lieutenant general.

of the Air Corps until 1938; in fact, he left that office in 1935. Hansell is identified as the commander of 25th Bomber Command—he really commanded 21st Bomber Command. Hugh Knerr is placed in Europe and America at the same time through a garbling of the dates on which he commanded various service commands. Laurence Kuter is placed in command of the Allied Tactical Air Forces in North Africa long after Air Marshal Arthur Coningham had taken over. The work says that Curtis LeMay was awarded a bachelor's degree in 1927; actually he left Ohio State without a degree in 1928 to go to flying school—although he ultimately received the degree. Joseph Smith is cited as being in the operations part of the General Headquarters

(GHQ) Air Corps staff, which probably means GHQ Air Force. Similarly, Carl Spaatz is placed in GHQ Air Force in 1939, by which time he had already gone to Washington for good. And O. P. Weyland is placed in command of 14th Tactical Air Command when it really was 19th.

In short, we need not tarry with this work since its many errors disqualify it. Neither of the compilers is a military or naval historian, so we cannot blame many of the seemingly trivial mistakes on them. Rather, if the book was to be definitive, the publisher should have felt obliged to hire copy editors with sufficient expertise to check every name and date against at least two sources. Of course, that takes money and time—and everybody



This photo shows some of the near greats of World War II who in 1926 served on the Bombardment Board. On the left is Harold L. George, later of Air Corps Tactical School fame and still later the wartime commander of Air Transport Command. In the center with his hands in his pockets is Lewis Brereton, air commander in the Philippines when the Japanese attacked on 8 December 1941 and later the commander of the First Allied Airborne Army when it tried the Arnhem operation in 1944. Next to Brereton in civilian clothes is Muir Fairchild, also of Air Corps Tactical School fame and later the Air Force vice chief of staff under Hoyt Vandenberg. Fairchild died in office, and the academic building at the Air Force Academy and the library at Air University are both named for him. He was also the founder of what is now *Airpower Journal*. The airplane is probably the Handley-Page O/400, a few of which were built under license in the United States.

knows that the greater the delay in getting a book in bookstores or catalogs, the greater the delay in generating revenue.

In any case, many sources contain most of the same biographical data, one of the most respected coming from the same publishing house: Roger Spiller's *Dictionary of American Military Biography* (1984—granted, a long time ago). Try to find one of those other sources for your personal library. It is now time to turn to a reference work of another kind.

America's Armed Forces: A Handbook of Current and Future Capabilities edited by Sam C. Sarkesian and Robert E. Connor Jr. Greenwood Publishing, 88 Post Road West, Box 5007, Westport, Connecticut 06881-5007, 1996, 475 pages, \$99.50.

The first complaint concerns the title *America's Armed Forces*. Wrong! The book is thoroughly green. One finds only a small input from a professor at the Air War College and

practically none from anyone with any particular expertise in naval affairs. Thus, a more accurate and just title might have been *America's Army: Sometimes Assisted by Other Services*. Equally defective is the subtitle *A Handbook*. Some of the chapters do fit that description—for example, the ones on the Air Force, Navy, and reserve components, all of which are competent. But at least two, those on the air and maritime arms, are no more than what appears in the May issues of *Air Force Magazine* and the Naval Institute's *Naval Review*. The chapters in part two are mere essays on various subjects and do not resemble what belongs in a handbook at all.

I suppose that the greenness of the book reflects the background of the two editors. Both are career Army officers now in their second careers. Both have taught in Army-oriented programs: Sarkesian at West Point and Connor at Boston University. Further, their other writings concentrate on Army-related subjects. This is not a criticism; people necessarily write on what they know best. It is a lament that a disproportionate share of national-security literature emanates from the officer corps of the Army and the Navy. It lends further credence to the commonly held theory that the officer corps of the Air Force is largely made up of doers, not thinkers. Although this may be changing now, one result has been that the Air Force case often has not been well articulated, either in national-security literature or the media. One case in point is that the Air Force underwrites only four issues per year of *Airpower Journal*, while the Army finds it possible to produce six issues of *Military Review* and four more of *Parameters* in the same period.

As for the book's contributors, there can be little doubt that Allan Millett, himself a colonel in the Marine Corps Reserve, can write with real authority on that service. The same is true of Prof. James A. Mowbray, long a teacher at the Air War College at Maxwell Air Force Base, Alabama. But that is about as cosmopolitan as the book gets. The Navy chapter, for example, is written by John Allen Williams, a political scientist at Chicago's Loyola University and an editor of *Soldiers*,

Society and National Security as well as *The U.S. Army in a New Security Era*. Judging only from the book itself, six of the 15 contributors have had full careers with the US Army; only Mowbray has an obvious connection with the air arm; and apparently none of them has any naval expertise.

America's Armed Forces features good organization. It is divided into two parts, the first of which has a chapter on each of the armed services (except the Coast Guard), one on the reserve components, and a summary. The second part is topical. The fact that it has one chapter on the American way of war and another on the Gulf War suggests that the editors are clearly playing to the market. But it does include four more chapters on other kinds of conflict.

What about the "handbook"? I doubt that we can condemn it on grounds of insufficient scope or comprehensiveness—qualities required in such a work—because the title is the problem: it is not really a handbook. The chapters on the various services are generally sound but superficial; they will quickly become dated. Those in part two are also generally sound. But since they are the work of different authors, they favor abstractions and truisms and therefore are unsatisfying in a "handbook" that should be useful in checking facts found in other works.

The technical quality of the work, though, is far superior to that of the *Biographical Dictionary* reviewed above. I suppose the implication is that the correctness of the work is directly proportional to the expertise of the editors and the pains they take before delivering the manuscript to the publisher—quality in, quality out. For all of that, though, the work is not a candidate for your personal library of desk references. It is not really comprehensive enough for that; in any case, it is more skewed to the green view of the world than one would like in a reference work. Even as they protest the need to avoid fighting past wars, the editors and some of the contributors continually hark back to an idea propounded a half century ago by T. R. Fehrenbach (himself a soldier) to the effect that boots on enemy turf are essential if the adversary is to



World War II photograph of Brig Gen Haywood Hansell of Air Corps Tactical School fame and Maj Gen Follett Bradley (on the right). Bradley was one of three Naval Academy graduates who rose to flag rank in the Army Air Forces; the other two were Maj Gen Hugh Knerr and Lt Gen Lewis Brereton.

change his will.¹ Too, though the book pays lip service throughout to "jointness," there seems to be little doubt that the Army doctrine of AirLand Battle won the Gulf War. One finds little evidence of a broader view, such as that expressed by Adm James A. Winnefeld and Dr. Dana J. Johnson:

The Marines must admit that there are occasions when Marine air is not tied to a MAGTF [Marine Air/Ground Task Force]. The Air Force must recognize that there are sometimes legitimate reasons for task-oriented commanders to retain control of their own air forces, under mission rather than task orders. The navy must acknowledge that carrier air wings are a joint asset and that it should be prepared to act as a JFACC [joint force air component commander] in a future campaign. *All must realize that an air-only operation is a*

valid force employment option. (Emphasis added)²

Doubtless, by now you are thinking that never is heard an encouraging word from this reviewer. Wrong. We now turn to one of the finest books I have read in years—truly a reference work of the first order.

The Papers of George Catlett Marshall, vol. 4, Aggressive and Determined Leadership, June 1, 1943–December 31, 1944 edited by Larry I. Bland et al. Johns Hopkins University Press, 701 West 40th Street, Suite 275, Baltimore, Maryland 21211-2190, 1996, 773 pages, \$55.00.

Having gone through the Carl A. Spaatz and Henry H. Arnold Papers in the Library of

Congress, I knew it would be easy to get lost in the day-to-day concerns of the lives of these two men and forget about the "big picture." But in the end, the devil is in the details. Most decision-theory books are artificial, in that they address problems in isolation—one at a time. Life is not like that. Any given problem—as we all know—is imbedded in a host of others, which are interdependent.

All that held true for the book at hand. Perhaps the greatest military biography in America is Forrest C. Pogue's on George Marshall.³ Even that work, however, cannot yield the same sorts of insights that emerge from reading the general's own correspondence, set in context by the annotations of an expert editorial team. *The Papers of George Catlett Marshall* reveals the complexity of leadership at the top level in a way not obtainable in any other way I know of—aside from being a top leader. Marshall could not consider in sequence or in isolation the problems of the war in Europe, the one in the Pacific, the equipping and training of armies and air forces, and the combat death of his stepson. Those and many others impinged on his consciousness in a seemingly unending and chaotic cascade. To his everlasting credit, he seemed able to retain his composure through it all.

Prof. Larry Bland of the Virginia Military Institute heads the editorial team that has assembled the four volumes published thus far. After reading the fourth volume, I sought him out to explore the subject of documentary editing—on the surface of things, a dull subject if there ever was one. Instead, I found the topic engaging indeed. Bland was born in Indiana just before World War II, earning his bachelor's degree at Purdue and a doctorate at Wisconsin in 1972. After teaching at Gaston College until 1976, he joined the George C. Marshall Research Foundation at Lexington, Virginia, to head the editing of the Marshall Papers. The first volume appeared in 1982, and the fourth in 1996. Bland told me that the authoritative job on a first volume of such a series should take about five years, with the help of an assistant. Subsequent volumes could probably be done in four.

That statement is probably astounding to the lay person. How difficult could it be to keyboard the letters in chronological order and then press the print button? Plenty difficult! In the first place, Bland claimed that only about 10 percent of the papers available made it into the published volumes. Thus, the editors confronted a major selection job.

That is where the historical expertise of the editorial staff comes in. Extensive annotation throughout the text firmly places all of Marshall's correspondence in the context of American history and the military history of both the Pacific and European wars. The editors did their homework. Properly selecting the 10 percent of the correspondence that would simultaneously convey the big picture and provide the details of Marshall's life and work required not only a special competence going into the labor, but also the willingness and ability to do extensive travel and research to guarantee the accuracy of the work. It is a clean work indeed.

Doubtless, the work was much facilitated by the location of the George C. Marshall Foundation at Lexington, Virginia—just a short drive into Washington for the Library of Congress and old National Archives and into College Park, Maryland, for the new National Archives. Of equal importance, Professor Bland pointed out, was the Editorial Advisory Committee, which boasted some of the leading military historians in America. Members included Maurice Matloff, Edward M. Coffman, and Pogue himself. Clearly enough, their collective advising and critiquing contributed mightily to the balance, and especially the accuracy, of the work. Bland added that their active support and prestige also opened doors for the editorial staff time and again.

But why should professional air warriors/scholars trouble themselves with a soldier's letters from a time before the US Air Force existed? A number of reasons come to mind. For example, Carl von Clausewitz informed us that many frictions distinguish real war from war in the abstract. World War II is the closest thing we have ever had to an air war in the abstract form—an all-out air war

**A Preliminary List of Post-World War II Published Writings
and Papers of the US Army and Air Force Four- and Five-Star Generals**

Army

George C. Marshall

The Papers of George Catlett Marshall, 4 vols.

*Selected Speeches and Statements of General of the Army George C. Marshall*⁴

Dwight D. Eisenhower (excluding papers and writings relating to the presidency)

The Churchill-Eisenhower Correspondence, 1953-1955

The Eisenhower Diaries

The Papers of Dwight David Eisenhower (those relating to his career up to the end of his military service go through vol. 10)

Crusade in Europe

Letters to Mamie

At Ease: Stories I Tell to Friends

Dear General: Eisenhower's Wartime Letters to Marshall

Omar Bradley

A Soldier's Story

A General's Life: An Autobiography

George S. Patton

War As I Knew It (edited by Paul D. Harkins, himself later a four-star general)

The Patton Papers, 2 vols.

Douglas MacArthur

A Soldier Speaks: Public Papers and Speeches of General of the Army, Douglas MacArthur

Reminiscences

Walter Bedell Smith

My Three Years in Moscow

Eisenhower's Six Great Decisions: Europe, 1944-1945

Mark Wayne Clark

From the Danube to the Yalu

Calculated Risk

Thomas Troy Handy

None

Jacob Devers

None

Brehon Somervell

None

Air Force⁵

Henry Arnold

Global Mission

Carl A. Spaatz

None

Joseph T. McNarney

None

Hoyt S. Vandenberg

None

George Kenney

General Kenney Reports: A Personal History of the Pacific War

The MacArthur I Knew

The Saga of Pappy Gunn

Dick Bong, Ace of Aces

A 10-Book Sampler for the Air Warrior/Scholar's Desk Set

Vincent Esposito, *The West Point Atlas of American Wars*. This two-volume work is a classic without question. If you can find one in a used-book store, especially around Washington, by all means buy it. Each plate is accompanied by an authoritative narrative of the battles and wars in question. It is especially important because the typical air warrior is insufficiently cognizant of the importance of terrain to the soldier.

Roger Spiller, *Dictionary of American Military Biography*. There are wall-to-wall biographical reference books, some authoritative, but the single most useful and authoritative work that is comprehensive and compact enough to include in a desk set is Spiller's.

R. Ernest DuPuy and Trevor N. DuPuy, *Encyclopedia of Military History: From 3500 B.C. to the Present*. Although the airman might not agree with some of the biases of the editors and contributors, this work is the single most comprehensive and compact reference on military history and has reappeared periodically in updated editions.

Charles D. Bright, *Historical Dictionary of the U.S. Air Force*. The editor is a retired Air Force officer, and the volume is probably the most authoritative and comprehensive work that is focused on the USAF.

Enzo Angelucci, *The Rand McNally Encyclopedia of Military Aircraft, 1914-1980*. There are dozens of reference works on aircraft, and almost all of them are hard to use because the performance figures usually come from the manufacturers' hype and are more optimistic than those found in practical applications. This work is among the most comprehensive, is blessed with some fine artwork, and is generally accurate.

JCS Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*. One of the functions of theory and doctrine is the development of a common vocabulary that will facilitate discussion and learning among its practitioners. The imprecise use of words is the bane of air theory and doctrine, and it will behoove Air Force scholars to acquire this work and rely on it in their study and writing.

Noble Frankland, *The Encyclopaedia of Twentieth Century Warfare*. The editor is a former Royal Air Force official historian of considerable stature. The world abounds with so many encyclopedias of various wars that there are too many for a desk set. This work covers a wider array, is authoritative, and has some fine essays and artwork.

Robert Debs Heinl Jr., *Dictionary of Military and Naval Quotations*. The editor was a Marine Corps colonel known for his erudition and wit. This is only one among many reference books focused on military quotations, but it is among the best.

Victor Flinham, *Air Wars and Aircraft: A Detailed Record of Air Combat, 1945 to the Present*. Published in 1990, this book gives a comprehensive summary of all the air conflicts since 1945, along with authoritative information on the aircraft used in them.

AF Pamphlet 13-2, *Tongue and Quill*. This is one of the best works ever published by the Air Force. Now if we professors could figure out how to persuade our students (and ourselves) to take its advice, the world would be a better place.

One for Good Measure

Office of History, Air Force Development Test Center, *Glossary of Abbreviations and Acronyms Extracted from Histories*. I probably will get on the blacklist of my former colleagues of this office for setting their telephone to ringing, but if you can acquire this work, it will be a wonderful antidote for our common occupational disease—the excessive use and misuse of acronyms.

relatively uninhibited by the constraints endemic in all the limited wars that have been fought since then. Further, there are no Arnold Papers in print. Both Arnold's autobiography and his biography are too short (among their other limitations) to comprehensively depict the problems at the center of things. So the Marshall Papers are the nearest thing we have in print that would help us build a picture of what planning an all-out air war at the national level might be like.

According to General Kuter, who spent the greater part of World War II in Washington, George Marshall was the very best nonairman friend the AAF had.⁶ Unquestionably, Marshall went much further than necessary to give a maximum of autonomy to the AAF, short of a change in legislation. After the war, he remained the stalwart champion of an independent air force. Without his support, the US Air Force would have come out of the unification debate much weaker than it did.⁷ To understand what they are, professional air warriors/scholars must understand where they came from. They can gain a large part of that understanding from reading the Marshall Papers—and Pogue's biography of Marshall.

Another reason for the Air Force professional to take time to consider George Marshall is that doing so provides a fine case study to supplement one's examination of decision-making theory. One of the most renowned books on the subject is Graham T. Allison's *Essence of Decision: Explaining the Cuban Missile Crisis* (Boston: Little, Brown, 1971), a classical examination of President Kennedy's decision making in 1962. One could hardly have hoped for more laborious research and analysis than is evident in that book. Yet, it is but a single case, and the author is a preeminent member of the Harvard community (President Kennedy's alma mater). Thus, one must suspect that a bias in his favor crept into the analysis. A detailed study of Marshall, during another time and with a set of different problems, would certainly serve as a useful check on the student's thinking on the decision-making process.

I suppose that few of you serving warriors/scholars will have time to read the entire

four-volume Marshall set from stem to stern. Too, your book budgets would seldom bear the burden of buying the whole set. However, I strongly recommend that you take the time to spend a few hours in the library with these papers. It will be interesting, add to your database, and give you some fine ideas about one kind of good leadership.

But why do I have to make such a recommendation in the professional journal of the Air Force? Where are the published papers of the great air leaders of the past? Why can't we use the papers of Arnold, Spaatz, Billy Mitchell, Hoyt Vandenberg, and the others instead? Doubtless, the "preliminary list" of publications I have assembled here (page 60) is not definitive, but perhaps it is enough to suggest that the ideas of airmen have not found their way into print nearly as often as have those of soldiers. Although some mechanical reasons account for this situation (e.g., ground generals outnumbered air generals, and they unquestionably received better offers from the publishing industry at war's end), it does lend credence to the widely held idea that soldiers are of a more contemplative cast of mind than are airmen.⁸

The world of the Air Force has changed a lot since Danny Kaye painted his little Air Force vignette in the movie *The Secret Life of Walter Mitty* in 1947. That image of an Air Force officer was highly popular in Annapolis when Carl Builder and I were there soon afterward: an addled teenaged colonel, bedecked with ribbons extending all the way over his shoulder and a great white scarf, flitting around the world with great speed but not much direction.⁹ Well, six years after Danny Kaye first portrayed that view to the American public, only 32 percent of the Air Force officer corps had college degrees. Now all of them have bachelor's degrees, and from the senior captains on up, probably more than 32 percent hold graduate degrees. So where are the books? Why do the other services still seem to dominate the market for national-security literature? Why is that literature so disproportionately Army green or Navy blue? One of the reasons is that Rome was not built in a day. It takes some time for the newly (relatively

speaking) educated officer corps to get into its golden years to produce the writings that the Eisenhowers, Bradleys, and Clarks did in the wake of World War II.

But another mechanical factor is inhibiting the growth of the subfield of airpower history and national-security literature written by people with an insight to airpower theory and doctrine. In colleges all over America, one of the first things all new history graduate students and many political science candidates learn is that they must have primary sources in their footnotes! To get such information on Arnold or Spaatz or Vandenberg, one has to go to Washington to the Library of Congress. The last time I was there, the hotel bill was \$115 per night. Not many graduate students can afford that kind of green to spend days and days poring over the papers of the chiefs of staff. The official records of the commanding generals of the AAF and the chiefs of staff of the Air Force are at the new National Archives in College Park, Maryland. When I last visited, I got an "econo" motel room for a mere \$84—but still well above what a new graduate student can contemplate.

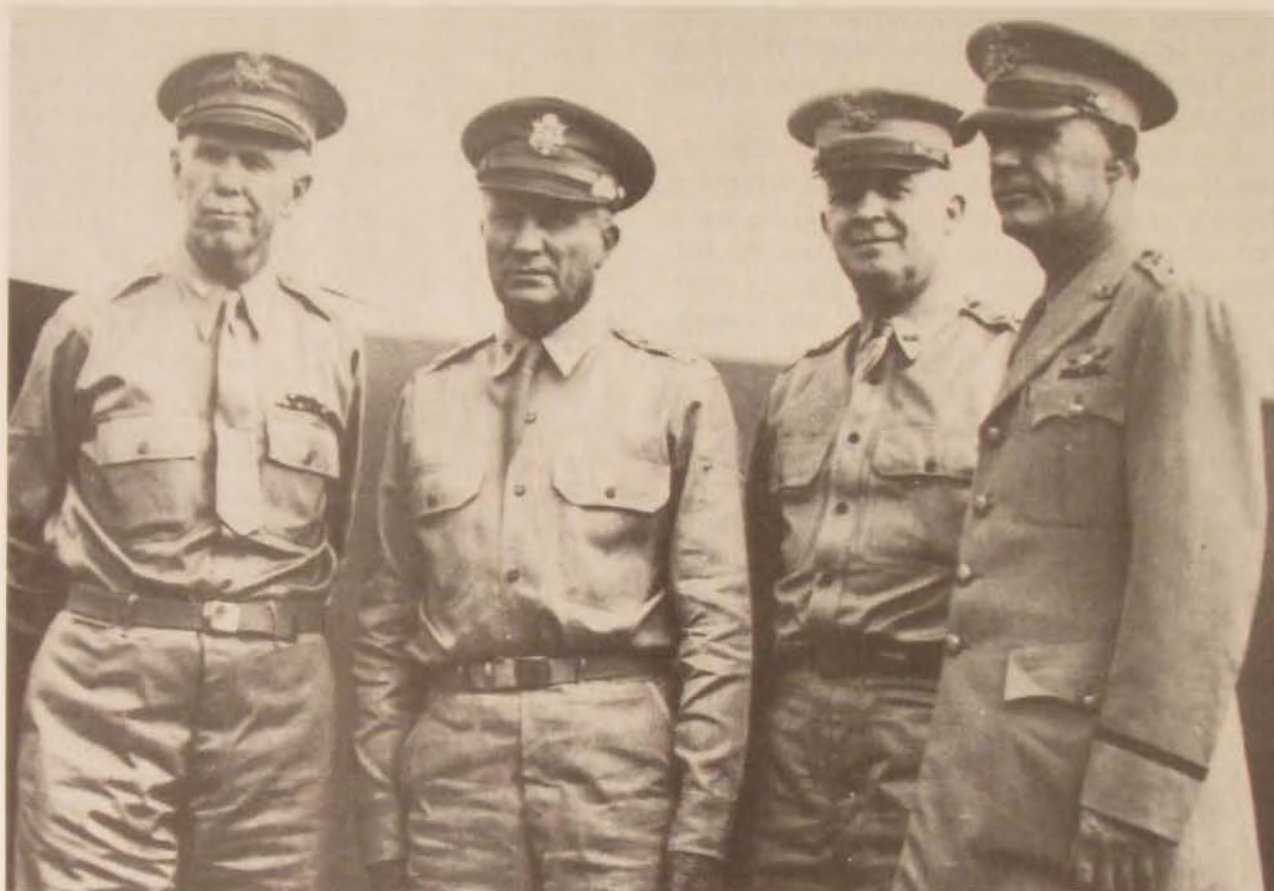
The result is that everywhere, semester after semester, more and more graduate students are considering this problem. They can go into their own university libraries for free and find lovely footnotes from the Marshall Papers, from the Eisenhower Papers, from the Patton Papers, and from the many memoirs done by any number of soldiers. That might be good for an A. Or they could go for the airpower stuff (and a B maximum) by looking at the memoirs of William H. Tunner, Arnold, and Brereton and get the rest from secondary sources. The result is that at the entry level, there is a strong current in the direction of military and naval studies, to the detriment of airpower studies. But when these budding theorists overcome their poverty by becoming tenured professors or congressional staffers, they already have a long road of surface-oriented studies behind them, and as the twig is bent, they say, so goes the tree.

But what is the point of writing all that for the audience of *Airpower Journal*? What in the



Grandison Gardner is another of the world war leaders of the second rank who are now little remembered. He led the proving-ground command during most of the war and was in place with a missile unit in the Philippines as the war ended. Later he was the founding commander of the Air Force Institute of Technology. According to Eglin AFB lore, Gardner never permitted a photograph without his hat because he was sensitive about his baldness.

world can its members do about it? Not much, I suppose. We have seen that Larry Bland has been at work on the Marshall Papers for a couple of decades—few among us can make that kind of commitment. I suppose that in our own studies and teaching, we can at least recognize this as a biasing factor of our raw material. Also, perhaps we can do a little to induce our students and colleagues to take up the ambition of putting it down on paper, as Eisenhower did and as Spaatz consistently refused to do. Maybe the leadership of the Air Force might also start thinking about attracting support for something like Larry Bland's George C. Marshall Foundation—say perhaps the Henry H. Arnold Institute with the mission of putting the published version of



Left to right: George C. Marshall, Frank Andrews, Henry Arnold, and Maj Gen Oliver Echols, circa 1942. Four volumes of the Marshall Papers are now in print, but those of both Andrews and Arnold are in the Library of Congress in unpublished form. Those of Arnold have been microfilmed, and a copy is at the Air Force Historical Research Agency at Maxwell AFB, Alabama.

Arnold's papers into every university library in the land.

Conclusion

Students of air war would probably do well to assemble a compact set of desk references specialized to their own profession. Some of the books listed in "A 10-Book Sampler" (page 61) are not in print, yet they remain among the best in the field. Rather than accept something that is in print but inferior, the air warrior/scholar might want to make a habit of roaming some of the used-book stores in Boston, New York, and especially around Washington. Avery Publishing of New Jersey has issued a set of books related to the *West Point Atlas* cited above. Many of the maps are

the same, and new narratives are provided in separate volumes under a series title *The West Point Military History Series*. These are in print and are useful, but if you can get the original *West Point Atlas of American Wars*, you should do so. Several generations of the Long Gray Line have carried the *Atlas* away from the Military Academy. Some have retired and passed on, and their books often wind up in Washington used-book stores.

A very useful book for students of war is *Thinking in Time: The Uses of History for Decision Makers* (New York: Free Press, 1986) by Richard E. Neustadt and Ernest R. May. One of its strongest recommendations is that decision makers faced with a new problem should look into three histories before they do their analysis: that of the organizations involved, that of the problem being considered, and the

personal histories of the main actors. The air warrior/scholar can use some of the biographies and biographical dictionaries for the lattermost sources, and other useful ones are the alumni registers of the various federal academies. They are easy to acquire and yield a modicum of helpful information on every graduate. Ten of the first 13 Air Force chiefs of staff were graduates of West Point, and all are entered in the *Register of Graduates and Former Cadets of the United States Military Academy*. They are useful for many things, such as noting that Benjamin Davis, William Westmoreland, and Creighton Abrams were all classmates.¹⁰ Further, the registers do not become dated very rapidly.

Such reference works are good for checking the accuracy of briefings and the like, and for understanding something about the people one deals with. All doctrine is wrong, and all books are no more than one view of the truth—and your reference desk set can serve as a check there, too. Also, when you are

assigned a staff study or research project of another kind, reference works are handy for a quick overview or summary for an opening move. As noted, electronic reference works are great force multipliers, in that they enable the storage of huge amounts of material in minimal space, and they enable the retrieval of information at a much faster pace than with hard copy. However, most such works are as yet too general in nature for the scholar of air war, and I suspect that the accuracy and currency of such sources are often unreliable. Once a mistake gets into one of them, like making a singular out of "US Army Air Forces," it tends to become like a virus and spreads indefinitely.

Finally, some of the most wonderful theories of airpower are built on a firm foundation of supposition. It therefore behooves true air warriors/scholars to check those undeclared assumptions against the facts, if they can. A good personal reference desk set will help them do that. □

Notes

1. The same Fehrenbach passage is quoted twice, on pages 199 and 284.

2. James A. Winnefeld and Dana J. Johnson, *Joint Air Operations: Pursuit of Unity in Command and Control, 1942-1991* (Annapolis: Naval Institute Press, 1993), 171.

3. Forrest C. Pogue, *George C. Marshall*, 4 vols. (New York: Viking, 1963-1987).

4. This collection was privately published and is therefore included. The Office of the Chief of Military History has recently published a complete set of Marshall's wartime reports to the secretary of war, but I did not include them here because Arnold had written similar reports, although they have not been republished. Too, Marshall's memoirs of his World War I service were first written in four volumes while he was a major in the 1920s and republished in 1976. I did not include them because Arnold had authored and coauthored (with Ira Eaker) several books before the war that I decided not to list.

5. Lewis Brereton and William Tunner both wrote memoirs that were published after the war, but neither officer ever became a four-star. General LeMay came out of the war a two-star and coauthored one book much later. This picture, I know, is skewed by the fact that the Army had many more generals than did the AAF and that the latter's were generally younger—and none of them rose to the prominence of Eisenhower, MacArthur, Bradley, and even Smith. Also, General Vandenberg died very young and could not have had the time to do any writing.

6. Gen Laurence S. Kuter, "George C. Marshall, Architect of Airpower," *Air Force Magazine*, August 1978, 65-67.

7. There seem to have been limits to his enthusiasm for airpower, however. Brig Gen Noel Parrish, in "Behind the Sheltering Bomb: Military Indecision from Alamogordo to Korea" (PhD diss., Rice University, 1968), argues strongly that George Marshall was obsessed with the standard Army view that final victory can come only with "boots on enemy turf." Indeed, he refused to consider the arguments of many air and naval officers that the submarine blockade and strategic bombing would bring Japan down without the thousands of casualties that would have been involved in the invasion of the home islands. According to Parrish, only the atomic bombs prevented Marshall from having his way and saved all those lives.

8. This is a common theme of many authors, one of whom is Carl Builder in *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: Johns Hopkins University Press, 1989) and *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).

9. *The Biographical Dictionary of World War II Generals and Flag Officers* does yield some interesting trivia. It shows that the youngest US Marine Corps general in World War II was born in 1898. The youngest AAF general was born in 1915 and was 28 years old when he became a brigadier general. One of his colleagues was born in 1914; 140 AAF generals were born in the twentieth century, while none of the Marine generals was born after 1898. That is one significant way that the Air Force officer corps has changed since the creation of the USAF.

10. They were members of the class of 1936; Davis's class standing was the highest of the three.

Peering through Different Bombsights

Military Historians, Diplomatic Historians, and the Decision to Drop the Atomic Bomb

DR. JEFFERY J. ROBERTS

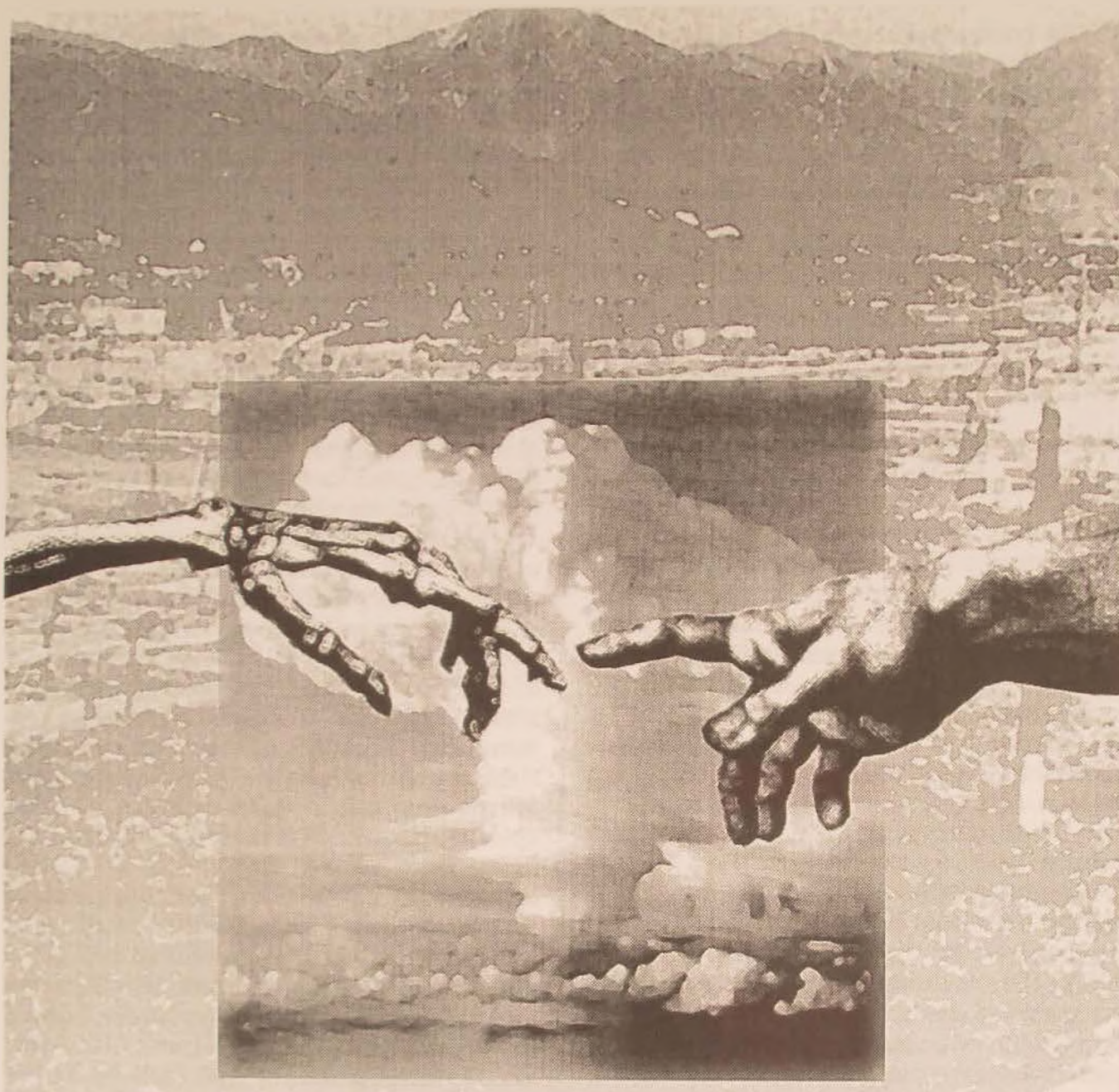
FOR 51 YEARS, questions surrounding the use of the atomic bomb have prompted extensive inquiry.¹ Various authors, working from essentially the same historical record, continue to reach dramatically different conclusions. Those dubbed "revisionists" reject the notion that the bombings were necessary, while others support an "official" endorsement of the attacks to limit Allied casualties and secure Japanese surrender.

In recent years, the revisionists have maintained an upper hand in the debate. They seem possessed of an inherent advantage, in that traditionalists are wedded to one conclusion, while the revisionists can offer various hypotheses as to the underlying reasons behind President Harry Truman's decision. Their ability to claim discovery of the "truth" behind the bombings, be it "atomic diplomacy," racism, scientific curiosity, cost justification, or whatever, constitutes a powerful advantage in both attracting publishers and selling copies. Their opponents are commonly relegated to voicing their opinions in articles or within the context of manuscripts on earlier campaigns, hypothetical invasions, or other Pacific-war themes. The relative success of the revisionists can be measured by surveys

which show that many Americans now disagree with Truman's judgement.²

Although atomic questions have attracted a wide range of writers, traditionally the most strident defenders of the official position—aside from the decision makers themselves—have been military historians. The leading revisionists (not necessarily the most radical ones),³ on the other hand, are experts in diplomacy. Consider that the special, "A-bomb-centric," Spring 1995 edition of *Diplomatic History* contained seven articles, all of which were at least sympathetic toward, if not overtly supportive of, revisionist conclusions. By the same token, in its Hiroshima anniversary edition, *Military History Quarterly* did not publish a single article of revisionism.⁴

Admittedly, exceptions to such generalizations exist. In recent years, military historians have examined possible nonatomic options and at times seem to express a preference for them.⁵ Not all diplomatists are revisionists, either. Some diplomatic historians count themselves among the most ardent defenders of Truman's decision.⁶ Other diplomatists have staked out a quasi-middle ground. They concede Truman's concerns over casualties and commitment to Franklin Roosevelt's unconditional-surrender precedent, yet also see postwar political consid-



erations at work. Truman's decision, stemming from a sum of concerns, is left in somewhat tilted moral abeyance, as "probably unnecessary."⁷

That the majority of diplomatic historians would prefer diplomatic solutions, while specialists in the military more readily accept military options, should surprise no one. More noteworthy are the inherent historiographical differences between both groups. An

analysis of such differences, it would seem, would go a long way toward explaining patterns in the atomic bomb debate.

I hold a PhD in military history and have been a member of the Society of Military History (SMH) for over a decade. Yet, I also joined the Society of History of American Foreign Relations (SHAFR) in 1986, when I opted for a minor in diplomatic history. I have since attended more than a dozen SMH and

SHAFR conferences and in the process have noticed several differences in the perspectives, approaches, and styles of the two organizations and their constituents.⁸

For those who fought World War II, the bombs served to end a cataclysmic struggle. For their descendants, however, the bomb brought forth fear of a new, more horrifying cataclysm.

I'll admit some temptation to dismiss the discrepancies as reflective of the politics of the presenters. Fifteen years of observation lead me to conclude that military historians are, on average, more conservative than most historians, most professors, and perhaps even most Americans. By the same token, I am of the opinion that diplomatic historians, their leadership in particular, lean distinctly to the political left.

Politics admittedly influences one's perspective and in some cases may be all that really matters. No doubt some "historians" enter the fray looking for "evidence" that can be made to fit their preconceived conclusions. Yet, the radical divergences of the atomic bomb issue have deeper origins. Diplomatic historians and their military counterparts not only arrive at different conclusions, they don't even ask the same questions. More often than not, even their introductions scream divergence.

Those who endorse Truman's decision usually begin with vivid descriptions of the fighting in the Pacific theater, climaxing with the wholesale slaughter of Iwo Jima and Okinawa. After they recount the ferocity of these battles, the bombs follow logically as a reprieve from further carnage promised by an amphibious invasion of the Japanese home islands.⁹

Dissenters, convinced that Japan was beaten and ready to surrender, rarely bother with descriptions of island fighting. Instead,

they routinely express revulsion at the carnage produced by the bombings themselves, at times presaging their analysis with sympathetic portraits of Japanese "victims." They instinctively express revulsion at the manner in which atomic weapons brought instant incineration to many people and a slow, lingering demise to many more. They further condemn the attacks on Hiroshima and Nagasaki for being directed predominantly against noncombatants. Overall, they express a fundamental sense of indignation that use of atomic bombs, regardless of specific rationale, was an ethical atrocity.¹⁰

Moral attacks on the Hiroshima decision, however, seem to have less to do with the Pacific war than with the dawn of the nuclear age. For many people, to oppose the bombing of Hiroshima and Nagasaki is to oppose nuclear weapons generally, and the possibility of a third world war especially. A recent work laments the "grave and little recognized costs of Hiroshima: nuclear entrapment, moral inversion, national self-betrayal, enduring patterns of secrecy, deep cultural confusion, and the fear of futurelessness."¹¹ The chief opposition to Hiroshima, however, is the fear that such weapons might be used again: "As long as we continue to defend and justify the Hiroshima model, we risk making that kind of decision again. . . . Our choice today is between perpetuating a mindset that allows another Hiroshima, or creating one that prevents that outcome and embraces human life."¹² Added to this is a generational divide: for those who fought World War II, the bombs served to end a cataclysmic struggle. For their descendants, however, the bomb brought forth fear of a new, more horrifying cataclysm.

Military and diplomatic historians reflect these generational differences. World War II has had a profound effect in shaping the attitudes of the military history profession and remains a very popular subject at SMH meetings, as well as the subject of several specialized conferences. More importantly, it forms a base and standard to which all ensuing, and several previous, conflicts are commonly compared.

Furthermore, to the people who fought it—and most of those who study it—World War II remains a “good war,” in which the Allied powers defeated two of the most ghastly regimes of the modern era, or indeed all human history. The destruction of Nazi Germany and Imperial Japan was without question a considerable achievement, and that achievement gave the combatants—and most of those who write of them—a pervading moral rectitude that persists.

In telling contrast, the most numerous sessions at SHAFR conference, often comprising more than half the program, have dealt with the cold war. Many of the most popular of those sessions have dealt with Vietnam. Instead of a veritable crusade as a base, diplomatic historians start with a war of dubious morality, wherein one encounters politicians who routinely ignore advice and data, to embark on campaigns devoid of strategic logic, all in the name of false theories or saving face. The combatants emerge with little sense of accomplishment from a country that just didn’t matter—and a war that never should have been fought. There should be little surprise that diplomatic historians approach their craft with inherent doubt.¹³

Other cold war issues enhance these suspicions. Central Intelligence Agency activity in Cuba, Iran, Indonesia, and elsewhere, as well as ongoing attempts to mask these actions, has spawned an inherent distrust of Washington within the SHAFR ranks. I sincerely believe that many diplomatic historians, rather like journalists in the wake of Watergate, now believe their primary task to be exposing governmental lies. Given a standing assumption that official versions of events are likely fabrications, it follows that diplomatic historians are naturally inclined to seek the “real reason” for dropping the atomic bombs.

Not so long ago, I received a student exam which mistakenly placed the atomic bombs amidst the Vietnamese conflict. Perhaps I should not have been so harsh in my criticism, for the reading of certain revisionist scholars could certainly lead the inexperienced to that conclusion. On a conceptual

plane, if not a chronological one, I would argue, the bombs are repeatedly dropped in Vietnam. By applying this framework to 1945, revisionists can conclude that arguments about limiting casualties are mere cover, and the failure to employ alternate methods must stem from ulterior motives.

Most diplomatic historians, rather like journalists in the wake of Watergate, now believe their primary task to be exposing governmental lies.

For some time, the most fashionable revisionist explanation for Truman’s decision has been that various officials desired to intimidate Joseph Stalin, perhaps even preventing him from securing territorial gains promised at Yalta. There is no hard evidence to indicate that Truman, arguably the most blunt and outspoken man to occupy the Oval Office, ever regarded such diplomatic issues as paramount. To the revisionists, however, recurrent examples of anti-Soviet policy, coupled with assertions that Truman and others routinely “doctored” invasion casualty estimates in postwar justifications for the bombings,¹⁴ allow for inferential accusations that Truman was either of devious mind himself or putty in the hands of his advisors.

Military historians do not deny that members of Truman’s staff assessed the impact the bomb would have on the USSR. Such analysis would seem, after all, to fit their job descriptions. But while some people perhaps concede that diplomatic concerns may have augmented, sustained, or confirmed Truman’s decision, they do not accept the argument that the bombs were dropped primarily to scare the USSR. Their willingness to accept Truman’s justifications may reflect a greater trust in national leaders or their sense of overall Allied rectitude in the war. It may also reflect greater acknowledgement of Harry Truman’s own military history. Here was a



President Harry Truman. Here was a man who had commanded troops in battle in World War I. He knew the importance of saving the lives of his men.

man who had commanded troops in battle, in World War I, and knew the importance of saving the lives of his men.¹⁵ Now in command of the entire American armed forces, it stands to reason that saving lives while ending the war on American terms would indeed be his highest priority.

Furthermore, while diplomatists see the bombs as a radical departure, military historians more readily place them within the context of strategic precedents. Military historians acknowledge that societies have at times imposed bans on weapons deemed unfair, ungentlemanly, too destructive, or otherwise inappropriate.¹⁶ Yet, they also recognize that the atomic bomb did not have the symbolic weight in 1945 that it has taken on in five decades since. Those who judge Truman's decision as intrinsically evil are employing postwar standards.

Curiously, another weapon did have a similar stigma in 1945: poison gas. Although American commanders at times considered

the use of gas, for example, in planning the invasion of Iwo Jima, they jettisoned such projects.¹⁷ Had the American leadership been as morally bankrupt as some revisionists portray it, one wonders why gas was not used on the Japanese at some point.

Military historians often debate the definition of "civilian" as it relates to modern warfare. Some insist that all civilians, regardless of how much they appear to support their government, should be absent from targeting lists. Others dismiss the whole issue of "combatant versus noncombatant" as but a relic of preindustrialized warfare. Regardless, virtually all agree that such distinctions became blurred rather early in World War II. Upon the acceptance that the war-making capabilities of societies, not merely armies, were valid targets, there stemmed considerably less aversion to strategies and tactics that killed primarily civilians. When coupled with the modern state's reliance on reserve forces—to include in desperate times militia, home

guards, and their ilk—the border distinguishing military personnel from noncombatants became even more hazy.

Although most military historians are willing to allow for categorical stands against strategic bombing on grounds of morality—or relative lack of military value, or both¹⁸—to condemn the atomic bombs alone without also criticizing attacks on Dresden, Hamburg, Coventry, Rotterdam, Nanking, and so on, can be seen as selective, if not inappropriate. From the standpoint of commanders in 1945, the bomb was as much a continuation of existing policy as deviance from it. Those people likely saw no serious difference between atomic incineration and conventional saturation bombing, such as the fantastic destruction delivered upon Tokyo in March. Morally speaking, the key issue was the decision to destroy cities, and that, right or wrong, had been made much earlier.

Revisionists have identified several alternative strategies, suggested to Truman at some point, which they believe could have averted

both the bombs and an invasion of Japan. Naval commanders advocated continued blockade, while their Army Air Corps counterparts favored sustained bombing. Neither was mutually exclusive.

Military historians see foibles in the alternative proposals. A blockade, for example, might have taken months—or even years—to achieve the desired results. Furthermore, aside from prohibitive costs, logistical challenges, and home-front impatience, a blockade risked starving to death thousands of Japanese. Adding continued conventional bombing only heightens the potential carnage.

Beyond this, Allied casualties would have continually mounted. At least 16 million people had already died in the Pacific war by the summer of 1945. Given that millions were still under the yoke of Japanese imperialism, thousands would have continued to die due to starvation, disease, and mistreatment. Among them were roughly hundreds of thousands of Allied prisoners in Japanese captivity.



Conventional or nuclear? From the standpoint of those in command in 1945, the bomb was as much a continuation of existing policy as deviance from it. Those in command likely saw no serious difference between atomic incineration and conventional saturation bombing, such as the fantastic destruction delivered upon Tokyo in March.



Although MacArthur's postwar comments questioning the necessity of the bomb's use are often quoted by diplomatic historians, a thoughtful reader must wonder about a general who was the strongest proponent of an invasion of the home islands in 1945, despite the fact that his casualty estimates were among the highest offered to Truman.

Policy makers in 1945 understood that, compared to an invasion, bombing and blockade promised lower immediate losses but provided no quick guarantee of capitulation and hence no insurance of long-term casualty reduction. The bomb risked few American lives and seemed a boon to surrender. Thus, it seemed the best option to Truman and his advisors.

Diplomatic historians have attempted to fortify their position by uncovering lists of officials who have expressed postwar doubts about the bomb's necessity. Their lists of "notables" include not merely a spate of scientists, theologians, politicians, journalists, and literati, whom military historians rather promptly dismiss as figures unlikely to fully grasp issues of strategy and tactics, but top-level military leaders, such as Gen George Marshall, Gen Douglas MacArthur, and Adm Ernest King.¹⁹

These three names might seem impressive at first but upon close scrutiny seem unlikely to sway military experts. George Marshall was a man of great administrative ability and a principal architect of the overall victory. Yet, was Marshall a strategist upon whose cost/benefits analysis of a potential invasion of Japan one should weigh the decision to drop the atomic bomb? Is this not the same George Marshall who advocated a cross-channel attack into France in 1942—and again in 1943? Had Roosevelt listened to Marshall in those circumstances, the American Army would likely have suffered catastrophic defeat.

MacArthur's postwar opinions were likely skewed by his virtual assumption of the emperor's authority during Japanese reconstruction. Aside from sentiments derived therefrom, one should not discount political motives from a man whose position on the bombs varied with time, and who made his opposing remarks at a point when he was considering a Republican run for the presidency. Beyond that, MacArthur never acquired a reputation as a "soldier's general." On the contrary, military historians, Australian ones in particular, have often characterized MacArthur as self-absorbed and callous. That he was the strongest proponent of an invasion of the home islands in 1945, despite the fact that his casualty estimates were among the highest offered to Truman,²⁰ speaks volumes about MacArthur but seems unlikely to sway those who support the president's decision.

In his memoir of 1952, King stated his belief that "had we been willing to wait, the effective naval blockade would, in the course of time, have starved the Japanese into submission."²¹ Thus, King's views are predicated on a highly debatable assumption.

Of all the postwar services, the Air Force likely sported the most bomb naysayers. Several Air Force commanders²² echoed the assertions of the United States Strategic Bombing Survey, which, upon publication in 1946, boasted of inevitable Japanese surrender due to conventional bombing alone. Although a few military historians find the survey convincing, others dismiss it, along with King's similar claim, as so

much service bravado—often with postwar budgetary concerns attached.

Most military historians remain unimpressed by lists of bomb detractors. Indeed, one suspects that they could strengthen their own arguments by compiling equally lengthy lists of those who did *not* express postwar doubts, including the entire leadership of the United States Marine Corps, whose men would assuredly have been at the forefront of any invasion of Japan.

More importantly, while postwar skeptics are relatively common, those who expressed reservations before Hiroshima are few and far between. Despite considerable effort, no one has yet discovered any documents that demonstrate a high-ranking military officer's contemporary opposition to the bomb.²³ Very few had the opportunity to voice any concerns.²⁴ When they did, the role they played was either supportive or ambiguous. Marshall, for example, not only supported the Hiroshima and Nagasaki strikes, he favored the use of as many as nine additional bombs as prelude to invasion of the home islands, should that still be necessary.²⁵

Another common revisionist argument claims that if Truman had adopted the recommendations of certain advisors to modify the terms of unconditional surrender and guarantee the emperor's retention, the war could have ended without invasion or atomic attacks. The fact that certain Japanese civilian politicians favored peace in the summer of 1945, however, seems almost inconsequential, given a nation wherein the military had consistently imposed its will on civilians since the invasion of Manchuria in 1931. The militarists opposed capitulation, barring further conditions; these included self-disarmament, self-prosecution of war criminals, and the retention of Korea, Formosa, and other parts of their empire. Most of the militarists held to these views, unacceptable to all the Allied powers, even after Hiroshima and Nagasaki.²⁶ When one considers that three civilian prime ministers had been assassinated since the 1920s for opposing the military's prerogatives, ascribing to the civilian govern-

ment an ability to successfully oppose the military seems wishful thinking at best.

Furthermore, by 1945 the United States had little use for diplomacy vis-à-vis Japan. Given memories of the fall of 1941, America was naturally and understandably suspicious of further overtures and likely equated all "peace conditions" with appeasement. Given these dynamics, neither the details of the proposals themselves nor the limited extent of support for them makes any real difference.

Finally, one should note that when Japan did offer to surrender, its government did so conditionally, provided that the emperor be retained. The United States tacitly accepted this offer (with Hirohito subject to MacArthur's directives) as relatively close to "unconditional surrender," overriding the arguments of some Allies, notably the Australians, who wanted to hang Hirohito. Japan could have posed this offer before August. That it did not suggests that the status of the emperor was not the sole stumbling block to peace.

At the heart of this issue is the question of whether Japan really was willing to surrender. With hindsight, the revisionists see an isolated Japan pummeled from all sides, devoid of any real chance of "victory." By all logic, Tokyo was beaten. Aircraft bombed the homeland daily while warships shelled the coast at will. The Japanese faced chronic shortages in equipment, raw materials, and food. Most importantly, they had no allies and were fighting the entire world by themselves.²⁷

Yet, military history is full of examples of people who seemingly should have surrendered but did not. Was there not, for example, a critical food shortage at Leningrad? Did the besieged surrender or fight on, with people dying of starvation throughout the next nine hundred days of battle? Eleventh-hour victories have been seized from the jaws of defeat. On some occasions, miracles do occur, as with Frederick the Great in the Seven Years' War. Given Japanese ideology and history, especially their "undefeated" record in warfare and mythology of miracle victories, surrender was never certain, even upon the use of the atomic bombs.

Had the bombs not been used, there is some likelihood that an invasion of the home

All analysts agree, however, that Japanese casualties would have been extensive and in all likelihood greater than those suffered at Hiroshima and Nagasaki combined.

islands would have occurred. Both diplomatic and military historians have spent considerable time and effort in seeking casualty estimates for the proposed invasion.²⁸ Both sides are selective in the evidence they employ. The revisionists prefer preliminary Joint Chiefs of Staff studies, the postwar Strategic Bombing Survey, or recommendations of the invasion-optimistic Marshall. Other "smoking guns" better feed the official position, such as the large stockpile of minted Purple Heart Medals or Medical Corps blood-requirement estimates, which anticipated casualties in the hundreds of thousands.²⁹

It is curious that many diplomatists, who in other writings assume that documentation has been destroyed, "doctored," gone missing, or was simply never recorded, are wedded to hard evidence throughout the atomic bomb debate. Does it not stand to reason that Truman would have inquired of his advisors and commanders as to the ramifications of invasion in informal settings? Does it also not stand to reason that he may have received equally informal answers such as a generic "thousands" or "lots" or "too many"?³⁰

Military historians have attempted modern assessments of what would have happened in a hypothetical invasion of the Japanese home islands. The extent of Japanese preparations, usually ignored by people who insist that Tokyo was on the verge of surrender, serves as their chief source of "proof." Traditionally, such assessments have leaned toward the high end in casualty estimates, arguing that the bombs prevented what would have been the largest operation of the war. Such cata-

strophic scenarios remain plausible, given the sheer numbers of Japanese regular forces and militia, kamikaze aircraft and boats, and the possible employment of gas and germ warfare.³¹ Other recent assessments are less pessimistic, seeing Japanese military power as nearly exhausted, dependent on untested forces, and vulnerable to American counter-measures.³²

Proof as to potential casualties is fleeting, as such would have depended primarily on when, after the initial landings, Japan surrendered. All analysts agree, however, that Japanese casualties would have been extensive³³ and in all likelihood greater than those suffered at Hiroshima and Nagasaki combined.

Disagreements surrounding potential casualties underscore what is perhaps the most critical difference of perspective between diplomatists and military historians. Diplomatic historians often ascribe relative value to Truman's decision. Implicit in their invasion-casualty arguments, though rarely stated outright, is an effective equation of Japanese lives with American ones. Following a comparison of actual casualties at Hiroshima and Nagasaki with the lower projections for an invasion comes the notion that killing 180,000 Japanese for the sake of "only 30,000" Americans is not justifiable.

Military historians respond that one of the primary duties of an officer, including the commander in chief, is to limit his or her *own* casualties. For Harry Truman to order the incineration of thousands of Japanese for the sake of hundreds of thousands or "merely" tens of thousands of American or Allied lives—is not out of step with priorities, duty, or ethos. Support for his decision thus remains steadfast, even if one accepts the minimal invasion-casualty estimates now preferred from Stanford to the Smithsonian.

Avoiding unnecessary enemy casualties has long been part of modern "just war theory," but such concerns come into effect only after the enemy actually has surrendered or has clearly been defeated. Until that time, limiting enemy casualties of necessity remains a minor concern. Problems admittedly arise in determining when the enemy has been beaten.

Given any indication of Japanese determination to fight, however, any competent commander would rightly take no chances. Is it not far better to sacrifice more enemy personnel than might actually be required, than in any way to risk the lives of one's own?

A few radical revisionists have argued that race hatred was the prime motivation for the atomic bombs.³⁴ Such accusations seem to overlook the anti-German background of the Manhattan Project,³⁵ the exclusion of Kyoto from target lists, and the benign occupation policy that followed the war. Such charges seem all the more fraught when one considers that many Asians—particularly Chinese, Koreans, Filipinos, and Vietnamese—were as enthusiastic about Japan's defeat as any "white" conquerors.

Admittedly, though, in 1945 there was near-universal approval, naked joy, and perhaps even malicious delight that the Japanese had gotten what they deserved. It may be impossible for people now to grasp the loathing then held for the Japanese. But as diplomatic historians have increasingly voiced accusations of racism, military historians seem more understanding of these emotions, often tracing their origins to Pearl Harbor, the Bataan Death March, or other examples of aggression and mistreatment of captives.

More importantly, military historians more readily acknowledge that within the context of war, there has usually existed an inherent loathing for the enemy. When, after all, has any nation fought against a people it liked? Although enemies do not have to be "hated" per se, armies and societies commonly have tolerated or openly fostered the use of pejorative terms and other methods of dehumanization as one means of justification for killing. Such feelings often exist even when the enemy is "just like us." Civil wars, after all, are commonly the most vicious and unrestrained of conflicts. Perhaps it is time to question whether racism, which admittedly flowed freely from both sides in the Pacific war, was the source of its brutality or just a readily available conduit for hostility that would have existed anyway.

One hypothetical question may shed light on the entire issue: would there be so much flak about the atomic bombs if Little Boy and

By revisionist standards, was not the Battle of Berlin (which consumed several times more lives than Hiroshima and Nagasaki combined) unnecessary and therefore condemnable? No respectable historian, regardless of subfield, is currently making such an argument.

Fat Man had been finished earlier and landed somewhere in Germany?

If we apply the revisionists' standards to the European theater, their basis for critique seems even more powerful than it does in the Pacific. By any calculation, Germany was a beaten nation by the early spring of 1945. The German army faced shortages in all areas, while the Luftwaffe had been so severely drained as to be incapable of mounting effective opposition to the waves of Allied bombers which rained destruction daily and nightly upon a handful of partially intact cities. While Hitler, much like his Japanese counterparts, alternated between fanatical resistance and some form of mass suicide, persons of power in Germany saw the handwriting on the wall and were frantically scrambling for a diplomatic solution—Albert Speer for example. The Allied high command ignored Speer and the others. Few modern historians begrudge their decision.

Instead of pursuing diplomacy, Russian forces entered Berlin, where they slaughtered hundreds of thousands of German troops and civilians, while losing hundreds of thousands of their own. By revisionist standards, was not the Battle of Berlin (which consumed several times more lives than Hiroshima and Nagasaki combined) unnecessary and therefore condemnable?

No respectable historian, regardless of subfield, is currently making such an argument.

Nor would such arguments seem likely, even if an atomic bomb had added to the European carnage. Instead, I would argue, historians would unabashedly exclaim that if the bombs had saved but one victim from the Nazi death camps, their use was justified. Given the failures of appeasement, the knowledge of Nazi atrocities, and a resolve to see the last twisted vestiges of Prussian militarism permanently exorcised, one hears remarkably few complaints on the finale of unconditional-surrender policy in Europe. This is largely because knowledge of the Holocaust has fostered an association of the Nazis with unmitigated evil that is shared by all sane historians and renders would-be apologists impotent.

Imperial Japan, however, is not always held in the same light. One can attribute this to a multitude of factors, ranging from different victims, disparate organizational structures, translation difficulties, destruction of records, and postwar policy. Whether Japan and Germany should be effectively equated is an important question, however, which affects the probity of unconditional-surrender policy and Truman's decision. Military historians do commonly make such an equation; their diplomatic counterparts do not.

Although they never are Nazi apologists, many diplomatic historians seem to regard war as one big atrocity, from which differentiating among combatants is an exercise in biased judgement. A few revisionists even excuse Japanese behavior (e.g., their treatment of prisoners) as reflective of "cultural differences."³⁶ Most importantly, diplomatic historians commonly reject citations of Japanese atrocities in support of the atomic bombings as nothing but a "two wrongs make a right" argument.

Military historians see more logic in such a contention. While revisionist works have multiplied, military historians, survivors of the war, journalists, and others have responded to portraits of Japanese "victims" with a plethora of books designed to show otherwise. Works on Japanese chemical and biological warfare,³⁷ their treatment of prisoners of war,³⁸ and their system of military prostitution³⁹ certainly challenge notions of the Japanese as innocent dupes of American

racism and imperialism. One might well conclude that logic, negotiation, and moral suasion seemed outmatched opposite those who were known to behead prisoners, eat their livers, and adjourn for a night of raping the local slave-prostitutes. With the moral repugnance felt for Imperial Japan comes an acceptance that in order to defeat a brutal regime, brutality itself is often required. Whether to maintain the ethical high ground or to repay bad behavior with similarly harsh acts is a profound moral dilemma. Unfortunately, it is a fairly common one in warfare. Harry Truman struggled with this personally. The day after Nagasaki, he lamented, "I can't bring myself to believe that, because they are beasts, we should ourselves act in the same manner." Yet, he went on to state, "When you have to deal with a beast, you have to treat him as a beast."⁴⁰ Viewed broadly, this seems less racism than a rational acknowledgement of the enemy's determination to resist and a willingness to convince him otherwise.

Military historians do not readily abandon the rules of war. But they do seem more likely to accept a "whatever it takes to get the boys home" stance when the enemy has proven himself anathema. Given that Japan committed atrocities that are readily comparable to the war crimes of the Nazis, most military historians can share with World War II veterans a feeling of vindication. That sense of rectitude is enhanced by a strong desire to prevent any further Allied casualties and a belief that other options were unlikely to be less bloody in the long run. Given extensive precedents and/or moral ambiguity regarding the "civilian" component in the attacks, they maintain support for Truman's decision.

As to which side is "right," I will concede limited room for debate, though I admittedly lean toward the one that places the bombs in the context of the war in which they were dropped and take exception to "generational chauvinism" (i.e., judging past events by contemporary standards). In varied analyses of the failure in Vietnam, military historians have noted that the application of strategic principles derived from World War II, within that inappropriate environment, either exacerbated or led

directly to catastrophe.⁴¹ By the same token, should not historians beware those people who seem to apply historiographic parameters of the 1960s to strategic decisions of 1945?

A brief comparison can perhaps illustrate some dangers. Were not the North Vietnamese totally outclassed on paper? Were their casualties not totally disproportionate to those of the Americans? Did they not endure blockades, shortages, and more "conventional" bomb tonnage than all combatants in World War II combined? Did they surrender, or achieve their objectives? Such analysis, if taken far enough, seems to prompt the question on why nuclear weapons were not used in Vietnam. Such a prompt would represent the exact opposite intent of revisionist arguments.

Both military and diplomatic historians have made important contributions to the atomic bomb debate. If nothing else, their incessant analysis of Hiroshima and Nagasaki, as well as their graphic depictions of the suffering therein, has helped to steer later generations away from the callous use of atomic weapons. Although many people are offended by those who challenge the validity of Truman's decision, I prefer to see something inherently humane in the work of those searching for nonatomic options. That the two groups differ so widely in conclusions, however, no doubt stems from their markedly divergent perspectives of, approach to, and analysis of the issues. □

Notes

1. For example, 1995 witnessed publication of at least the following seven works: Thomas Allen and Norman Polmar, *Code-Name Downfall: The Secret Plan to Invade Japan—and Why Truman Dropped the Bomb* (New York: Simon & Schuster); Gar Alperovitz, *The Decision to Use the Atomic Bomb and the Architecture of an American Myth* (New York: Knopf); Robert Jay Lifton and Greg Mitchell, *Hiroshima in America: Fifty Years of Denial* (New York: G. P. Putnam's Sons); Robert James Maddox, *Weapons for Victory: The Hiroshima Decision Fifty Years Later* (Columbia: University of Missouri Press); Robert P. Newman, *Truman and the Hiroshima Cult* (East Lansing, Mich.: Michigan State University Press); Philip Nobile, ed., *Judgment at the Smithsonian: The Bombing of Hiroshima and Nagasaki* (New York: Marlowe); and Stanley Weintraub, *The Last Great Victory* (New York: Truman Talley Books).

2. Barton J. Bernstein, "The Struggle over History," in Nobile, 202-4. For decades after the war, opinion polls demonstrated support for the decision to use the atomic bombs, often by wide margins. In the 1990s, polls show that a slight majority of American women, minorities, and young people (under the age of 30) now disagree.

3. Probably, the most radical is political-economist Gar Alperovitz, whose *Atomic Diplomacy: Hiroshima and Potsdam* (New York: Simon & Schuster, 1965) argued that the atomic bombs were meant to intimidate the Soviet Union rather than to end the war quickly. The bottom line in his subsequent works is little changed from his earlier publications. Recently, "scholar of race" Ronald Takaki has promoted another radical line. In *Hiroshima: Why America Dropped the Atomic Bomb* (Boston: Little, Brown, 1995), he makes race the crux of his argument, while further deriding Truman for excessive Anglo-Saxon machismo expressed in a "diplomacy of masculinity."

4. *Military History Quarterly* 7, no. 3 (Spring 1995), contained 16 articles. Most strongly supported the official position, especially Williamson Murray, "Armageddon Revisited," 6-11; Rod Paschall, "Olympic Miscalculations," 62-63; and Edward J. Drea, "Previews of Hell," 75-81. The only one to mildly question the position was Peter Masiowski, who in "Truman, the Bomb, and the Numbers Game," is critical of postwar invasion-casualty estimates. In its nine years of publication, *Military History Quar-*

terly has published only one overtly revisionist piece, five years before in vol. 2, no. 3. Charles Strozler's "The Tragedy of Unconditional Surrender" states that "there was no need to invade Japan or drop the bomb" (11). *The Journal of Military History* has not strayed widely from the official thesis either. Since 1991 *JMH* has published about 10 articles on the Pacific war. Most all of them are wholly or largely tangential to the atomic bomb issue; none are revisionist.

5. John Ray Skates, *The Invasion of Japan: Alternative to the Bomb* (Columbia: University of South Carolina Press, 1994). Skates, for example, seems to imply that an offer of less-than-unconditional surrender prior to August 1945 possibly could have avoided the bombings.

6. Chief among them is Maddox.

7. Chief among them is Bernstein, 195ff.; and idem, *The Atomic Bomb: The Critical Issues* (Boston: Little, Brown, 1976). Curiously, Bernstein's impressions of Truman have mellowed with time. An earlier edited volume, *Politics and Policies of the Truman Administration* (Chicago: Quadrangle Books, 1970), is more critical, effectively placing the burden for starting the cold war on Truman's shoulders.

8. Although I have attempted to substantiate the claims made in this article with written documentation, I willingly acknowledge that many of my opinions have been formed over time through observations made at SHAFR and SMH conferences. This includes information from actual conference sessions and question-and-answer sessions that follow, as well as attitudes displayed at dinners, in book exhibits, at receptions, and so on. Such perceptions have been elucidated in regular contacts with other members of the profession (letters, phone calls, etc.) and routine examinations of newsletters and journals. Furthermore, subscribing to Internet lists such as H-WAR, H-WWII, and H-DIPLO also gives one general impressions and hints as to historiographic patterns. What all this is leading to is that readers may find places in the article wherein generalizations are made without reference to specific written sources. In some cases, it is because I see the statement as blatantly obvious and unlikely to evoke criticism. In other cases, however, the above should explain the origins of my conclusions. Finally, I willingly allow for individual exceptions to

the rather broad categorizations into which I place military and diplomatic historians. I stand by the general evaluations.

9. George Feifer, in *Tennazan: The Battle of Okinawa and the Dropping of the Atomic Bomb* (New York: Ticknor and Fields, 1992), makes this the crux of his argument. After noting that the battle caused the deaths of 23,000 American soldiers, 91,000 Japanese, and approximately 150,000 civilians—more total casualties than Hiroshima and Nagasaki combined—he argues that the bombs spared the United States from a most costly invasion. Another battle sometimes cited as a portent to an invasion of Japan is Peleliu. See Bill D. Ross, *Special Piece of Hell: The Untold Story of Peleliu* (New York: St. Martin's, 1993); and E. B. Sledge, *With the Old Breed at Peleliu and Okinawa* (Novato, Calif.: Presidio Press, 1981). In its anniversary edition, *Military History Quarterly* 7, no. 3 (Spring 1995), contained one article on Iwo Jima (Peter Harrington, "Sketches in a Hail of Bullets," 32-36) and one on Okinawa (Bruce Gudmundson, "Okinawa," 64-73).

10. For an example of these trends, see Richard H. Minear, "Atomic Holocaust, Nuclear Holocaust," or Paul Boyer, "Hiroshima in American Memory," both in *Diplomatic History* 19, no. 2 (Spring 1995): 347-65 and 297-318, respectively.

11. Lifton and Mitchell, xiii.

12. *Ibid.*, xiv.

13. It is worth noting that revisionist theories first became popular during the Vietnam era, when scholars reexamined the cold war and blamed it (and indirectly Vietnam) on unjustified American hostility to the Soviet Union.

14. Barton Bernstein, "A Postwar Myth: 500,000 US Lives Saved," *Bulletin of the Atomic Scientists* 42 (June/July 1986): 38-40.

15. Truman often expressed concern over casualties. For example, in discussing the proposed invasion of Japan, he exclaimed that he "did not want an Okinawa from one end of Japan to the other." Quoted in Skates, 237.

16. Examples extended from England's banning of the Welsh longbow following the War of the Roses to modern treaties on chemical and biological weapons.

17. John Ellis van Courtland Moon, "United States Chemical Warfare Policy in World War II: A Captive of Coalition Policy?" *Journal of Military History* 60, no. 3 (1 July 1996): 505-7, 510. Gas was also considered in planning Operation Olympic, the proposed invasion of Kyushu.

18. See Stephen Garrett, *Ethics and Airpower in World War II: The British Bombing of German Cities* (New York: St. Martin's, 1993). Garrett suggests that British leaders violated their own standards when they sanctioned the area bombings of German cities. See also Michael Sherry, *The Rise of American Air Power* (New Haven, Conn.: Yale University Press, 1987); Ronald Schaffer, *Wings of Judgment* (New York: Oxford University Press, 1985); and Stanley Falk, "A Nation Reduced to Ashes," *Military History Quarterly* 7, no. 3 (Spring 1995): 60-61.

19. All are noted in Alperovitz, *Decision to Use the Atomic Bomb*, 325-57; and Bernstein, "The Struggle over History," 147-51.

20. Peter Mazlowski, "Truman, the Bomb, and the Numbers Game," *Military History Quarterly* 7, no. 3 (Spring 1995): 105-7.

21. Ernest J. King and Walter M. Whitehill, *Fleet Admiral King: A Naval Record* (New York: Norton, 1952), 327.

22. Alperovitz notes five, including Carl Spaatz, Hap Arnold, Ira Eaker, Claire Chennault, and (amazingly) Curtis LeMay. *The Decision to Use the Atomic Bomb*, 335-45.

23. "Bernstein, and other historians, can find no contemporaneous evidence of these leaders' opposition to the use of the A-bomb." Bernstein himself concedes this point in "The Struggle over History," 165.

24. Secretary of War Henry Stimson's "Interim Committee," a purely civilian body, debated how and where to use the bombs. They, along with the president, made the crucial decisions. Overall, "military leaders had little role in decisions about the use of the atomic bombs." Skates, 242, 257.

25. *Ibid.*, 243.

26. The United States never could have accepted these conditions, which would have allowed the survival of the militarism that the United Nations was resolved to eradicate.

27. See, for some examples, Jerome B. Cohen, *Japan's Economy in War and Reconstruction* (Minneapolis: University of Minnesota Press, 1949). This book provides numerous examples of the effect of Allied policy on the Japanese economy. One which particularly underscores the shortages is the fact that planes were towed from place to place in the factory areas by oxen teams rather than tractors, in order to save fuel.

28. Diplomatic historians have long sought to undermine Henry Stimson's famous 1947 estimate of 1 million casualties. Bernstein in particular has shown that this number has little basis in documentary evidence and is likely a worst-case scenario or postwar justification. Maddox, however, suggests that an oft-cited figure of five hundred thousand may have come from an August 1944 study based on the losses at Saipan. *Weapons for Victory*, 61.

29. Estimates from a meeting of 18 June 1945 speculate 132,000 to 220,000 casualties for the planned invasions. These estimates were based on an estimate of 280,000 Japanese soldiers on Kyushu rather than the 560,000 deployed there by 6 August 1945. The Medical Service was preparing its requirements based on 394,859 casualties. See Drea, 74-81.

30. Stimson, for example, never offered statistics but expressed fears of a campaign that would be "long, costly, and arduous." Skates, 237.

31. This is the thesis of Allen and Polmar. Several authors in the *Military History Quarterly* special edition support such a conclusion as well.

32. Skates claims that with Allied forces possessed of overwhelming combat power and actively pursuing tactics whereby to avert the calamities of Okinawa, the invasion may have been less costly than otherwise assumed. He concludes that "the island of Kyushu would have been occupied . . . at a cost of 75,000 to 100,000 casualties (which falls somewhere in the range of Normandy or Okinawa)" (256).

33. Skates predicts "perhaps 250,000 in the Olympic area alone." *Ibid.*

34. See Takaki. John Dower, who coined the theory of the Pacific conflict as a race war in *War without Mercy: Race and Power in the Pacific War* (New York: Pantheon Books, 1986), seems to give some credence to Takaki's theories. In "The Bombed: Hiroshima and Nagasaki in Japanese Memory," *Diplomatic History* 19, no. 2 (Spring 1995), Dower describes the bombings as "nuclear genocide" (275).

35. Throughout the development of the bombs, the primary target was almost constantly assumed to be Germany. Even as the war wound down, Col Paul Tibbets received orders to prepare strike plans against both Germany and Japan.

36. This not only seems utter moral abdication to the 10th degree, it also ignores historical precedent. There was relatively little in Japanese culture or history to sanction mistreatment of prisoners. For example, during the Russo-Japanese War, the Japanese treated prisoners with remarkable humanity. Their World War II policies were the result of unrestrained fascism—not cultural differences.

37. Peter Williams and David Wallace, *Unit 731: Japan's Secret Biological Warfare in World War II* (New York: Free Press, 1989).

38. Gavan Daws, *Prisoners of the Japanese: POWs of World War II in the Pacific* (New York: William Morrow, 1994).

39. George Hicks, *The Comfort Women* (New York: Norton, 1995). Up to two hundred thousand women from Korea, China, the Philippines, Indonesia, Formosa, the Netherlands, and Japan—most of them from Korea—were recruited or forced into military-run brothels.

40. Quoted in Bernstein, "The Struggle over History," 130-31.

41. See, for example, Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (New York: Free Press, 1989).



Is Character Still an Issue?

MAJ CARL D. REHBERG, USAF*

Character is the bedrock on which the edifice of leadership rests. . . . Without [character], particularly in the military profession, failure in peace, disaster in war or, at best, mediocrity in both will result.

—Gen Matthew Ridgway

THE INTENT OF the current Air Force core values initiative is both noble and vitally important. The initiative consists of the publication *United States Air Force Core Values* (also known as the *Little Blue Book*)¹ and three major strategies: a schoolhouse “weave” (education), a field

weave (leadership element), and a continuation phase. It also includes *The Guru’s Guide* and a four-day course that prepares gurus to help with this program.² Unlike the core values initiative of 1993, the current program does not seem to be in danger of drifting away due to neglect.

*My Special thanks to friends, scholars, and colleagues who provided the encouragement and editorial assistance that made this article possible.

Table 1

A Comparison of USAF Values Initiatives

	Emphasis on Character Development	Level of Chaplain Involvement	Spiritual Emphasis	Ethical Environment ^a Major Emphasis
1997 Core Values Initiative	No	Very Little	Very Little	Yes
1993 Core Values Initiative	Yes	Involved	Indirect: More than 1997	No
Adult Values Education (1974)	Yes	High	Relatively High	No
Moral Leadership Program (1961)	Yes	High	Very High	No
Dynamics of Moral Leadership (1957)	Yes	High	Very High	No
Character Guidance Program (1948)	Yes	Very High	Very High	No

Source: Adapted from Gregory J. Dierker, "Core Values: A History of Values-Related Initiatives in the Air Force" (thesis, Air Force Institute of Technology, September 1997), 154-55.

^a The ethical environment includes policies, processes (systems), and procedures.

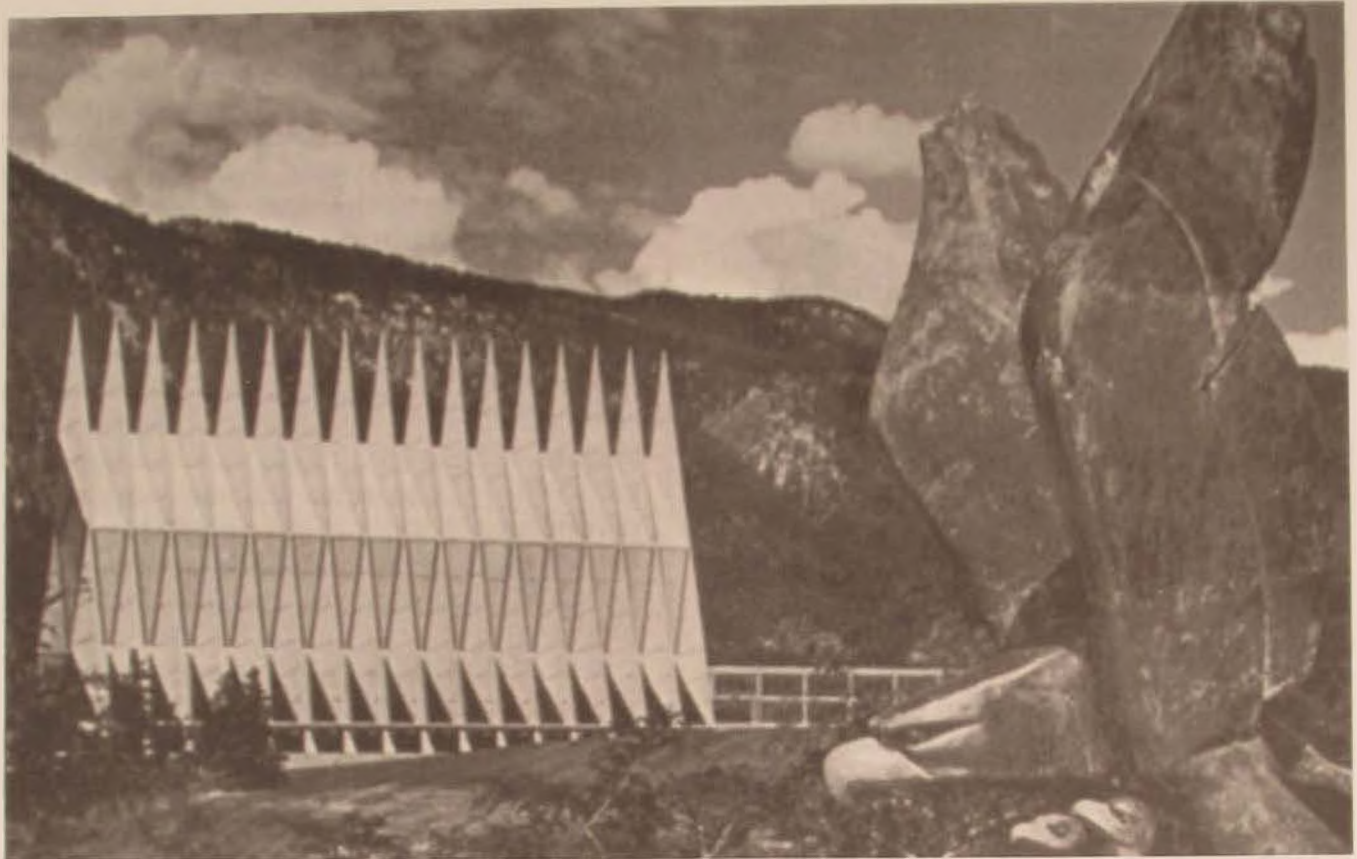
Global Engagement: A Vision for the 21st Century Air Force highlights the importance of our core values and sets the stage for the future Air Force.³ With its comprehensive and cohesive architecture, the current program may be one of the best designed ones from an overall policy perspective.⁴ It also includes some innovative teaching methods and techniques.

Overall, the people involved in the initiative should be commended for their efforts. However, we need to analyze and address several troubling paradigm shifts in order to improve this program, which is so critical to the future of the Air Force.

Historically, character education has always been integral to the military profession in Western culture. Aristotle, the teacher of Alexander the Great, developed a theory of

philosophy in terms of excellent character traits or virtues. Aristotle believed that one can become an excellent person by performing excellent actions until doing so becomes habitual. "Over the centuries the profession of arms has developed a number of principles, traits, rituals and codes that have served soldiers, in peace and war, very well."⁵ In this country, we have combined the great wisdom of the sages and have encouraged the religious and spiritual aspects of life, dating from our first commander in chief.⁶

In a thesis recently completed at the Air Force Institute of Technology, Gregory J. Dierker identifies significant changes to the most recent Air Force values initiative. On the positive side, changes have occurred that include more commander involvement and a focus on the ethical environment. On the



The chapel at the US Air Force Academy. The founders of the Academy clearly recognized the significance of healthy spiritual life in the formation of balanced officers.

negative side, changes include “a reduced emphasis on character development and the greatly reduced role that the chaplain plays in these values-related initiatives”⁷ (see table 1).

A Paradigm Shift from Character?

Our first task is to fix organizations; individual character development is possible, but it is not a goal.

—*Little Blue Book*

With this bold statement, the *Little Blue Book* declares a decided shift in emphasis. It also notes that “long before we seek to implement a character development program, we must thoroughly evaluate and, where necessary, fix our policies, processes and procedures.”⁸ *The Guru’s Guide* dismisses and muddies the character⁹ issue even further:

“Character development will probably take place . . . but that will be a happy byproduct and not a strategic goal.”¹⁰ This is confusing at best, a paradigm shift at worst.

Throughout history, people who have served in the military have always known that effectiveness and success rest far more on the moral quality of officers and other personnel than on technical expertise.¹¹ Gen Nathan Twining, former Air Force chief of staff, wrote that “technical proficiency alone is not enough.”¹² The best weapons money can buy are literally worthless unless one has people who can think critically and use them properly. One also needs military leaders who are worthy of honor and trust. As Col Anthony E. Hartle of West Point writes, “Persons of strong character are the ultimate resource for any military organization.”¹³ Historically, character and competence have been foundations of professionalism and leadership. “The essence of professionalism,” writes Lewis Sorely, “is

character."¹⁴ "In over 500 interviews with military general officers, Dr. Edgar Puryear found that the most important quality in leadership without exception was character."¹⁵

Historically, all the service academies have emphasized character development, and the Air Force Academy and the Naval Academy have formed departments to address this topic. Ironically, the overall Air Force appears to be moving in another direction.

Personal and professional character development is essential because the organization consists of the characters of its individual members. Interestingly, the two nationally known experts in this area, Dr. W. Edwards Deming and Dr. Stephen Covey, believe that both organizations and people need to be changed. Further, Dr. Covey states that people should be changed first: "Not only must personal change precede organizational change, but personal quality must precede organizational quality."¹⁶

Title 10, US Code Armed Forces, underscores the importance of individual character development: "All commanding officers and others in authority in the Air Force are required to show in themselves a good example of virtue, honor, patriotism, and subordination; to be vigilant in inspecting the conduct of all persons who are placed under their command; to guard against and suppress all dissolute and immoral practices."¹⁷

What has changed so that character development is no longer important? Air Force Manual (AFM) 50-21, *Living for Leadership*, notes that its purpose is "to assist you in developing your character in terms of that ideal which is proper to the American tradition."¹⁸

One also sees a possible paradigm shift in the demand for "faith in the system." Surely *faith* is the wrong term to use here: our faith can be placed in a high principle or a Supreme Being but not a "system." One can abuse and undermine a system; moreover, a system (e.g., a bureaucracy) allows one to maintain appearances, all the while permitting personal failings and abuses. Shouldn't we return to an emphasis on personal and professional character? We can place our trust in individuals of strong and honorable character but not in a system. People who think we have bypassed the need for character because we are in a revolution in military affairs (RMA) should think again.

Minimizing Chaplain Involvement?

In the section of the *Little Blue Book* entitled "The Core Values Strategy," the very first assumption puts a fence around chapel programs: "The Core Values Strategy exists independently of and does not compete with Chapel programs."¹⁹ Shouldn't chaplains work in concert with the core values strategy rather than remain separated from it? Chaplains were originally chartered to work in areas concerning character. Early on, the Air Force defined the function of the chaplain as follows: "primarily a minister of religion, and as such is the advisor to the commanding general or commanding officer on all matters pertaining to the religious life, morals and character-building factors within a given command."²⁰ By ignoring the spiritual dimension,²¹ we may be adopting what Yale law professor Stephen L. Carter calls a "culture of disbelief" similar to the rest of society that ridicules, disdains, and mocks people who are serious about spiritual matters.²²

Clearly, the spiritual dimension can provide positive motivation to do what is right. Spiritual roots can provide a solid foundation, a motivation, and a sense of meaning and purpose to do what is right. "Character education can be hollow and misleading when taught within a curriculum that is silent about

religion."²³ There are consequences when radical secularism or a "culture of disbelief" reigns. According to William Bennett, "Whatever your faith—or even if you have none at all—it is a fact that when millions of people stop believing in God, or when their belief is so attenuated as to be belief in name only, enormous public consequences follow. And when this is accompanied by an aversion to spiritual language by the political and intellectual class the public consequences are even greater."²⁴

The *Little Blue Book* and the *Guru's Guide* say nothing positive about spirituality or religion, although they clearly set a tone in several areas of what religion is *not* to do. For example, "Military professionals must remember that religious choice is a matter of individual conscience."²⁵ Why not include a balancing statement such as, "Commanders should support and encourage their subordinates to develop their spirituality." This is a matter of free exercise of religion and a recognition of the positive role played by religion among an overwhelming number of military personnel. Although this document is not blatantly bigoted or antireligious, it seems ignorant of the spiritual domain.

The *Little Blue Book* and the *Guru's Guide* ignore how spiritual aspects can be a positive part of this whole process. We can look to the USAF Academy for an example.²⁶ Specifically, the academy's *Character Development Manual* states that "the founders of the Academy clearly recognized the significance of healthy spiritual life in the formation of balanced officers. That is why we have the Spiritual/Ethical Domain. Although the spiritual aspect is not mandatory, it provides many cadets with a strong motivation for character development."²⁷

In a recent article in *Airpower Journal*, Col Charles R. Myers does an admirable job of defending core values from some unwarranted attacks.²⁸ By framing the structure of morality in the context of moral reasoning, he marginalizes the importance of the affective domain that gives one purpose and motivation to do the right thing. Doing the right thing when we would rather not may be the



Honor, Duty, Country—we must be faithful to these ideals because the truth does matter, and character has been (and must remain) an issue in the Air Force now, and as we enter the twenty-first century.

\$64 question in ethics. How do we have the motivation to do the right thing? How do we have a change of disposition or a change of heart? According to Plato, this "spirited element" should not be ignored.²⁹

The *Little Blue Book's* functionalism seems hollow and cries out for a deeper philosophy. It presents the core values as purely functional, without any attention to foundations or deeper motivations that are essential to ethical understanding and practice. Given the postmodernist movement that is sweeping the academic and intellectual circles of this country, foundations are critically important.³⁰

Military Character Education: More than Core Values

Without a doubt, core values are vital to tomorrow's Air Force. Character education has always involved values. Core values and the ethical environment are only a part of

character development. According to Air Force Academy Instruction 36-158, *Supporting Cadet Character Development*, "character de-

"Good people aren't always good soldiers, but good soldiers are always good people."

velopment encompasses more than just the Honor Code; it also includes the Air Force and Academy Core Values, Academy Character Development Outcomes, human relations, ethics, and moral and spiritual development."³¹ Additionally, military academies were founded on the concept of developing virtues.

Over the last five or six years, public schools have started to return to character education. Historically, all the service academies have emphasized character development, and the Air Force Academy and the Naval Academy have formed departments to address this topic. Ironically, the overall Air Force appears to be moving in another direction. "A much larger than expected number of U.S. schools have introduced character education during the 1993-1995 period or are preparing to do so soon. . . . The rapid spread of character education currently underway represents a return to the traditional role of schools as one of society's most important institutions for developing good character in young people."³²

The point is that core values are important, but they are not sufficient. They cannot take the place of comprehensive character development. Character education is a comprehensive, multifaceted approach to moral development.³³

The Core Values Program is a good first step in one area of character development. If

we are truly concerned about the Air Force of the twenty-first century, we can and must do much more. First, we should make character development a primary focus—not merely a strategic goal or just another program.³⁴ Second, the Air Force should start with its number-one criterion for selection and promotion: strong and honorable character.³⁵ "Good people aren't always good soldiers, but good soldiers are always good people."³⁶ Third, we must adopt comprehensive character-development architecture that includes teaching virtues and ethics—especially the cardinal virtues³⁷ and the development of conscience, ethical reasoning, and decision making.³⁸ Fourth, we should work together with chaplains, acknowledge the importance of the spiritual dimension, and use the Chaplain Corps in a positive manner.³⁹ Fifth, we need a follow-on document to the *Little Blue Book* that delineates our leadership and character philosophies in the same way the Marine Corps does it in its Fleet Marine Forces Manuals. Sixth, we need to encourage and support the return to character education in public schools, which has strong bipartisan support. Seventh, we should initiate a comprehensive study similar to *Ethics in the US Air Force: 1988* to assess our strengths and weaknesses.⁴⁰

A return to character development with more chaplain involvement as a strategic goal and a primary focus will be neither an easy task nor a panacea—but it is the right thing to do. Character is more than a program. It must be as important as the weapons we build and even our budget total obligation authority. It is the cornerstone of our most important asset—people! We must be faithful to the ideals of Honor, Duty, Country⁴¹ because the truth does matter, and character has been (and must remain) an issue in the Air Force now, and as we enter the twenty-first century. □

Notes

1. *United States Air Force Core Values* (Washington, D.C.: Department of the Air Force, 1997). Hereinafter referred to as the *Little Blue Book*.
2. The *Little Blue Book*, the *Guru's Guide*, speeches, quotes, essays, books, periodicals, directives, and other documents related to the core values initiative; on-line, Internet, available from <http://www.usafa.af.mil/core-value>. Gurus are persons selected by their local commands (wing and above) to serve as advisors and resource managers, and as authoritative, local sources of information about the core values initiative.
3. *Global Engagement: A Vision for the 21st Century Air Force* (Washington, D.C.: Department of the Air Force, 1997).
4. Gregory J. Dierker, "Core Values: A History of Values-Related Initiatives in the Air Force" (thesis, Air Force Institute of Technology, September 1997), 83.
5. James H. Toner, *True Faith and Allegiance: The Burden of Military Ethics* (Lexington, Ky.: University Press of Kentucky, 1995), 128.
6. "The importance and influence of the chaplain to the moral health of the unit and in spiritual matters have been valued throughout the history of the Army, beginning with our first commander in chief to the present." See Army Regulation 165-1, *Chaplain Activities in the United States Army*, 31 August 1989, 5.
7. Dierker, viii.
8. *Little Blue Book*.
9. Note the following definitions of *character*: (1) "The sum of those qualities of moral excellence, which stimulates a person to do the right thing, which is manifested through right and proper actions, despite internal or external pressures to the contrary" [USAF Academy]; (2) "Character describes a person's inner strength and is the link between values and behaviors" [FM 22-100]; (3) "Moral knowing, feeling, and behavior: knowing the good, desiring the good, and doing the good" [Thomas Lickona]; and (4) "Moral excellence: right conduct (self-control, moderation) in relation to oneself and in relation to others" [Aristotle]. United States Air Force Academy, *Character Development Manual* (Colorado Springs, Colo.: US Air Force Academy, December 1994), 9-10.
10. *Guru's Guide*, VI-3.
11. See Richard A. Gabriel, *To Serve with Honor: A Treatise on Military Ethics and the Way of a Soldier* (Westport, Conn.: Greenwood Press, 1982).
12. Air Force Manual (AFM) 50-21, *Living for Leadership*, August 1955, foreword.
13. Anthony E. Hartle, *Moral Issues in Military Decision Making* (Lawrence, Kans.: University Press of Kansas, 1989), 84.
14. Quoted in Toner, 117.
15. *Character Development Manual*, 18; and Dr. Edgar Puryear, *19 Stars* (Novato, Calif.: Presidio, 1971).
16. Stephen R. Covey, *Principle-Centered Leadership* (New York: Simon & Schuster, 1992), 265.
17. Title 10, United States Code Armed Forces, sec. 8583, in S. 936. This requirement became effective 18 November 1997. Historically, the Air Force has taken a similar stand. "An officer, or any other Air Force leader, is held responsible for the military and moral development of his men." AFM 50-21, 59. See also Rick Maze, "Commanders Face New Leadership Requirements," *Air Force Times* 58, no. 18 (18 December 1997): 7.
18. AFM 50-21, 4.
19. *Little Blue Book*.
20. Dierker, 157. Although current Air Force instructions no longer have this requirement, the Army maintains it. According to Army Field Manual (FM) 16-1, *Religious Support*, 26 May 1995, "The chaplain develops and implements religious programs and activities, and advises the commander on matters of religion, morals, and morale" (page 2). Additionally, Army Regulation 165-1 supports this notion with a full chapter on the responsibilities for chaplains in moral leadership training. According to SECNAVINST 1730.7A, *The Chaplain Corps*, 2

September 1993, chaplains "advise the commanding officer or commander on moral issues and provide input to programs which emphasize the core values of the naval service" (page 2).

21. The words *spiritual* and *religious* are used synonymously in this article. *Spiritual* means the intangible relationship we have with the supernatural. *Religious* does not mean religiosity, which tends to suggest rules, external performance, pretense, and so forth. See Dr. Ron Jenson, *Making a Life, Not Just a Living* (Atlanta: Thomas Nelson Publishing, 1995), 155.

22. For many people, religious beliefs provide a strong motivation for ethical action and character development. This does not imply that people without religious convictions do not have strong and honorable characters. According to Lt Col Terry Moore, USAF, Retired, first chief of the Character and Ethics Division, Center for Character Development, "Even those who are not 'religious' in the traditional sense often [can] have 'spiritual commitments' in a wider sense. Such people have a sense of humility stemming from an understanding of how their personal purposes fit into a context of something greater than themselves." See *Character Development Manual*, 42. The larger question is, Are people more likely to be good without God? Persons can be good without religion, God, or spiritual awareness, just as religious or spiritual-minded people can be bad or evil. The question is, How likely and prevalent is this case? See Dennis Prager, "Can You Be Good without God?" *Ultimate Issues* 9, no. 1 (1993); and Stephen L. Carter, *The Culture of Disbelief: How American Law and Politics Trivialize Religious Devotion* (New York: Basic Books, 1993). For both the atheist and theist, this debate provides cognitive dissonance.

23. Charles Haynes, "Character Education in the Public Schools," in *Finding Common Ground* (Nashville: Freedom Forum First Amendment Center, 1994), 14-1 through 14-2. According to C. S. Lewis, "We remove the organ and demand the function. We make men without chests and expect of them virtue and enterprise. We laugh at honor and are shocked to find traitors in our midst. We castrate and bid the geldings be fruitful." Quoted in William J. Bennett, ed., *The Book of Virtues: A Treasury of Great Moral Stories* (New York: Simon & Schuster, 1993), 264-65.

24. William J. Bennett, "Revolt against God," *Policy Review*, Winter 1994, 19-24. In *The Brothers Karamozov*, Fyodor Dostoyevsky noted that "if God does not exist, everything is permissible." Quoted in Jenson, 155. Stephen L. Carter talks about how far our society has gone regarding its disdain for the spiritual. Ironically, this commentary comes from a liberal—not a religious conservative. See his *Culture of Disbelief*.

25. *Little Blue Book*. "Professionals, and especially commanders, must not take it upon themselves to change or coercively influence the religious views of subordinates."

26. In August 1993, the US Air Force Academy formed the Center for Character Development. See Maj Brian F. Hall, with Col David A. Wagie, "The US Air Force Academy's Cutting-Edge Character Development Program," *Airpower Journal* 10, no. 2 (Summer 1996): 35-39. Ironically, the center was the idea and vision of Chaplain, Maj Brian Van Sickle.

27. *Character Development Manual*. The spiritual/ethical domain is one of the four domains at the Air Force Academy. The others are academic, military training, and athletic. Additionally, the academy has developed a character development outcome that emphasizes the spiritual dimension.

28. Col Charles R. Myers, "The Core Values: Framing and Resolving Ethical Issues for the USAF," *Airpower Journal* 11, no. 1 (Spring 1997): 38-52. Colonel Myers states that core values are a framework for moral reasoning. My argument is that moral reasoning is only one part of comprehensive character development that includes the cognitive, affective, and behavioral domains. My contention is that moral reasoning alone is not sufficient. See also C. S. Lewis, *The Abolition of Man* (New York: Macmillan, 1947).

29. See Charles W. Colson, "A Question of Ethics," *Airpower Journal* 10, no. 2 (Summer 1996): 4-12.

30. Postmodernism is "the movement in late twentieth-century thought that rejects enlightenment, rationalism, individualism, and optimism. Postmodernism is characterized by nihilism and radical subjectivity." Dennis McCallum, *The Death of Truth* (Minneapolis: Bethany House Publishers, 1996), 283. Further, postmodernism is the philosophical underpinning of political correctness. See also Gene Edward Veith Jr., *Postmodern Times* (Wheaton, Ill.: Crossway Books, 1994).

31. USAFA Instruction 36-158, *Supporting Cadet Character Development*, 19 October 1995, 3.

32. *Character Education in U.S. Schools: The New Consensus* (Alexandria, Va.: Character Education Partnership (CEP), 1996), 1. Some other sources that describe the current character-education movement include Kevin Ryan and Thomas A. Lickona, eds., *Character Development in Schools and Beyond* (Washington, D.C.: Council for Research in Values and Philosophy, 1992); Thomas A. Lickona, *Educating for Character: How Our Schools Can Teach Respect and Responsibility* (New York: Bantam Books, 1991); and William Kilpatrick, *Why Johnny Can't Tell Right from Wrong: Moral Illiteracy and the Case for Character Education* (New York: Simon & Schuster, 1992). Three national organizations are involved with the character education movement: CEP, Josephson Institute of Ethics, and the Communitarian Network.

33. *Character Education in U.S. Schools*, 1. It also includes cultivating virtues and teaching ethics. Gabriel, 152.

34. We need to set high expectations among our members—"Aim High." People should not perceive those expectations as the lowest common denominator. We should have minimum standards for everyone in the Air Force, but higher standards (and ideals) for noncommissioned officers, officers, and others in command.

35. This also would probably require substantial system reform.

36. James H. Toner, "Gallant Atavism: The Military Ethic in an Age of Nihilism," *Airpower Journal* 10, no. 2 (Summer 1996): 18.

37. The cardinal virtues are so called because they derive from the Latin word *cardo*, meaning *hinge*. Virtue is a habitual and firm disposition to do good. The cardinal virtues are prudence (or wisdom), justice (or truthfulness), temperance (or moderation), and fortitude (or courage). The bedrock of the cardinal virtues provides a much firmer foundation than do the core values. Adapted from Toner, unpublished article.

38. One suggestion entails developing a modified character-development model similar to Dr. Lickona's and the USAF Academy's (see page 21 of the *Character Development Manual*).

39. Maj Gen Jerry E. White, "Personal Ethics versus Professional Ethics," *Airpower Journal* 10, no. 2 (Summer 1996): 32-33. The USAF Academy's *Design for Spiritual Development* (Colorado Springs, Colo.: US Air Force Academy, 1994) states that "character education must strike a careful compromise between eliminating religion and teaching faith. It needs to be recognized that character education should never be seen as a replacement for religion or as an instrument of religion" (page 2).

40. Col Robert S. Ainslie et al., *Ethics in the US Air Force: 1988* (Maxwell AFB, Ala.: Air University Press, February 1990).

41. Dr. Toner has developed a concept that places character and ethical principle first, arguing that "Duty, Honor, Country" is neither clear enough nor sufficient. See *True Faith and Allegiance*, 65-70.

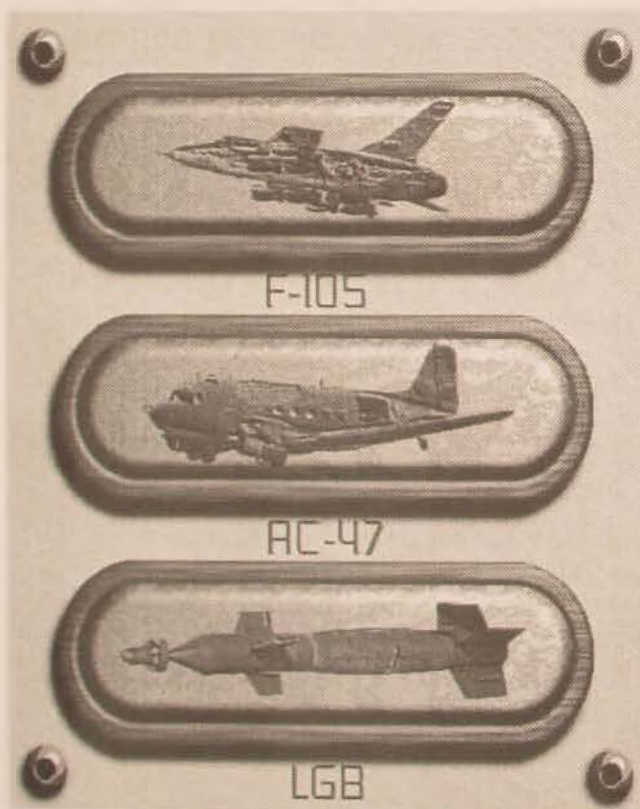
Here in America we are descended in blood and in spirit from revolutionists and rebels—men and women who dare to dissent from accepted doctrine. As their heirs, may we never confuse honest dissent with disloyal subversion.

—Gen Dwight D. Eisenhower

Did USAF Technology Fail in Vietnam?

Three Case Studies*

KENNETH P. WERRELL



IN EARLY APRIL 1997, the Air Force rolled out the F-22 stealth fighter. This highly sophisticated and very expensive aircraft carries the promise of continued American air dominance into the next century. The decision to use it for that purpose commits the Air Force, and the country, to a specific technology. Is this wise?

If history is any guide, the American record with military aviation technology is mixed at best. Contrary to the conventional wisdom, American airmen have not enjoyed overwhelming technological superiority in their conflicts. During World War I, US airmen flew European-designed, and, in most cases, European-built aircraft. In the early stages of World War II, Americans were shocked to learn that the Japanese Zero was better than the best US fighters in service. And toward the end of that conflict, the airmen again found themselves at a considerable disadvantage when they had to battle the more advanced jet-powered Me 262. Five years later in Korea, American airmen yet again engaged a superior flying machine, the Soviet MiG-15. What was the situation in the Vietnam War?

There are those who consider the Vietnam War as proof that technology has been overused or misused. Others view technology as the Sirens of Greek legend, luring America into the Southeast Asian war and onto the rocks of defeat. Critics write of blind technological fanaticism, hubris, and overconfidence as the United States attempted to fight a remote, antiseptic war. Leaving the rhetoric aside, how well did Air Force technology perform during the war?

Vietnam was not what the Air Force envisioned as its next conflict. Thinking in terms of a massive nuclear exchange, the airmen planned, equipped, and trained for nuclear war. In fairness, this was the direction from above, and it did give the United States a formidable offensive force and effective deterrent (Strategic Air Command) against Communist aggression. However, this emphasis

*This article is part of a longer study of Air Force technology from Vietnam through the Gulf War. A shorter version of the article was delivered at the annual meeting of the Society of Military History on 11 April 1997.

not only put the other services at a disadvantage, it also crippled other Air Force missions. Consequently, the Air Force story in Vietnam is how an air force designed for one kind of war performed in a drastically different one.

Clearly the US Air Force had problems in the Vietnam War, and some were with technology. This paper focuses on three examples of Air Force technology in the Vietnam War. These vary in type, demonstrate both success and failure, and thus are representative. They are the F-105, fixed-wing gunships, and precision-guided munitions (PGM).¹

The F-105

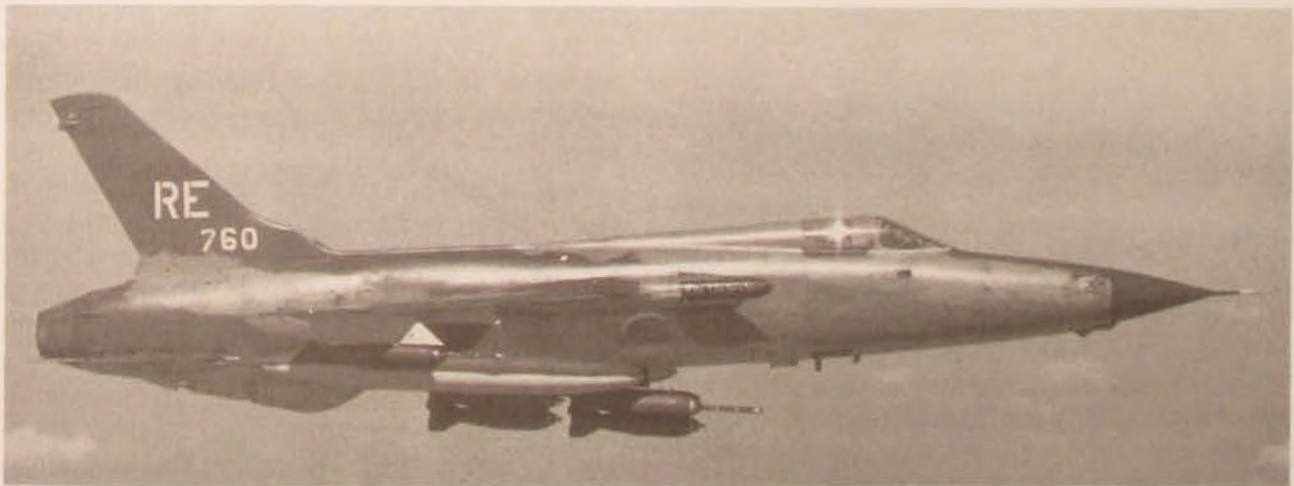
The Republic F-105 Thunderchief in many ways symbolizes Air Force performance in Vietnam. It was an aircraft that looked good from any angle. It was fast and stable, a machine that pilots called "honest." It could carry a heavy bomb load a long distance at a high speed. In short, it was a fine aircraft, a pilot's plane, well designed for the single purpose of fighting a nuclear war.²

Just as the Korean War erupted in June 1950, the Air Force asked Republic Aviation to conceive a successor to its F-84F. What emerged was an aircraft designed around a

bomb bay that could accommodate a nuclear weapon and extensive avionics to lighten the workload of the pilot flying at high speed and at low altitudes. This would allow Tactical Air Command to participate in nuclear warfare, which was the primary emphasis of the American military during this period. The F-105 could carry eight thousand pounds internally and another four thousand pounds externally and turned out to be the largest and heaviest single-seat American fighter up to that time. It replaced the F-100D as Tactical Air Command's principal aircraft. (It had twice the bomb load and 50 percent more speed than the F-100 Super Sabre.) It also mounted a rapid-firing 20 mm Gatling gun. To be very clear, however, the F-105 was primarily designed as a bomber, and its air-to-air fighter capability was secondary.

During its first flight on 22 October 1955, it exceeded the speed of sound. When the aircraft was modified into the B version, it featured such innovations as a "coke bottle" fuselage, "clover leaf" speed brakes on the aircraft's tail, and the all-flying tail.³ The first squadron was equipped with the Thunderchief in 1959.⁴

Although designated as a fighter (F-105), its size and weight, not to mention its bomb bay, brought this designation into dispute. Early on it was saddled with such uncomplimentary



Republic's "Ultra Hog." Although designated as a fighter (the F-105), its size and weight, not to mention its bomb bay, brought this designation into dispute. Early on it was saddled with such uncomplimentary nicknames as "Lead Sled," "Ultra Hog," and "Thud."

nicknames as "Lead Sled," "Ultra Hog," and "Thud." Some write that it earned a poor reputation mainly due to the poor reliability of the avionics and the pilot's unfamiliarity with the fighter. The aircraft's low in-commission rate and high cost of maintenance were both disturbing and frustrating. The aircraft and its systems were complex and new to the Air Force, and spare parts were short. More dramatic and more important to its reputation were crashes. An examination of the records of other fighters of the century series, however, indicates that at least early in its career (up to 53,000 flying hours), the Thunderchief's accident record was only bested by the F-106.⁵ Regardless, it was the Air Force's primary strike aircraft during the decade of the 1960s and what the Air Force had when the Vietnam War began. It flew three-quarters of the Air Force's strike missions during Rolling Thunder, the American strategic bombing campaign against North Vietnam between 1965 and 1968.⁶

The F-105 did not fare well in combat. The Thunderchief served as a fighter-bomber but was limited by its avionics designed for nuclear, not conventional, missions. Ironically, the bomb bay was used to carry a fuel tank, not bombs. At low level it was the fastest aircraft of the war, but was at a disadvantage in air-to-air combat because of its lack of maneuverability.⁷ More than half (397) of the 753 F-105Ds and Fs built were lost in the war. Overall, the F-105 had the highest loss rate of any US aircraft operating in Southeast Asia and over North Vietnam.⁸ Why such heavy losses? The political restrictions certainly played a role, allowing the North Vietnamese to build up and adjust their defenses. Another factor was that the tactics that had been developed for a short nuclear war proved costly and inappropriate in a long conventional air campaign fought against extensive ground-based air defenses. The introduction of surface-to-air missiles (SAM) made matters even worse for the airmen. A third factor was the aircraft itself.

The F-105 was neither as rugged nor as survivable as its World War II predecessor, the P-47, which was rightly celebrated for its

toughness. The Thunderchief was designed to fight a nuclear war in which the delivery of one nuclear weapon at low altitude and high speed was all that was required. Little thought was given to a campaign consisting of hundreds of missions extending over years. Therefore, survivability was not a major design consideration; ruggedness, redundant systems, armor, and the like were not priority items. In fact, some survivability factors were traded off to enhance other performance. Two such instances proved critical. First, the fighter's two sets of hydraulic lines were run close together, apparently to ease manufacture and maintenance, so that a hit on one could easily take out the other. A loss of hydraulic pressure caused the stabilizer to lock in the full "up" position, pushing the nose down. Second, the internal and bomb-bay fuel tanks were not self-sealing. Such was the combat norm since 1940, for good reason, as one 1950 study found that 80 percent of American, British, and German aircraft losses in World War II were directly caused by fire, most from damaged fuel systems. At the very least, even a small caliber hit could cause a leak. This helps explain why the F-105 was so vulnerable to fire and explosion, three times as likely as the McDonnell Douglas F-4 Phantom to be lost to fire or explosion.⁹

As early as December 1965, the F-105 was being unfavorably compared with the F-4, as it was believed that it was 1.5 to 2.5 times as vulnerable as the Phantom. One study indicated that when hit by hostile fire, the F-105 had a 15 percent higher rate of loss than the F-4. This led to a recommendation that the Thunderchief be shifted from action over North Vietnam to the less lethal skies of South Vietnam, and it spurred a number of studies to assess the vulnerability of the aircraft and search for remedies. One conclusion was that if the F-4 and F-105 were fairly compared (using similar time periods, similar missions, and similar risks), their loss rates were about the same.¹⁰

The Thunderchief was modified to deal with some of these problems. By mid-1965, the flight control system had been changed so that if the hydraulic system was hit, the pilot



"Puff." Top, dragon fire from the sky; right, Puff's teeth—a close-up of the three 7.62 mm miniguns; above, an AC-47 over South Vietnam. Fortunately, Air Force Chief of Staff Curtis LeMay ordered the C-47 gunship concept to be tested in Vietnam over TAC's objections.

could mechanically lock the horizontal stabilizer at an optimum setting. He could then use an electric toggle switch to control roll and pitch with the wing flaps along with differential engine power to fly the plane. This could at least get a pilot out of the immediate area before he was forced to eject from the stricken aircraft. A rocket ejection seat was fitted into the aircraft to enhance pilot survivability. Self-sealing tanks and bomb-bay fire extinguisher modifications were also added.¹¹

It is hard to put a positive spin on the F-105's service in Vietnam. One might say diplomatically that its record could be called "mixed," but that really doesn't say anything. To cut to the heart of the issue, the F-105 could not overcome the limitations of its basic design, the peculiar conditions of the war, the role in which it found itself, or American tactics. At best, it proved to be a mediocre performer in difficult conditions. Similar to the military, it served honorably and capably in a losing cause. What more could be expected? The last F-105D unit returned to the US in late 1970, to be replaced by the F-4 in the fighter-bomber role.

Gunships

In contrast to the F-105, the fixed-wing gunship was a great developmental and operational success. A few dedicated, innovative individuals brought forth a new concept quickly and cheaply that fit the war that was being fought in Vietnam. The basic gunship concept is quite simple: an aircraft flying in a level turn around a point on the ground (as if tethered to a pylon, hence called a "pylon turn") can deliver fairly accurate firepower from guns firing perpendicular to the line of flight.¹² This concept was first proposed in 1926 and demonstrated the next year. A number of other airmen later advanced the idea, but the Army Air Forces/US Air Force did not pick up on it until the early 1960s.

The idea reached Capt John Simmons at Wright-Patterson AFB, Ohio, through an indirect route.¹³ After overcoming numerous re-

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buffs, he pushed through a modest test program in mid-1963 that demonstrated that a pilot could track a target while in a pylon turn. The breakthrough came in August 1964 when a C-131 armed with a 7.62 mm Gatling gun achieved better than expected accuracy in firing tests over the Gulf of Mexico. The next month, three Gatling guns were mounted aboard a C-47 and also successfully tested. Capt Ronald Terry forcefully articulated a concept of C-47s delivering accurate and massive firepower to hamlets under attack. Things moved ahead rather rapidly, for on 2 November 1964 Terry helped brief the concept to the Air Force Chief of Staff Curtis LeMay, who ordered that the C-47 be tested in Vietnam.

There was opposition to the concept. Gen Walter Sweeney, commander of Tactical Air Command, had two seemingly contrary objections: could the aircraft survive, and if so, would it undermine the Air Force's position in the battle with the Army over armed helicopters? In addition, he did not see how the gunship would work in other conflicts, specifically one in Europe. Therefore, success in Vietnam might saddle the command with a number of aircraft that would prove useless and vulnerable where it really counted, in Europe. Certainly, the idea of using obsolete transports to support besieged hamlets at night, at low speeds, and from low altitudes did not appeal to the airmen, who thought primarily in terms of newer aircraft flying ever higher and faster. Nevertheless, the tests went forward.

Terry and his team arrived in South Vietnam in December 1964. The gunship quickly

demonstrated that it not only worked but was valuable. On its first night mission on 23-24 December, it helped repel a Vietcong attack

Gen Creighton Abrams told the Seventh Air Force commander, Gen John Vogt, that the three weapons that had been unqualified successes were the tube-launched, optically tracked, wire command (TOW) missile; the AC-130; and the guided bomb.

on an outpost.¹⁴ The gunship concept would be used in two very different roles. The first was to provide heavy firepower to ground forces engaged in combat in South Vietnam. The other was to interdict enemy logistics in Laos. The aircraft's success continued, but better gunships were coming on-line. On 1 December 1969, US Air Force AC-47s flew their last mission.¹⁵

In November 1966, the C-130 was picked as a follow-on aircraft. The four-engined turboprop had much greater flying performance than the ancient "Gooney Bird" and carried much heavier firepower, four 7.62 mm and four 20 mm Gatling guns compared to the AC-47's three 7.62 mm guns. Nicknamed "Spectre," it also mounted an array of advanced sensors.¹⁶

In September 1967, Captain Terry returned to Vietnam to test the AC-130. The evaluations concluded that the AC-130 was "a three-fold improvement over its predecessor, the AC-47."¹⁷ The AC-130 was deemed the most cost-effective, close-support, and interdiction weapon in the USAF inventory.

Four AC-130s were sent into combat in Laos before the end of 1968 and proved to be some of the best weapons in the interdiction campaign. During the period January 1968 through April 1969, they flew less than 4 percent of the total sorties against moving targets, yet claimed over 29 percent of the

destroyed and damaged trucks. Little wonder why the Air Force wanted more.

Concern about the gunship's vulnerability pushed the Air Force towards heavier armament to increase stand-off range. (Larger guns would also do more damage to targets.) In mid-1969, a group that included Major Terry suggested that two 40 mm¹⁸ and two 20 mm guns become the standard armament. They also recommended better sensors (such as low-light-level television and improved infrared), a digital computer to replace the analog one, and a laser designator. A program dubbed "Surprise Package" that incorporated these ideas, got the go-ahead in September 1969. After a month of stateside test flights, the aircraft arrived in Thailand on 5 December for combat tests lasting through 18 January. The evaluators judged the improved model twice as effective as the existing C-130s.¹⁹

The last effort during the war to boost the AC-130's killing power was to mount a 105 mm howitzer.²⁰ While to the outsider this appears to be quite a feat, it actually was accomplished very smoothly. The gun saw combat during the 1971-72 dry season campaign and in Linebacker I, where it proved to be very effective, accounting for 55 percent of the tanks destroyed or damaged.

The third airframe used as a gunship was the C-119, another obsolete transport like the C-47, however not as esteemed. Nevertheless, it reinforced the gunship effort in late 1968 and became the most numerous of the Vietnam War gunships. The AC-119G was intended to take up the AC-47's mission in South Vietnam: defend hamlets, provide fire support for ground troops, and fly close air support and escort convoys.²¹ While it served well, it was really little improvement over the AC-47.

The Air Force thought better of the AC-119K. The K model had increased engine power (two jet engines supplemented the two props), heavier armament (two 20 mm guns in addition to the G's four 7.62 mm guns), an improved fire control system, and forward looking infrared radar (FLIR). Both AC-119 models did good work and suffered few losses. The AC-119Gs proved worthy successors of

the AC-47 for operations in South Vietnam, while the AC-119Ks were able to complement the AC-130s in the interdiction campaign in Laos. In the overall scheme, the AC-119s were a midrange model between the "Model T" AC-47 and the "Cadillac" AC-130E.

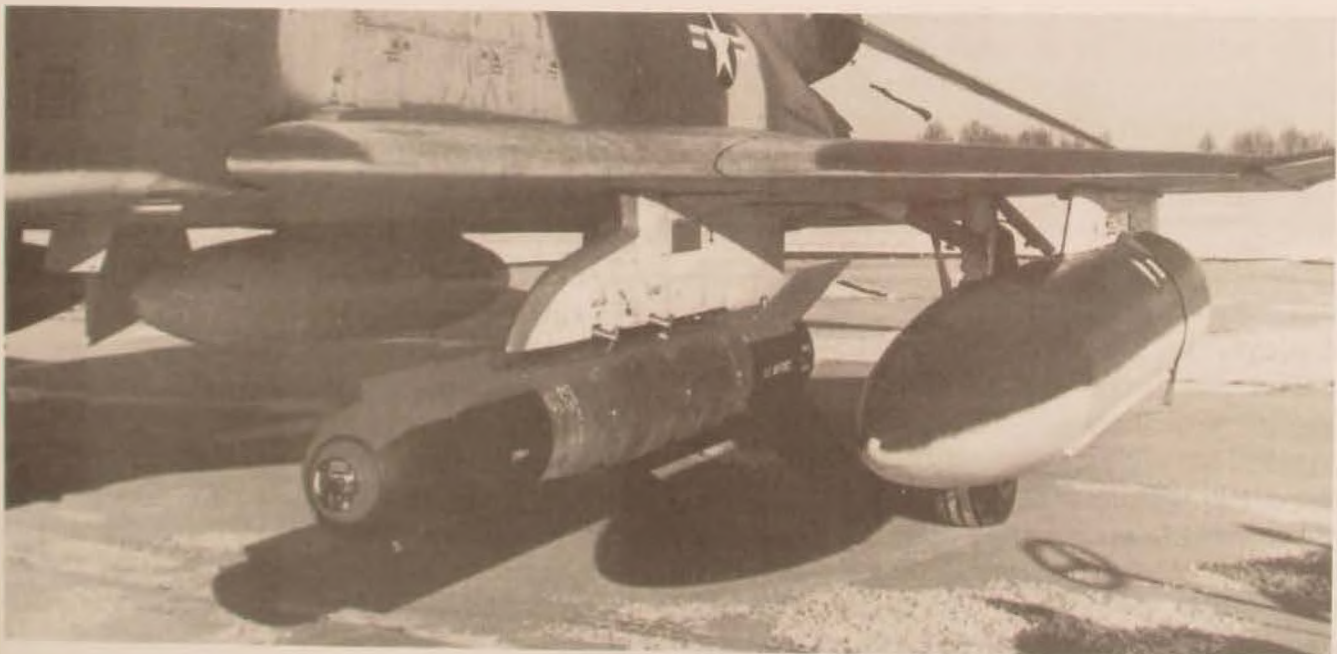
The last challenge to the USAF in the Vietnam War came in 1972. By then the Communists had improved the Ho Chi Minh Trail into an extensive road net and greatly upgraded its defenses. The North Vietnamese upped the ante by deploying SAMs, both the large SA-2s and shoulder-fired SA-7s. Damage to the gunships increased while truck kills declined. Even escorting fighters could not provide the gunships with the permissive air environment they required. The increased attrition, as well as the 1972 North Vietnamese invasion, forced the Air Force to shift its emphasis.

The main mission of American airpower in 1972 was to thwart the North Vietnamese invasion. Certainly, the gunships played an important role in that successful endeavor. The top American officer in the theater, Gen Creighton Abrams, told the Seventh Air Force commander, Gen John Vogt, that the three weapons that had been unqualified successes

were the tube-launched, optically tracked, wire command (TOW) missile; the AC-130; and the guided bomb.²²

Precision-Guided Munitions

PGMs were another success story. American airmen entered the Vietnam conflict armed primarily with free-fall bombs ("dumb bombs") that were no different from those used in World War I. Despite experiments with guided bombs in World War II and Korea, the Air Force had only two Navy air-to-ground missiles in 1965. The Bullpup, a rocket-powered, radio-control guided, 250-pound bomb, was used from the outset of Rolling Thunder. Its small warhead, however, was totally inadequate against North Vietnamese bridges.²³ The Navy's Walleye proved better. (It was an unpowered, 829-pound bomb guided by an automatic tracking television guidance, giving it a "launch and leave" capability.) The Air Force began Walleye combat tests in August 1967 that achieved excellent results in good visibility against targets that gave a strong contrast and were lightly defended.²⁴ Later Walleye operations in more demanding conditions were less successful. It



An optically guided bomb. However, due to operating restrictions, cost, and the appearance of laser-guided bombs, these comprised only a small fraction (6 percent) of the total number of PGMs employed in Vietnam.

continued to be used, but due to its operating restrictions, cost, and the appearance of laser-guided bombs (LGB), comprised only a small fraction (6 percent) of the total number of PGMs employed in Vietnam.²⁵ The guided bomb of choice turned out to be based on a new technology: lasers.

The use of lasers in guidance applications was first discussed in 1958 and was later nourished by the Army as antitank seekers. But the Vietnam War skewed the Army in other directions as it recognized that Vietnam was not going to be a tank war. So the promising effort was passed on to the Air Force.²⁶ Laser-guided bombs were far enough along by mid-1967 to begin combat tests, during which the 750-pound bombs achieved an average error of 64 feet, and the two-thousand-pound bombs 32 feet. Over half were scored direct hits.²⁷ The tests continued. In 1969, 61 percent of 1,601 Mk 84 laser bombs released scored direct hits; the 85 percent that were guided had an average error of 9.6 feet. As this was less than the bomb's lethal radius, bombing results were impressive.²⁸

Nevertheless, the laser-guided bombs had their limitations. Smoke, haze, and clouds could nullify the weapon. One aircraft had to loiter in a predictable (and thus vulnerable) flight pattern (a circle) while the bomb fell to earth. There were some problems of reliability: in the initial tests, nine of the total 66 bombs suffered malfunctions. The seeker heads proved vulnerable to damage if flown through a rainstorm. Because of the system's undulating flight path, the bomb lost energy and had less stand-off range than did the Walleye.²⁹

The Air Force pushed the laser-guided bombs. The laser kit could be fairly easily adapted to other bombs, and it was. By 1971, the Air Force was using five-hundred-, one-thousand-, two-thousand-, and three-thousand-pound bombs. But the smallest of these became the standard, not because of cost (it was only marginally cheaper), but because more of the lighter bombs could be carried on each sortie. Better accuracy permitted smaller payloads to be more effective.³⁰

Meanwhile the Air Force was seeking to improve the weapon. Pave Knife was the code name for a system that consisted of a laser designating pod carried beneath the strike aircraft, making it both bomber and designator. Fewer aircraft could now do the same job, and were less vulnerable.³¹

This was the situation when the Communist Easter offensive of 1972 exploded. PGMs proved to be excellent weapons in two diverse roles in the 1972 campaign: precise bombing of the North Vietnam homeland and the repulse of the North Vietnamese army in the field.

Guided weapons were important in the attacks on North Vietnam for two major reasons. First, laser weapons allowed fewer aircraft to do greater damage, not only putting fewer men and machines at risk, but getting the job done the first time. In view of the effective North Vietnamese defenses, this was critical. Second, they achieved accuracies that permitted employment in close proximity to civilians, dikes, and the like. Two examples made this dramatically clear.

North Vietnamese bridges were prime targets in the effort to cut off supplies from the fighting in the South. Symbolic of this long, frustrating, and deadly duel between American airmen and North Vietnamese defenders throughout the war was the Thanh Hoa ("The Dragon's Jaw") Bridge.³² Prior to Linebacker I, it had withstood 871 Air Force and Navy sorties and cost 11 aircraft.³³ On 13 May 1972, 14 bombers dropped both laser-guided and dumb bombs that scored several hits, knocking one of the main spans off its abutment and closing the bridge to rail traffic for the rest of the campaign.³⁴

Another example of the confidence that the laser weapons gave the American airmen was the attack on the power-generating plant at Lang Chi Reservoir. Its proximity to a major dam put this key target off limits to the airmen with conventional bombs. In June 1972, the Air Force used LGBs to knock out the generating facility without causing any damage to the dam.³⁵ The guided bombs also proved valuable in fighting the conventional war in the South. Airpower was really the only weapon that could

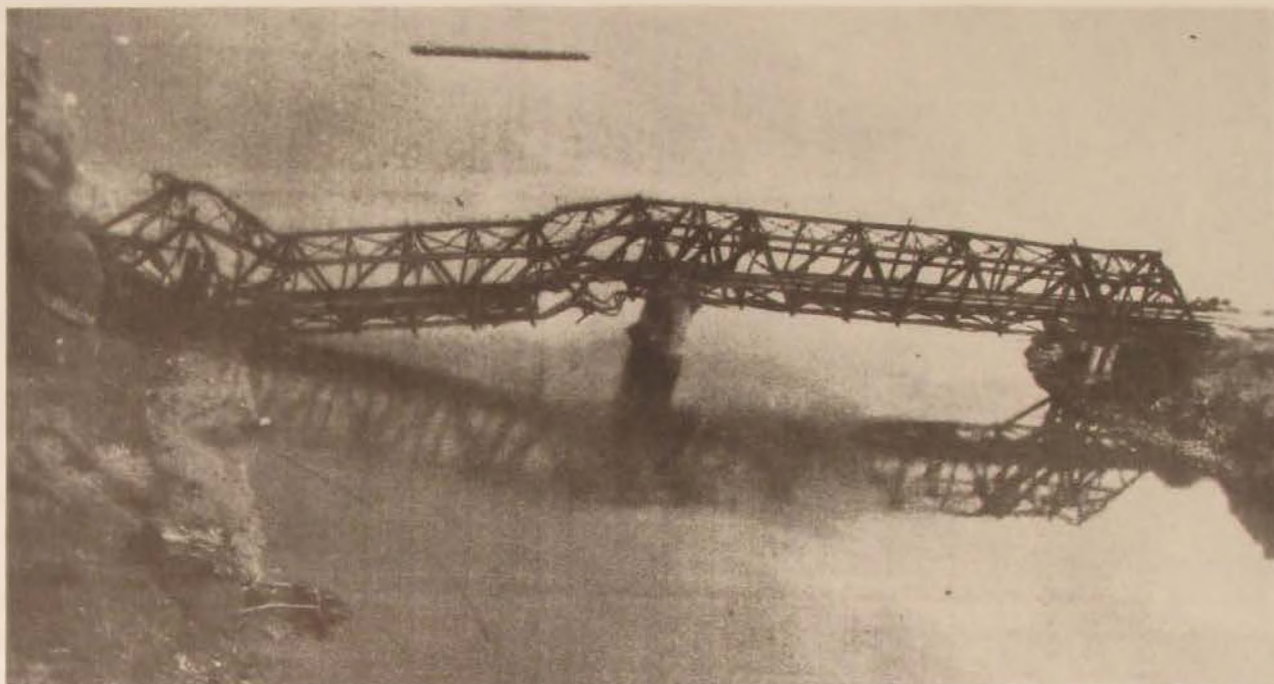


The USAF pushed the laser-guided bombs. The laser kit could be fairly easily adapted to other bombs, and it was. By 1971, five-hundred-, one-thousand-, two-thousand-, and three-thousand-pound bombs were being used. Above: Two Mk 82 five-hundred-pound bombs with laser kits on an F-4C. Below: A three-thousand-pound LGB.

blunt two new and major Communist equipment advantages in the assault—tanks and 130 mm artillery. Airpower was about all that could get at these guns that outranged anything in the South Vietnamese army. Laser-guided bombs were also very effective tank killers: while the LGBs were involved in only 10 percent of the antitank effort, they were credited with 22 percent of the tank kills.

Laser bombs also could take out bridges and thus seriously impede the advancing tanks.³⁶

The advantage of the guided bombs is starkly revealed when compared with the F-105's work in the same areas (Route Packages VIA and VIB). The F-105s achieved a circular error probable (CEP) of 447 feet and 5.5 percent direct hits during the end of Rolling Thunder, compared with guided bombs' CEP



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of 23 feet and 48 percent direct hits during the period of February 1972 through February 1973.³⁷ One study found that LGBs were one to two hundred times as effective as conventional bombs against very hard targets and 20 to 40 times against soft and area targets.³⁸ General Vogt stated that laser weapons were about a hundred times as effective as dumb bombs.³⁹

What is the explanation for the success of the guided bombs? As with gunships, a few innovative, motivated individuals pushed a promising idea forward. In a similar fashion, the key seems to be the simple and cheap technology. Because it was cheap, the program at first was low profile, allowing exceptional freedom of action. The low cost also permitted a competition to be held that not only demonstrated the overall concept of laser guidance, but also indicated that the technology that seemed the riskier of the two, was worth pursuing. Low cost also meant that testing could be repeated, allowing the device

to be modified and fine-tuned before entering combat, in contrast to the F-111 (a story that is beyond the scope of this article). Its simplicity not only kept costs down, but made it a reliable and workable weapon. There was good cooperation between the manufacturer (Texas Instruments) and the customer (Eglin AFB, Florida). Design specifications were relatively loose, and military standards were not applied until late in the process. One student of the weapon concluded that flexibility was one of the key factors of success.⁴⁰

Observations

What observations can be drawn from this brief look at US Air Force technology in the Vietnam War? First, the airmen can get off the hook, a little at least, for their inadequate technology early in the conflict in that they designed their weapons for the war their civilian superiors demanded: nuclear war. While it is true that the military does not pick the

wars it fights, it does pick the technologies it uses. The problem is the interface between the war and the technology. Second, airpower is more than flying. Contrary to what laypeople, most buffs, and some academics (and I fear perhaps some airmen) believe, airpower is more than airframes. Not only is it dependent on nontechnological factors (strategy, tactics, and training), but also on associated equipment such as munitions. The failure of the F-105 and the successes of the obsolete C-47s and C-119s as weapons platforms and the great increase in effectiveness from the use of laser-guided bombs underscore this point. A third observation is that Vietnam demonstrates the problems of an asymmetric war. This was *not* a total war for the United States; this was *not* the worst-case scenario of fighting an equivalent power with equivalent technology and probably greater numbers. Fourth, the military chooses to forget the lessons of Korea (for example, the difficulties of fighting a nonindustrial country, the problems of night interdiction, and the restrictions of a limited war), while the politicians were dominated by that war and the fear of Chinese intervention. The Air Force was not trying to fight the last war, as the military is so often accused of doing. It was trying to fight the next war. It was the civilians who were refighting Korea. Finally, simple is better. The highly sophisticated, complex, and expensive F-105 did not do well. In contrast, the simple, reliable, maintainable, and cheap AC-47 proved very effective. In a similar manner, the relatively low-cost laser-guided

bombs permitted changes and testing that led to both tactical and manufacturing success.

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In brief, then, the Air Force came into the Vietnam War woefully unprepared for the war it had to fight. While it is true that air operations were constrained by civilian-imposed restrictions, the Air Force had also limited its abilities by its concentration on nuclear war. It rose to the challenge of the war in Vietnam but paid a high price. The Air Force that conducted successful operations in the 1972 Linebacker I and II campaigns was different than the one that met defeat earlier in Rolling Thunder. But the war had also changed from a guerrilla war to a conventional one.

Technology is important, but it is only one factor in fielding a capable and winning air force. What failed in Vietnam was not the technology, but a broad understanding of the power and limits of both airpower and air technology. One of the major characteristics of both is flexibility. It is this general lesson that should be carried forward into planning for Air Force operations in the next century. □

Notes

1. Other possible choices include aircraft such as the F-4 and F-111; sensor technology (Igloo White); modifications to the B-52 ("Big Belly" and Skyspot); drones (Buffalo Hunter); anti-SAM (Iron Hand, antiradiation missiles, radar homing and warning [RHAW]); and the list goes on.

2. Marcelle Knaack, *Encyclopedia of US Air Force Aircraft and Missile Systems*, vol. 1, *Post-World War II Fighters, 1945-1973* (Washington, D.C.: Office of Air Force History, 1978), 204; Jerry Hoblit, "AF-105 Thunderchief," 87, 89 in Robin Higham and Abigail Siddall, eds., *Flying Combat Aircraft of the USAAF-USAF* (Ames, Iowa: Iowa State University, 1975), 87, 89; and USAF Oral

History Program, interview with Robinson Risner, 12 March 1983, Historical Research Agency (HRA), K239.0512-1370.

3. J. C. Scutts, *F-105 Thunderchief* (New York: Scribner's, 1981), 113; USAF Oral History Program, interview with Gen James Ferguson, 8-9 May 1973, 40-41, HRA K239.0512-672; Enzo Angelucci and Peter Bowers, *The American Fighter* (New York: Orion, 1987), 355, 407-8; Robert Archer, *The Republic F-105* (Fallbrook, Calif.: Aero, 1969), 9; Ray Wagner, *American Combat Planes* (Garden City, N.Y.: Doubleday, 1982), 472; and Theodore van Geffen Jr. and Gerald C. Arruda, "Thunderchief," *Air University Review* 34, no. 2 (January-February 1983): 48.

4. Angelucci and Bowers, 408; Knaack, 195-96; and Wagner, 472.

5. In 1964, 38 F-105s were lost to explosions or fires, 12 in the first four months. The most costly in terms of reputation was a fatal accident in May 1964 by the Air Force's highly prestigious and visible stunt team, the Thunderbirds. This was the F-105's sixth and last performance in the stunning Thunderbird colors. The team went back to flying F-100s for that season and never again flew the F-105s. There were at least six groundings of the aircraft. Van Geffen and Arruda, 54, 56; Scutts, 22-23; Knaack, 194-95; David Anderton, *Republic F-105 Thunderchief* (London: Osprey, 1983), 13; and Donald Sorlie, "An Analysis of the F-105 Weapons System in Out-Country Counter Air Operations," Air War College case study, (Maxwell AFB, Ala., Air University, April 1968), 27; and Archer, 57.

6. Delbert Corum, "The Tale of Two Bridges," in *Air War-Vietnam* (Indianapolis: Bobbs-Merrill, 1978), 12.

7. It had been built for speed at low altitude, and its large size, heavy weight, and relatively small wing did not permit fighter-like maneuverability. Of 332 F-105 combat losses, 22 were credited to MiGs in air-to-air combat. In exchange, the F-105s claimed 27.5 MiGs. Tactical Air Command, "Summary of USAF Aircraft Losses in SEA," June 1974, 25, HRA K417.0423-16; and R. Frank Futrell et al., *Aces and Aerial Victories: The United States Air Force in Southeast Asia, 1965-1973* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1976), 117-25, 157.

8. To be precise, over North Vietnam the F-100 and the USAF-manned A-1 had higher loss rates, but together they flew less than 6 percent of the sorties flown by the F-105 over the North. Michael McCrea, *US Navy, Marine Corps, and Air Force Fixed-Wing Aircraft Losses and Damage in Southeast Asia (1962-1973)* (Arlington, Va.: Center for Naval Analysis, August 1976), 1-4 through 1-6; and "Summary of USAF Aircraft Losses in SEA," 22, 38.

9. John Guilmartin, "Editorial Note," *Air University Review* 34, no. 2 (January-February 1983): 53. Deleting the self-sealing feature saved six hundred pounds. A 1967 Wright-Patterson study stated that fires were reported in 50 percent of the F-105 losses. Patrick G. Long, "Evaluation of F-105 Weapon System in the Role of Out-Country Interdiction [in] Southeast Asia, 1965-1967," Research Report no. 3633 (Maxwell AFB, Ala.: Air War College, 1968), 61-62. Another study that year indicated that fires and explosions were suspected as the major cause of loss in 45 percent of 42 F-105 losses, and in 16 percent of 44 F-4 losses. Max Cleveland et al., "Vulnerabilities of the F-4C and the F-105 Aircraft to Ground Fire in SEA," August 1967, 10, 20, 22, HRA K740.01-25; and Warren Greene, "The Development of the B-52 Aircraft, 1945-53," 11 May 1956, 44-45, HRA K243.042-1.

10. Robert Hiller and Philip Conley, "A Comparison of the Vulnerabilities of the F-105 and F-4 Aircraft to Ground Fire," December 1965, HRA K717.3101-11; and Cleveland, 114.

11. The previous ejection seat required a one hundred-foot altitude and 120-knot minimum airspeed to operate successfully; the rocket seat could successfully operate at zero altitude and an 85-knot minimum airspeed. Scutts, 68, 85; and Sorlie, 27-28.

12. The essential source on this topic is the well-detailed and documented study by Jack Ballard, *The Development and Employment of Fixed-Wing Gunships, 1962-1972* (Washington, D.C.: Office of Air Force History, 1982). Unless otherwise noted, this section is drawn from Ballard. A briefer account that summarizes Ballard focuses on the AC-47 and adds a few tidbits is Lawrence Greenberg's undocumented "Spooky: Dragon in the Sky," *Vietnam*, 1 April 1980.

13. Gilmour MacDonald proposed variants of it three times during his AAF/USAF career, in 1942, 1945, and 1961. MacDonald passed the idea along to Ralph Flexman of Bell Aerosystems in late 1961, who carried the idea forward. Flexman, an Air Force reservist with a mobilization assignment at Wright-Patterson AFB, Ohio, suggested the concept to Simmons.

14. The tracers from the aircraft's three miniguns carved a fiery arc through the air, and along with the guns' distinctive roar,

earned it the nickname "Puff" and "Dragonship" after the popular Peter, Paul, and Mary song of the day, "Puff the Magic Dragon." Later the AC-47 gunship would be given the radio call sign and the name for which it would be remembered: "Spooky."

15. The aircraft were turned over to the Laotian and South Vietnamese air forces. In their combat service in Vietnam, the AC-47s fired 97 million rounds and were credited with successfully defending almost four thousand hamlets, outposts, and forts and killing fifty-three hundred enemy troops. In all, 53 C-47s had been converted into the gunship version. Seventeen were listed as combat losses and two as operational losses. "Summary of USAF Losses in SEA," 22. In World War II, the AAF fired 197 million rounds in the European theater and 91 million rounds in the Mediterranean theater. "Army Air Forces Statistical Digest: World War II," prepared by the Office of Statistical Control, US Army Statistical Control Division, 1945, 245.

16. These included the Starlight Scope (called night observation device [NOD]), side and forward looking radar, and forward looking infrared radar (FLIR). Kenneth Werrell, "Did USAF Technology Fail in Vietnam?" (paper presented to the Society of Military History, Montgomery, Ala., 26 April 1997), 22.

17. Ballard, 89.

18. One improvement was to develop a more potent 40 mm projectile. A standard round was fitted with a misch-metal liner, a metal resembling cigarette-lighter flint. Combat tests in January 1971 indicated that it set off four to five times as many fires and explosions as did the standard round.

19. A later Seventh Air Force report on Commando Hunt III (1969-1970) credited the Surprise Package AC-130 with 7.34 trucks destroyed or damaged per sortie compared with 4.34 for the other C-130s, 3.12 for the AC-123, and 2.27 for the AC-119. A sensor that detected truck-engine ignition emissions (Black Crow) and a processor to integrate its signals along with infrared and low-light television were added to the AC-130.

20. The 105 mm projectile carried 5.6 pounds of high explosive compared with the 0.6 pounds carried by the 40 mm projectile.

21. In May 1968, the Air Force called personnel from an Indiana-based C-119 Reserve unit to active duty to crew the gunship. This was one of the few Reserve units to serve in the war.

22. Ballard, 243.

23. The best on this subject is David Mets, "The Quest for a Surgical Strike: The Air Force and Laser Guided Bombs" (Eglin AFB, Fla.: Air Force Systems Command, October 1987). Unless otherwise noted, all material in this section is from this source.

24. Through 8 November, the Air Force dropped 22 Walleyes and scored 13 direct hits and two near hits.

25. During the course of the war, the Air Force expended 206 Walleyes and 545 of its later version, the homing bomb (HOB) system. Donald Blackwelder, "The Long Road to Desert Storm and Beyond: The Development of Precision-Guided Bombs" (thesis, School of Advanced Airpower Studies, June 1993), 18. About 69 percent of the 774 Walleyes dropped by the Navy scored direct hits. The electro-optical guided bomb (EOGB) was more costly than the LGB (\$17,000 versus \$4,700). Other disadvantages of the TV-guided sensor was that it was restricted to daytime use and required modification of the aircraft. "Linebacker: Overview of the First 120 Days," Contemporary Historical Evaluation of Counterinsurgency Operations (CHECO) report, Headquarters PACAF, September 1973, 21; Patrick Breitling, "Guided Bomb Operations in SEA: The Weather Dimension, 1 February-31 December 1972," CHECO report, 1 October 1973, 27; Blackwelder, 18; A. Starr et al., "Evaluation of Guided Bomb Systems Employed in Southeast Asia," Institute for Defense Analysis, May 1974, 7, 27; Mets; and Melvin Porter, "Second Generation Weaponry in SEA," September 1970, 3-4, 8-12, 15-6 HRA K717.0413-80.

26. It also specified an error of no more than 25 feet, a guidance reliability of at least 80 percent, and the capability of delivery from either dive or level-aircraft altitudes. Texas Instruments (TI) had already begun tests at Eglin that revealed a

number of significant problems that were corrected. One major change was to add a canard configuration. This put the complete guidance package in the nose, which made it simpler to build and handle, and enhanced reliability and made it adaptable to a large number of Air Force bombs. Another change was to spin (or rotate) the bomb at a specific rate to smooth out the undulations of TI's "bang-bang" controls. This also helped cancel out electronic and aerodynamic errors. Peter DeLeon, *The Laser-Guided Bomb*, RAND Report 1312-1 (Santa Monica, Calif.: RAND, June 1974), 1-27; and Mets. An F-4 flew a pylon turn to keep the target in the laser beam while the bomb was falling. A second aircraft dropped the bomb from a dive into a "cone" or "basket" that at 10,000 to 12,000 feet measured about a mile across. Once it released the bomb, the strike aircraft could depart, but the designator had to remain and "laze the target until the bomb impacted about thirty seconds after bomb release." "Second Generation Weaponry," 20; and Mets.

27. The difference in accuracy between the two bombs was attributed to the tail fins. Because of its inferior accuracy and lesser cratering capability (35 feet wide and seven feet deep versus 49 feet wide and 13 feet deep), the testers recommended that the M-117 be discontinued. "Second Generation Weaponry," 21-23; and Mets.

28. "Second Generation Weaponry," 30-35.

29. A 1968 study indicated aircraft dropping PGMs took two to three times the number of flak hits as those dropping dumb bombs. James G. Burton, *The Pentagon Wars: Reformers Challenge the Old Guard* (Annapolis: Naval Institute Press, 1993), 10; Charles T. Fox, "Precision-Guided Munitions: Past, Present, and Future," defense analytical study, Maxwell AFB, Ala., Air War College, 14 April 1995; "Second Generation Weaponry," 22-23; and Mets.

30. Other aircraft in addition to the F-4s became laser designators, including the AC-130 Pave Spectre gunships, Pave Nail OV-10 forward air controllers, and Tropic Moon III, B-57G long-range, interdiction aircraft. Porter, 44-45; Starr et al., 5; and Mets.

31. Mets.

32. Located 75 miles south of Hanoi, the 540-foot-long bridge had only been opened to traffic in 1964. It was listed as target number 14 (of 94) on the airmen's 1965 target list.

33. The Air Force also tried another type of munition to destroy the bridge. On the last two days of May 1966, it attempted to float a number of five-thousand-pound mass-focus bombs down the Song Ma River to take it out. The bridge survived; one C-130 and one P-4 did not. Corum, 52-55, 59; and Sam McGowan, "Bridge at Dragon's Jaw," *Vietnam*, Summer 1989, 34, 36.

34. Walter Lynch, "An Analysis of Guided Bomb Systems Employment Effectiveness against Bridges during Linebacker I," August 1975, li-iv, 5, 17, 29; Mets; Melvin F. Porter, "Linebacker: Overview of the First 120 Days," 24; and Corum, 84-85.

35. Mets.

36. Blackwelder, 16-17; and Mets. EOGBs were primarily employed in low-threat areas. During 1972, 329 were launched, and 53.5 percent achieved hits. In comparison, 9,094 LGBs were dropped, and 47.5 percent achieved direct hits. I assume that the EOGB "hits" are the same as the "direct hits" of the LGBs. Breitling, 20, 23-25, 28.

37. "Circular error probable" is the radius within which half of the bombs will fall. It should be noted that when these bombs were guided, they either scored direct or very close to direct hits. They were either "a go" or "no go." During this period, 15.2 percent of the guided bombs did not guide. Blackwelder, 16.

38. R. L. Blachly, P. A. Conline, and B. H. Sharkey, *Laser and Electro-Optical Guided Bomb Performance in Southeast Asia (Linebacker I): A Briefing*, RAND Report 1326-PR (Santa Monica, Calif.: RAND, October 1973), 3.

39. Vogt interview, 12 November 1972, in "Linebacker: Overview of the First 120 Days," 59. Analysts calculated that during Linebacker II, LGBs were about 15 times as effective as visual-aimed conventional bombs. This may understate their capability as 32 of the 56 LGB sorties were aimed at radio communications facilities, the most difficult target set the airmen engaged during that operation. Also note that during the 11-day campaign, there were only eight hours of daylight with weather suitable for PGM operations. Herman Gilster and Robert Frady, "Linebacker II, USAF Bombing Survey," April 1973, 10, 22, 40-43, HRA K717.64-8.

40. DeLeon, 27, 32, 34-35, 40.

The best executive is the one who has sense enough to pick good men to do what he wants done, and self-restraint enough to keep from meddling with them while they do it.

—Theodore Roosevelt

Loyalty to petrified opinion never yet broke a chain or freed a human soul.

—Mark Twain (Samuel Clemens)

CONSIGNING AIR BASES TO THE DUSTBIN OF HISTORY

CHRISTOPHER M. CENTNER

Among the most spectacular successes in Operation Desert Storm was the quick defeat of Iraq's air forces. Early attacks against Iraqi air bases showed how vulnerable these facilities are to attack from a modern foe. Iraq soared confidently into the war from air bases that both defended its borders and housed valuable aircraft within some of the most formidable bunkers ever designed. However, like all highly valuable static targets in Iraq, once identified, they were subjected to merciless attacks. The beginning of the Gulf War begat the end of the combat air base.

Yesterday's Lessons

The demise of the air base in light of new technology and doctrine has historical parallels. Because of technology limitations (lack of effective mobile artillery with which to demolish a well-designed fortification) and resource constraints (troops and their associated costs), in the seventeenth and eighteenth centuries, conflicts centered upon sieges of fortifications. Armies constituted a capital expense so large that they had to be used with caution. They were also limited in range to an area they could reach quickly by march from their magazines. Fortresses, within which the magazines lay, therefore became the locus of warfare.¹

The French Revolution ended the obsession with elaborate fortifications.² Revolutionary armies lived off the land, endured privations, and marched deep into enemy territory. The fortification no longer mattered—but the army did matter. Faced with mobile armies possessing improved, more lethal artillery, the fortification in many cases became a weakness rather than a strength.

Since Napoléon, ground wars have been won by forces best able to maintain offensive mobility. The Navy, under the goading of Adm Hyman Rickover, transferred these attributes to the sea, freeing US sea power from

limitations of range and deployment dictated by available coaling stations and ports. Ironically, as the other arms of military power have become more mobile, air forces have become more restricted to their air bases.

Today's Choices

Although the modern battlefield dooms static facilities, mobile platforms survive. During Desert Storm, fixed Scud launch sites were quickly identified and eliminated. Despite its air supremacy, however, the coalition had virtually no success against mobile Scuds.³ Iraq continued to launch these missiles throughout the war. In contrast, Iraq's air force, flying from known, fixed locations, was quickly defeated. The lesson is clear: dependency upon fixed sites, whether air bases or other critical nodes, risks defeat.

Unlike their static Air Force counterparts, mobile air bases, such as aircraft carriers and Marine assault ships, can maneuver to place massive firepower on targets and then withdraw when located by the enemy. They have the additional benefit of operating upon the open seas, allowing naval aviation to attack most of the world's military and industrial centers. They also have fewer political and social constraints placed upon them than do their land counterparts.

Floating platforms similar to oil rigs represent another basing option. For instance, the United States has investigated using such platforms to replace some installations in Okinawa. The platforms would include a three-thousand-foot runway, housing, and space for 60 helicopters.⁴ Further, these structures could deploy to crisis regions and move when located by adversary intelligence.

If we are to reduce our dependency on air bases, we must change aircraft design and procurement. We might consider adopting the Russian philosophy of aircraft design: a rugged, structural approach that permits aircraft to deploy to natural surfaces. Only recently the Air Force had an aircraft designed for deployment nearly anywhere—the A-10. Despite the tremendous capability this aircraft showed in the Gulf War, the Air Force has shown no interest in developing a similarly capable follow-on.⁵

Short takeoff and landing (STOL) and vertical (V)/STOL aircraft, such as Marine Harriers and Army attack helicopters, also are less dependent on fixed air bases. V/STOL aircraft can operate despite airfield limitations and intensive attacks on air bases. Such aircraft are flexible, in that they may be deployed on either land- or sea-based platforms.⁶ Trade-offs in weight and performance, however, have tended to retard interest in these aircraft. The Air Force has shown little interest in V/STOL and continues to emphasize performance in the air over survivability on the ground.

Another way of protecting air bases entails placing them beyond the range of most threats. However, air bases would have to be quite far away indeed. Nearly every potential theater of war is thick with ballistic missiles. Countries such as Libya, India, Iran, North Korea, and Syria have missiles

with ranges from 500 km to more than 2,500 km.⁷ Some of these missiles may be armed with chemical, biological, or even nuclear warheads. Given the increasing availability of global positioning system (GPS) technology and advanced computers, the accuracy of even conventional weapons could begin to match that of US Tomahawk cruise missiles. Moreover, arms exporters are selling advanced long-range aircraft, along with packages of precision-guided weaponry.

Range also can reduce the power and effectiveness of an air force—witness the Battle of Britain, in which British fighters flew far more sorties per aircraft than their German adversaries, who flew exhausting distances to attack England. Thus, it is possible for a small air force to overwhelm a much larger and better equipped foe.

The use of unmanned aerial vehicles (UAV) also can reduce air force dependency upon fixed operating bases.⁸ Recent advances in propulsion systems, expert systems, and materials technology have expanded the missions UAVs will play in future conflicts. These vehicles may soon augment—or replace—many piloted aircraft, including combat aircraft, that depend on air bases. Experiments already have been conducted on UAVs modified to deliver ordnance. Indeed, the Air Force's Scientific Advisory Board has reportedly begun notional studies into stealthy unmanned combat aerial vehicles (UCAV).⁹

UAVs provide other advantages. They can be launched and recovered away from airfields. They can loiter all day, reconnoitering or awaiting their prey. They are free of G-load restrictions mandated by human frailty. But they cannot replace the manned fighter or fighter-bomber soon—at least not entirely—because mobile targets and missions calling for on-the-spot decisions will still require a human's presence. However, the UAV offers another means of removing some airpower resources from the air base.

Tomorrow's Unfettered Air Force

An air force less dependent upon bases will be radically different from today's organization. Different missions will require different solutions. For example, Harrier follow-ons and helicopters capable of conducting sorties either from floating platforms or from numerous, hastily prepared logistics supply points will provide close air support. Other airpower will come from cruise missiles and extended-range, air-delivered munitions.

Manned strategic combat aircraft will remain, but in far fewer numbers than today. They will attack only the most politically sensitive targets or other targets requiring instantaneous decision making by humans. Typically, they will fly longer distances, perhaps flying to and from the continental United States to conduct missions. Airlift will remain manned but will be located farther to the rear.

Decades from now, much—if not most—of the Air Force's firepower will likely come from UAVs. They will conduct almost all missions now assigned

to manned aircraft, from intelligence gathering and counterair operations, to operational and even strategic attack. Freed from fixed air bases, UAVs could launch and land from numerous, unpredictable locations.

At present, however, it does not appear that the Air Force has come to grips with the need to free itself from combat air bases. Fortunately, the Navy, Army, and Marine Corps have done so. If the Air Force remains saddled with aircraft that depend upon smooth concrete and steel hangars, in some future conflict it may find itself an onlooker while its sister services conduct the struggle for air superiority.

Washington, D.C.

Notes

1. H. Rothfels, "Clausewitz," in *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler*, ed. Edward Mead Earle (Princeton, N.J.: Princeton University Press, 1943), 97.
2. Henry Guerlac, "Vauban: The Impact of Science on War," in *Makers of Modern Strategy*, 45-46.
3. David Shukman, *Tomorrow's War: The Threat of High-Technology Weapons* (San Diego: Harcourt Brace & Company, 1996), 123-24.
4. David Shukman, "US Plans Floating Army Base off Japan," *The London Sunday Times*, 22 September 1996, 1-19.
5. See, for instance, Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey*, vol. 4, *Weapons, Tactics, and Training and Space Operations* (Washington, D.C.: Government Printing Office, 1993), 264.
6. Roy Braybrook, *V/STOL: The Key to Survival* (London: Osprey Publishing Limited, 1989), 13-14.
7. Won Yu Yong, "The Hyonmu versus the SCUD," *Wolgan Chason*, April 1991, 378-93.
8. See Wing Comdr Mark Lax and Wing Comdr Barry Sutherland, "An Extended Role for Unmanned Aerial Vehicles in the Royal Australian Air Force," Royal Australian Air Force Air Power Studies Centre Paper no. 46, 1996; on-line, Internet.
- 7 June 1997, available from <http://www.adfa.oz.au/DOD/apsc/apsc/pubs.html>.
9. Bill Sweetman, "Pilotless Fighters: Has Their Time Come?" *Jane's International Defense Review*, June 1997, 559-61.

Ricochets and Replies

Continued from page 3

Squadrons); 26th Attack Squadron, Wheeler Field, Hawaii; and 74th Attack Squadron, Albrook Field, Panama.

Although the doctrine of strategic bombing was and continues to be the "Holy Grail" of airpower, the interdiction, battlefield preparation, and close air support missions had the biggest impacts on the war. With that one sentence, Grynkewich shortchanged Air Corps attack aviation. It was Professors Morrow's and Leary's responsibility to have led this young man down the proper path.

Drew Taylor
Dayton, Ohio

NO FOOLING

As a doctor and US Air Force reservist, I must object to the article "Fooling Mother Nature: An Ethical Analysis of and Recommendations for Oversight of Human-Performance Enhancements in the Armed Forces" (Summer 1997). We have already "fooled" Mother Nature. The US military is the only force in the world that "owns the night." We fight at night with vision that's enhanced by night vision goggles (NVG).

But more importantly to me is the implication in the article that we should not even protect our soldiers, sailors, and airmen. We have body armor to protect against projectiles—why not immune enhancers and antioxidants to protect against chemical-biological warfare agents? I consider that defensive—indeed preventive—medicine.

Likewise, the use of pharmacological agents to enhance wakefulness is defensive. I want my potential patients to avoid being on a stretcher when they see me. Our troops should have all the protection and advantage our technology can deliver. And we should not share any of these technological advances with potential enemies.

Col Robert W. Feldtman, USAFR MC FS
Houston, Texas

NO MITCHELLS

I read the Fall 1997 edition of *APJ* with a higher-than-normal level of interest. I'm about to end a long career, the vast majority spent in the Air Force—both active and full-time Air Force Reserve. Your editorial comments and those in Lt Col Timothy Kline's article "Where Have All the Mitchell's Gone?" hit a sensitive spot in me because I've lived those things.

I was full of excitement and energy as a young officer because I thought I could make a difference. I was also very naive. A lot of us did make some minor differences in the late sixties and early seventies because our focus was on the mission and our country. Things began to change in the eighties, and our focus gradually changed from the mission to worrying about the color of paint on the buildings—and whether or not everyone had his or her own office with an executive desk. The number of workers began to decrease although the number of senior managers increased. We spend enormous amounts of money to convince pilots to stay in the Air Force, yet all the while we seem to have forgotten why we even have one. We listen to top leaders speak of integrity—something that should be taught in our families—yet we constantly hear of other senior people in trouble. And the list of troubles seems to have no end.

That's why there are no Mitchells. Mitchell was a true patriot who wanted to improve his armed forces. Today, we are tripping over O-6s who are concerned about performance indicators and running a business. Our young people seem more concerned about money than patriotism. We really do need a Mitchell now, but it will take the same courage and risk that he had—something I don't think anyone in today's Air Force is willing to do.

Col Terry E. Paasch, USAFR, Retired
Hill AFB, Utah

I've read your reprint of Lt Col Timothy Kline's article several times in the past few years. I submit that the Mitchells are still here today, albeit in a different, reduced form. The timelessness of the article is inherent, in that a reader can insert virtually any organization or person into the text, and the article will ring true. For example, "Where have all the Iacoccas, Fords, Tuckers, and Koches gone?" So, where are the Mitchells?

A concern I have with the article is that perhaps the thinking and implications are flawed. Does one necessarily have to be court-martialed to be a Mitchell? I hope not. Does one have to be outspoken to the point of insubordination to be a Mitchell? Or can one be a Mitchell by subtly achieving great things for the USAF?

The military and its thinking were different when Mitchell arose. One could argue that Mitchell was a zealot who didn't have enough sense to avoid being court-martialed. Others have done great things that didn't result in negative concerns. Gen Curtis LeMay created Strategic Air Command, and Gen George Butler disbanded it. Just as the article mentions, "The Air Force desperately needs a new Mitchell—not to do battle with the establishment but to provide a vision for airpower's future" (page 73). Isn't that what the collective efforts of various SPACECAST studies accomplish?

I posit that the new Mitchells need to realize and accept the fact that the USAF has outlived its usefulness as we know it today. In part, I'd argue that to advance into the future, we should do away with fighters and bombers. Space operations coupled with some aspects of the Navy can be utilized to carry out those operations. If we don't think outside the box, we'll only regress—or at best stay dormant. The USAF could be comprised of three commands and still carry out its current functions in concert with the sister services. In a bare-bones, operational Air Force, the force could be what we now know as Air Force

Space Command, Air Education and Training Command, and Air Mobility Command. However, I doubt that something of that magnitude will ever happen because of the sacred ground it traverses. Isn't that Mitchell-thinking? Can a captain make it happen? No.

One reason for the lack of Mitchells is probably related to the article by Maj Gen I. B. Holley Jr. ("Fifty Questions for Doctrine Writers: Means Are As Important As Ends") in the same issue of *APJ*. He relates that officers misunderstand and misuse doctrine and that the USAF has failed in educating its officers concerning doctrine. I'm not arguing whether that is right or wrong. I suspect that as long as the USAF keeps faltering and trying to find a well-defined purpose, it will remain difficult for the Mitchells out there who are waiting to rise. In the same article, the steps offered by Gen Donn Starry home in on one key aspect—constancy of purpose. I think we don't have it. Part of the reason we don't have it is that our system of professional military education (PME) is a disaster.

When I worked at the Air War College in 1994, I had a letter published in *APJ*. I submitted that the entire PME concept as we know it today needs a top-to-bottom overhaul into something more effective and efficient. The useless dragon needs to be slain. Feedback from faculty and staff ranged from the highly negative to the very positive. Was my thinking Mitchell-caliber for treading on that sacred ground? Or am I not a Mitchell because I didn't get court-martialed for raising an idea? I'm quite certain that others have these various ideas and thoughts. Should we fall on our swords for them? Probably not. I suggest that today's officers and airmen have a deeper understanding of the military-political machine than our predecessors did and realize pragmatically what can and can't be done. The Mitchells are out there—just look for them outside the courtroom.

Capt Walter E. Klose Jr., USAF
Andrews AFB, Maryland



Net Assessment

The most valuable of all talents is never using two words when one will do.

—Thomas Jefferson

The Lebanon War by A. J. Abraham. Greenwood Publishing Group, 88 Post Road West, Westport, Connecticut 06881-5007, 1996, 216 pages, \$55.00.

The Lebanon War provides a chronological study of the civil war that has plagued the Lebanese people. A. J. Abraham, who teaches at John Jay College and New York Institute of Technology and has guest lectured on Lebanon at several colleges and universities in the United States, analyzes the period from the war's genesis in April 1975 through the Israeli invasion and occupation of West Beirut in January 1982. He has contacts with both predominantly Christian, right-wing Lebanese forces as well as the overwhelmingly Moslem, left-wing, antigovernment National Movement. He provides a balanced review encompassing both the military and political aspects of the conflict.

The book's highlight is its treatment of the immense complexity of the Lebanon conflict. The country contains a tremendous diversity of cultures, political ideologies, and religions. For decades prior to 1975, Christian Maronites, Moslem Druze, Greek Orthodox, and Greek Catholics, as well as Sunnite and Shi'ite Moslems lived and worked together, sharing power in the Lebanese government. A formula, based on population, that assigned major political posts to the different groups resulted in a relative balance of political and religious representation. A host of changes, such as shifts in demography and—perhaps more importantly—several major external sources of influence, disrupted this careful balance. These outside factors included occupation by the Palestine Liberation Organization, interventions by Syria and Israel, an influx of Soviet arms, and Iranian-sponsored Islamic fundamentalism. The accumulation of these factors combined to make the situation explosive. The author forecasts that there will be no simple solution to the problem, that no one

victor will emerge, and that any future settlement must be the result of compromise.

I found the book a slow, laborious read. This is not so much an indictment of the book or the author's style as it is the subject matter. The politics and shifting alliances of the various ethnic, religious, and political groups seem endless and are quite difficult to follow. Perhaps the author could have provided more background information on the parties in the conflict, including their objectives and motivations. Such additions would assist the reader in digesting the material. On the positive side, the book is well researched and documented, including notes for each chapter. Although I do not recommend the book for casual reading, I do consider it an excellent source of information for continuing research.

Lt Col Chris Anderson, USAF
Maxwell AFB, Alabama

Peacekeeping: Outspoken Observations by a Field Officer by James H. Allan. Praeger Publishers, Westport, Connecticut 06881-5007, 1996, 156 pages.

Peacekeeping provides a perspective on military support to peace operations by a dyed-in-the-wool peacekeeper. In 37 years on active duty in the Canadian army, Colonel Allan served nearly three as a peacekeeper in five United Nations (UN) operations. From his experiences in Cyprus, Syria, Israel, Egypt, Lebanon, Iran, and Iraq, he makes his outspoken observations about the efficacy of UN peacekeeping operations—and they are outspoken indeed.

The author acknowledges biases in the preface, if only minimally. He notes that his "experience has created a bias that favors a 'do nothing' approach . . . that calls for very selective use of peacekeeping." He also warns the reader of his utter disdain for the UN, saying, "If I appear to harp on the dysfunctions of the UN bureaucracy in the book it is because the UN is truly so bad." Despite the forewarning, Allan's biases are infused into the book, and it is often difficult to determine where the vitriol ends and the observations begin. For example, he "observes" that

the UN civil affairs officer (CAO) did not rely on the military logistics officer's expertise "in Cyprus or in most missions in which I served because of the incompetence, corruption, or deliberate obstructionism of various CAO's." Occasionally, he backs his criticism of the UN with good evidence, at least from a military perspective, especially when he highlights examples of bureaucratic stagnation in the UN Truce Supervision Organization in the Middle East.

If the reader can get past the polemic, the book discusses all aspects of a peacekeeping operation, from mandate to withdrawal. Military principles of unity of command and force protection get particular attention. So long as the author sticks with the military aspects of peacekeeping operations, the work offers some insights into the tactics involved. Unfortunately, he stays there far too seldom, and his observations on policy issues exceed his expertise. For example, he notes that "in UN peacekeeping, some senior officers and officials have remained in key positions far too long for their own good and for the effectiveness of the organization. Of course, the UN organization as a whole suffers greatly from this same disease."

The work does offer occasional gems, many of which are curiously buried in the notes. For instance, in one footnote the author remarks, "When a peacekeeping operation is closed down, care should be taken to keep plans viable for quick reactivation of the force; politicians and diplomats should be slow to claim success; and most importantly, 'success' must be carefully defined." Other significant pearls are the hard-learned lessons of the importance of a single set of agreed-upon maps, and that of the proper role of a peacekeeper—to set the conditions in which the peacemaker (politician) may work and achieve success.

But if the book is strong in examining peacekeeping, it is weak in exploring different types of peace operations. For example, Allan does not offer observations on peace-enforcement operations. His military perspective and admitted bias against enforcement operations probably both contribute to the void, but whether it is a result of deliberate direction or oversight is irrelevant; the result is that it limits the utility of the effort. Despite the author's admonition against performing peace-enforcement operations, they appear to be on the rise as government bodies become less tolerant of regional instabilities.

All in all, *Peacekeeping* offers little new on the subject. Interested military professionals determined to glean its few insights need not go beyond the preface and chapter 1 ("An Overview of

Peacekeeping"). Subsequent chapters describing the operations in which Allan participated are tedious and redundant. In the rhetorically titled concluding chapter ("Peacekeeping: Renaissance or Empty Dream"), the author offers presumptuous suggestions about how the UN and world governments could best shape the international security environment with respect to peacekeeping. One might expect a few observations about how military professionals might best accomplish peacekeeping tasks, but, alas, even this is too much to expect. Do not waste your time.

Lt Col Kevin Curry, USAF
Fairfax, Virginia

At Belleau Wood by Robert B. Asprey. University of North Texas Press, P.O. Box 13856, Denton, Texas 76203-6856, 1996, 376 pages, \$18.95 (paperback).

In 1997 Robert Asprey emerged as the consummate military historian. His recent works, *Frederick the Great*, *War in the Shadows* (revised and updated version), and *The German High Command at War* have brought critical praise for their detail and keen insight into the mind of the military professional. He is currently hard at work researching a book about Napoléon that promises heretofore unrevealed aspects about this military genius.

To understand how Asprey arrived at where he now stands in the world of military historians, one needs to read his earlier works. The University of North Texas Press's reprint of *At Belleau Wood* serves as that vehicle. The budding military historian would be well served by reading this book, which shows Asprey at his best—detailed, analytical, precise, sparing in dramatization (since his research into diaries and letters do that best), and insightful into the demeanor of the American soldier at war.

At Belleau Wood remains a masterful narrative. More importantly, this book has lost none of its relevance. Why? If the reader substitutes the situation in which the American Expeditionary Force found itself at Belleau Wood with the situation in which it now finds itself in Bosnia, the relevance becomes all too clear: extended presence in an unfamiliar nation, stagnant combined-arms training, aviation limited by weather and technology, and erstwhile allied support.

In the spring of 1918, Gen Erich Ludendorff transferred 70 divisions from the eastern to the western front as a result of the chaos in Russia. He then began a series of offensive battles designed to shatter the British army, finish off the French army,

and allow the German army entry into Paris and final victory. By late May 1918, the German assaults—some of them dismal failures, others surprisingly successful—were approaching an offensive climax. Ludendorff made one more offensive push with very low reserves, high casualties, and sinking morale. The latter resulted from the presence of American units arriving at the front in ever growing numbers.

By 3 June 1918, Ludendorff's offensive had rolled all the way to Château-Thierry and a heavily forested area named Belleau Wood. However, on this particular day, 85,000 American troops belonging to the 2d and 3d Infantry Divisions counterattacked his army and in a weeklong battle, pushed them back. This marked the beginning of the end of the Great War. Furthermore, this battle greatly boosted Allied morale; further bloodied American units, giving them seasoned unit leaders and shorter supply lines; and made Gen John Pershing a more important partner at the Allied council of war. Many more things happened because of Belleau Wood, especially the fact that future American combat leaders learned how to fight with the efficiency of a perfect killing machine.

The carnage of World War I made a profound impact on the American military but had its greatest effect on the Marine Corps, whose infantry realized they were expendable as they witnessed hundreds of thousands of Allied and enemy soldiers being mowed down by murderous machine gun and artillery fire. But the enemy learned something about the Americans. As a Marine sergeant told Philip Caputo during the Vietnam War, "Before you leave here, Sir, you're going to learn that one of the most brutal things in the world is your average nineteen-year-old American boy." Add to this memorable line the idea that the 19-year-old might fail in a battle and bring disgrace to his nation, unit, and branch of the service, and one has the making of a power that cannot be stopped. This is the lesson of Belleau Wood.

By 8 June 1918, the American units assigned to defend the grounds of Belleau Wood from Ludendorff's all-out offensive had tactically "failed." All of the intelligence his units had gathered made it clear to Ludendorff that he had beaten the Americans. However right his "intelligence," his conclusion was wrong. He did not understand that General Pershing had a nearly unlimited supply of military units inbound to Europe and could afford the human cost of continued efforts against the Germans. Nor did Ludendorff appreciate the tenacious quality of Americans to see a situation

through, no matter how unpleasant, once they accepted it. These two factors cost Germany and its allies the Great War.

Key concepts the military professional should gain from the book are found in chapters 16 and 17, which include the key to understanding how to fight in this kind of situation and 11 factors for insuring victory. When war finally engulfs our troops in Bosnia—and it will—the conflict will resemble Belleau Wood: "small-unit warfare in the fullest sense; dirty, murderous fighting against entrenched machine guns flanked by other machine guns that [take] the most awful toll." Another lesson from this war, soon to be relearned, entails the horrors and confusion of chemical warfare, as related in chapter 19. The book also emphasizes the fact that war fighters need to understand the importance of accurate maps and guidance systems.

Further, the book reminds us of the significant role of public relations. Colonel Upton, USMC, in a report to Major General Bundy, USMC, stated that the Belleau Wood "attack went off like a dress rehearsal and I regret we did not take moving pictures of it." However, this battle would be the last one marines would go into without recording every action scene. After Belleau Wood, Asprey writes, there were even more vicious battles between the Army and the Marine Corps over the sometime outlandish media coverage the Marines received concerning the great victories in Europe. Asprey covers this from a Marine viewpoint (after all, he is a retired Marine captain), but it is factual and well documented. The real viewpoint that military scholars should hold is, Could a green American expeditionary unit composed of marines and Army infantry hold against crack enemy units, and can they win?

The American public never knew much about faulty command decisions, nothing of command ignorance and confusion, very little of the incredible sacrifices and courage of junior officers and noncommissioned officers, and very little of the pain and utter depravity of omnipresent death. All the American public wanted to know was, Can we win? Belleau Wood gave them their answer. For the professional who has read this work, the reprint is worth buying and presenting to the younger professional just entering the service. For the seasoned professional who missed this book, the University of North Texas Press has done the military a great service by reprinting it so we can apply its lessons to our next military involvement.

D. G. Bradford
Orlando, Florida

Adolf Galland: The Authorised Biography by David Baker. Windrow and Greene Ltd., 5 Gerard Street, London W1V 7LJ, 1996, 308 pages, \$27.95.

When it comes to studying military history, few types of books can give the reader an opportunity to explore the personal factors that led to significant and sometimes curious decisions in time of war. Biographies are an incredibly important tool for this purpose. They reveal valuable insight, as well as significant and interesting background information, and show the student of history the personalities and idiosyncrasies of the combatants—friend and foe alike. As far as biographies themselves go, *Adolf Galland: The Authorised Biography* is a welcome addition to the ranks of World War II Luftwaffe history. Although the topic itself is not particularly new and is just one of several books already written about the famous Luftwaffe fighter general, David Baker's addition is not just a rehash of old material written in a new light.

Baker was born in England during World War II and has considerable expertise in aviation as an aerospace scientist and engineer. In 1986 he was elected to membership in the prestigious International Academy of Aeronautics and has worked with several intelligence agencies. He is an accomplished author and since the early 1960s has published over 50 books and five hundred articles, including biographies of Manfred von Richthofen and Billy Bishop, World War I Canadian ace. His book on Galland is unique in that he used many hours of personal interviews with Galland, secondary sources, and declassified intelligence reports from World War II. The book is replete with detailed notes and photos, giving the reader an excellent picture of the man himself. Unfortunately, it does not include footnotes and an index. Other minor additions might have further enhanced the overall appeal of the book. A list of Galland's victories by date, place of combat, and type of aircraft destroyed, as well as color plates documenting the specific paint schemes of the aircraft he flew in combat, would have added to the book. Even without these items, however, Baker's study is still exceptional.

The author gives a full, well-balanced account of Galland's life from his childhood in a broken Germany following World War I; through his teenage years, spent fulfilling his burning desire to fly airplanes; until his death on 9 February 1996. Baker is masterful in presenting the reader with an amazingly detailed and personable look at a young man

who at the age of 29 was the youngest general in the German Luftwaffe.

The bulk of the book details Galland's combat accomplishments from the Spanish Civil War with the Legion Kondor, through World War II, during which he commanded the JV-44 "Squadron of Experts," flying the revolutionary Messerschmitt Me-262 jet fighter. Apart from learning that Galland was an exceptionally gifted combat pilot with 104 confirmed aerial victories—58 of those during the Battle of Britain—the reader will walk away from this book with a newfound appreciation for this man's superb operational and tactical organizational skills, as well as his burning passion to support his men and his beloved Luftwaffe fighter arm.

The book details his successes as a combat pilot, squadron and group commander, and eventually General of the Fighters. His overwhelming success in planning Channel Dash, the complex and dangerous operation to move the German warships *Prinz Eugen*, *Gneisenau*, and *Scharnhorst* from France to Norway through the English Channel, is just one indication of his leadership capabilities. Likewise, his continual battles with Hermann Göring over operational matters highlighted Galland's willingness to fight for those principles he knew to be both correct and essential for the survival of the Luftwaffe fighter forces and Germany as well. As Göring's ineptness and inability to grasp the complexities of modern air war become more evident, these battles grew in intensity and eventually led to Galland's dismissal as General of the Fighters in January 1945. The disputes over Hitler's initial proposal to use the Me-262 jet as a blitz bomber instead of an air superiority fighter, the piecemeal use of German fighters to stem the growing tide of American daylight bombers, the disintegration of German pilot training, and the persistent problem of increasing fighter production were battles against the hierarchy he continually fought. Galland achieved only moderate success regarding a couple of these issues.

These miniwars fought by Galland truly show the character of a great, ingenious, capable, and duty-bound man of honor. Even after being fired by Göring and relieved of all duties, he insisted on returning to combat to be with his men. He continued to fly and fight against insurmountable odds until the last days of the war. As commander of JV-44, he issued his final order of the war—the destruction of every Me-262 at Salzburg and Innsbruck—from a Tegernsee hospital bed, recovering from injuries he sustained on his final combat mission.

Adolph Galland is an exceptional biography and will complement and expand any serious student's study of the Luftwaffe or Galland himself. It is a must purchase for anyone interested in World War II aviation or anyone concerned with learning more about one of the war's most capable, dedicated, noble, and competent combat leaders.

Maj Robert F. Tate, USAF
Maxwell AFB, Alabama

All the Fine Young Eagles by Lt Col David L. Bashow. Stoddart Publishing, Toronto, Canada, 1996, 384 pages.

Anyone who has ever wondered what it was like to be a fighter pilot in World War II should read *All the Fine Young Eagles*. David Bashow's book is an exciting, historically accurate, funny, and terrifying account of the day-to-day life of Canadian Spitfire, Hurricane, Kittyhawk, and Typhoon pilots serving in the Royal Canadian Air Force and Royal Air Force during World War II from the Battle of Britain to Malta to Burma to the Aleutians and back to Northwest Europe. He has compiled the personal accounts of the men who trained in Canada, moved to England, turned back Göring and the Luftwaffe over the English Channel, dueled with Messerschmitts and Focke-Wulfs in the Mediterranean out of Fortress Malta, faced Zeros in Burma and Alaska, and swept the skies clear of the Nazis over Northwest Europe. He covers their exploits, triumphs, and tragedies in a chronological fashion, moving crisply through the campaigns and giving the reader strategic and operational background, as well as an up-close perspective on the equipment, tactics, and people involved in Canada's significant contribution to the air campaign in World War II.

This is a fascinating story, largely expressed in the words of the fighter pilots themselves. Bashow, who is a serving jet fighter pilot of the Canadian Forces, has assembled an impressive collection of anecdotes related to him by the surviving veterans or uncovered in their writings and memoirs, which reflect the pilots' unvarnished perspectives on equipment, each other, and their allies and opponents. He has provided the historical framework upon which their stories are arrayed—and the result is outstanding. From one page to the next, the momentous decisions of the campaigns are made, and readers find themselves in the cockpit of a fighter plane struggling with the sharp end of the plans.

The story is not without lighter moments common to any military campaign, as Bashow relates to us what life as a fighter pilot was really like. He brings to life the living conditions, the frequent moves, and the routine nature of base life behind the front lines, disrupted by daily instances of stark terror.

All the Fine Young Eagles is an important book. Canada's contribution to World War II was enormously significant and out of all proportion to its population and industrial capacity. Because the fighter pilots of that era are a vanishing breed, it is important that we preserve their memories. American students of World War II and fans of air campaigns should read this book—and it is a must for Canadians.

Lt Col James G. Diehl, USA
Fort Monroe, Virginia

Over There: A Marine in the Great War by Carl Andrew Brannen. Texas A&M University Press, Drawer C, College Station, Texas 77843-4354, 1996, 167 pages, \$24.95.

When America declared war in 1917, Carl A. Brannen was an 18-year-old freshman at Texas A&M. He finished out the fall semester of his sophomore year and then enlisted in the Marine Corps in January 1918, reporting for boot camp in February. Immediately upon graduation, he was shipped overseas to France to join the American Expeditionary Force under Gen John Pershing's command. After more training in Europe, he moved to the "front" to join the 6th Marine Regiment under the Army's 2d Division as a replacement for marines killed in the first 48 hours of the battle of Belleau Wood.

Brannen kept a very good diary. We discover that he is not a heroic figure—just a marine trying to stay alive. He knows that a foxhole or trench is a valuable piece of real estate in face of murderous machine gun fire. Brannen understands and appreciates the difference between his gas mask and those the French have (they are better), so he watches for a spare one. He knows what hunger is and how much a hot meal means, when he can get one. He also knows what thirst is and how uncertain resupply is in a combat situation. Brannen quickly learns the difference in the sound of the explosion of a gas, shrapnel, or high-explosive shell.

He stayed in Belleau Wood until it was captured on the first of July, a great morale victory for all the Allied armies. Brannen wasn't relieved until 16 July 1918. Instead of receiving a period of rest and recovery, he and his fellow marines were trucked to the battle area of Soissons, where he participated in an advance led by tanks. The Germans countered the attack with near-point-blank artillery, killing Brannen's best friend. It took only 40 minutes for his regiment to be nearly annihilated.

Brannen, however, is a survivor. He participated in battles in Saint-Mihiel, Mont Blanc, and the Meuse-Argonne. Following the armistice, as a member of the 2d Division, his unit became part of the Army of Occupation. Pershing kept the army sharp by means of a rigorous postwar training program. Brannen writes about how morale plummeted in this situation since most soldiers only wanted to return home. Just when Brannen began to feel down, he was selected to join the ranks of a regiment referred to as Pershing's Own. He had fought with the 4th Marine Brigade in every major battle and had survived—a claim few people could make. The 6th Regiment, composed of three thousand men, suffered 1,161 killed and over 4,656 wounded for total casualties of 5,817.

Over There is a very moving book. Brannen, who knows he was lucky to survive, is a quiet man in a heroic way. If it were not for his son and some dedicated scholars, the papers, photographs, and diary entries that tell his story would have been lost. This book, together with Robert Asprey's *At Belleau Wood*, provides a poignant reminder of just how terrible war really is. All professionals should place this book in a special niche in their libraries, where they should read and reread it often.

D. G. Bradford
Orlando, Florida

Peace Operations: Developing an American Strategy by Antonia Handler Chayes and George T. Raach, eds. National Defense University Press, Washington, D.C., October 1995, 178 pages.

Peace Operations is a small but important volume. It is a compendium of papers prepared for the 1995 Commission on Roles and Missions (CORM) of the Armed Forces. With CORM all but a fading memory, one may be tempted to bypass this effort, but to do so would be a mistake. Reading it leaves little doubt that similar conclusions will emerge from the upcoming Quadrennial Defense Review (QDR).

The editors are experts on the subject. George Raach is a retired US Army colonel with a planning and operational background that includes work with the Office of the Secretary of Defense. For CORM, he chaired the group on the use of military forces for peace operations and was a member of several other groups. Antonia Chayes has extensive experience as a consultant on conflict resolution and was a member of the US Strategic Command's Strategic Advisor Group. She also served as both an undersecretary and assistant secretary of the Air Force, and was selected by the secretary of defense as one of his 11 CORM commissioners.

In addition to essays by the editors, the book includes perspectives from six other authors: William Durch, J. Matthew Vaccaro, Christine Cervenak, A. J. Bacevich, William Rosenau, and Wendy Jordan. They collectively represent government, academia, and the military, and each has touched on conflict resolution in a professional capacity. Their articles address virtually every policy aspect of peace operations, including the security environment, lessons from past operations, military peacekeeping tasks, military and police responsibilities, outsourcing and contracting, coalition considerations, military culture and perspectives, and the effects on combat readiness. Despite their diversity, they come to remarkably consistent conclusions.

The overarching theme is one of *participation in peace operations as an investment*. The authors see active participation—even if limited to US unique capabilities such as intelligence, communications, and force projection—as a small price to pay to prevent larger problems later.

Most of the authors make it clear that they are not necessarily advocating change toward military involvement in peace operations. Rather, they see the *inevitability of involvement* and argue that the military (and the nation) must prepare to deal with it.

Another consistent motif is that *peace operations are dynamic*; they will change over time. They advise military participants to be adaptable, and they suggest that the best response to changes in the operating environment may be to modify the goals and objectives to secure at least a modicum of success. Not all changes are in the purview of the military, of course, but those that are should not be considered hard and fast.

The authors also discuss *consent* and offer a key insight beyond its obvious importance to success when they note that it is *dynamic*. Not only may it change over time, but there may be varying consent at different levels (e.g., national, strategic, and lo-

cal) that may also wax and wane throughout the operation. Again, the authors urge awareness and adaptability as the keys to success.

Addressing perhaps the most contentious peace issue—at least as far as the military is concerned—the authors consider the impact on readiness. They suggest that peace operations affect readiness but ask, “Readiness for what?” Their near-unanimous conclusion is that only offensive combat skills are affected; others, such as mobilization, austere environment operations, force protection, and civil affairs are actually enhanced. All in all, they say, any negative effects are short-lived, as combat skills are rapidly regained after short refresher training periods. The authors point out that readiness is difficult to measure. Until clear, objective measures are developed, the military will continue to be unable to support its claims that peace operations degrade readiness.

If there is a weakness to the collection, it is the absence of discussions of risk. One essay touches briefly on the subject but generally drops it after discussing the benefits of the investment in peace. Despite this one omission, the collection is diverse, concise, and timely. It is well worth reading.

Lt Col Kevin Curry, USAF
Fairfax, Virginia

America at War since 1945: Politics and Diplomacy in Korea, Vietnam, and the Gulf War by Gary A. Donaldson. Praeger Publishers, 88 Post Road West, Westport, Connecticut 06881-5007, 1996, 248 pages, \$19.95 (paperback).

Gary Donaldson, an Xavier University professor, provides a general study of the American interventions in Korea, Vietnam, and Kuwait, without adding anything to existing understanding of the wars and without conveying a comprehensive, precise, or balanced picture of these junctures in recent US history. Anyone who has done previous reading on Korea, Vietnam, or Kuwait is unlikely to learn anything new from this book. Amazingly for a work on a topic of such wide scope, Donaldson mainly uses newspaper and magazine articles for his sources. He does not use interviews, official documents, or even a fair number of published studies. The lack of nuance in Donaldson's book portrays one of the many problems resulting from an author limiting research to secondary sources.

Donaldson's misstatements throughout the book imply that it was written without a strong grasp of particulars and bring into doubt whether

or not it was checked for quality by knowledgeable editors. He mistakes US Marine regiments for divisions in Korea. He claims that Khe Sanh was a diversion for the Tet offensive, a claim that contradicts more thorough studies of the battle, the campaign, and Gen Vo Nguyen Giap, who organized the North Vietnamese army siege at Khe Sanh. Donaldson makes the mistake of stating that the Army of the Republic of Vietnam (ARVN) was fighting the Vietcong (VC) in 1971, when for all practical purposes the VC were nonexistent at the time, and the North Vietnamese army was the ARVN's adversary. He claims that Kuwait was created by the British specifically to deny Iraq an outlet to the Persian Gulf; actually, Kuwait had long been an emirate before it became a British protectorate in 1897 (at the time Iraq was part of the Ottoman Empire), and Kuwait was granted independence in 1961 during Britain's great decolonization. He mistakes the current US Central Command (CENTCOM) Operations Plan (OPLAN) 1002 with the war-game scenario created by the CENTCOM staff in mid-1990. Finally, in one place Donaldson confuses the XVIII Airborne Corps with the VII Corps, though on the very next page he gets it right.

Donaldson argues that the United States had no interest in defending South Korea other than avoiding McCarthyistic complaint. He further contends that South Vietnam was unworthy of American attention. Additionally, he doubts whether the liberation of Kuwait from Iraq was imperative. In each case, he discounts the war-fighting ability of the US military and questions the motives and decisions of American policy makers. Clearly, the American defense establishment deserves serious critique. But this critique must be balanced, and Donaldson is not evenhanded. Nevertheless, his bias is instructive. It displays the importance of officials and service members being able to respond authoritatively and persuasively to arguments and historical perspectives that question the validity and conduct of US security enterprises.

Overall, Donaldson's book displays the limitations inherent to works that are poorly researched and inadequately edited. I recommend it only to readers who need to be reminded of the existence of people who are highly critical of the American defense establishment.

Capt Jeff Kojac, USMC
Camp Pendleton, California

Courage under Fire by Patrick Sheane Duncan. G. P. Putnam's Sons Publishers, 200 Madison Ave-

nue, New York City 10016, 1996, 274 pages, \$23.95.

It's heart wrenching to witness a veteran fail to make the difficult transition from combat to peacetime. Yet, deep down we wonder compassionately—and inquisitively—why nightmares of war persistently haunt soldiers long after the guns are silent. In *Courage under Fire*, Patrick Sheane Duncan exposes us to the gruesome recollections of Lt Col Nat Serling, US Army, a character who struggles to determine why "the dream" of his Gulf War experience prevents him from adjusting to life after the war. If you've wrestled with this daunting challenge yourself or if you've witnessed someone else's personal battle, you'll want to read this book.

Courage under Fire is the story of Lieutenant Colonel Serling's investigation into the heroic actions of Capt Karen Emma Walden, a female Medevac helicopter pilot shot down over enemy territory on 26 February 1991. His investigation is extremely controversial because Captain Walden is the first woman ever nominated for a Medal of Honor due to valor in combat. General Hershberg, Serling's boss, describes the dilemma in a no-nonsense fashion: "We have some speed bumps ahead. One, this whole stink about women in combat. There's a whole slew of political sharpshooters who will gladly take aim at the target. Then there's going to be a whole 'nother group . . . saying we're only doing this to overcompensate or distract the public from the charges of sexism and sexual harassment in the armed services" (page 14).

Hershberg, Serling's longtime friend and mentor, orders Serling to conduct the investigation because of Serling's own tragedy during the war. While conducting an assault on Iraqi forces at Al Bathra, Serling leads his company of Bradley tanks into a deadly firefight, during which his own command-tank fires on friendly forces. When he realizes he's killed Lieutenant Boylar and his crew, the hated term *fratricide* is seared into Serling's memory forever. Long after the war is over, "the dream" image of Boylar's burning tank plagues Serling. Unable to reconcile the events at Al Bathra, Serling's professional and personal life self-destruct after the war until his fate becomes mysteriously intertwined with that of Captain Walden, who is also suspected of fratricide.

The overwhelming strength of this novel is its lack of predictability as Serling slowly unravels the mysteries of Captain Walden's own hellish experience fighting Iraqi soldiers. Duncan employs a series of flashbacks, each told from a different combatant's point of view, as Serling interviews the

crew of Walden's helicopter and other people. Like Serling himself, I initially believed each of the flashbacks to be true until various threads of the narratives began to unravel. For example, mysterious M-16 shots were heard from the downed Huey when, "supposedly," only dead soldiers remained on board. Readers will join Serling in tugging on such threads until the true story of Captain Walden's actions unfolds in the final flashback of the book. Readers won't be able to put the book down during these last 75 pages.

Although the flashbacks keep the pages turning, Duncan is quite heavy-handed in his use of stereotypical characters. Specifically, almost every Gulf War veteran in the novel is haunted by a memory of the war, which manifests itself through some form of abuse—for example, alcoholism or drug addiction. The result is flat, one-dimensional characters who win neither the reader's sympathy nor interest. Fortunately, Duncan succeeds in painting Serling as a multifaceted character—father, husband, and officer—even though he too is slowly "climbing into a bottle" of alcohol.

If you're looking for an easy-to-read story with action and suspense, pick up *Courage under Fire*. Duncan will satisfy your curiosity through Serling, one war veteran who discovers why he's haunted by "the dream" of Boylar's burning tank. More importantly, Serling reveals not only Captain Walden's heroism in combat, but his own heroism in peacetime.

Capt Rosemary King, USAF
Phoenix, Arizona

The Day the War Ended: May 8, 1945 by Martin Gilbert. Henry Holt and Company, Inc., 115 West 18th Street, New York City 10011, 1995, 473 pages, \$16.95.

On 8 May 1945, the European theater of war fell silent. The world rejoiced as the victorious Allies finally defeated a seemingly invincible enemy. Cities such as New York, London, Paris, and Moscow held massive parades and celebrations on such a grand scale as to put any victory parties of World War I to shame. While the parties raged in Europe, Allied forces took cover in heated battles on the huge offensive to displace the Japanese from their last imperialist footholds in the Pacific. Not all people celebrated the end of the war. Some had come face-to-face with death in the Nazi concentration camps and had survived. Others would return to their native Germany as refugees and attempt to

put their lives back together with what little they had remaining. Martin Gilbert takes a very provocative, stirring look into the end of the war in Europe and examines the effects of the last days of that bloody and destructive conflict on the participants.

Although it reveals some of the inner workings of both the Axis and Allies in the last days of the war, *The Day the War Ended* is about the people who fought, died, and suffered from 1939 to the final battles. One reads the emotional stories not only of the combatants, but those of regular civilians who suffered as a result of Nazi occupation, Allied bombings, or religious persecution. This book is based on many letters to the author from people who fought in the war.

Many stories, with their own self-serving twists, find a way to entertain the reader. For example, SS leader Heinrich Himmler sought to create a preposterous deal with the Western Allies. With his command of the Rhine and Vistula Rivers basically overrun, Himmler gave his assurances that he would surrender his forces to the United States, Great Britain, and France as long as he could still fight the Russians. Moreover, he asked that once those Allies caught up to the Russian front, they continue fighting against the Russians with the assistance of German forces.

Gilbert shows his only weakness in this monumental work: a complete bias for the end of the war as seen through English eyes. Has Gilbert forgotten the important ally who crossed the Atlantic to help fight to save his homeland? Not exactly. The author wrote the book using resources to which he had access. In his case, those were the letters of the English people, with a sampling from other nationalities. But how many times did Gilbert describe somebody's celebratory mood and happenings in Times Square? None that I can remember.

The Day the War Ended is a remarkable account of extraordinary achievements, sacrifices, failures, and triumphs of the last days of Hitler's Germany. It relates not only the final combat but also the stories of the people who were unimaginably affected by the war. Gilbert's book is highly readable, enjoyable, and enlightening. It would be a valuable addition to any history lover's library.

1st Lt Barry H. Crane, USAF
Wright-Patterson AFB, Ohio

Explorations in Strategy by Colin S. Gray. Greenwood Press, 88 Post Road West, Westport, Connecticut 06881-5007, 1996, 265 pages, \$59.95.

This book consists of a series of essays on a wide variety of strategy-related topics, all united by a common thread. That thread is Gray's perception of the tension between the unique geographic or "functionally distinctive" (i.e., service- or weapon system-specific) concerns facing today's strategic thinker and, as Gray puts it, "the pull of strategic logic." The essays cover such disparate topics as the role of sea power in today's environment (from a uniquely British perspective) to the strategic implications of the revolution in military affairs. The twin "centers of gravity" of the book, however, are the central chapters, which deal with the strategic value of airpower and special operations.

In section two of the book, Gray discusses the advantages and disadvantages of airpower, examines the role the United States has played as a unique "aerospace power" over the last 50 years, and then looks at how airpower should be used to support national interests from a strategic (primarily force structure versus force application) perspective. In section three, Gray explores the strategic value of special operations, a topic he considers woefully underexamined. The discussion covers the character of special operations forces (SOF); how, when, and why they should be used to make a strategic difference; and their potential value in support of foreign policy.

Of all the discussions in the book, the last two chapters on special operations are perhaps the most valuable to the strategic debate (and to an airman's professional library). As Gray rightly points out, there is a tremendous literature covering SOF topics, but "for every thousand pages in the literature which recount the deeds of derring-do, there is scarcely one page that troubles to ask whether those deeds made much of a difference to the course and outcome of a conflict." Gray makes a very useful stab at doing the latter in a section of chapter 8 called "Strategic Utility." He divides the claims made for the utility of SOF into "Master Claims," including economy of force and expansion of choice, and "Other Claims," including such neglected, perception-related areas as "showcasing of competence" and "humiliation of the enemy." These help to put his 50 or so historical instances into perspective and give the reader with only a casual knowledge of SOF and its practices a handy reference. The summarizing table at the end of the chapter is especially useful.

Also of interest to Air Force officers is the chapter titled "The United States as an Air Power." Here is a valuable summary and fairly strong statement of airpower advocacy from someone who has the reputation of being principally a sea power proponent.

As always, there is both good and bad news accompanying any of Gray's books. The good news is his footnotes, which, to me, were worth the price of the book alone as a starting point for more detailed reading. No scholar's command of the literature is more masterful. The bad news is Gray's convoluted, sometimes almost turgid, prose. No book of his can be considered an "easy read," but portions of this volume (particularly the chapter on deterrence) make *The Leverage of Sea Power* (Gray's acclaimed 1992 opus) read like a comic book in comparison.

This is definitely not a volume for every airman's bookshelf, but it is one that will reward the careful reader who is willing to wade through Gray's prose to find the genuine gems of strategic insight it does contain.

Maj J. P. Hunerwadel, USAF
Maxwell AFB, Alabama

Misfire: The History of How America's Small Arms Have Failed Our Military by William H. Hallahan. Charles Scribner's Sons, New York City, 1994, 580 pages.

According to the famous and widely accepted military aphorism, infantry is the queen of battle. From the dawn of organized violence to the Gulf War, troops on the ground have been essential to victory—at least for those who accept the foot soldier's adage. But if we accept the thesis of William H. Hallahan, we might add a caveat to the great proverb: if infantry still dominates the battlefield, then firepower is infantry's greatest ally. Hallahan makes this case strongly, while also suggesting that American infantry, throughout its history, has been ill served by its leaders, its government, and, in particular, the US Ordnance Corps. In short, Hallahan suggests that the US Army has suffered from a deeply entrenched and historical view which argues that carefully aimed, long-range rifle fire is superior to the high-volume but largely unaimed bursts of automatic weapons. Those who argue for aimed fire, which Hallahan identifies as the "gravel belly school," believe that good marksmanship and judicious control win battles and conserve ammunition.

A major portion of this book deals with the sometimes tragic story of America's two principal armories—Springfield and Harper's Ferry. Both establishments all too frequently suffered from mismanagement, inefficiency, and corruption. Hallahan's loosely supported contention is that, in

the main, they failed to provide American infantrymen the quality and even quantity of firearms they needed—whatever the war. Long after inventors or entrepreneurs made modern and effective weapons available, government bureaucrats or political appointees at the arsenals argued conservatively for little or no change. Forced to use antiquated weapons—in some cases held over almost a generation—many thousands of young Americans paid a heavy penalty on battlefield after battlefield.

Interwoven in this tale of government failure is the author's suggestion that weapons with higher volumes of fire most certainly would have met the wartime needs of the US military much better. Hall's carbine of 1843 or the subsequently developed Spencer rifle, in adequate numbers, might have had a profound influence on the Civil War. It may be going too far, however, to suggest that the massive use of breechloaders would have shortened that bloody conflict. In fact, as events of the early twentieth century were to demonstrate graphically, higher volumes of small-arms fire only increased the carnage and slaughter on the battlefield—and had little impact on a war's duration. The development and employment of machine guns on a massive scale—along with improvements in artillery and other weapons—mainly served to increase the lethality of the battlefield and contribute to its apparent emptiness as infantry dispersed and took to ground. Hallahan accepts the standard notion that the generals of the First World War were too little prepared, and then unwilling or unable to adapt tactically to the changes made necessary by the mechanization of weaponry. More recent analysis suggests otherwise, and, in fact, complex tactical evolution took place throughout the First World War. But it is correct to assert that the trend in infantry combat was towards increased firepower.

This trend was even more manifest during the Second World War and continues to this day. Interestingly, the greatest success of the US armories came between 1941 and 1945. The M-1 Garand semiautomatic rifle combined the best of the "gravel belly" tradition and the increased rates of fire offered by gas-blowback and magazines. Few of America's enemies had illusions about its capabilities, and it might justifiably be regarded as the best all-around infantry weapon of the war. The Germans and Russians meanwhile largely moved away from prewar bolt-action rifles towards rugged assault guns with high rates of fire. But this tendency had more to do with their own manpower problems and a desire to compensate for dwindling unit strengths than any great philosophical adherence to the firepower school. Significantly, infantry

companies and battalions of both nations would suffer in comparison to the overall combat strength of the same American units. In short, small-arms firepower cannot be considered the sole—even the most important—measurement of infantry effectiveness in the modern era.

In subsequent chapters, Hallahan documents the convoluted postwar story of M-14 development. This unhappy compromise weapon satisfied virtually no one, least of all the men for whom it was intended. Unfortunately, its follow-on fared little better. Facing the best assault rifle in the world in the form of the Soviet-designed AK-47, the AR-15—later designated the Colt M-16—was pushed into service early in the 1960s with US Army and Ordnance Corps modifications. These caused tragic casualties in Vietnam. Unfortunately, Hallahan does not mention that plenty of evidence suggests that its high rates of fire in the jungle environment had a larger impact on increasing American morale than on actually inflicting enemy casualties. Either way, there seems little doubt that the M-16 eventually became quite an effective weapon.

It is precisely this latter point that disturbs Hallahan the most. At a time when the infantry of many armies is armed with sophisticated and fully automatic versions of assault rifles, US foot soldiers are being equipped with the modified M-16A2, a one-pull, three-shot version of the original Colt rifle. In short, according to Hallahan, the “gravel bellies” have prevailed once more in their desire to conserve ammunition. Yet, his assertions suggest the reason for this is that the US Army officially distrusts its contemporary recruits, or that they do not measure up against the recruits of 20 years ago, lack critical support. Perhaps more statistical data might have made the case that high cyclic rates of fire are inherently better. Battlefield evidence, whatever the era, tends to be anecdotal and not totally reliable. It’s clear too that this issue has powerful advocates on both sides. In the end, however, this very readable and provocative book fails to make its case.

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The Living and the Dead: Robert McNamara and Five Lives of a Lost War by Paul Hendrickson. Alfred A. Knopf, Publisher, 201 East 50th Street, New York City 10022, 1996, 427 pages.

It's as if Mrs. Mac's intensity got harnessed to Mr. Mac's brain, and what issued was this brilliant, brittle, over-

gineered son who became, well, a machine, at least by daylight. This brilliant, brittle, overengineered son who would never be able to comprehend, much less reconcile, the life-long interplay of parental opposites inside him.

So says Paul Hendrickson in his brilliantly written, oddly organized and insightful attempt to understand the New Frontier's secretary of defense, Robert McNamara. Hendrickson was born toward the end of World War II into the family of a California airline pilot. He spent seven years of his education in Catholic seminaries, and his first book was on that subject—and possibly that is the source of the special insights that make the present book so engaging. In 1983, according to *Contemporary Authors*, he denied understanding all the reasons why he left the seminary for a secular life, but he went on to get his bachelor's degree from Saint Louis University and still later a master's from Pennsylvania State in 1968. His work experience has been in journalism, and it certainly shows in his splendid writing style—*The Living and the Dead* being a pleasure to read. It does, however, have a stream-of-consciousness quality that might annoy some readers. Its author wound up working for the *Washington Post*, which doubtless has enabled him to gain contacts that also contribute to the special insights of the work.

Hendrickson sets out with a standard approach. He examines Robert McNamara's family history, childhood, and youth in interwar California. The story is a sensitive and engaging one. If I needed any more persuading that the early childhood years are the most formative and that the mothers of our world have an overwhelming effect on what we are, this would help. If I needed any more persuading that America is a wonder for its great diversity, this would do it. I was being brought up in the Bronx at about the same time. My world was nothing like McNamara's. After this conventional, if engaging, start, though, Hendrickson departs from the norm. He proceeds to explore parts of Robert McNamara's existence through vignettes of five different people of his times whose lives were (directly or indirectly) profoundly affected by the secretary.

One of them was Lance Corp James C. Farley, USMC, whose picture appeared in *Life* magazine in 1965. He was poignantly portrayed at Da Nang after a mission, weeping over what had happened that bloody day. Hendrickson is heavily reliant on interviews for his sources and found the good lance corporal living in California, his back partially crippled in the war. He reconstructs Farley's story with vividness and compassion—and all the while relates it to the development of Robert McNamara's ordeal. Farley had a rough life, and it was rougher

still in Vietnam. But for all of the blood and gore and pain then and afterwards, Hendrickson ends his treatment with the passage, "Before he [Farley] disappeared down the ramp, a found Marine, with a wrecked back, a good Irish wife, and a young son he's mad about, he told me: 'I feel I'm very fortunate, really. A lot didn't work out, but I feel pretty lucky to be where I am right now. I have a sense of where I am.'" Meanwhile, McNamara had been back in Washington, participating in the escalation and misleading the press as to its intended extent and duration.

Another person who was profoundly and indirectly affected was not even in the military. Late in 1965, a Baltimore Quaker named Norman R. Morrison immolated himself with gasoline and flame outside McNamara's window at the Pentagon. To his very great credit, Paul Hendrickson does not dismiss that as dementia and unworthy of serious consideration. Rather, he explores the life and times of Morrison through many interviews and at the same time weaves in the McNamara story. The two men never knew each other; yet in an elegant literary way, this integration yields insight into the minds and lives of both. But in this part of his tale, for all his insight and compassion, Hendrickson makes explicit his condemnation of McNamara. His charge is that the secretary was fully persuaded that the cause in Vietnam was hopeless about the time Morrison burned, but he went on and on and on for two more years without falling on his sword—and in the meantime many more Americans and Vietnamese went to their doom: "But [he] stayed in until February 29, 1968. Is it mad to think that if the nation's secretary of defense had resigned after his November 30, 1965, memo, there would now be something known as the McNamara Prize, and that this prize would be coveted by men and women of conscience around the globe? But there is no such prize, and today this ex-servant of the people is skulking in the shadows of his own history."

There are similarly gripping vignettes about an Army nurse whose suffering was only beginning when she returned from Vietnam, and Hendrickson's prologue is the story of a New England artist who at age 27 attempted to heave McNamara over the side of the Martha's Vineyard ferry. It's a real puzzle, and serves as a fine introduction. The potential murderer was not a Vietnam veteran. His two brothers did serve there, and by the 1972 incident, the drawdown was well under way. But Hendrickson explores the story at some length—even to the point of tracking down the artist and interviewing him in great detail.

McNamara's assailant claimed he was feeling harassed by his draft board, and he felt like a slacker compared to his brothers and other relatives who had served—but how that translated into a reason to make an unpremeditated attempt at murder is unclear. But the author resists the temptation of dismissing the attacker as one of the crazies peculiar to the time and place. The man had been drinking. Fortunately for him, the president of the World Bank was still strong enough to hang on to the rail long enough for some other passengers to come to his rescue. The story remains a puzzle, but it provides a good introduction to an exploration of an enigmatic age and an enigmatic person.

The Living and the Dead closes with an epilogue that is almost as much a review-article of Robert McNamara's own *Retrospect* as it is a conclusion. Hendrickson shows little mercy in his evaluation of the secretary's apparent attempt to win forgiveness. McNamara remains arrogant and a liar, and he failed to do his duty to his countrymen by not resigning when he decided the war could not be won. Yet, even in the end, Hendrickson is not without sympathy for the human dilemmas faced by the secretary and the difficulties in coping with them. At the root of things were the limitations of his character dating all the way back to his upbringing in California. He knew the numbers but not the deeper meaning. He comprehended quantity more than quality. He understood the rational but not the irrational side of things.

I long ago grew weary of reading books about Vietnam, for most of them are selling one brand of hogwash or another. However, *The Living and the Dead* is an articulate work with an unusual approach, compassion, and an anger suitably restrained. I believe that it is the result of long research and contemplation. I therefore recommend it to the serving officer seeking new insights on the problems of high leadership—and especially so if he has read McNamara's own *Retrospect*.

Dr. David R. Mets
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American Intelligence and the German Resistance to Hitler: A Documentary History edited by Jürgen Heideking and Christof Mauch. Westview Press, 5500 Central Avenue, Boulder, Colorado 80301-2877, 1996, 457 pages, \$35.00.

Contrary to the popular historical ideal of the seemingly invincible Third Reich, ruthlessly ruled

by Adolf Hitler, the Nazis had many enemies at the grassroots level of German society. Heideking and Mauch bring out the little-known truth behind the political, military, and social scenes in Nazi Germany in this eye-opening book of recently declassified letters and essays of European operations in the Office of Strategic Services (OSS).

American Intelligence and the German Resistance to Hitler chronologically unfolds the story of the numerous people and groups determined to dismantle the German military machine. Unlike the more famous French underground groups, which were capable of distracting German soldiers on the front lines, the German resistance movement centered around German labor unions. Perhaps the most interesting evidence comes from the OSS Research and Analysis Branch. In letters describing the methods of using foreign workers from conquered territories for psychological operations, the OSS sought to persuade German laborers that foreign workers were going to take over their jobs in the factories. Various other methods targeted foreign workers to slow the German war machine by stalling production lines.

The churches of Germany also aided the resistance to Hitler's regime. The Protestant and Catholic churches both had organized movements to counter Hitler's intense use of propaganda by allowing youth and adults to speak their minds and listen to what the clergy held as the truth behind the Nazi government. Relief from the Nazi political agenda proved risky, as many clergy were held in concentration camps throughout the war. As the war grew longer, German citizens saw that the official ideology behind National Socialism was nonexistent and lacked spiritual convictions. The OSS received helpful propaganda from German church administrators after several Allied bombing raids into Nazi Germany were called "repentance for the many sins which the German nation has committed or has allowed to be committed without opposition."

This book presents needed information depicting the somewhat unstable inner workings of German society. In reality, the war machine of Germany faced more trying times than history books depict. Through this well-researched volume of declassified information, Heideking and Mauch show the turmoil of the labor movement, the role played by the churches of Germany, and the little-known efforts of OSS officers and Central Intelligence Agency founders Allen W. Dulles and William J. Donovan.

American Intelligence and the German Resistance to Hitler develops inside views of Hitler's Germany.

Not only do Heideking and Mauch present a very interesting, captivating depiction of the German resistance to Hitler, they define the history of American intelligence as it worked throughout German society. From the collection of human sources spanning from Turkey to the Swiss Alps, any reader will enjoy this much-needed break from countless stories about the actual combat of World War II. Members of the intelligence community will certainly want to read this highly documented book about how actual intelligence work can enhance American war-fighting capability.

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Operation Desert Shield/Desert Storm: Chronology and Fact Book by Kevin Don Hutchison. Greenwood Press, 88 Post Road West, Westport, Connecticut 06881-5007, 1995, 269 pages, \$69.50.

It is a wonder that *Operation Desert Shield/Desert Storm: Chronology and Fact Book* ever got into print, much less at a price of \$69.50. It aspires to be a reference book for military historians, and the objective is probably a worthy one—a single volume containing a balanced and comprehensive chronology covering both phases of the Gulf War, as well as a set of appendices that was to be a handy source of reliable details for future scholars. But it appears to be rushed to completion, with the result that it is unbalanced and incomplete.

The Greenwood literature accompanying the tome identifies the compiler as "an information specialist and lifelong student of military history," but it (along with the author's page in the book) gives no details as to how long that study may have been or what formal education might have been included. Hutchison compiled an earlier work like this one, also published by Greenwood, on the North Pacific war.

There is much evidence throughout the work suggesting that it was put together in a helter-skelter fashion, on the assumption that the use of Desert Storm in the title as a selling device was a perishable asset. For example, in the appendix listing the key actors in the war, Capt Bill Andrews, USAF, a prisoner of war (POW), is listed; but Maj Tom Griffith, USAF, also a POW (both officers are equally fine men), is nowhere to be found. In the same section, a puzzle is posed as to the definition of key personnel and why some are "more" key than others. Maj Gen John Tilelli of the US Army, a division com-

mander, gets 35 lines; Gen Colin Powell, chairman of the Joint Chiefs of Staff, gets 10—and Rear Adm William Fogarty gets just two. Similarly, in the index, so vital to a reference work, under Air Force units, the 9th Special Operations Squadron (SOS) is listed, as is the 20th. In between, the 16th SOS is missing—and it suffered more crew members killed in action than any other *Air Force* unit in the war, and it *does* appear in the chronology. As for the bibliography, it is far from complete—to cite just two examples, Jeffrey Record's *Hollow Victory* and Rick Atkinson's widely applauded *Crusade* are nowhere in sight—and both were published in 1993. Also, it is poorly organized. For example, the Gulf War Air Power Survey and various Army unit histories are not among the "Official Documents" but are found under "Published Works."

In short, the readers of *Airpower Journal* need not tarry over this work. Further, university librarians everywhere should take another look at their "standing order" policies for reference books, as that may be the reason why such works appear so frequently at very high list prices.

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Strike Swiftly! The 70th Tank Battalion from North Africa to Normandy to Germany by Marvin G. Jensen. Presidio Press, 505 San Marin Drive, no. 300B, Novato, California 94945, 1997, 350 pages.

The American tank corps in the Second World War operated under some pretty daunting disadvantages: command inexperience with large armored formations, chronically inferior equipment, and—for a large portion of the campaigns in Europe—a resolute enemy in defensively ideal terrain. However, a shortage of brave and competent soldiers to crew the tanks and man the battalions was never a problem. Marvin Jensen, a cook in the 70th Tank Battalion, has interviewed his old mates and compiled their stories in this very readable account of their battalion's participation in all of the campaigns of the European theater from North Africa to Sicily to the Normandy invasion, as well as the trek across Western Europe.

The 70th Tank Battalion was one of the independent tank battalions created prior to the beginning of the war and assigned to the Army Headquarters General Reserve. After its creation, outfitting, and initial training, the 70th moved out

promptly and was in on Operation Torch, the fall 1942 invasion of North Africa. Initially a light tank battalion, the 70th participated in Torch as separate companies supporting the regiments of the 9th Infantry Division, primarily, and received its "bleeding" and baptism of fire. One of the companies, interestingly enough, had a unique combined experience in supporting free French forces during the Tunisian campaign. In Sicily, the battalion fought in Patton's Seventh Army with the famed Big Red One, the 1st Infantry Division. It returned to England at the conclusion of the Sicily campaign, reorganized as a medium tank battalion, and prepared for a third invasion—Operation Overlord. In England, the 70th developed its close relationship with the 4th Infantry Division, with whom it landed at Utah Beach on 6 June 1944 and fought across Europe.

Jensen has told the story of the men of the 70th Battalion with the self-effacing humor and humility that is characteristic of veterans of the Second World War. They grapple with tactics, equipment shortcomings, inexperience, homesickness, disease, and a dangerous and well-equipped enemy with great aplomb, esprit, and unadorned courage. The matter-of-fact style in which they relate the most terrifying of combat experiences during the numerous landings, the hedgerow battles in Normandy, the forest combat near Huertgen, the winter fights in the Battle of the Bulge, and elsewhere belies the terror and the awesome and inspiring nature of what they accomplished. From 1942 to 1945, they fought in campaign after campaign, battle after battle, engagement after engagement without relief until the Nazis were defeated. They fought in heat, cold, rain, and snow. They came ashore at Utah Beach, with canvas walls keeping their tanks afloat. The tanks they fought in could not defeat the German tanks in a one-on-one fight. They searched for primitive luxuries to ease their existence during brief respites from combat or training, and, when it ended, they were prepared to invade Japan as well. Despite what anyone says, these men are heroes.

They do take great pride in their unit. In fact, the only drawback to this book for an old tanker like me, who has served with a lot of tank battalions and has read about some of their war exploits as well, is the uncharacteristically self-congratulatory tone that permeates the book when they are speaking of the battalion itself. I don't know if the 70th Tank Battalion was the best trained, best led, most highly regarded tank battalion in the US Army during the war. I do know that these veterans think so. However, I think they might have some pretty stiff competition, and it grated on my nerves to hear

how they perceived that the leadership of the Army was always looking to the 70th whenever a tough job needed doing. I wish Jensen would recognize that there were a lot of tough jobs being done—not just the 70th's. Nevertheless, most people think the last unit in which they served was the best. In short, this is a great book for an account of life in the tank corps during the Big One.

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Enlarging NATO: The Russia Factor by Richard L. Kugler. RAND, 1700 Main Street, Santa Monica, California 90407-2138, 1996, 300 pages, \$20.00 (paperback).

Enlarging NATO is a study targeted at US policy makers who are struggling to manage the Russian factor in NATO expansion. Although Richard Kugler argues at the outset that his purpose is not to advocate the enlargement of NATO, he defends NATO expansion as the best way to facilitate the construction of a stable regional security system in Europe. Kugler posits that the key to long-term European security is to approach NATO enlargement within the broader context of East-West political, military, and economic linkages in the region. To succeed, policy makers must focus on a strategic endgame for enlargement that is specifically thought out to reach these objectives. Kugler rightly charges that discussions surrounding strategic endgames have been virtually absent in the enlargement debate, and he offers various strategies for policy makers to adopt, depending on their goals for the scope and shape of European security. Among these strategies is Kugler's preferred strategy—the "two-community solution" supplemented with the "institutional web" approach. These combined approaches result in a gradualist option that calls for limited NATO expansion while simultaneously embedding a cooperative Russia in a multilateral framework of Western institutions.

Kugler does a particularly good job of laying out the issue of NATO expansion from the Russian perspective. He surveys the evolution of Russian foreign policy from the pro-West Atlanticism of the Gorbachev era to the emergence of statism, or the pursuit of permanent Russian interests, which is the basis of present-day Russian opposition to NATO expansion. He concludes that despite its limited national security resources, Russia will continue to have important geopolitical interests in East Central Europe that should be considered as

the process of enlargement continues. These interests are the basis of Russia's willingness to participate in a diplomatic dialogue on the terms of enlargement while simultaneously railing against NATO expansion.

Enlarging NATO is a valuable resource for policy makers and interested policy observers. Kugler offers a clear explanation of the background leading to the present challenge of managing the process of NATO expansion. He encourages a comprehensive approach that considers both the emerging geopolitics of East-Central European and Russian interests. Further, he advocates a strategy for expansion that simultaneously provides for the security of East-Central Europe and that draws Russia into the institutional web of Western structures. This book contributes a theoretical framework for designing and ultimately selecting an appropriate strategic endgame for European security in the post-cold-war era. Kugler's battle cry—to think through the long-term consequences of various approaches to NATO enlargement—is a timely and thoughtful analytical contribution to a policy-making community that is just now beginning to grapple with these issues.

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Blood and Water: Sabotaging Hitler's Bomb by Dan Kurzman. Henry Holt and Company, Inc., 115 West 18th Street, New York City 10011, 1997, 274 pages, \$27.50.

Blood and Water is a gripping account of how Allied forces were determined to stop Nazi Germany from developing the atomic bomb. Dan Kurzman brings together fragmented accounts of the heroic efforts of ordinary people and how they were able to find the courage to stop the Nazis. Kurzman's is the first complete account in over 50 years of actions taken by the scientific, military, and political communities of the British, Norwegians, and Americans to prevent Germany from developing nuclear weapons. The book covers the military campaign to deny the German nuclear research community the supply of deuterium oxide from the Norwegian Norsk Hydro plant. Kurzman stages the military operations from a disastrous British commando raid into Norway, with a focus on the all-Norwegian parachuting, skiing, and mountain-climbing commandos' crippling raid against the fortress-like plant. He also covers the American attempt to destroy the plant with 388 B-17 and B-24

bombers from Eighth Air Force, as well as the final successful attack by saboteurs and members of the Norwegian resistance, who interdict the remaining supply of "heavy water" on a ferryboat shipment to Germany.

There are three distinct aspects of Kurzman's book. First, it reads like a realistic suspense novel, as the author brings together the personalities of individuals with events, drawing the reader into the story. The reader gains an understanding of the players and why events happened as they did. Further, Kurzman leads the reader through the scientific maze of Allied and German nuclear research programs. The scientific community discovered two viable materials to control a nuclear reaction—pure graphite and deuterium oxide (H₂O or "heavy water") as the neutron-moderator material to use with uranium. The German approach was to use deuterium oxide because of a mathematical error in using graphite. When Allied scientists learned that German research was focusing solely on using heavy water as the moderator, Allied military planners drew up a scheme to destroy the only commercial facility to produce it. President Roosevelt and Prime Minister Churchill rolled the dice by blessing the attacks to stop this production in German-controlled Norway.

Second, the reader gains an appreciation of how and why decisions were made in the cat-and-mouse race of developing the first atomic bomb. From Kurzman's extensive research, the student of military history gets the facts and reasoning. The author documents this unbelievable story by drawing on firsthand interviews with the people involved, personal diaries, and official documents.

The third aspect of *Blood and Water* is Kurzman's ability to breathe life into the individual personalities of players and decision makers who had a hand in the attacks on the Norsk Hydro facility. Kurzman does not pass judgment on individuals for their actions or statements; neither does he lead the reader to a conclusion or perception of individuals or events. After reading about this small group of Norwegian commandos who undertake a near-suicidal mission, one cannot help coming away with respect and admiration for them—and for the Norwegian nationals who were determined to stop Germany. In short, Dan Kurzman has done an exceptional job of tying together the disparate elements of what some World War II historians consider the most successful commando raid by the Allies against Nazi Germany.

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Project Coldfeet: Secret Mission to a Soviet Ice Station by William M. Leary and Leonard A. LeSchack. Naval Institute Press, 118 Maryland Avenue, Annapolis, Maryland 21402, 1996, 240 pages, \$27.95.

Project Coldfeet is a fascinating account of a cold war adventure that has all the makings of the Alistair MacLean adventure *Ice Station Zebra*. Written by a CIA historian and one of the mission's participants, it mixes polar exploration, intelligence gathering, and exciting technological solutions to make a very readable account. At the end of World War II, the two new superpowers—the United States and the Soviet Union—faced each other across the globe. Geography soon dictated that the North Pole and its surrounding Arctic waters become a new zone in which both sides could operate their military forces. The problem was that outside of some basic scientific polar exploration, little was known about the region and its effect on submarine warfare. Since the Pole was the shortest way between the United States and Soviet Union, interest rose dramatically as scientists explored this vast, new, hostile world during the geophysical year. The Soviet Union carried out independent and secretive research as well. The problem was that the US military, especially the Navy, wanted to find out if ice-floe stations (i.e., small detachments of men and equipment placed on an ice floe) could monitor submarine movements and help current research necessary for naval operations in the high north.

The ice-floe stations could be used only as long as the floe didn't melt and as long as it was possible to retrieve the personnel. The Russians had been using small aircraft and a series of intermediate stations to accomplish this task. The United States, which had conducted geographic surveys, used aircraft and ships for the same purpose. The US Navy, however, had monitored a series of Soviet sites and from an intelligence standpoint could not deduce what the Soviet Union was doing. Although the United States assumed that these floe stations were military related, there was little proof and no way to find out, since most floe stations were abandoned in an orderly fashion, leaving little evidence of their use. Most Soviet stations were close to the Soviet Union, making any type of observation impossible. But in May 1962, a Soviet station was abandoned in haste. After overcoming bureaucratic resistance, minimal funding, untested equipment, and some of the worst arctic weather on record, a small US team parachuted onto the floe to examine the Soviet equipment before it disintegrated.

To remove the gear, believed to be of intelligence value, the team of researchers and intelligence personnel used special gear—the Fulton Skyhook, designed to allow an aircraft to retrieve a human standing on the ground. Its entire development process and various tests carried out are detailed in the book. This part alone makes for interesting and exciting reading. The Fulton gear and the bravery of the Navy team made this cold war saga a success. Although a sidelight to the cold war, it did at the time answer a number of questions, especially those dealing with the Soviets' under-ice, nuclear-submarine operations and acoustic submarine-detection capabilities.

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Why the Allies Won by Richard Overy. W. W. Norton & Company, 500 Fifth Avenue, New York City 10110, 1995, 396 pages, \$29.95.

It will come as a surprise to those fortunate souls not imprisoned within the musty dungeons of academia that the Second World War did not end with the final atomic conflagration of 1945. Although the tanks and artillery have long fallen silent and the combat-hardened youth have grown into silver-haired veterans, opposing camps of historians wage battle to this day over what happened during this conflict and why. Revisionists, represented by British iconoclast David Irving, seek to overturn the establishment view of the Second World War as a battle between noble Allied and evil Axis powers, some even going so far as to deny that the Holocaust ever occurred. As the battle over the Smithsonian's exhibit proved, the revisionists currently have the traditionalists on the run, their successes prompting eminent British historian John Keegan to pen a recent monograph (*The Battle for History*) explaining the debate.

Into this fray steps another British historian, Richard Overy, whose reputation as a dispeller of myths seems to make an odd choice for a traditionalist standard-bearer. The King's College (London) professor's credentials are impeccable, having written widely and prolifically on the Second World War. *Why the Allies Won* figures to be the opening salvo of a traditionalist counterattack. With his latest work, Overy aims to reinforce most of the prevailing wisdom on the Second World War through incisive analysis of the decisive moments of the conflict, and then widens his focus to com-

pare and contrast the opposing nations' methods of waging war.

There is much to engage even the most knowledgeable student of the war. Overy's deconstruction of the U-boat menace reveals it to be a short-lived state of Nazi predominance due to unique circumstances never repeated in the war. His analysis of the eastern front rightly holds the Battle of Kursk, not Stalingrad, to be the turning point of the war, as the rejuvenated Soviets began to hammer the exhausted German forces. His coverage of the strategic bombing campaign will be embraced by airpower advocates still smarting from Keegan's assertion that the air war was not decisive. Overy insists that although this point is true from the myopic view of those overly enamored of battle damage assessments, the fact that the Luftwaffe was eliminated as a fighting force through frenetic attempts to defend German targets far outweighs the occasional bombing of farmers' fields.

This is not to say that *Why the Allies Won* is without its flaws. Overy, like many academics, is too fond of central planning, a bias that colors his otherwise exceptional analysis of the Allies' economic superiority. Thus, Stalin's use of slave labor is viewed favorably as compared to the Americans' capitalist-driven rearmament, despite the fact that the United States provided two-thirds of all materiel used by the Allies. Indeed, Stalin is the undisputed hero of this tale; Overy paints Churchill as the man who nearly derailed the war effort through his petulant diplomacy, while Roosevelt is portrayed in the garish hues of Wilsonian pomposity and naïveté. The Pacific theater is largely ignored, with Overy conceding to the revisionists the dubious notion that Japan's surrender was pending when the first atomic bomb fell on Hiroshima. The importance of Enigma and Magic intercepts, revealed through the release of previously classified documents to be a decisive element in the Allied victory, is all but ignored here. Overy also displays an irritating tendency to mix unsupported (indeed, unsupportable) opinion with well-documented fact, such as his declaration that Hitler was "intimidated" by the threat of an Allied attack at Munich and thus was forced to compromise by Neville Chamberlain. (Hitler's quick absorption of the whole of Czechoslovakia, including the famous Skoda ironworks, and subsequent use of the conquered nation as a Nazi arsenal have long since repudiated this assertion.)

These concerns but mildly tarnish a valuable work that should contribute much to the debate to come. For those among us who have grown increas-

ingly disenchanted with revisionist attempts to rewrite history with little regard for truth, *Why the Allies Won* provides a much-needed antidepressant.

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Russia Transformed by Dmitry Mikheyev. Hudson Institute, 5395 Emerson Way, Indianapolis, Indiana 46226-1475, 1996, 228 pages, \$12.95 (paperback).

Russia Transformed is an attempt to present the transformation of Russia in its entirety within a framework that emphasizes a cultural approach. Dmitry Mikheyev is a Senior Fellow at the conservative Hudson Institute in Indianapolis. A native Russian, he was educated as a physicist in the Soviet Union but was forced to emigrate to the United States in 1979 due to his political dissent. Mikheyev's analysis provides a uniquely Russian perspective to his sweeping survey of societal change in Russia since the dissolution of the Soviet Union. His lack of training in political science, however, ultimately results in a biased and fundamentally flawed analysis of the ongoing process of democratization in Russia today.

His theoretical framework focuses on the role of various elite groups in Soviet society and their adaptation to postcommunist Russia. This analysis results in some unique insights into the Soviet psyche and the trauma that every citizen has endured, both in the Soviet system and in the revolutionary changes to life in the Russian Federation. Mikheyev is particularly good at describing the differences between the elite groups that are vying for influence in the new political system. However, the author's own unfamiliarity with democratic theory and the role of democratic institutions, political parties, and society at large in building a democratic society limits the accuracy and overall quality of his analysis.

For instance, his psychological profile of Boris Yeltsin is particularly naïve, with its tendency toward hero worship. Indeed, it borders on pro-Yeltsin propaganda. Mikheyev fails to highlight Yeltsin's nondemocratic qualities and does not even mention Yeltsin's dismal approval rating among the Russian populace. Throughout the book, he soft-pedals the authoritarian elements of the Yeltsin government, favoring the euphemism "wise authoritarianism." He characterizes democratic reformers as "not tough enough" and "ill-

sued for bureaucratic work." The chapter on economic reform is comprehensive in scope and provides some detailed descriptions of postcommunist transformations across various sectors of the economy, including agriculture, the military-industrial complex, and the general process of privatization. But the author's purpose again seems to entail defending the processes and their results in order to paint a picture of Russia as a successfully transformed market economy whose population has generally adapted to the economic and political changes of the postcommunist era. Similarly, his social portrait of present-day Russian society downplays the effects of inflation, crime and corruption, unemployment, alcohol and drug abuse, and even the declining life-expectancy rates in the Russian Federation. In fact, Mikheyev argues that a decline of 8.5 years in the life expectancy of men since 1986 is not all that dramatic!

In general, *Russia Transformed* lacks objectivity, and Dmitry Mikheyev impresses the reader more as an apologist for the present state of affairs in Russia and the processes leading up to them. However, as long as one is aware of the weaknesses of the author's analysis, the book gives some useful insights into Russian arguments for a political system that falls short of Western democratic standards—wise authoritarianism.

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OSS Agents in Hitler's Heartland: Destination Innsbruck by Gerald Schwab. Praeger Publishers, 88 Post Road West, Westport, Connecticut 06881-5007, 1996, 208 pages, \$55.00.

OSS Agents in Hitler's Heartland recounts one of the most successful operations conducted by the Office of Strategic Services (OSS) in World War II. The book tells the story of Operation Greenup, which involved three young OSS agents who were air-dropped into the Austrian Alps in the closing months of World War II. Their mission was to gather intelligence on Nazi activities in the Innsbruck area. The author decided to tell their story after learning of this mission during a reunion of the aircraft crew and OSS agents.

This book begins by recounting the agents' parachute insertion via a modified B-24 Liberator bomber. It provides many little-known details concerning the tactics and equipment used to conduct covert airdrops in the war. On most OSS missions,

security concerns precluded the aircraft's crew and undercover agents from becoming acquainted, but over the course of two aborted attempts to complete this drop, the crew and agents got to know each other. The agents included two recently naturalized OSS enlisted men and an Austrian-born *Wehrmacht* officer who had deserted and then volunteered for this assignment.

Franz Weber, the former German officer, was selected to join the team to take advantage of his personal contacts and knowledge of the area. Born in Oberperfuss, near Innsbruck, he had numerous relatives and acquaintances nearby. He proved quite effective in obtaining transportation and getting the team into safe houses. Hans Wynberg, a Dutch-American, was assigned to the team as the radio operator.

The team leader, Frederick Mayer, became a very effective spy, obtaining very detailed and reliable information about German industry, transportation nodes, and even specific locations of Nazi leadership. As a result, many of the industrial and transportation installations described by Mayer were destroyed by strategic bombing. Mayer was quite a risk taker, assuming the identity of a German officer and later transforming himself into a French electrician working in a German military plant. His luck ran out when he was captured by the Gestapo. Mayer successfully withstood the interrogation and beatings without divulging the names and locations of his fellow agents. Fortunately for him, the thousand-year Reich began to fall apart rapidly. The US Army's 103d Infantry Division was closing in to striking distance of Innsbruck. In an interesting role reversal, the Gestapo agents and local Nazi officials began to be concerned for their own well-being. A deal was struck with local Nazi leaders that allowed Mayer to meet oncoming US Army forces and coordinate the surrender of Innsbruck.

The book covers the whole spectrum of Operation Greenup, from planning through termination. It provides fascinating details of equipment, encryption, and covert resupply and communication. The book is both well written and researched as well as very entertaining to read. In addition to conducting interviews with actual participants, the author derived a good deal of information from OSS documents located in the National Archives or obtained from the Central Intelligence Agency under the Freedom of Information Act. Schwab includes complete text of all message traffic transmitted between the agents and OSS headquarters. Also included are eight pages of wartime black-and-white photographs and an epilogue that details

activities of the principal participants after the war. I enjoyed this book and would wholeheartedly recommend it to anyone interested in military history.

Lt Col Chris Anderson, USAF
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Fall from Glory: The Men Who Sank the U.S. Navy by Gregory L. Vistica. Touchstone, 1230 Avenue of the Americas, New York City 10020, 1995, 478 pages, \$14.00 (paperback).

Many readers remember the zenith in the early 1980s from whence the author claims the Navy has fallen: Tom Clancy established the techno-thriller genre with *The Hunt for Red October*, Navy Tomcats struck the first blow against Libya by shooting down two of Gadhafi's jets after American ships crossed the "Line of Death," and Tom Cruise achieved megastardom portraying an F-14 jock in *Top Gun*.

Most will also have noted the precipitous decline of the Navy, which began shortly thereafter. The *Vincennes* mistakenly shot down an Iranian airliner, Navy ships served primarily as Tomahawk launchers during the Gulf War, and the Tailhook Association's annual gathering became the Mother of All Public Relations Debacles. After a host of other equally disturbing incidents plagued the Navy, the chief of Naval Operations, Adm Jeremy "Mike" Boorda, took his own life in 1996. How could the service go from triumph to tragedy so quickly?

Newsweek reporter Gregory L. Vistica proposes one answer: a catastrophic failure in leadership among the men charged with keeping the Navy on course. Vistica is a respected journalist with special expertise in reporting on the Navy—it was he who broke the Tailhook story for the national media.

The author has done his homework in *Fall from Glory*. His well-documented indictment of Navy leadership is damning enough that the book is rumored to be noxious to the careers of those Navy officers caught reading it.

And with good cause. The portrait Vistica paints is one of constant struggle within the Pentagon between ambitious bureaucrats like Navy secretary John Lehman and an old boys' network of ring-knocking admirals like Adm Tom Hayward, whose internecine clashes were fought without regard to the best interests of the Navy, the taxpayer, or the nation. The result of this struggle was a bloated Navy struggling to attain Lehman's unsupportable

six-hundred-ship goal and utterly lacking in moral leadership. The subsequent decline in discipline and effectiveness should not be surprising.

Vistica's documentation is generally impeccable. He conducted extensive interviews with the key players in the Navy's rise and fall. Media critics accustomed to reporters pursuing stories with their own hidden agenda will walk away from this book largely disappointed; Vistica does not see this tale through the usual dovish filters.

The author's lack of military knowledge does hurt his case, however. Scattered throughout the work are numerous instances wherein he misinterprets the information afforded him and so draws the wrong conclusions. In covering Tailhook, for example, he casts aspersions upon the account of an officer accused of assaulting Lt Paula Coughlin, trying to undermine his image as a good Christian by noting his call sign "Boner" as indicative of un-Christian behavior. Aviators do not pick their call signs themselves (their fellow pilots have a ceremony for it), and in this case it was undoubtedly a play on his name (Bonam) with perhaps a reference to a mistake made during training (i.e., a "boner").

Oddly, it is on the subject of Tailhook that the author is most vulnerable. He takes Lieutenant Coughlin's story of victimization at face value; he

labors to discount her critics without providing the evidence he seems to have at hand throughout the rest of the book. For those who followed Tailhook and its aftermath, this account suffers from a reporter overprotective of his source.

Readers may also have a problem with the heroes and villains emerging from this tale, exposing inherent contradictions in the author's logic. The great villain is Lehman, who Vistica admits did much to restore the Navy's self-image while allowing standards to erode. Oddly enough, his successor James Webb, who strove mightily to correct perceived flaws in the Navy officer corps, is vilified as a puritanical troglodyte who despised the notion of women in the military. The only clear-cut heroes to emerge are Lt Paula Coughlin (of course) and Admiral Boorda, despite evidence presented that the "sailor's sailor" was more "sailor's politician" than anything else.

Still, this is a worthy effort guaranteed to generate wide debate, as well as revulsion amongst those who, to quote Jack Nicholson in that other Navy movie, "can't handle the truth."

1st Lt Jeffrey A. Veyera, USAF
Misawa Air Base, Japan



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The Editor

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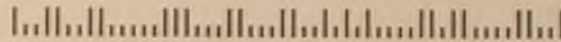


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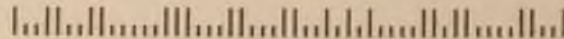


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