Fall Readings

- CAS in Nonlinear Warfare
- Desert Storm's Meaning

AIRPOWER
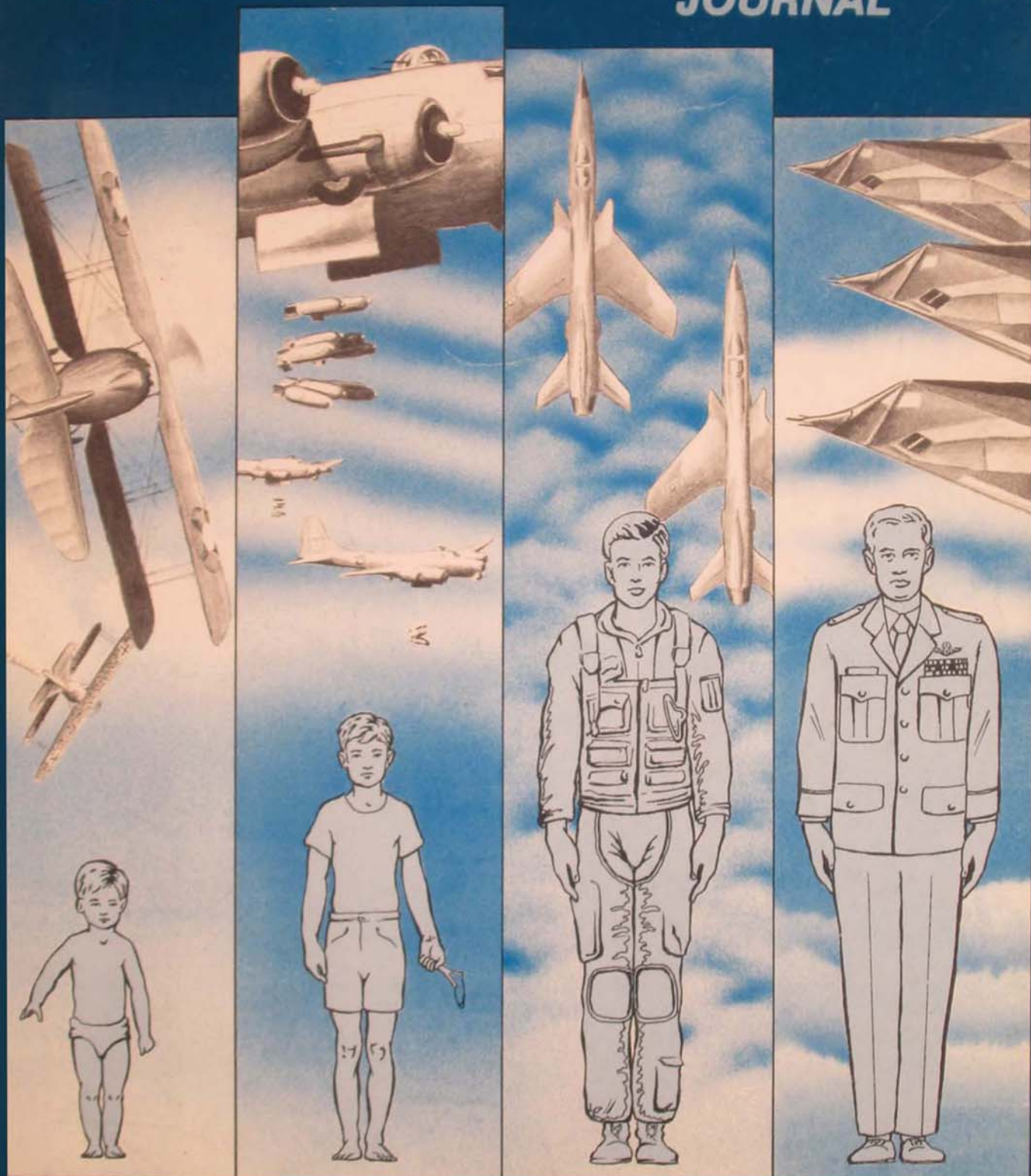
JOURNAL

The *Airpower Journal*, published quarterly, is the professional journal of the United States Air Force. It is designed to serve as an open forum for presenting and stimulating innovative thinking on military doctrine, strategy, tactics, force structure, readiness, and other national defense matters. The views and opinions expressed or implied in the *Journal* are those of the authors and should not be construed as carrying the official sanction of the Department of Defense, the Air Force, Air University, or other agencies or departments of the US government.

EDITORIAL

Where Would You Like To Go?

A FEW YEARS ago, some officers who were studying Air Force officer professional military education (PME) made an interesting discovery. Amazing as it seems in today's total-quality environment, we have no clearly articulated description of what we want our officer PME system to produce.

Army Air Forces Regulation (AAFR) 20-61, *Organization*, *Air University*—the guidance in effect on 3 September 1946 when the first postwar officer PME classes began at Maxwell Field, Alabama—didn't give Gen Muir S. Fairchild, the first commandant of Air University (AU), very much direction. It simply said that AU would "be responsible for the supervision and operation, in accordance with policies established by the Commanding General, AAF," of the three schools under its control (page 1). It didn't say what the product of the education was supposed to be. Perhaps we can understand this lack of direction. After all, those early pioneers had just victoriously concluded the most demanding war in history and were in the throes of organizing the nation's first separate air service.

Unfortunately, the guidance hasn't gotten much more specific. Despite a multitude of revisions over the years, the current guidance still doesn't tell what the product of the PME system should be. What kind of officers are supposed to come out the other end of the educational system? What should they know? What should they be able to do? How would we like them to feel?

The *Report of the Educational Requirements Board on Professional Military Education* of 1963 highlighted this lack of guidance, and the Air Force made an honest attempt in 1966 to improve the situation by publishing Air Force Manual (AFM) 53-1, *United States Air Force Officer Professional Military Education System*, which actually contained a description of the professional Air Force officer. There isn't room on this page to quote the entire description, but part of it said (please remember it was written before gender-neutral language was required),

> The professional Air Force officer is the aerospace expert of the nation's fighting forces. He understands the nature of war and is proficient in the art of waging it under any level of conflict. He is a leader of men in both peace and war. . . .
>
> He combines military bearing and self-confidence with loyalty, integrity, self-discipline, versatility and adaptability. His ethics and conduct are based upon the idea of service above self.
>
> He communicates effectively and works efficiently with people at all levels. . . .
>
> The professional Air Force officer recognizes that he must continually expand his knowledge and understanding of the art of war. He recognizes his responsibilities to the Nation, both as a citizen and a military officer. He thus seeks to maintain those high intellectual, ethical and physical standards requisite to a corps of professional officers which merits the trust and respect of the society which it serves. (Page 2)

Although there is room for discussion as to the completeness or accuracy of the description, at last the PME system had a product description to work toward. Unfortunately, succeeding revisions have dropped any such description of the professional Air Force officer.

Certainly, an educational system is not a production-line factory from which exact

duplicates with interchangeable parts issue forth on graduation day. Strict conformity of thought is not the goal. Even if it were achievable, it would not be desirable. Diversity is the key to both survival and progress. On the other hand, if we don't know where we are trying to go, it doesn't really matter which path we take.

Besides, how would we know when we got there?

Maybe the current system is doing the best job that can be done. There's no way of knowing until we determine what it is we are trying to produce. As Stephen R. Covey says, we need to "begin with the end in mind."   RBC

RICOCHETS

TQ-ING TQ

Capt Graham W. Rinehart's article on "A New Paradigm for Organizational Structure" (Spring 1992) was very interesting, considering the emphasis placed on total quality management today. I always read several articles in each issue. Keep up your good work!

SMSgt Frank J. Wallace, USAF, Retired
Austin, Texas

I have grave concerns about Captain Rinehart's basic assumptions regarding the effectiveness of Dr W. Edwards Deming's quality improvement philosophy as it applies to the military. In a purely business-oriented, profit-motivated organization, the philosophical ideals of quality improvement certainly have merit. Admittedly, there are practical points we should adopt in the Air Force as they apply to procurement, research and development, and other similar "business" activities. However, I wouldn't try to take them to the battlefield and expect them to work.

Captain Rinehart implies that the current pyramidical command structure was born out of a response to the early industrial revolution—that is, as a method to control its devel-

opment. In fact, the early leaders of the industrial revolution simply adopted a proven system: the centuries-old military command structure. Since the time of Genghis Khan and Alexander the Great, this has been the dominant structure of countless military organizations, and for good reason. We simply didn't "invent" the military command structure during the industrial revolution of the 1700s and 1800s.

As the industrial revolution ended and we moved into a technological revolution, conditions changed, thus requiring a review of the way we do business. This led to Dr Deming's statistical methods. These methods should not, however, be a substitute for the proven requirement of the military command structure. The "continuous improvement" ideal of Dr Deming's philosophy works well under the conditions of a peacetime, business-oriented atmosphere. As long as we have the time and resources to identify the customers, establish goals, analyze the processes, and so forth, the system will be effective. But I am afraid as we ingrain this attitude in our young airmen, noncommissioned officers, and officers, we will risk losing our military identity, which will result in a total failure of the discipline that allows an airman or soldier to enter combat without question.
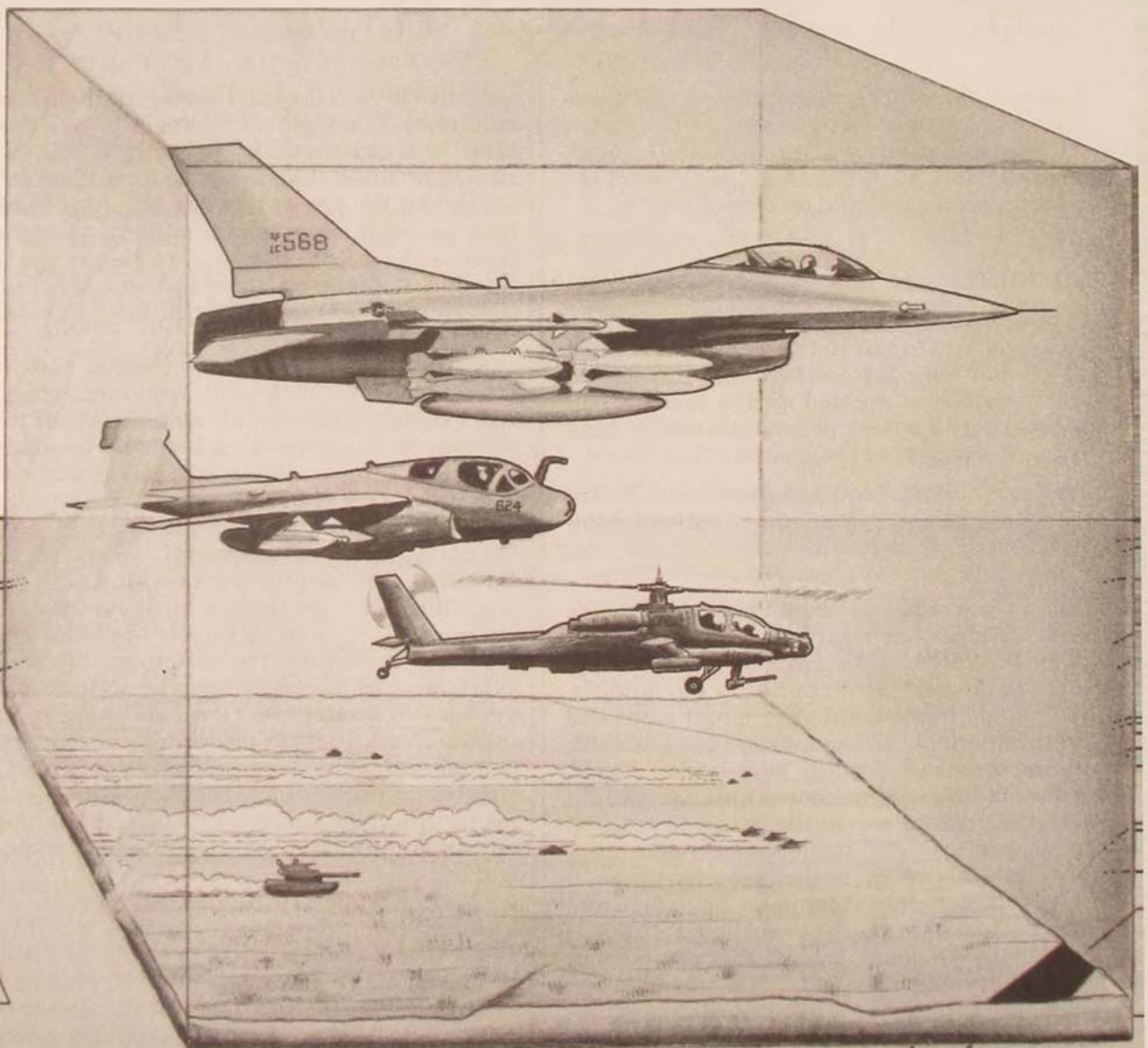
I have certainly experienced this attitude. As a young second lieutenant during a mobility-employment exercise, I was in charge of a contamination-control area with over 100 personnel assigned to me. Recognizing that the airmen of

DESERT STORM AS A SYMBOL

IMPLICATIONS OF THE AIR WAR IN THE DESERT

Col Dennis M. Drew, USAF, Retired

VICTORY IN the Gulf war brought with it both euphoria and controversy. Almost nothing could dampen the euphoria which followed such a successful short war that produced remarkably few casualties. The controversy has been mostly good-natured, centering on the question, Who won the war? Success has a thousand fathers, and proud airmen, soldiers, sailors, and marines are quick to trumpet their contributions to the victory.

In truth, everyone is correct. It was a great victory for joint warfare. The strangling naval blockade, the devastating air campaign, the integration of space assets into all operations, the lightning-fast ground maneuvers, the threatened seaborne invasion—these and many other operations define the essence of joint warfare. The spirited controversy between the services is good fun, even if it sheds little useful light on the event.

There is, however, a serious side to what might otherwise be harmless macho posturing by airmen, soldiers, sailors, and marines. Operation Desert Storm symbolized a fundamental shift in the traditional method of waging mechanized warfare. The stunning performance of coalition air power symbolized both the maturity of air power and its dominant position in late twentieth-century warfare. Most important, however, victory in the Gulf war symbolized the need to reevaluate and reform traditional ways of thinking about the art and science of war.

The Real and Symbolic Victory

The story of what happened in the air during Desert Storm is well known. Beginning in mid-January 1991, coalition air power (note that the term is *air power*, not *air force*) seized control of the air over both Kuwait and Iraq within hours and within a matter of days achieved total air supremacy. In nearly simultaneous actions, air power "blinded" the Iraqi leadership, making command and control of Iraqi forces in the field exceedingly difficult. Meanwhile, strategic targets—including Iraqi nuclear facilities—were attacked and either destroyed or heavily damaged. The campaign quickly moved on to physically isolate Iraqi surface forces deployed in and around Kuwait (a classic interdiction campaign) and then to attack field forces directly from the air. Although Desert Storm was conceived as a four-phased campaign, all phases overlapped to the point that they were nearly simultaneous.

The result, of course, was that when the ground offensive began in mid-February, it met minimal resistance and quickly swept forward from Saudi Arabia all the way to the Euphrates River, accepting the surrender of tens of thousands of hungry, demoralized Iraqi soldiers. The magnitude of

PERSIAN GULF

KUWAIT CITY
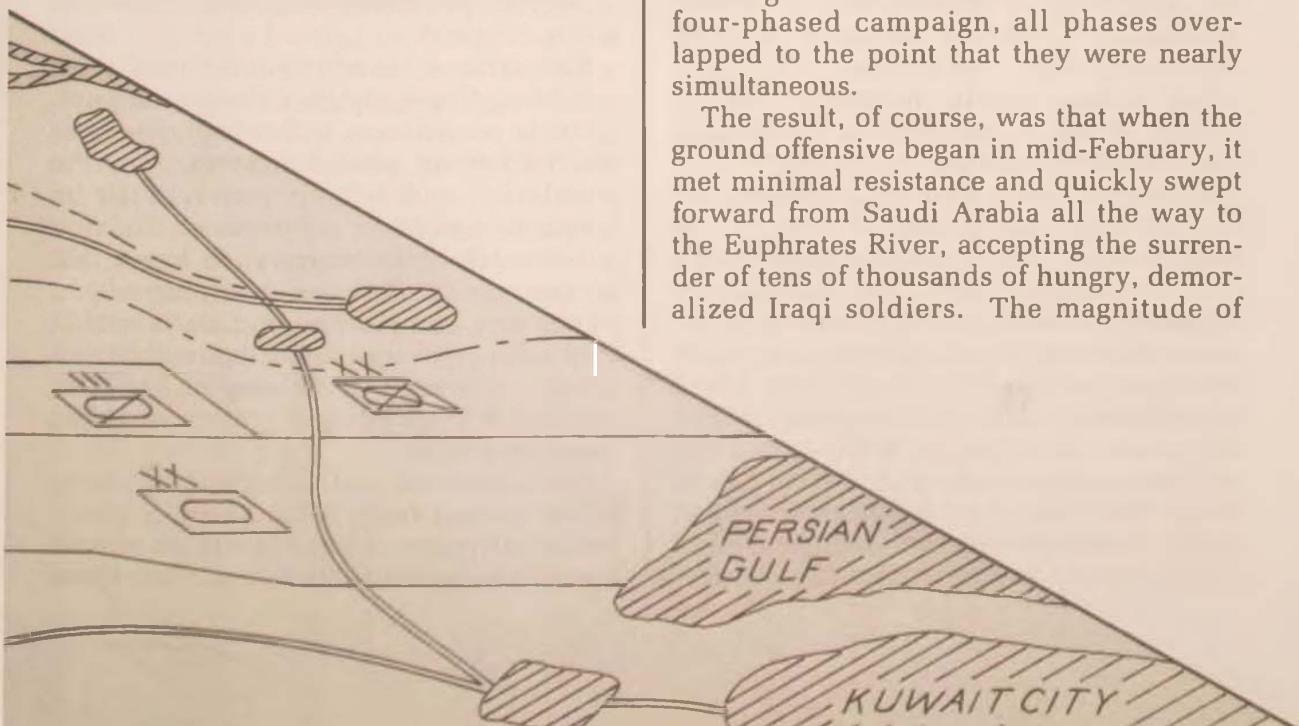
the aerial victory in the overall campaign was revealed by the almost unbelievably low casualty rate suffered by coalition surface forces.

In previous wars, the impact of air power had always been a bone of contention, an article of unresolved and unresolvable debate. In the Gulf war, the impact of air power (again note the generic term) was clearly overwhelming and decisive. The clarity of the aerial victory also provided a symbolic beacon of sorts. It symbolized the maturity of air power, the domination of air power, and the need for a new paradigm of warfare.

Symbol of Maturity

The most obvious symbolic meaning of the Desert Storm experience was that air power has matured as an instrument of war. At long last, air power lived up to its potential and fulfilled the promises made by the early prophets of air power. Much credit has been given to the sophisticated technology employed by airmen in the Gulf war. However, the maturation of air power is a much more complicated story that goes far beyond technological gadgets. The maturity of air power resulted from the confluence of three streams of development over the past 80 years: experience, technology, and doctrine.

Air power's early prophets—Giulio Douhet, Gen William ("Billy") Mitchell, and others—predicted during their heydays in the 1920s that air power would revolutionize the nature of war. Some even predicted that surface forces would become obsolete. But their visions were simplistic, unseasoned by extensive experience in warfare generally and in aerial warfare specifically. World War I had seen the only large-scale employment of air power in a major conflict, and the results were mixed. In all likelihood, World War I would have been fought in much the same way and with the same general results had air power not existed.[1]

The importance of air power was revealed only with further experience in the wars that followed.

Experience—sometimes bitter and disappointing, sometimes dramatic and decisive—was also the key element in tempering and honing the blade of air power. The global experience of World War II and its somewhat mixed results in terms of air power, the disappointing experience of the Korean War, and the confusing experience of the war in Southeast Asia all provided the know-how to structure, train, equip, and employ air power effectively across the entire spectrum of conflict.[2]

The extravagant promises of the air power prophets also seemed hollow because their visionary reach exceeded their technological grasp. Either the prophets were unaware of the many problems that would confront airmen or they too easily assumed them away. In the beginning, the list of problems which hindered air power was almost endless— inadequate power plants, poor aerodynamics, limited range and lifting capacity, inadequate speed, inaccurate delivery systems, and so forth. The list goes on and on. Even nature conspired to hinder the airmen. Poor weather and the dark of night were two of the most difficult and universal problems with which airmen had to contend.

Sometimes slowly, sometimes with mind-boggling speed, but always with predictable persistence, technology overcame the limitations, peeled away many of the problems, and left air power with its prophetic revolutionary essence. Today it is not much of an exaggeration to say that air power can carry any load, anywhere, under any conditions, and deliver that load with great speed and incredible precision. Although air power has not fully realized this long-sought goal, it is getting closer and closer.

But experience and technology by themselves are not enough to create the dominating influence of present-day air power. Equally essential is doctrine. Conceptu-

ally, doctrine ties together the lessons of experience and the technology of the present into an effective operating scheme. It establishes what airmen believe about the best way to wage aerial warfare, given what they have learned and what they can do. The development of doctrine is the third stream of development in the maturation of air power.

The air power prophets were enthralled by the idea that air power could destroy an enemy's ability to resist by destroying his means of producing the wherewithal of mechanized war. The doctrine of strategic bombing, which had its roots in World War I and was fervently articulated in the 1920s and 1930s, envisioned attacks on an enemy's industrial capabilities that would lead to quick collapse. As demonstrated in World War II, bombing an enemy into submission was not quite so simple or so easy. The advent of nuclear weapons, however, seemed to provide air-

men the tools they needed to fulfill the prophets' dreams.[3]

The nuclear era brought with it the seeds of its own demise. Fear of nuclear calamity led the United States to fight only limited wars for limited objectives with limited means. The Korean War was a major disappointment for airmen, but so strong were their beliefs that they chose to view it as little more than an aberration. As a result, strategic bombing continued to drive US air power doctrine through the 1950s. Not until the Vietnam conflict did it become clear that nuclear weapons would rarely—if ever—be used except in extremis. Further, both Korea and Vietnam highlighted the indecisive nature of strategic industrial bombing in a war
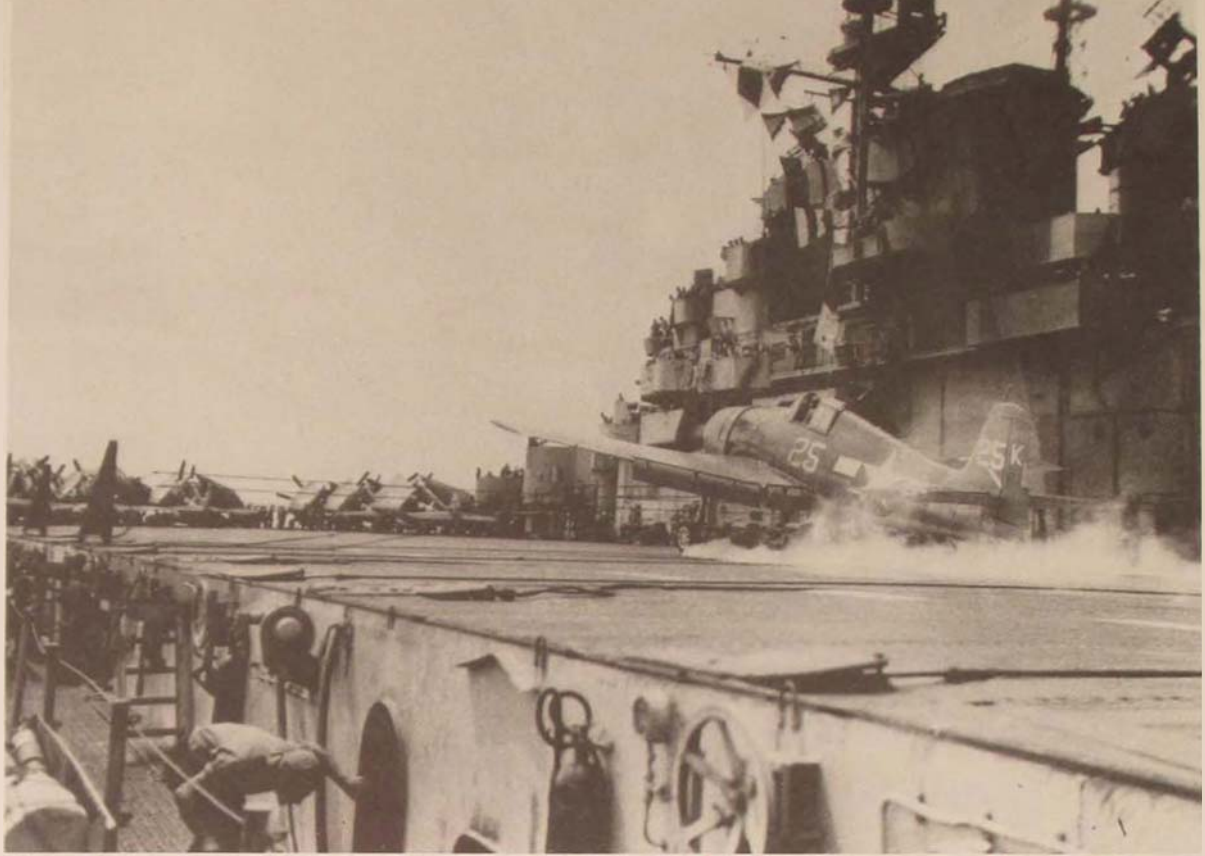
against a nonindustrialized country (a kind of war the air power prophets had not imagined) as well as the crucial role of nonstrategic air power missions in such wars.

In the wake of the Vietnam conflict, some airmen began thinking of air power in a much broader and more sophisticated manner. Rather than emphasizing certain missions (e.g., strategic bombing), in the early 1980s some US airmen began looking at the operational level of war and air campaigns designed to create synergies from the careful orchestration of all air power missions. The notion of a comprehensive air campaign, which came to full flower in the Gulf war, reflected the maturity of US air power doctrine.

Symbol of Domination

One can also view Desert Storm as a symbol of the dominant role that air power has assumed in modern mechanized warfare. Clearly, it dominated every

facet of the war in the Gulf. However, the dominant nature of air power is not a surprising "bolt from the blue." Rather, it is the culmination of a long-term trend. Throughout its 80-year history, military air power has become a more important factor in warfare with each passing year.

The trend was obvious even in the early experience of World War I. Envisioned before 1914 only as reconnaissance platforms, aircraft not only became invaluable in that role, but performed many other roles as well. In World War II, control of the skies became the first priority in planning virtually every operation, whether on land or at sea. In North Africa as well as Northwest Europe, land forces had great difficulty operating under hostile skies and operated much more effectively with friendly air control and assistance.

Air power was perhaps even more important to amphibious operations. Note, for example, that control of the air was a prerequisite for Operation Sea Lion (the planned German assault on Great Britain) and Operation Overlord (the

Allied invasion of Northwest Europe in 1944). In the former case, Germany never achieved air superiority over Britain—thanks to Churchill's "few" to whom so much was owed—and Sea Lion was canceled. In the latter case, total Allied air supremacy over the invasion beaches of Normandy played a significant role in the success of Overlord.

At sea, the growing importance of air power was even more pronounced. Prior to World War II, most naval leaders envisioned naval air power as an extension of the eyes and ears of the fleet, rather than its principal striking arm. By the end of the war, it was clear that the face-to-face gun battles between contending fleets were a thing of the past and that naval aviation was the primary offensive striking arm of the Navy. Worth noting is the fact that in 1941 the US Navy had eight aircraft carriers with 521 aircraft aboard. At the end of the war, the Navy had 99 aircraft carriers with 4,000 aircraft aboard.[4]

Over the years, naval aviation has evolved into the primary offensive striking arm of the fleet. The US Navy began World War II with only eight aircraft carriers but increased that number to 99 by the end of the war. At left, a crippled F6F lands aboard the USS Yorktown *in 1944. Today's carriers, like the one below, are the centerpiece of the Navy.*

As was evident with land forces, sea surface forces operating without sufficient air cover were at constant risk. The sinking of the British warships *Repulse* and *Prince of Wales* by Japanese air power off the coast of Malaya and the sinking of the Japanese superbattleship *Yamato* by US air power late in the war are just two well-known examples. Gen George C. Kenney's use of land-based air power to establish control of the narrow waters of the Southwest Pacific theater of operations is another example, but on a much larger scale.[5]

The importance of air power is not just a contention of the US Air Force. Rather, it is a reality underscored by the US Army, Navy, and Marine Corps. The Army has its own air force (mostly helicopters), rivaling the US Air Force in the number of airframes it possesses. At sea, the Navy's aircraft carriers are clearly the centerpiece of a fleet largely organized into carrier battle groups—with all due respect to submariners, who take a slightly different view. In the Marine Corps, closely integrated air/ground operations are standard operating procedure. Air power now dominates warfare.
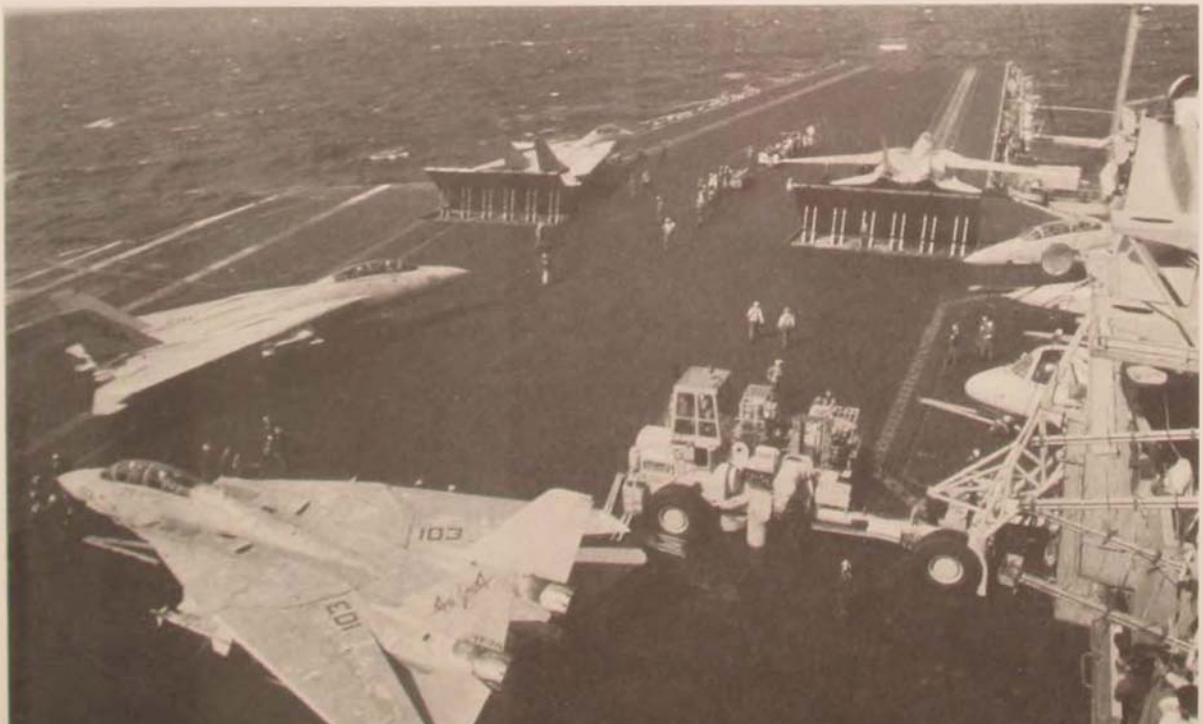
Symbol of Need
for a New Paradigm

As pointed out previously, the maturation of air power is not the result of the sudden introduction of some new gadget. It is the result of the accumulation of experience, the development of technology, and the refinement of doctrine over the past 80 years. The same holds true for the dominating nature of air power. It is the culmination of an 80-year trend. In a sense, the culmination of these two trends—symbolized by the aerial victory in Desert Storm—has crept up on airmen, soldiers, sailors, and marines alike and caught them off guard. The result is the urgent need to develop a new paradigm—a new way of thinking about modern mechanized warfare.

For literally thousands of years, military establishments have operated within a two-dimensional context. The early twentieth century saw war expand into the third dimension, but only as a simple extension of the traditional two-dimensional model. This was appropriate in the early days, insofar as the capabilities of airmen were limited by primitive technology, lack of experience, and questionable doctrine.

However, even as air power matures, the traditional view of air power persists. Air power has been—and generally still is—viewed by nonairmen as an adjunct to surface forces, an instrument used to lend support to warriors tied to the surface of our planet (nuclear warfare excepted). Even conventional strategic bombing was considered by all but air power zealots as merely a means to reduce the enemy's ability to resist in the field. The two-dimensional model has persisted so long that a good many airmen, particularly

those involved with so-called tactical air power, believe that air power's role is to support surface operations.

But times have changed. The need to develop a new paradigm that makes the best use of air power's newfound maturity and domination is obvious. The new model should not just address long-standing questions of who supports whom—the main weight of effort—and who controls what. Rather, the new model must return to the fundamentals and reevaluate the art of warfare itself in the air power age. An example will illustrate the point.

The two-dimensional model of warfare has a sequential orientation. It assumes that an enemy's military forces will be deployed to defend his centers of gravity. Thus, the two-dimensional model of warfare postulates that (1) fielded armies and navies must be defeated and driven back, to the extent that (2) an enemy's center(s) of gravity become(s) vulnerable. Seizing, controlling, and holding territory become of paramount importance in this model of warfare. Further, progress is simple to evaluate—one uses a map and watches the orderly advance (or retreat) of the front lines.

A three-dimensional model of warfare is based on a unique capability that defines the essence of air power. That capability is the quick concentration of great power over any spot on the surface of the globe. The result is that an enemy is vulnerable everyplace all the time. Conceptually, every tangible facet of an enemy's power structure can be attacked with equal facility at any time. Consequently, one no longer requires sequential orientation. Operations against the enemy—whether at the front lines, at some deep-seated center of gravity, or at some place in between—can be parallel in nature, perhaps carried on simultaneously.

Controlling territory becomes much less important in a three-dimensional model. Forces deployed to hold territory can, in fact, be a disadvantage in some circumstances. The Iraqi case provides a classic example in which air power reduced the Iraqi army in the field to a bedraggled, demoralized, undersupplied, and hungry mob that wanted to do little more than surrender. As a result of all this, in the three-dimensional model, maps no longer serve as adequate or accurate tools for measuring the progress of a war.

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The air campaign in Desert Storm illustrated the advantages of parallel operations in a three-dimensional model of war. The result was a thundering aerial onslaught that put enormous pressure on strategic, operational, and tactical targets all at once and continuously, offering the enemy no chance to recoup.

Previous wars in the air power age foreshadowed, in limited ways, the parallel air campaign in the Gulf war. In World War II, for example, the strategic bombardment of Germany progressed even while Allied forces built up in Great Britain for the invasion of the Continent. In the Pacific, the bombardment of Japan began in earnest even as Allied forces were moving through the island chains toward the Japanese homeland.

For the most part, however, the strategy used in World War II was sequential in nature. The Battle of the Atlantic had to be won before forces could be massed in Great Britain. Adequate forces had to be massed in Great Britain before the invasion could take place. The Normandy beachhead had to be established and port facilities secured before Allied forces could break out across France, and so forth. In the Pacific, the story was much the same.

The capabilities of modern air power and a truly three-dimensional war-fighting model may obviate the need for sequential strategies in many situations. If an enemy is vulnerable everywhere all the time, theater commanders can choose and then orchestrate the combination of simultaneous or near-simultaneous actions that will create the greatest impact upon that enemy's ability to resist. The result should be a rapidly unfolding campaign in which there are no front lines, in which holding territory is often irrelevant (and may be a detriment), and in which air, land, and sea forces are used to their greatest advantage against the most appropriate and important enemy vulnerabilities anywhere at any time.

In such a three-dimensional campaign model, forces on the offensive have enormous advantages over those on the defensive. Successful defense would require one to be strong everywhere all the time—a near impossibility. In this model, the question of who is supporting whom can become irrelevant or can be a constantly changing relationship, depending upon the enemy's actions and reactions.

But the key is air power. Air power makes such warfare possible to begin with, and air power will make it possible to execute in practice. The absolute criteria are control of the air and overwhelming amounts of air power to take advantage of that control. In the Gulf war, the coalition achieved total air supremacy. Whether or not such total control of the air is required remains a question that can be resolved only with further study.

The Challenge for Airmen

It seems to this writer that airmen must address three basic agenda items if they are to fully develop the new three-dimensional paradigm. First, they must address the implications of such a model of warfare. Some are obvious. Clearly, airmen must be able to operate 24 hours a day, in all weather, at a high tempo. They must be able to respond quickly and accurately to a campaign situation that will change rapidly. These requirements, in turn, can have serious implications for weapons system design, force structures, manning levels, logistic patterns, intelligence requirements, and command and control structures. As thinking about the new paradigm unfolds, airmen will certainly have to address a good many more requirements and implications.

Second, airmen must overcome the fears and resistance that will surely come from their compatriots in arms who serve in the surface forces. Is the future of surface forces dim? Certainly not. On the contrary, the three-dimensional model of warfare will open new vistas for the use of

surface forces of all kinds. At this early stage in its development, the three-dimensional model of warfare appears to be the epitome of joint operations.

The third agenda item is both a method for accomplishing the first two and a requirement in itself. Airmen must educate themselves and others. We must force ourselves to challenge assumptions and to rethink long-standing beliefs. Airmen must commune with one another, feed off each other's ideas, and develop the new model of warfare to the fullest. Airmen must write in their journals and debate the ideas and their implications. Airmen should initiate conferences to stimulate the free flow of ideas. But this process must not be limited to airmen.

Our colleagues in the surface forces must enter the dialog, challenge airmen and their ideas, and present alternative arguments. The full development of the new paradigm of warfare requires a vigorous dialectic process.

Operation Desert Storm, although not large by historical standards, was one of those symbolic events that few people are fortunate to witness. It symbolized both a fundamental shift in the way many wars will be conducted and the need for a new way of thinking about military operations. Viewed from the Iraqi perspective, Desert Storm symbolized the terrible penalty for adhering to the old model. It is time to change, and airmen must lead the way. □

Notes

1. See Lee Kennett, *The First Air War, 1914–1918* (New York: Free Press, 1991). In particular, see chapter 13—especially pages 220–29. There is no question that air power performed many important roles. But in truth, the total air effort and its severely limited capabilities were simply dwarfed by the enormous struggle on the ground.

2. There are a good many survey histories of US air power over this extended period. Three of the more informative are James L. Stokesbury's *A Short History of Air Power* (New York: William Morrow and Company, Inc., 1986); Herbert Molloy Mason, Jr.'s *The United States Air Force: A Turbulent History* (New York: Mason/Charter, 1976); and Robert Frank Futrell's monumental *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force*, vol. 1, *1907–1960*, and vol. 2, *1961–1984* (Maxwell AFB, Ala.: Air University Press, 1989).

3. See any or all of the following: Stokesbury's *A Short History of Air Power*; Mason's *The United States Air Force*; Futrell's *Ideas, Concepts, Doctrine*; R. J. Overy's *The Air War, 1939–1945* (New York: Stein and Day, 1980); Michael S. Sherry's *The Rise of American Air Power: The Creation of Armageddon* (New Haven, Conn.: Yale University Press,

1987); David R. Mets's *Master of Airpower: General Carl A. Spaatz* (Novato, Calif.: Presidio Press, 1988); and James Parton's *"Air Force Spoken Here": General Ira Eaker and the Command of the Air* (Bethesda, Md.: Adler and Adler, 1986).

4. An excellent, brief, well-documented, and recent treatment of the evolution of US naval power is George W. Baer's "U.S. Naval Strategy, 1890–1945," *Naval War College Review* 44, no. 1 (Winter 1991): 6–33.

5. General Kenney, who was Gen Douglas MacArthur's chief airman in the Southwest Pacific theater in World War II, used land-based air power in very creative ways. He essentially denied the narrow waters of the Southwest Pacific theater to the Japanese navy, thus neutralizing an enormous Japanese advantage and allowing MacArthur to take important offensive actions far earlier than had been expected. Kenney's first-person account of the struggle is a classic in air power literature. See George C. Kenney, *General Kenney Reports: A Personal History of the Pacific War* (1949; reprint, Washington, D.C.: Office of Air Force History, 1987).

WHICH WAY TO THE FEBA?

Maj John M. Fawcett, Jr., USAF
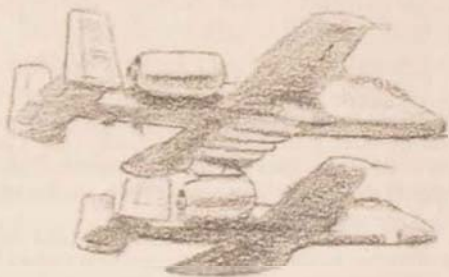
DEFINITIONS in the close-air-support (CAS) arena are difficult at best, getting twisted around by doctrinal statements and the intricacies of interservice rivalry. But when long-range air assault operations are involved, the discrepancies and dichotomies get dangerous. During Operation Desert Storm, elements of the 101st Airborne Division (Air Assault) penetrated 90, then 150 miles into Iraqi territory in brigade-sized assaults. As long as the lines on the maps remain connected, everyone understands (at least conceptually) where CAS, battlefield air interdiction (BAI), and air interdiction (AI) fit into

ARMY	AIR FORCE
CAS—Air action against hostile targets that are in close proximity to friendly forces and that requires detailed integration of each air mission with the fire and movement of those forces. (FM 101-5-1, *Operational Terms and Symbols*, October 1985, 1-15.)	CAS—Close air support is air action requested by the ground commander against hostile ground targets near friendly forces. The ground commander must integrate each air mission with the fire and movement of his forces. (Tactical Air Command [TAC] Pamphlet 55-51, *Tactical Air Control Party Handbook*, 21 August 1987, 7-1.)
BAI—Air action against hostile surface targets which are in a position to directly affect friendly forces and which requires joint planning and coordination. While BAI requires coordination in joint planning, continuous coordination may be required during the execution stage. (FM 101-5-1, 1-10.)	BAI—Air attacks against targets having a near-term effect on friendly forces (scheme of maneuver). (Workbook, Joint Firepower Control Course, July 1989, sec. 52C, 3; Air Force Manual [AFM] 1-1, *Basic Aerospace Doctrine of the United States Air Force*, 16 March 1984, 3-4.)
AI—Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces. It is conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (FM 101-5-1, 1-3.)	AI—To delay, disrupt, divert, or destroy an enemy's military potential before it can be brought to bear against friendly forces. Performed at such distances from friendly surface forces that detailed integration is not required. (Workbook, Joint Firepower Control Course, July 1989, sec. 52C, 3; AFM 1-1, 3-3.)

the game plan. Problems arise when large troop formations appear well past the forward edge of the battle area (FEBA) and the call goes out for air support.

To grasp the subtleties of this problem and to see just how it could develop, we need an understanding of the current definitions and procedures of the tactical air control system (TACS)/Army air ground system (AAGS). The sidebar above contains some fundamental definitions agreed to by those who produce the manuals.

These definitions are fairly close and in fact get closer the further they get from ground troops in contact with the enemy. At the tactical level, there is a problem with translating the definitions into clearly understood employment options.

Forward Line of Own Troops (FLOT)	Forward Edge of Battle Area (FEBA)	Fire Support Coordination Line (FSCL)
X	X	X
— CAS ——————————→		← AI →
	—————— BAI ————→	
X	X	X
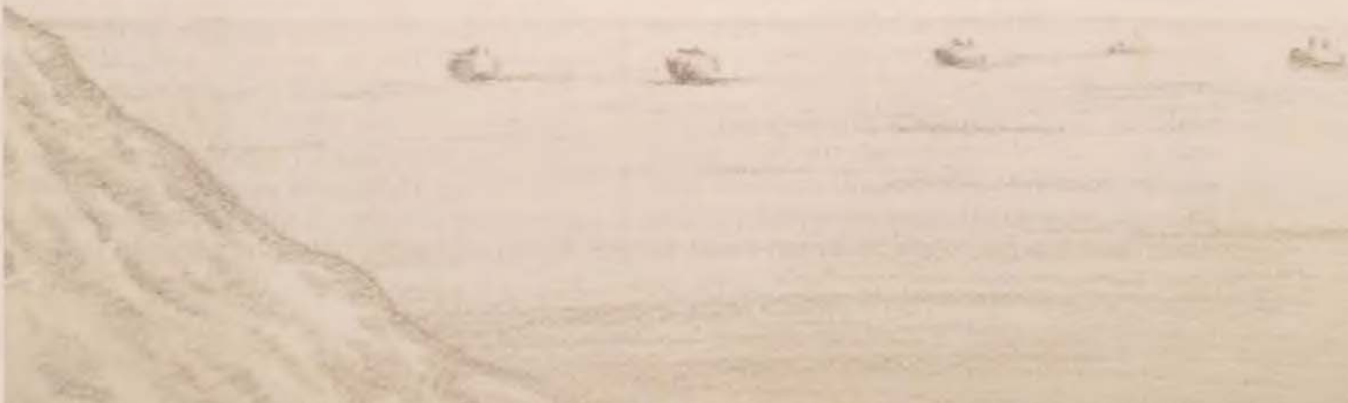
Figure 1. Army View of Air Operations Relative to the FLOT, FEBA, and FSCL (adapted from FM 7-20, *The Infantry Battalion [Infantry, Airborne, and Air Assault]*, December 1984, 8–15)

The Army likes to work with overlays on maps. Figure 1 shows how CAS, BAI, and AI appear to the Army relative to coordination lines.

In this figure, friendly troops are attacking from left to right. Army fire coordination measures also expand to include several permissive and restrictive measures, but for the purpose of this article, we will stick to the basics. These basics are reflected in actual Operation Desert Storm tactics as presented later. For our discussion to continue, we need another definition, this time for the fire support coordination line (FSCL):

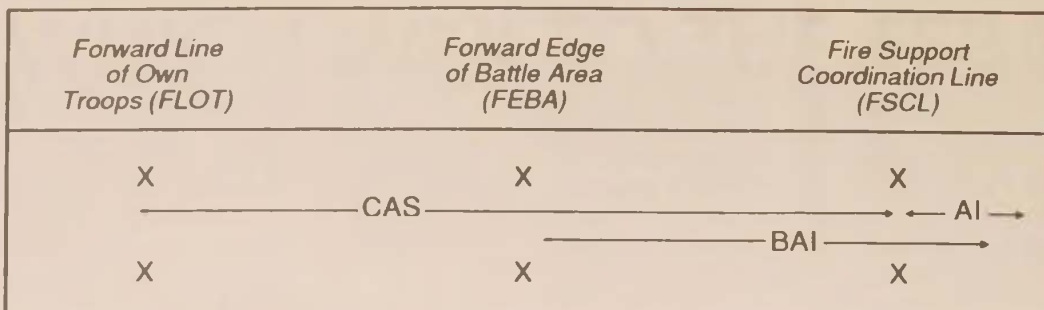> A line beyond which all targets may be attacked by any weapon system (including aircraft and special weapons) without endangering troops or requiring additional coordination with the establishing headquarters. The effects of any weapon system may not fall short of this line. Purpose—To expedite the attack of targets beyond the FSCL.[1]

Now we begin to see the kernel of the problem for an air assault unit. One mission option of an air assault unit is a deep penetration—that is, an attack well behind enemy lines either as a raid or an attack in force.[2] The term *deep* is sufficiently vague as to cause a definitional problem. If you pass the FSCL on a deep mission, can you still get CAS? Even though the tactical air employment mission definitions are vague enough to permit this possibility, the Army and Air Force employment tends to

support the concept of a linear battle developing where "in depth" means an area still within the range of long-range artillery and the FSCL moves only as the FEBA and forward line of own troops (FLOT) move in a coordinated effort.

Before we can fully address the problem encountered during Desert Storm, we need to know something about the air request system itself. Figure 2 shows how it works. Figure 2 also presents the nightmare of everyone who has ever attended the Joint Firepower Control Course. What we see is the TACS. A tactical air control party (TACP) with an air liaison officer (ALO) is located with each Army unit down to the battalion level. Although the following definitions are from an Army field manual, they come close to reality:

> Air Liaison Officer (ALO)—The senior Air Force officer at each tactical air control party (TACP). Advises the Army commander and staff on the capabilities, limitations, and employment of tactical air operations. He operates the Air Force request net. He coordinates close air support (CAS) missions with the fire support element (FSE), and assists in planning the simultaneous employment of air and surface fires. He supervises forward air controllers (FACs) and will assist the fire support team (FIST) in directing airstrikes in the absence of a FAC...

> Tactical Air Control Party (TACP)—The TACPs are collocated at each appropriate command echelon of the supported ground force, normally battalion through corps.

They advise and assist the commander, request and coordinate tactical air support, and meet other requirements of the individual ground force echelon supported. A TACP consists of experienced air crews and technicians, ground and/or airborne vehicles, and the communications equipment required to obtain, coordinate, and control tactical air support of ground operations.[3]

The mechanics of the air request system break down into two parts: preplanned and immediate. Preplanned requests are just as the name implies, planned well in advance of the ground or air attack operation and submitted prior to a cutoff established by the tactical air control center (TACC). The TACC manages the air war for the joint force commander; theoretically, it even liaises with the Navy, but that is another Desert Storm story. (See the

Tactical Analysis Bulletin for Desert Shield and Desert Storm.) The Air Support Operations Center (ASOC) manages the daily offensive war in support of the corps and handles the immediate requests. One TACC may have numerous ASOCs. The ASOC is normally collocated with the Army corps as shown in figure 2. Immediate requests for close air support are transmitted directly from the affected Army unit to the ASOC. Silence on the net by any higher TACP is considered approval at that level. If there is no objection by the TACP chain, the ASOC will fill the request with whatever air is available based on priority and guidance established by the corps commander through his fire support element (FSE). The priority should include real-time factors as well as the corps commander's concept of the operation.
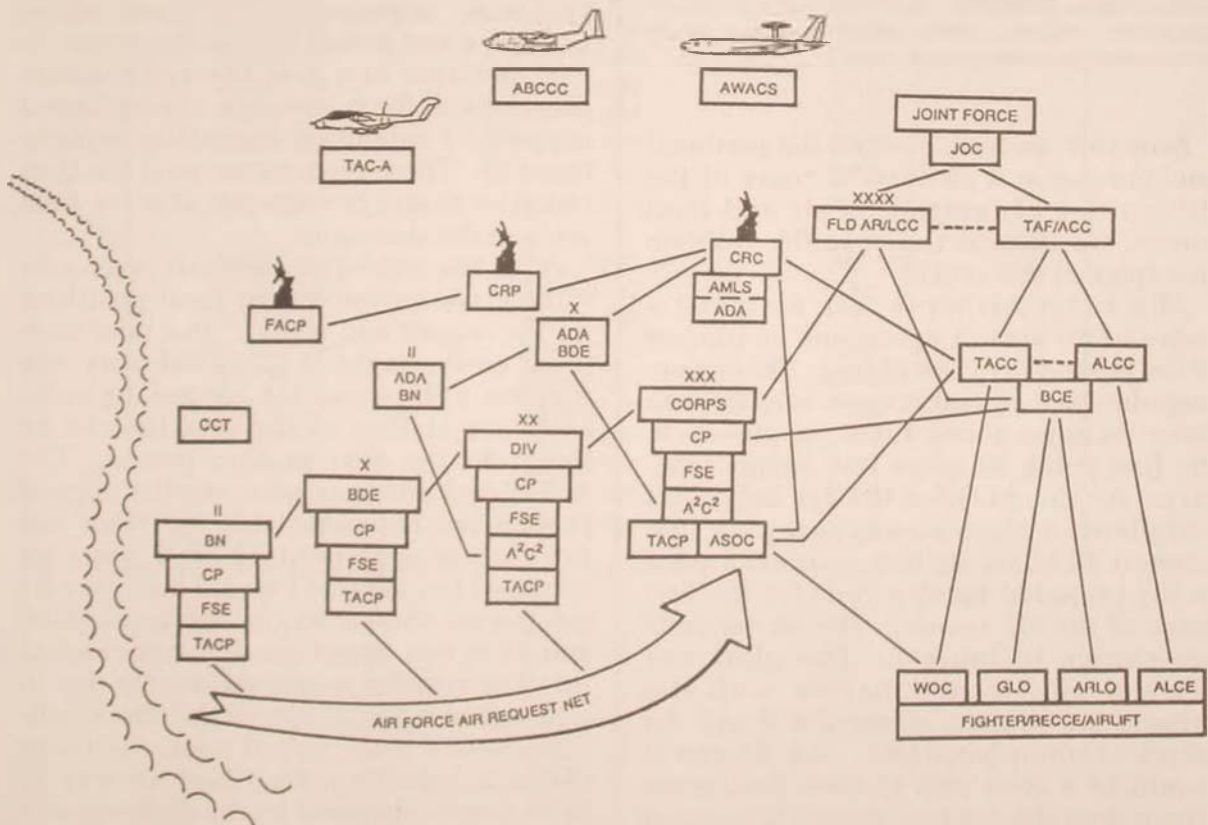

Figure 2. Tactical Air Control System

An Apache helicopter makes a low pass over a tactical air control party (TACP) and its high-mobility multipurpose wheeled vehicles (HMMWV). TACPs are collocated at each appropriate command echelon of the supported ground force, normally battalion through corps.

Now that we have covered the pertinent background and alluded to some of the difficulties of integrating air and land forces, we turn to the specific problem that sparked this article.

The 101st Airborne was assigned a series of air assault operations in support of the ground invasion of Iraq. These were brigade-sized operations—a brigade task force includes about 4,000 people—with the first going 90 miles into enemy territory. As the ALO for the 1st Brigade, I completed a close-air-support plan that covered 36 hours starting two hours prior to the projected landing time for the first wave of the air assault. The air requests are shown in table 1. The plan was worked out in conjunction with the brigade fire support officer (FSO) and the attack aviation battalions. We figured it would be a good idea to have fixed-wing assets prep the landing zones (LZ), escort the mission into the area, and stick around for the subsequent assault waves. Since

the resistance on the LZs was unknown, the plan covered the times we considered crucial to establishing the perimeter in Objective Cobra. (Objective Cobra was the initial operation for the 1st Brigade and required securing a major supply dump inside Iraq for continuing helicopter operations.) We decided that if we were still having trouble 33 hours after the initial landing, we would have a pretty high priority on CAS. The requests were submitted to the division TACP five days prior to the assault. Two days after division forwarded the requests on to corps, the corps ALO informed the division ALO that the requests had been passed on but would not be honored by the TACC. They had determined that since the target area was over 60 miles beyond the FSCL, the requests should have been for AI rather than CAS. The division ALO and his assistant, the fighter liaison officer (FLO), personally appealed the decision, but by now we were inside of two days prior to the operation and past the TACC-established cutoff for submission of preplanned requests. I submitted immediate requests (table 2). These requests covered the time just prior to and through just after the final wave of the air assault.

After the immediate requests were submitted, we moved to our final positions for the assault and waited. Just after midnight on the night of 23–24 February, the division FSE passed the air tasking order (ATO), a listing of the missions to be flown for the next 24-hour period. The ATO listed missions reflecting the original preplanned requests (table 3). With just three hours to go until lift-off, I was a bit confused but felt that I would be happy if I got the air shown on the ATO. At 0400 and 0430 two two-ships of A-10s checked in. The weather was deteriorating due to rain and blowing dust, and the attack helicopters had been pulled back. Without the attack helicopters I had no way to mark targets obscured by the darkness and the weather. I sent both sets of aircraft up the invasion route on an armed reconnais-

TABLE 1
Preplanned Air Requests for G Day Operation Desert Storm

Request Number	TOT Z/L	Mission Type
3C2401D	0001/0301	JAAT
3C2421D	0030/0330	JAAT
9C2416D	0001/0301	Suppression
3C2417D	0100/0400	JAAT
3C2422D	0130/0430	JAAT
3C2430D	0200/0500	AC-130
3C2418D	0200/0500	Escort
9C2401A	0200/0500	Electronic Counter
3C2423D	0230/0530	CAS
3C2420D	0300/0600	AFAC
3C2403D	0300/0600	CAS
3C2424D	0330/0630	CAS
3C2404D	0400/0700	CAS
3C2425D	0430/0730	CAS
3C2405D	0500/0800	CAS
3C2426D	0530/0830	CAS
3C2406D	0600/0900	CAS
3C2407D	0700/1000	CAS
3C2408D	0800/1100	CAS
3C2409D	0900/1200	CAS
3C2410D	1000/1300	CAS
3C2411D	1100/1400	CAS
3C2412D	1200/1500	CAS
3C2413D	1300/1600	CAS
3C2414D	1400/1700	CAS
3C2415D	1500/1800	AC-130
3C2501D	0001/0301	AC-130
3C2502D	0400/0700	CAS
3C2503D	0500/0800	CAS
3C2504D	0600/0900	CAS
3C2505D	0700/1000	CAS
3C2506D	0800/1100	CAS
3C2507D	0900/1200	CAS
3C2508D	1000/1300	CAS
3C2509D	1100/1400	CAS
3C2510D	1200/1500	CAS

Legend:

TOT = Time Over Target
Z/L   = Zulu/Local
JAAT = Joint Air Attack Team

TABLE 2
Immediate Air Requests for G Day
Operation Desert Storm

Request Number	TOT Z/L	Mission Type
4C2401D	0001/0301	JAAT
4C2402D	0100/0400	JAAT
4C2403D	0200/0500	JAAT
4C2404D	0300/0600	JAAT
4C2405D	0330/0630	JAAT
4C2406D	0400/0700	JAAT
4C2407D	0430/0730	JAAT
4C2408D	0230/0530	Air FAC
4C2409D	0200/0500	AC-130
4C2410D	0500/0800	Escort
4C2411D	0530/0830	Escort
4C2412D	0600/0900	Escort
4C2413D	0630/0930	Escort
4C2414D	0700/1000	Escort
4C2415D	0730/1030	Escort

Legend:

TOT = Time Over Target
Z/L   = Zulu/Local
JAAT = Joint Air Attack Team

sance and hoped for the best. No targets were found, and the A-10s moved off station. The helicopter assault was delayed two hours due to weather.

Finally, at 0700, the first assault wave of 66 UH-60 Blackhawk and 33 CH-47 Chinook helicopters headed across the border. Once airborne, I contacted the ASOC on secure high frequency for a radio check and to determine the status of the rest of the missions on the ATO. The ASOC informed me that the ATO was being redirected based on need. Since I was heading into Iraq with an unknown threat on the LZs, and the most critical period of an air assault is during the landing, I figured I needed some CAS on station to cover me. The ASOC disagreed and informed me that the corps FSE had established the priority for immediate CAS with the 6th French and 82d Airborne, which were advancing on our left flank on the ground. I reminded the ASOC that the French had armor; that my organic fire support was about 24 attack helicopters, six 105-mm howitzer tubes, and some tube-launched, optically tracked, wire command (TOW) missiles; and that priorities should shift to cover my landings. The ASOC informed me that when I had troops in contact I would get air. About that time my third battalion reported taking fire on the LZ. I relayed this information to the ASOC, which sent some air. Luckily, the 3d Battalion problem turned out to be snipers and was rectified before the CAS arrived. But when the CAS did arrive, two F-16s, it was just as the 1st Battalion ran into a bunker complex. The F-16s worked over the bunkers while the attack helicopters refueled and the artillery set up; the battalion took over 400 prisoners and captured a supply complex when the dust settled. The CAS was the key in the bunker assault and in the subsequent capture of a division supply dump.

Is there a problem here? I needed CAS, I got CAS. None of my people died, and we took the objective. Actually there are two major problems: the confusion concerning preplanned CAS beyond the FSCL and the inability of the corps FSE to coordinate air priorities across the XVIII Airborne Corps battle plan.

In the final analysis, if it walks like a duck and quacks like a duck and looks like a duck . . . it's CAS. Air power applied in direct support of an air assault is not interdiction, no matter if the objective is short of or beyond the FSCL. In fact, if the air support is to be used in direct support of troops, no matter where they are, it is CAS. This view is supported by the definitions we referenced earlier. Neither definition mentions any fire support coordination measures or geographic requirements—just that the air action is requested by the ground commander, is near friendly troops, and is integrated with the fire and movement of the ground forces.

TABLE 3
ATO for 24 February 1991
Received from 101st Airborne Division Fire Support Element 0100L
24 February 1991

Mission Number	Call Sign	(Air Assault) TOT Z/L
5103A	Thompson 03	0000/0300
5105A	Bowser 05	0030/0330
5107A	Gatling 17	0130/0430
5135A	Nitro 35	0200/0500
5154A	Greyhound 45	0200/0500
5137A	Pyro 37	0230/0530
5103B	Thompson 03	0300/0600
5001A	Ruger 01	0300/0600
3121B	Bingo 01	0330/0630
5105B	Bowser 05	0330/0630
5017B	Gatling 17	0400/0700
3121A	Bite 01	0430/0730
3131A	Boxer 01	0500/0800
5031A	Beretta 13	0530/0830
5015A	Sten 15	0600/0900
3141B	Bart 41	0600/0900
5017A	Gatling 17	0630/0930
5003A	Glock 03	0633/0933
5103C	Thompson 03	0700/1000
5021A	Mossberg 21	0700/1000
5105C	Bowser 05	0730/1030
5001B	Ruger 01	0730/1030
5017C	Gatling 17	0800/1100
3121B	Bingo 61	0830/1130
5005B	Springfield 05	0830/1130
5003B	Glock 03	0840/1140
5101D	Zipgun 10	0900/1200
5007B	Carbine 07	0900/1200
5103D	Thompson 03	0930/1230
5011B	Weatherby 11	0930/1230
5105D	Bowser 05	1000/1300
5013B	Beretta 13	1000/1300
5015B	Sten 15	1030/1330
5017B	Gatling 17	1100/1400
5021B	Mossberg 21	1130/1430
5001C	Ruger 01	1200/1500
5003C	Glock 03	1230/1530
5005C	Springfield 05	1300/1600
5007C	Carbine 07	1330/1630
5011C	Weatherby 11	1400/1700
5013C	Beretta 13	1430/1730
5017C	Gatling 17	1500/1800
5135C	Nitro 35	1930/2230
5145B	Mauser 45	2130/0030
5151B	Hitman 51	2230/0130
5135D	Nitro 35	2300/0200
5141D	Bazooka 41	0001/0301
5145C	Mauser 45	0100/0400

When the ALO checked in with the ASOC at 0700L, he was informed that all the air support listed above had been redirected.

I am still not sure what happened to my preplanned air requests. Based on the ATO, it would appear that the TACC honored the requests even though the corps ALO and the ASOC said the TACC would not. The fact that such confusion still existed within 72 hours of the invasion should give us some pause as we review the operation.

As for the difficulty of the ASOC in integrating the battle plan with air priorities, it would appear that there was a breakdown at the corps FSE. There were two XVIII Airborne Corps efforts that morning: the 6th French with the 82d Airborne and the 101st Airborne. The French had armor support and organic artillery traveling with their assault echelons. The 82d Airborne was traveling with the French. This would normally indicate a shift in CAS priorities to the 101st based on the 1st Brigade's organic fire support.

Another factor to be considered at this point is the amount of resistance each attack was encountering. As part of a linear battle, the French would be able to report enemy resistance as they proceeded toward their objective. Theater competition for CAS assets did exist since the Marines and coalition forces were involved with the invasion of Kuwait. But that was also a linear battle. Of course, the 101st could not know about enemy resistance until actually on the LZs. With this in mind, it seems reasonable to expect that the ASOC would shift any available assets—and according to the airborne battlefield command and control center (ABCCC), there were assets available at the time of the 1st Brigade attack—to cover the helicopter landings. Once a determination was made concerning resistance on the LZs, the CAS could either be released or increased. None of this is out of the

ordinary vis-à-vis the training TACS/AAGS personnel receive at the Joint Firepower Control Course of the Air Ground Operations School or the procedures we had discussed with the ASOC during the preceding six months. During a telephone interview after the war ended, the fighter duty officer (FIDO), who was on duty during the 1st Brigade attack, acknowledged that the argument we just developed was certainly logical but that the priority of fires had been established by the corps FSE and could not be altered unless I had troops in contact with the enemy.

Do we have a doctrinal hole here? Actually, I don't think so. What we do have is a series of flexible definitions that have been interpreted for armor or mechanized forces on a linear battlefield. The key to using that flexibility without the constraining influences is for all elements of the TACS/AAGS to be conversant with the ground commander's concept of the operation and battle plan at each level, as well as each unit's capabilities. That should have happened in the Persian Gulf but obviously did not.

So where do we go from here? Step one is a complete revision of a term so old that it carries a lot of conceptual baggage with it: *CAS*. What we really have is either air power applied in close proximity to troops or air power applied not in close proximity to troops. Definitions and lines on maps that do not allow for the flexibility

An interior view of the air liaison officer's HMMWV during Operation Desert Storm. The vehicle is being repacked in preparation for the next assault.

required by nonlinear battle plans should be scrapped. Close proximity to troops can include missions under the direct, terminal control of a ground or airborne FAC or bombing missions beyond visual range of the controlling agency but clearly deconflicted with friendly forces. This is obviously going to get tricky when an operation like the one described above results in a linkup between air assault or airborne forces well beyond the FEBA and heavy forces moving in a linear battle. Battle handoff and combat identification will become crucial, and air support not under direct control of the FACs may not be permitted. At the risk of being named as an accomplice in creating new acronyms, I suggest getting rid of the term *CAS* and coming up with a name that is descriptive of the requirements of the joint arena.

Should we also junk the TACS/AGGS system? No. But we do need to exercise every aspect of the system until the basics are automatic. Every Army, Marine, or Navy exercise has to include some role for at least the TACC. For Army exercises here in the States, this isn't as difficult or expensive as it may sound. The air request net already has the long-range communications equipment to operate from each unit's home station. Involvement has to include having the TACC and ASOC task active-duty, Air Guard, and Reserve fighter squadrons to provide sorties in support of Army exercises, with little warning, for preplanned and immediate requests.

When I was in the 35th Tactical Fighter Squadron at Kunsan, South Korea, the squadron was regularly tasked to provide support for CAS operations by an ATO. There was no whining or debate; the squadron simply planned and flew the missions. ALOs will submit preplanned requests through Army channels to the assigned peacetime TACC in accordance with TACC-established requirements and cutoffs. I am talking about responsive cutoffs with as little lead time as a week.

The author, left, and SSgt Jed Turner, noncommissioned officer in charge of the TACP, take a break somewhere in Iraq.

Immediate requests will be handled by the ASOC and come from a pool of available sorties managed by the TACC and the numbered air forces to include tankers if needed. Flight crews will have to actually plan nonstandard missions with time constraints and little warning. No deployment or exercise costs are incurred because everyone trains from home station. Everybody is a player, A-10s to F-15Es. Obviously, some are going to be tasked more than others. This cannot be done because of training requirements and maintenance restrictions. Unacceptable; this is realistic training for combat operations.

What about the Guard and Reserve? Everybody plays. Establish what kind of lead time the reserve forces need and give it to them, but hold them to it and pay them with man-days for their participation.

There will be growing problems with this kind of system, but better to sweat in peace than to bleed in war. If this requires an overhaul of current training guidance, so be it.

In Iraq we recovered from a series of misunderstandings and got the job done. We have the capability to do the job better next time. The Army field manual (FM) on air assault operations covers low-, mid- and high-intensity conflict. Support of those operations in areas far from Army direct-fire support must be provided either by fixed- or rotary-wing assets or a combination of both. Do not construe this article as strictly Army/Air Force. Flexibility is essential in the employment of air power in all joint force operations, and all future operations will be joint with all services participating in planning if not in execution. I have been told not to take these problems so personally. At 0700 on 24 February 1991, the members of my TACPs and I took it real personally. □

Train like you want to fight.

Notes

1. FM 7-20, *The Infantry Battalion (Infantry, Airborne, and Air Assault)*, December 1984, 8–11.
2. FM 90-4, *Air Assault Operations*, March 1987, 1–2, 3.
3. FM 101-5-1, *Operational Terms and Symbols*, October 1985, 1–3, 1–69.

OPERATIONS LAW AND THE RULES OF ENGAGEMENT

IN OPERATIONS DESERT SHIELD AND DESERT STORM

LT COL JOHN G. HUMPHRIES, USAF

S HORTLY before the coalition forces put the finishing touches on the victory over Iraq, Gen Norman Schwarzkopf gave a briefing that explained the strategy and objectives of the Persian Gulf war. His remark praising President George Bush for allowing the military to "fight this war exactly as it should have been fought" provided a perspective on how this war differed from the one in Vietnam.[1]

Adm U. S. Grant Sharp, US Navy, Retired, who was commander in chief of Pacific Command during much of the
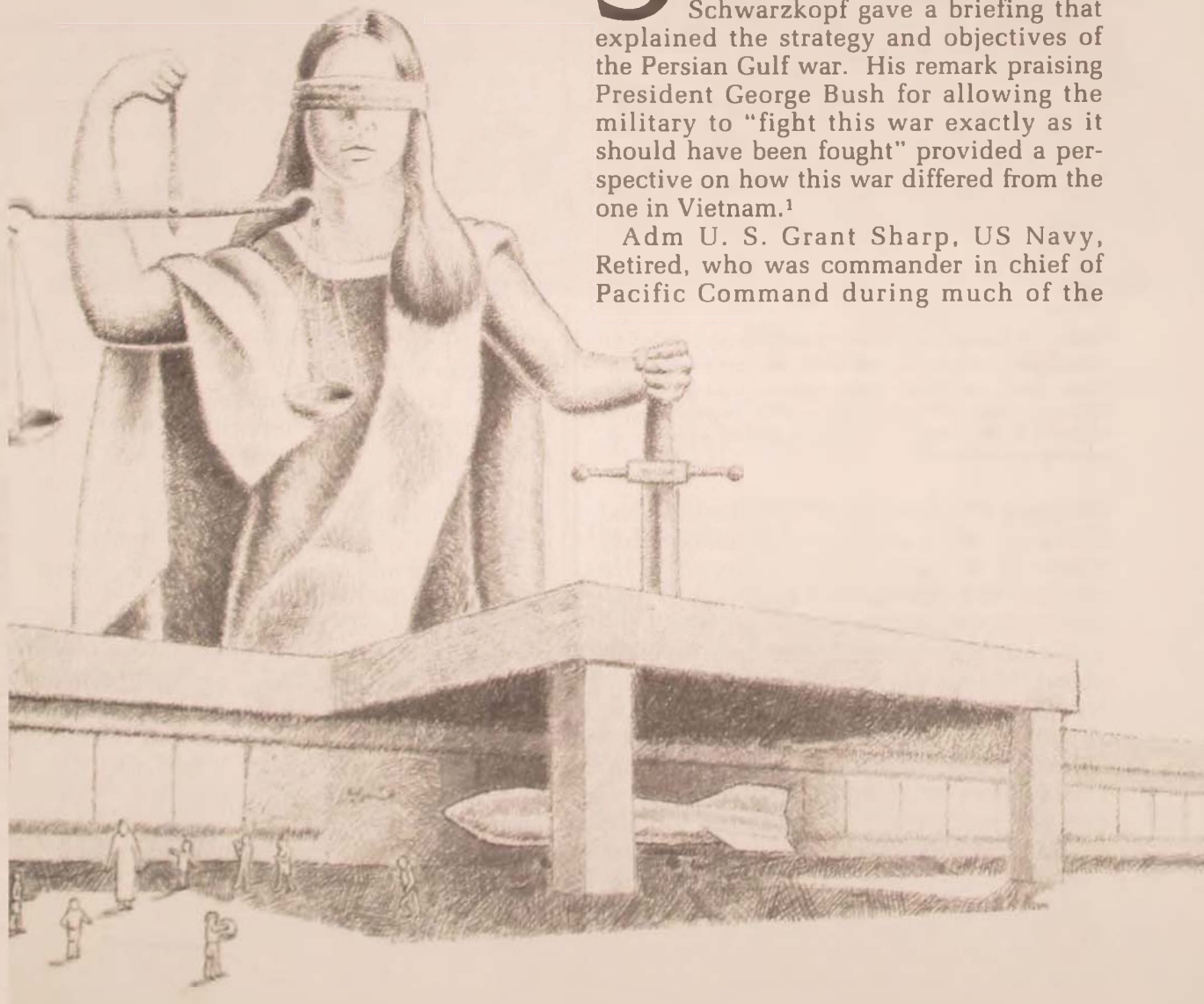
Meeting of the special planning staff's strike cell in the "Black Hole" (formerly a basement storage room in the Royal Saudi Air Force Headquarters building) during Operation Desert Shield in October 1990. Judge advocates assigned to the strike cell assisted combat planners in selecting legitimate targets.

Vietnam War, was asked if he had desired the kind of command autonomy that General Schwarzkopf enjoyed. He replied, "If I had had the same sort of freedom that General Schwarzkopf [had], the Vietnam War would have been over in about 1966. We would have defeated North Vietnam, saved hundreds of American lives, and won the war."[2] Adm Thomas H. Moorer, chairman of the Joint Chiefs of Staff (JCS) from 1970 to 1974, concurs with the view that the United States could have won that war within a

year of unleashing unconstrained American air power.

What happened in the Persian Gulf war was that ordinary wisdom prevailed. President Bush, as commander in chief, and the other national command authorities (NCA) provided general guidance on the prosecution of the war and then delegated the planning and execution of wartime operations to military professionals.

These professionals had received years of inculcation in the law of armed conflict. Not only had the US long ago undertaken treaty obligations to instruct its military personnel about their rights and obligations under this law,[3] but it had also suffered from the outcry of international contempt that arose from the massacre at My Lai and from other real and alleged misad-

ventures in Vietnam. The American military establishment decided there could be no more room for military operations that might lead to allegations of indiscriminate or illegal activities.[4] Requiring that military personnel be educated in the law of armed conflict was considered a crucial part of this effort.

Due to the perception that its forces had not generally followed the laws of war, the US lost domestic and international public support. Its forces returned home branded improperly as war criminals. Further, North Vietnam illicitly refused to grant US aircrews prisoner-of-war status.

During the same period, judge advocates of the military services and of the unified and specified commands increased their involvement in advising commanders, planners, intelligence staffs, and aircrews about the law of armed conflict and other issues related to war fighting. This nascent discipline in the military community became known as "operations" or "operational" law.[5]

Against this backdrop, the US-led coalition prepared to reverse Iraq's invasion of Kuwait. Judge advocates deployed with the headquarters staffs of US Central Command (CENTCOM) and US Air Forces, Central Command (CENTAF) and with wing and group commands to bases in the Persian Gulf. They clearly understood and assumed their roles as advisors in operations law. Likewise, Air Force commanders apparently were aware that the judge advocates on their staffs could help them accomplish their missions within the law.[6] Operations law, which includes such diverse areas as the law of armed conflict, operations and contingency planning, rules of engagement, and target selection and validation, was active during the Desert Shield and Desert Storm operations.

Before we launch into a further consideration of operations law, it is important to understand the foundations upon which it rests within the Department of Defense (DOD). American national policy

holds that our forces will comply with the law of armed conflict,[7] which is comprised primarily of two categories of law. One consists of the Hague conventions[8] of 1907 and the Geneva conventions[9] of 1949; the other is based on the customary practices of nations in conducting war.[10] The law of armed conflict sets the rules for how nations are to conduct wartime operations.

Guiding coalition air operations throughout Desert Shield and Desert Storm was a body of standards known as rules of engagement. These rules "delineate the circumstances . . . under which United States forces [can] initiate and/or continue combat engagement" with hostile forces, both in peacetime and in wartime.[11] They also represent the primary means by which the NCA can guide deployed forces in peacetime crises and in wartime fighting.[12] A legacy of the Vietnam War was that rules of engagement had come to be viewed chiefly as constraints on the employment of military force. The more historically correct view—and the one that is in ascendancy— maintains that in peacetime these rules dictate the circumstances under which hostile forces may be engaged and, at a minimum, authorize a commander to employ force as a matter of preemptive self-defense in response to the imminent threat of force. In wartime, they should not unduly impede the effective use of force.

Rules of engagement are not the same as the law of armed conflict. These rules are directives that the US imposes on its own military forces to govern the employment of firepower. The law of armed conflict, however, is binding on all nations and their armed forces.[13]

This law is, nevertheless, an important influence in drafting rules of engagement applicable to air warfare.[14] Embodied in Air Force doctrine and strategy are the law of conflict's cardinal principles: military necessity (the right to use any degree or means of force—not forbidden by other

considerations—to achieve a military objective)[15] and unnecessary suffering (the prohibition of intentional attacks on non-combatants and civilian objects and bans on the use of certain weapons against combatants if they cause excessive suffering not justified by military necessity).[16] Just as importantly, these precepts are the most significant bases for formulating rules of engagement for air operations.

Notwithstanding its importance, the law of armed conflict is not the sole influence at work during the drafting of the rules of engagement. In their final form, these rules also normally reflect collateral limitations, which include political considerations, national policy objectives, and operational concerns. As a result, rules of engagement can restrict and have restricted US air combat operations far beyond what is required by the law of armed conflict.[17] For example, US air forces employed during Operation Rolling Thunder in the Vietnam War were severely constrained by rules of engagement imposed by American political leaders who feared that conducting the campaign to the full extent allowed by law would somehow provoke Chinese or Soviet intervention.[18] In the Persian Gulf, political and policy constraints that might have been imposed on coalition forces through the rules took a backseat to the clear military objectives of the operations, the most important of which was reversing Iraq's invasion of Kuwait.

In the Persian Gulf, the US relied upon the two primary categories of rules—one for peacetime, the other for hostilities. During Operation Desert Shield, CENT-COM promulgated the peacetime rules of engagement based upon the JCS model, with General Schwarzkopf's CENTCOM staff proposing supplemental measures for JCS approval. These rules provided typical peacetime guidance insofar as they were primarily defensive and were designed to preclude the inadvertent start of war; yet, they also preserved the right of self-defense. Thus, the rules limited mili-tary actions in Desert Shield solely to defensive responses to hostile acts or demonstrations of hostile intent (i.e., the threat of the imminent use of force).

These peacetime rules were wisely drawn. They vested commanders at any level with broad latitude in meeting their obligations, allowing them to take any necessary and appropriate action to defend their units' aircraft and personnel.[19] Thus, the rules recognized the military commanders' authority—and their duty—to exercise the inherent right of self-defense. Exercising this right has traditionally been a responsibility of commanders, based on the notion inherent in the law of armed conflict that a military unit is not required to "take the first hit" before using force.[20]

As in Vietnam, rules of engagement have often been the means by which the NCA and other upper military echelons of command have retained the power to decide when to employ certain forces and weapons systems against enemy military objectives. In this way, the rules have assisted in limiting hostilities only to those believed necessary to achieve national policy objectives. The Persian Gulf rules were different from those in Vietnam because they were about as broad as they could be. With the extensive mandate accorded coalition forces under the aegis of the United Nations, the wartime rules of engagement in Operation Desert Storm extended, in the main, to the bounds of the law of armed conflict.

When hostilities began in the Persian Gulf on 17 January 1991, the wartime rules of engagement—devised by CENT-COM and CENTAF and approved by the JCS—guided coalition air combat operations. These rules recognized the coalition's state of hostilities with Iraq and authorized its air forces to seek and destroy targets connected with Iraq's war effort within the area of operations. These operations could now occur without reliance on the principle of self-defense for each engagement.

This was in stark contrast to the wartime rules applicable during much of the Vietnam War. For instance, prior to attacking Vietnamese urban areas, US air forces were required to warn the inhabitants by leaflets, loudspeakers, or other appropriate means and give them sufficient time to evacuate the area, notwithstanding the fact that US air forces were receiving fire from the area and were legally permitted to attack.[21] The constraints imposed by these rules of engagement included a requirement that American air forces could strike surface-to-air missile (SAM) sites only after the SAMs themselves had been launched at US aircraft.[22] In the Persian Gulf, American political leaders embraced and heeded these lessons; they permitted their war fighters to conduct combat operations within the law of armed conflict without tying their hands with constraints. This, in turn, maximized the effectiveness of coalition air power.

Further, CENTAF judge advocates played a central role in assisting in the development of wartime rules of engagement. They ensured that the rules were not more restrictive of coalition operations than was required by the law of armed conflict and collateral limitations. The first draft of wartime rules of engagement was 18 pages long. Col Dennis Kansala—the CENTAF staff judge advocate—and his staff eventually condensed the rules to four pages that covered the

During the Vietnam War, Hanoi successfully shielded targets by locating them in and around civilian property and cultural objects. Here, over 600 drums of petroleum, oil, and lubricants are stored in the center of a populated North Vietnamese village.

generic precepts for coalition operations.[23] Supplementing the basic rules were appendices that addressed rules for unique, sensitive US operations.[24] This distillation of the rules made them "operationally friendly" for aircrews. Thus, Colonel Kansala and his staff adhered to a fundamental principle in drafting these wartime rules of engagement: no set rules—no matter how lengthy and detailed—can anticipate every potential scenario that aircrews might face in an area of operations. After everyone has been educated in the law of armed conflict and trained in the rules of engagement, it comes down to an aircrew commander's judgment in deciding when, where, and how to employ military force. There is no substitute for this judgment, and 18 or 100 pages of rules would have been a hindrance rather than a help. For aircrews flying missions into the maw of

enemy air defenses, the fewer rules they have to rely upon, the better off they are.

A complete understanding of the rules of engagement requires that we look at them in the context of the targeting process used in Desert Storm. Early in the deployment to Saudi Arabia, the CENTAF commander, Lt Gen Charles A. Horner, assembled a special planning staff of combat planners, logisticians, and judge advocates to plot the air campaign against Iraq.[25] Consigned to a basement storage room in the Royal Saudi Air Force Headquarters building, known as the "Black Hole," these people formed what was called the special planning staff's

Saddam Hussein attempted to protect his military assets by placing them in populated areas. Below, Iraqi antiaircraft artillery atop a Baghdad apartment building. At right, one of several Silkworm missiles found at a school in Kuwait City shortly after the Iraqi retreat.
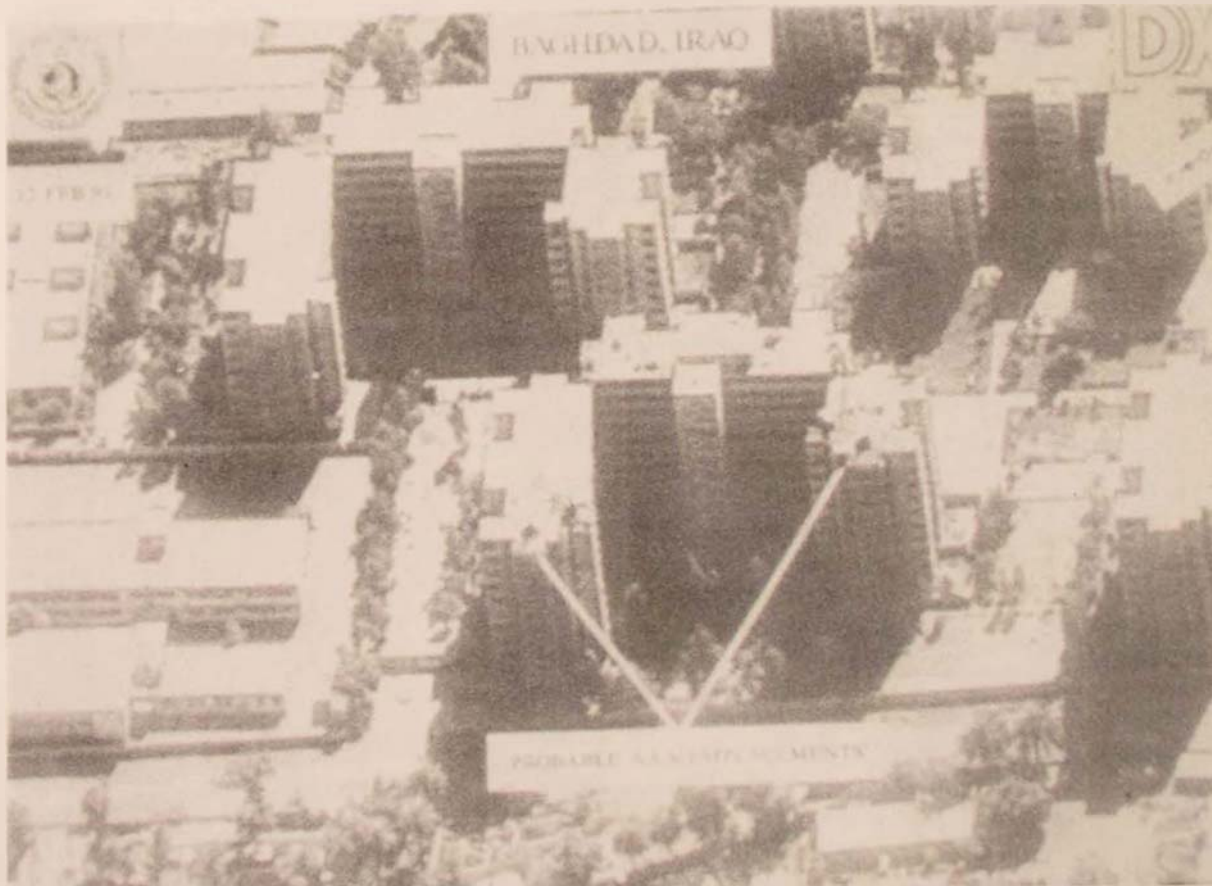
"Strike Cell."[26]   Brig Gen (now Maj Gen) Buster C. Glosson led the planning effort.

With reconnaissance and other sources providing raw intelligence data. the Black Hole team segregated Iraq's war resources into 12 target sets: leadership; command, control, and communications (C^3) facilities and operations; air defense systems; conventional military depots and storage locations; nuclear, biological, and chemical weapons and their associated production facilities; airfields; railroads and bridges; Scud missiles; oil refineries; electrical production; naval ports; and the Republican Guard.[27] Because these sets were at the heart of Iraq's war effort. the planning staff considered them key military objectives.

As alluded to earlier, General Horner and his staff had exceptionally broad latitude in determining the course of the air campaign. Although CENTAF's target selection and the rules of engagement for air combat operations had to be approved by the JCS, not once did Pentagon officials reverse decisions from the Black Hole about what weapons to use, what targets to strike, and how and when to attack them.[28] In the war's aftermath, Secretary of Defense Dick Cheney has repeatedly defended target selection, calling every Iraqi target "perfectly legitimate."

One reason for this agreement between higher military authorities and the war planners was the early and frequent participation of judge advocates in the targeting process.[29] Planning for a particular air strike could take anywhere from just a few hours to five days.[30] Targeting officers received and confirmed intelligence data, evaluated targets to be nominated for attack in view of their proximity to locations where noncombatants were known to be, and assessed the threat that striking them would pose to those civilians. They nominated targets to the CENTAF consoli-

dated target board, one member of which was an Air Force judge advocate. General Horner and one of his legal advisors "scrubbed" the targets approved by the board. If they survived this review, the targets were then put on the air tasking order (ATO). Compliance with the principles of military necessity and unnecessary suffering was an inherent part of assessing target values and validating targets for attack.

Adherence to these rules was also a part of the weapons evaluation and selection process. After the special planning staff refined the target list, their next challenge was to select weapons systems and munitions appropriate for the targets. This also required decisions about what the desired level of damage should be and how aircrews could best deliver the munitions, all the while considering aircrew safety as well as the protection of any Iraqi civilians nearby. In preparing strike packages of aircraft and munitions, planners took all reasonable precautions to minimize civilian casualties and damage to civilian objects.[31] Each day this process culminated in an ATO that covered 2,000–3,000 sorties and detailed the targets, time over target, weapons systems, ordnance, communications frequencies, and refueling orbits. This order was sent to flying units for the next day's missions. Once targets had been struck, planners added new ones to the list.

Coalition air forces flew about 120,000 sorties during the 43-day war, 60 percent of which were combat missions.[32] According to a briefing on 15 March 1991 by Gen Merrill A. McPeak, Air Force chief of staff, these combat sorties delivered 84,200 tons of ordnance, 8.8 percent (7,400 tons) of which were precision guided munitions.[33] The remainder of the ordnance consisted of unguided conventional munitions.
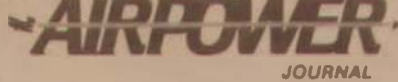
Wartime rules of engagement in Operation Desert Storm permitted attacks on all Iraqi combatants, as well as their vehicles and equipment. However, other policy considerations—which were consistent with the law of armed conflict—placed several limitations on striking targets in Iraq. For example, mosques, shrines, schools, museums, national monuments, and other historical or cultural sites could not be engaged except in self-defense. Further, hospitals and archaeological property received the special protections afforded them by law (e.g., coalition aircrews could not engage hospitals and other medical facilities unless Iraqi forces were using them to commit acts harmful to US forces).

A review of the coalition rules of engagement reveals how expert CENTAF's staff had become in this area of operations law. A long-standing red herring in operations planning and execution had been the cautionary language regularly appended to rules of engagement urging forces to take measures "to minimize risk of civilian casualties," or words to that effect.[34] The upshot of these warnings is that they misled aircrews about what the law required from their performance in combat. The fact that this frustrated them is less important than the fact that it often led to their deaths. This kind of language implied that avoiding collateral noncombatant casualties and incidental damage to civilian objects is a sine qua non to a lawful air campaign. It is not.

The law of armed conflict proscribes the intentional attack of individual noncombatants and the civilian populace per se. It also proscribes an attack that would result in so many collateral casualties and such severe damage that it would be considered an intentional attack on individual civilians, the civilian population, or civilian property.[35] But the general immunity of civilians from attack does not prohibit operations that may cause collateral death or injury to civilians or incidental damage to their property. Thus, civilians who remain in or near a legitimate target after the onset of hostilities are not to be

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specifically attacked by air strikes, but they are at risk of injury or death otherwise.

According to one expert, superfluous language in rules of engagement has illogically and without legal foundation elevated the concern for civilian casualties above the desire for mission success and aircrew safety.[36] US war planners recognized this problem, however, and coalition rules in the Persian Gulf contained none of these cautionary statements. In fact, the "boilerplate" language often grafted onto these rules was missing too.[37] Maj Harry Heintzelman, a CENTAF legal officer consigned to the Black Hole, has indicated that this omission was intentional and was done to pare the rules to their essence for the benefit of aircrew members.[38]

About 30 days into the air campaign, several events led CENTAF to review the rules of engagement and determine whether certain considerations of the law of armed conflict might require changes in these rules.[39] Iraq began storing military materiel in and near schools, medical facilities, and places of worship. It located command and control centers in schools and public buildings. The Iraqi military scattered antiaircraft weapons throughout residential areas and on rooftops of public buildings. Tanks and artillery pieces were placed near homes in small Iraqi villages. MiG fighters were parked next to the most important archaeological sites within Iraq's borders. Iraq apparently did all this for one of two reasons: to shield legitimate targets from attack or to draw coalition forces into

The air campaign has received and probably will continue to receive adverse "popular" publicity in what one historian calls the "Bambification" of Iraq and the war. Here, the supposed Iraqi baby-milk factory lies in ruins after a coalition air raid. The coalition contends that the structure actually was a chemical weapons facility.
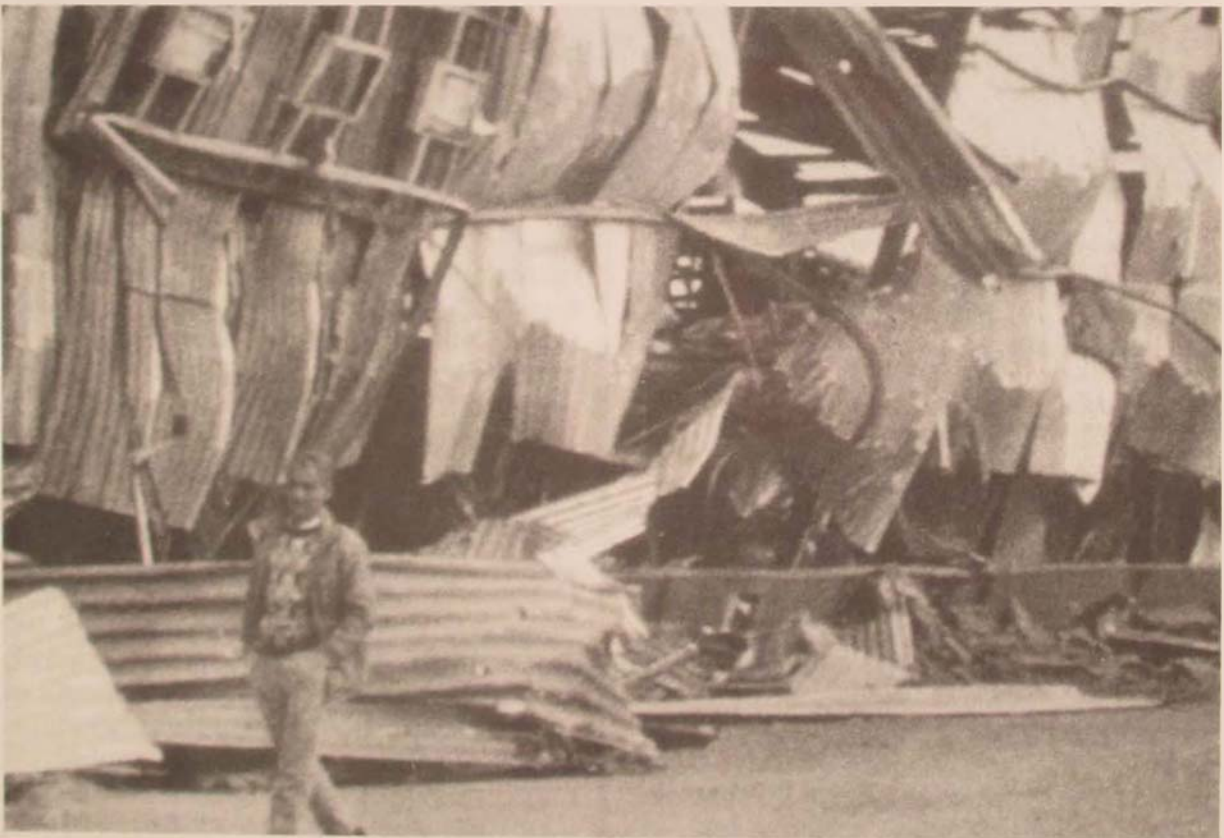
damaging civilian property and cultural objects. These actions complicated target planning because many of Iraq's cultural objects are popularly associated with the birthplace of civilization.

With regard to either or both of these premises, Saddam Hussein appeared to be walking in North Vietnamese–style shoes. During the Vietnam War, Hanoi successfully shielded military targets by commingling them with civilian property and cul-

tural objects. Although these actions contravened the law and did not render these targets immune from attack, they remained off-limits to US air strikes. In those instances in which US attacks inadvertently hit prohibited targets, North Vietnam won the propaganda battle. International and American public opinion turned against the US military by alleging that illegal American air strikes caused the damage, notwithstanding the fact that American air combat operations intentionally attacked only legitimate targets under strict rules of engagement. Public opinion overlooked the strength of North Vietnam's air defense system, which interfered with the accuracy of US munitions delivery. Public opinion was likewise blind to the extent of self-

inflicted damage caused by the discharge of North Vietnamese defensive weapons and the return of their projectiles to earth.[40] Fortunately, Saddam Hussein did not fare as well in his efforts to emulate North Vietnam's successes.

Under the law of armed conflict, the responsibility for protecting noncombatants within a war zone lies with the attacker, the defender, and the noncombatants themselves. Although an attacking force may not specifically target noncombatants or civilian objects, a defender may not conceal or shield military targets from attack by moving them into civilian-populated areas or near protected objects.[41] And under customary practice, noncombatants must exercise reasonable precaution to remove themselves from the vicinity of military objectives or military operations.

Iraq's acts violated these fundamental rules. In using civilians, civilian property, and cultural objects to shield legitimate military targets, Iraq breached its obligations as a signatory to the Geneva conventions by exposing its citizenry, their private property, and the heritage of the world's civilization to the increased risk of harm. At the Al Firdos bunker, discussed later, such an action by Iraq resulted in disaster.

Coalition forces could have lawfully attacked military threats in, around, and on top of public buildings and cultural objects, but—in accordance with the rules of engagement—they did not strike those targets if noncombatants, purely civilian structures, or cultural objects were likely to suffer collateral damage. The law required the Iraqi government to take measures to segregate military targets from civilians. Unfortunately, collateral injury to Iraqi civilians and damage to their property occurred but were the incidental result of lawful coalition attacks on legitimate military targets.

Harry Summers, a leading military historian and strategist, has identified the incipient stages of what he calls the "Bambification" of Iraq and the war.[42] This is the process critics are using to transform the consensus and accurate view of the war as a legitimate enterprise to one in which the American military is seen as brutish, inhumane, and indiscriminate in causing an excessive amount of death and destruction. They understand neither Clausewitz's maxim that war is an extension of politics by other means nor the method by which the law of armed conflict actually applies to the conduct of hostilities.

In view of the significant adverse press the air campaign has received and will likely continue to receive,[43] it is important to understand other allegations against the coalition. For instance, some critics have alleged that the coalition committed numerous violations of the law of armed conflict.[44] We will discuss two prime examples. The first is that the coalition should not have struck the Al Firdos military bunker because it should have known that civilians were being sheltered there, or—alternatively—it should have done so only after issuing a warning to civilians. The second is that the coalition air campaign failed to minimize civilian casualties.

Should legal considerations and the rules of engagement have precluded the bomb strike which killed scores of Iraqi civilians in the Al Firdos bunker in Baghdad on 13 February 1991? In short, the answer is no. The evidence indicated that Iraq had converted this facility from a civil defense shelter to a C^3 military command post. From the bunker's reinforced, 10-foot-thick concrete ceiling and secured entrances to its camouflaged exterior (painted to make it look as though it had already been struck), as well as the military command signals intercepted from it, the coalition's air planners reasonably concluded that the bunker was a military location. After intercepting the electronic command communications and detecting a military presence in the bunker through satellite imagery, the CENTCOM intelli-

gence staff added it to the target list. Civilians sought refuge in the bunker on a floor above the command post during nighttime coalition air raids. Coalition planners were unaware of the civilians' presence, as noted by both Lt Gen Thomas W. Kelly, JCS director of operations, and the CENTCOM staff in their numerous media briefings after the strike.[45] Coalition personnel did not know that Iraq had allowed civilians in the bunker; in fact, these planners had taken reasonable precautions, despite the fog and friction of war, before assessing it as a valid military target.[46]

As noted previously, under customary law, Iraq and its noncombatant population were primarily responsible for limiting collateral civilian casualties. The coalition force had, at most, only a scant obligation to do so in these circumstances. Fortunately, the law of armed conflict is based on a commonsense view of how wars are fought and how forces engage one another, rather than on impractical restrictions. In most cases, an attacking force normally has no way of discovering with any certainty where an enemy's civilian populace will be situated at the time of attack. Given the mobile nature of a modern society—especially one in the throes of constant bombardment such as Iraq's was—a defending nation is virtually in absolute control of what areas and structures its populace travels in or moves to, respectively. Further, that nation is responsible for allocating resources to build a civil defense and warning system and is accountable for warning and evacuating its citizenry when attacks are imminent. It is reasonable to conclude that Iraq knew what its duties were with respect to protecting its noncombatant citizens. In December 1990, the Iraqi government conducted a major civil defense exercise during which as many as a million or more Baghdad residents evacuated the city.[47] Curiously, no evacuation of any civilians from the capital occurred during the 43-day coalition bombing of Iraq. This fur-

ther evidences Iraq's disregard for its citizens and the intentional commingling of civilians and their property with military targets.

Alternatively, the Al Firdos detractors allege that this air strike violated the law because the coalition failed to warn Iraq that an attack on the bunker was planned. This view holds that the legal requirement to minimize civilian casualties mandated coalition issuance of a public warning that it considered the bunker a military target at risk of imminent attack. This would have permitted civilians a chance to heed the warning, refrain from entering the bunker, and remove themselves from the vicinity.

This "lack of warning" allegation is legally and factually without merit. From a legal perspective, the law of armed conflict remains resolutely commonsensical in this regard. It aligns itself with the principle of war known as the element of surprise. On the one hand, providing a warning would have amounted to a death sentence for aircrews flying into heavily defended Baghdad. Iraq is sure to have increased its air defenses in the vicinity of the bunker, making a planned air strike even more hazardous. On the other hand, a warning would have permitted Iraq to move this important C^3 function to a more secretive locale. In sum, a warning would have undermined the principle of surprise. Recognizing this dilemma and the fact that the defending nation is in control of its populace, the law does not require an attacker to provide such a warning.

Notwithstanding the gap in the legal argument that supports this allegation, the latter is factually wrong as well. Extensive coalition leaflet drops and radio broadcasts from three stations in the theater of operations warned Iraqi soldiers and civilians about the onslaught they faced.[48] The air campaign's critics have overlooked this evidence. They have also ignored the fact that normal humans could not have continued to reside in Baghdad from the start of the air campaign

The Desert Storm rules of engagement dictated that when an aircrew could not locate or positively identify their primary or secondary targets, they were to return to base with their weapons. This rule reduced the possibility of dropping bombs—like this 2,000-pounder—in populated areas. Upwards of 25 percent of all combat missions culminated in undelivered ordnance.

(17 January 1991) to the date of the attack on Al Firdos (13 February 1991) without knowing that their safety was at risk.

There is no gainsaying that this was a military C³ bunker into which, unfortunately, noncombatants were allowed to enter. Clearly, the responsibility for these deaths lies with the Iraqi government and its leaders, who ignored their legal obligations on two counts. First, they failed to prevent noncombatants from entering a military facility. Second, they converted an air raid shelter to a C³ bunker, thereby locating a military objective in an area surrounded by its civilian populace. In short, these failures to segregate military facilities from the civilian populace transgressed the rule that a

> party to a conflict which places its own citizens in positions of danger by failing to carry out the separation of military activities from civilian activities necessarily accepts . . . the

results of otherwise lawful attacks upon valid military objectives in their territory.[49]

Had it been known that Iraqi civilians were occupying the bunker as a shelter, coalition commanders might have withheld attack until the civilians had removed themselves—even though the law of armed conflict does not require such restraint. Further, Iraq had other recourse than to commingle members of its civilian populace with an obvious military target. Under the law, Iraq could have desisted from using the bunker for military purposes and designated it a neu-

tral zone for civilians.[50] Iraq's failure to do so, however, exposed its citizens to the tragic consequences.

As the Desert Shield and Desert Storm operations showed, the rules of engagement reflect political and operational considerations that limit the application of military force. The coalition's refusal to attack legitimate targets that were commingled with the Iraqi civilian populace and civilian objects was based on an amalgam of political and policy reasons. For instance, its decision not to strike military targets near cultural objects (e.g., the two MiG-21 fighter aircraft parked adjacent to the ancient temple at Ur) was based on respect for the cultural value of these objects.[51] Just as important was the fact that Iraq's positioning of these aircraft two miles from an air base effectively grounded them. Although the law of armed conflict would have permitted their destruction, these aircraft—as well as the other Iraqi military hardware purposefully collocated among archaeological sites and cultural objects—remained on the coalition "Joint No-Fire Target List" because of the cultural value of the objects nearby and because the location of the aircraft effectively took them out of the fight.[52]

The rules of engagement also contained other operational constraints which played a significant role in minimizing collateral damage and civilian casualties. For instance, if a coalition mission's "fragged" target or an alternative one could not be located, the rules required pilots to return with their weapons.[53] Similarly, aircrews could attack a target in populated areas only if they were sure of the target's identification and location; otherwise, they were not to deliver their ordnance. Consequently, numerous coalition aircraft returned from combat sorties carrying undelivered ordnance. Indeed, approximately 25 percent of all combat missions culminated in undelivered ordnance.[54]

Many military strategists and historians doubt that this war will yield many valu-able lessons about conducting warfare. They deride the war by saying it was too glib—a mismatch. However, it certainly can serve as a model for future combat operations insofar as the effective application of rules of engagement is concerned. Years of military education, preparation, exercises, and analysis of the Vietnam ordeal paid dividends. The coalition's prosecution of the air war was vigorous but discriminate. In fact, preliminary information indicates that it is arguably one of the most—if not the most—discriminate air campaigns in the history of modern warfare.

The test to determine a campaign's discrimination (hence, its legality) has traditionally examined its operations in toto. This test applies the concept of proportionality, which weighs noncombatant casualties and property damage against the overall military gains achieved.[55] This concept proscribes combat operations whose negative results would clearly outweigh the anticipated military advantage. Although many people consider the concept ill suited to determine whether a single attack against a specific target should be planned and executed, it has also been used for precisely this purpose.

The concept of proportionality does not, however, restrict a nation from using its weapons systems to their fullest capabilities.[56] It requires a nation to refrain from intentionally targeting and employing weapons against civilians who are not involved in the hostilities and prohibits the intentional attack of their property. But the concept recognizes that collateral casualties and damage to private property may inevitably occur during combat operations, stipulating only that combatants use ordinary care to minimize such occurrences.[57]

The coalition appears to have been highly successful in this area of its operations. As noted previously, if coalition aircrews could not positively identify their targets, they returned without expending their munitions. The coalition

also selected aircraft and munitions so that any operation in a populated area would be carried out with maximum accuracy and minimal risk to civilians and their property. In locations where its aircraft were susceptible to antiaircraft artillery (AAA) and SAMs, the coalition tasked support aircraft to suppress enemy air defenses to minimize the distractions for aircrews delivering munitions.[58]

Although neither the amount of damage to Iraqi civilian property nor the number of Iraqi civilians injured has been definitively established, one prominent group of critics has estimated that 3,000 Iraqi noncombatants died as a result of coalition air operations.[59] Based on these early estimates, this civilian death rate is lower than that of any other significant air campaign in history.[60] Of course, attributing all of the Iraqi civilian deaths to the coalition's air campaign ignores wartime reports of television broadcasts and coalition aircrews about the destructive effects of heavy Iraqi AAA barrages, almost all of which missed their targets and returned to earth. Furthermore, Iraq sought to down attacking aircraft with SAMs, the vast majority of which also missed and crashed back to terra firma. Obviously, the deaths caused by these armaments are not attributable to the coalition's air strikes. Likewise, the coalition is not accountable for the 300 or so civilians killed in the Al Firdos bunker, since Iraq permitted their entry into it. Other noncombatants killed while shielding legitimate military objectives should not be assessed against the coalition either. More fact-finding may lower even further the number of civilian deaths for which the air campaign was responsible.

This war can also serve as a paradigm for political leaders and military commanders. The US NCA wielded its prerogatives of civilian control wisely by trusting its military commanders to prosecute a military operation. Military commanders exercised brilliant leadership by relying on their staffs to plan the war's operations. Military operators and their support elements executed the plan within the law and the rules of engagement. In the midst of all this, political and military decision makers at all levels found that DOD attorneys and judge advocates knew how to find legal ways to accomplish various missions. Operations law took full flight.

The Persian Gulf war proved that American civilian and military leaders had learned important lessons from Vietnam. Well-defined rules of engagement played an integral role in making this possible. Consequently, US operations in the Persian Gulf bore little resemblance to those in Vietnam, where restrictions on targets and aircrews unreasonably and unnecessarily hampered military effectiveness and exposed our aircrews to increased risks. Efforts to educate our personnel in the law of armed conflict have succeeded. Prosecuting the war legally while at the same time treating Iraqi soldiers and civilians humanely was essential to maintaining domestic and international public support. More importantly, it was the right thing to do. The practice of operations law contributed to this success.

Notes

1. Tom Shales, "Stormin' Norman, in High Command," *Washington Post*, 28 February 1991, D2.

2. Ibid. Admiral Sharp's account of his Vietnam War experience, *Strategy for Defeat: Vietnam in Retrospect* (San Rafael, Calif.: Presidio Press, 1978), attributed the loss of the war to the failure of American civilian leadership. If his assessment here is valid, tens of thousands of American lives, rather than "hundreds," would have been spared.

3. Article 1, Hague Convention No. 4 Respecting the Law and Customs of Warfare on Land of 1907, reprinted in Air Force Pamphlet (AFP) 110-20, *Selected International Agreements*, 1981, 3–5. Each of the Geneva conventions of 1949 directs its signatories to comply essentially with the same instructional requirements (see note 9).

4. DOD Directive 5100.77, *DOD Law of War Program (GC)*, 10 July 1979, was first promulgated in 1974. It requires each

military service to design a program to ensure that the law of war is observed and to prevent violations of that law. Military personnel are to receive training in the law of armed conflict commensurate with their duties and responsibilities. For example, the Air Force's compliance with this directive is implemented by Air Force Regulation (AFR) 110-32, *Training and Reporting to Insure Compliance with the Law of Armed Conflict*, 2 August 1976.

5.   Steven Keeva, "Lawyers in the War Room," *American Bar Association Journal*, December 1991, 58. In recognition that Air Force judge advocates who practice international law are also involved in advising Air Force war fighters on legal issues related to military operations in peace and war, Maj Gen Keithe E. Nelson, the judge advocate general of the Air Force, redesignated the International Law Division as the International and Operations Law Division, Office of the Judge Advocate General, in January 1991. This was the official beginning of the practice of operations law in the Air Force.

6.   On 13 December 1991, Lt Gen Michael A. Nelson, Air Force deputy chief of staff of plans and operations, and Maj Gen David C. Morehouse, the judge advocate general of the Air Force, signed a letter dealing with operations law. The letter exhorted operators and planners at all levels to forge closer ties with their judge advocates to ensure that air operations in peace and war continue to adhere to the requirements of the law.

7.   DOD Directive 5100.77, 1. The "law of war" is synonymous with the "law of armed conflict." For the sake of uniformity, the latter is used throughout this article.

8.   Hague conventions nos. 3, 4, 5, and 9 of 1907, reprinted in AFP 110-20, chap. 3.

9.   The four conventions are (1) Geneva Convention for the Protection of the Wounded and Sick in Armed Forces in the Field, 12 August 1949 (GWS); (2) Geneva Convention for the Amelioration of the Condition of the Wounded, Sick, and Shipwrecked Members of Armed Forces at Sea, 12 August 1949 (GWS Sea); (3) Geneva Convention Relative to the Treatment of Prisoners of War, 12 August 1949 (GPW); and (4) Geneva Convention Relative to the Protection of Civilian Persons in Time of War, 12 August 1949 (GC). All are reprinted in AFP 110-20, chap. 3. Iraq and all of the coalition nations were parties to these conventions during the Persian Gulf war.

10.   AFP 110-31, *International Law—The Conduct of Armed Conflict and Air Operations*, November 1976, 1–6.

11.   Joint Publication 1-02, *Dictionary of Military and Associated Terms*, 1 December 1989, 317.

12.   Ibid.

13.   DOD, *Conduct of the Persian Gulf Conflict: An Interim Report to Congress*, July 1991, 16-1. The Persian Gulf war ultimately involved the air forces of our coalition partners; however, each nation relied on its own rules of engagement, which CENTAF succeeded in harmonizing through negotiations with representatives of each coalition air force.

14.   Similarly, all US ground and naval forces in an area of operations such as the Persian Gulf theater have peacetime and wartime rules of engagement which guide their conduct.

15.   AFP 110-31, 1-5, 1-6; Article 22, Annex to the Convention, Hague Convention No. 4 of 1907, reprinted in AFP 110-20, 3-8.

16.   AFP 110-31, 1-6, 6-2.

17.   J. Ashley Roach, "Rules of Engagement," *Naval War College Review*, January–February 1983, 47. Captain Roach, a Navy judge advocate, demonstrates how rules of engagement can restrict military operations far more than domestic or international laws do. He suggests that judge advocates render the best advice to combat commanders when they ensure that rules of engagement are not more restrictive than the law requires but are used for specific operational, political, or diplomatic purposes.

18.   Walt W. Rostow, "Memorandum of May 6, 1967, on the Bombing Program," in Gerald Gold, Allen M. Siegal, and Samuel Abt, eds., *The Pentagon Papers, New York Times* ed. (New York: Bantam Books, 1971), 573–76. An article by W. Hays Parks, "Rolling Thunder and the Law of War," *Air University Review* 34, no. 2 (January–February 1982): 2–23, provides an excellent analysis of how the gradualism of the Rolling Thunder campaign, which resulted from overly severe restrictions on USAF operations, guaranteed its failure. Col Dennis M. Drew's *Rolling Thunder 1965: Anatomy of a Failure*, CADRE Papers, Report no. AU-ARI-CP-86-3 (Maxwell AFB, Ala.: Air University Press, October 1986) examines the extent to which the Vietnam War undermined American air power doctrine and the reasons for believing that the threat of intervention was probably overstated.

19.   Roach, 49.

20.   Ibid. In fact, a fair reading of the *Uniform Code of Military Justice*, Title 10, United States Code, secs. 801–940, concludes that a commander who failed to do so could, as a consequence, face a trial by court-martial on a number of charges.

21.   Parks, 12, 20.

22.   Ibid., 9.

23.   Col Dennis Kansala, CENTAF staff judge advocate, and Maj Harry Heintzelman, CENTAF assistant staff judge advocate, briefing, Air Force Judge Advocate General's Operation Desert Shield/Desert Storm After Action Workshop, subject: Rules of Engagement, Maxwell AFB, Ala., 10–14 June 1991.

24.   Review of "Rules of Engagement" files, CENTAF Staff Judge Advocate's Office, Headquarters USAF International and Operations Law Division, Office of the Judge Advocate General, Washington, D.C., 7 January 1992. Although the specifics contained in these files remain classified, it is permissible and correct to say that they show how the military services had to work closely together on deconfliction and beyond visual range (BVR) issues.

25.   Kansala and Heintzelman briefing. For an interesting account of this operation, see Tom Mathews, "The Secret History of the War," *Newsweek*, 18 March 1991, 28–39; and Barton Gellman, "Allied Air War Struck Broadly in Iraq," *Washington Post*, 23 June 1991, A1.

26.   Mathews, 28–29.

27.   *Conduct of the Persian Gulf Conflict*, 4-2.

28.   Casey Anderson, "War Planner: Civilians Didn't Change Target List," *Air Force Times*, 8 July 1991, 27. This article reports on an interview with General Glosson, who explained another of the contentious targeting issues from the war. The question was whether the coalition had targeted statues of Saddam Hussein and the arcs of his hands and whether planners were told by Pentagon officials not to do so. General Glosson said that these objects were never on the target lists. His judge advocates advised him that it would be inconsistent with the law of armed conflict to strike them, inasmuch as they were cultural objects.

29.   Keeva, 58. This article details only a part of the contributions of Major (Lieutenant Colonel-select) Heintzelman to the war effort. He was centrally involved in devising the wartime rules of engagement for coalition forces.

30.   Kansala and Heintzelman briefing.

31.   Richard MacKenzie, "A Conversation with Chuck Horner," *Air Force Magazine* 74, no. 6 (June 1991): 61.

32.   *Conduct of the Persian Gulf Conflict*, 4-5.

33.   Reported in *Needless Deaths in the Gulf War: Civilian Casualties during the Air Campaign and Violations of the Laws of War*, ed. Human Rights Watch Committee (New

York: Human Rights Watch Committee, 1991), 114. General McPeak presented these data on a slide entitled "Tonnage Expended—U.S. Only," indicating that American air forces alone had delivered this amount of ordnance, although his remarks throughout suggested that this was the coalition's tonnage.

34. W. Hays Parks, "Righting the Rules of Engagement," US Naval Institute *Proceedings*, May 1989, 89.

35. AFP 110-31, 5-7 through 5-8.

36. Parks, "Righting the Rules of Engagement," 89.

37. Review of "Rules of Engagement" files.

38. Kansala and Heintzelman briefing.

39. Message, 162323Z, US Ambassador Thomas P. Pickering to Headquarters USAF/XO, February 1991, 4–5. Recounted in this paragraph is the ambassador's statement on developments in Operation Desert Storm, contained in the referenced message.

40. Parks, "Rolling Thunder and the Law of War," 20.

41. Articles 13–26, GC, contained the provisions that protect the entire civilian population. Articles 27–149, GC, provide for the treatment of protected civilians. Specifically, Article 28, GC, rules that a civilian "may not be used to render certain points or areas immune from military operations." Iraq, as a signatory to the Geneva conventions, was bound by this rule.

42. Harry Summers, "The Battlefield's No Forest of Bambis," *Air Force Times*, 30 September 1991, 62.

43. Tim Weiner, "Studies: 70,000 Deaths in Postwar Iraq," *Philadelphia Inquirer*, 9 January 1992, 3; William Matthews, "Greenpeace Criticizes High Iraqi Death Toll of War," *Air Force Times* 51, no. 45 (17 June 1991): 5; Richard Homan, "Report Says U.S.-Led Air Campaign against Iraq Violated 'Law of War'," *Washington Post*, 17 November 1991, A37; and Julie Bird, "AF Faulted on Targeting in Gulf War," *Air Force Times*, 20 January 1992, 6.

44. *Needless Deaths in the Gulf War*, 128–47. Greenpeace International, too, has implied that the coalition's air campaign had to have been indiscriminate because of the extent of the damage to Iraqi society and the suffering of the Iraqi people since the war's end. See Weiner, 3. This is not, however, the test for whether a bombing campaign was discriminate. Interestingly, within days, Iraqi government officials reported they were making outstanding progress in restoring

the country's infrastructure despite the continuation of UN sanctions. See Bernd Dubesmann, "Postwar Iraq Rebuilds Rapidly," *Washington Times*, 12 January 1992, 14.

45. Rick Atkinson and Dan Balz, "Bomb Strike Kills Scores of Civilians in Building Called Military Bunker by U.S., Shelter by Iraq," *Washington Post*, 14 February 1991, A1.

46. Peter Tyler, "U.S. Stands Firm on Bomb Attack and Says Investigation Is Closed," *New York Times*, 15 February 1991, 1; and "Kelly: 'We Knew This to Be' a Military Facility," *Washington Post*, 15 February 1991, A30.

47. *Conduct of the Persian Gulf Conflict*, 12-3.

48. Ibid., 5-3.

49. AFP 110-31, 5-31.

50. Articles 14 and 15, GC, reprinted in AFP 110-20, 3-82 through 3-83.

51. MacKenzie, 61; and *Conduct of the Persian Gulf Conflict*, 12-4.

52. Review of "Rules of Engagement" files. This list was updated throughout Operation Desert Storm and regularly contained 20 pages of off-limits targets.

53. *Conduct of the Persian Gulf Conflict*, 12-3.

54. Memorandum, W. Hays Parks, chief, International Law Branch, International Law Division, Office of the Army Judge Advocate General, to Col Robert L. Bridge, chief, International and Operations Law Division, Office of the Air Force Judge Advocate General, USAF, subject: Review of Coalition Air Operations, 10 December 1991.

55. AFP 110-31, 5-10.

56. Ibid.

57. Ibid., 5-10 through 5-11. See W. Hays Parks, "Linebacker and the Law of War," *Air University Review* 34, no. 2 (January–February 1983): 11–12.

58. *Conduct of the Persian Gulf War*, 12-3.

59. *Needless Deaths in the Gulf War*, 19.

60. Parks, "Linebacker and the Law of War," 19–20. Parks compares the number of civilian deaths per ton of bombs delivered in the 1972 Linebacker II operation with like figures from several earlier air operations. Although Linebacker II was the most discriminate of these operations, Desert Storm appears to have been marginally more discriminate in this regard. This observation, of course, is subject to change as more facts about the war come to light.

Summer 1992

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FINANCIAL MANAGEMENT FOR THE NEW WORLD ORDER

Maj Paul G. Hough, USAF

THE TURN of world events in recent years has led to wrenching change for US military forces. Coping with new political realities, a fast-falling budget, and the defense management review process is stressing Air Force institutions to the breaking point. So much is going on that it is possible for commanders to overlook other significant changes that could completely alter the way we do business. Such is the case with unit cost resourcing (UCR) and the Defense Business Operations Fund (DBOF). These Office of the Secretary of Defense (OSD) initiatives are arguably the most profound changes to the defense resource management system since former Secretary of Defense Robert McNamara introduced the Planning, Programming, and Budgeting System (PPBS) in the early 1960s. Yet few people outside of the Pentagon are aware of the ramifications of these new policies. For example, wing commanders will get increased funding authority to pay for support services that were formerly provided "free" but could also lose direct control over some of their own support services. Full implementation of the

DBOF entails more than simply a change in financial management. It requires philosophical, structural, and procedural changes in mission operations. Commanders must understand these changes now to positively shape their impact on tomorrow's forces. This article provides a quick overview of the conceptual framework behind UCR and the DBOF and discusses potential effects on day-to-day operations.

Supporting Defense through Revolving Funds

Most Air Force operations are financed through direct appropriations from the general fund of the US Treasury. However, since the early 1950s, certain support activities financed their operations through collections from sales of goods and services. This method of financing is known as a revolving fund. An example of an Air Force revolving fund is the Systems Support Division, which purchases consumable supplies for resale to operating units. In the future, many more support activities will operate through revolving funds. In fact, OSD's long-range goal is "to move all of the support establishment into the DBOF,"[1] a very large revolving fund.

Expanding the use of revolving funds began in August 1989 when the OSD Comptroller initiated a program to identify the total costs of various support outputs. Called cost per output, this program sought to develop a consistent system of tracking resource inputs to support outputs across the services for making decisions about resources, performance, productivity, and quality improvements.[2] Joint task forces identified key outputs for selected support programs and the total cost of producing those outputs without regard to who controls those costs. The total cost divided by the total number of outputs equals the cost per output, or unit

cost. For example, military pay is a support cost that is not funded at the installation level. Nevertheless, military pay is a real cost that must be included when considering different methods of producing the same level of support.

Eventually, OSD decided to fund certain activities based on set unit costs and the projected demand for outputs. Thus, a flight-training installation might get $1 million for every student graduated from undergraduate pilot training instead of a lump sum for the total number of expected graduates. Under unit cost resourcing, funding is "earned" based on the quantity of support that customers demand. One consequence is that installation commanders will not be able to build a kitty from these functions because there is no guaranteed annual appropriation. Furthermore, the commander loses money dollar for dollar as unit costs rise above the unit funding target. Conversely, a decrease in unit costs leads to real savings that will be readily apparent to OSD through reporting systems now in development. More important, funding operations through unit cost resourcing prepares the activity for eventual inclusion in the DBOF, the end goal.

OSD formally established the DBOF in fiscal year 1992. All existing revolving funds merged into a single fund with separate service and functional divisions. The fund also added the Defense Finance and Accounting Service, the Defense Commissary Agency, and some functions of the Defense Logistics Agency—activities that were historically managed through direct appropriations. Other support activities may be included in subsequent years if they demonstrate working accounting systems, quantifiable outputs, and identifiable customers.[3] The end result will be a defense system in which all support is provided on a fee-for-service basis through the DBOF to the operating forces which are the primary customers.

The new financial system for support activities is shown in figure 1. OSD pro-
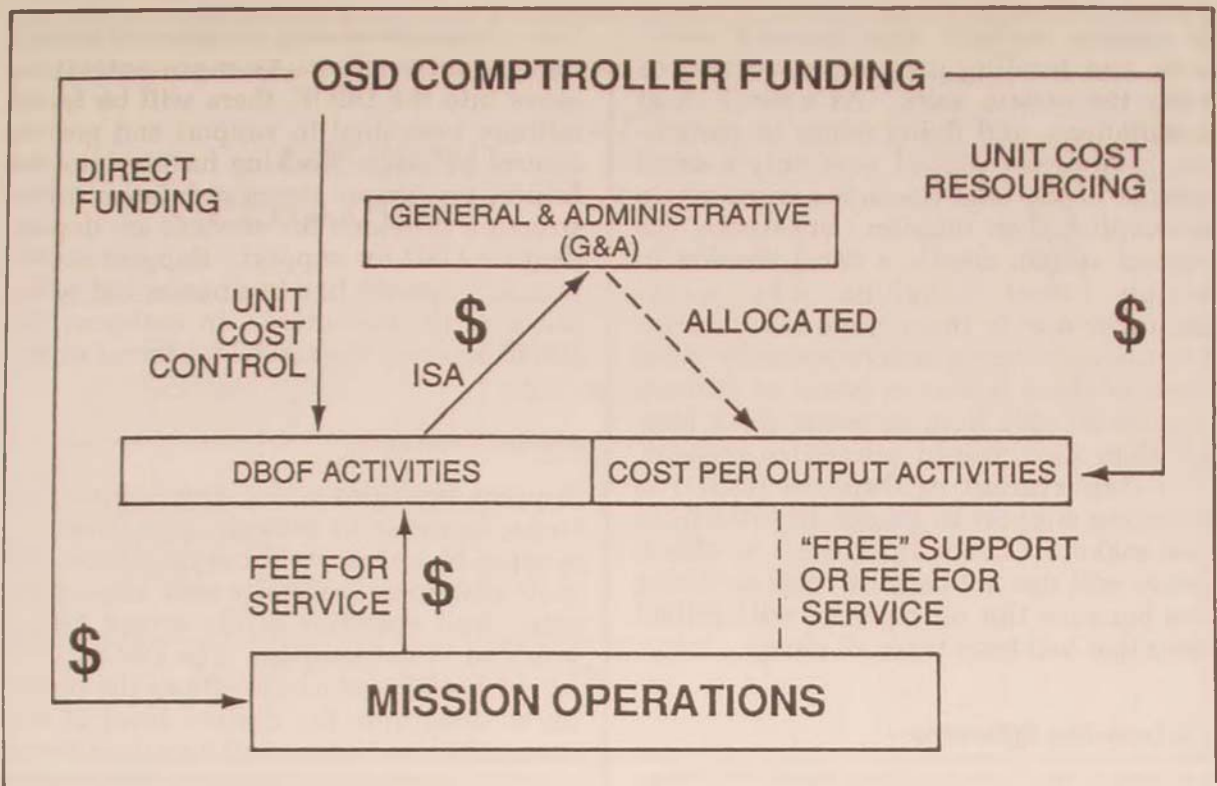
Figure 1. Unit Cost Resourcing and the Defense Business Operations Fund (DBOF)

vides funding directly to mission operations for purchase of goods and services from the DBOF. To induce efficiency, OSD can set unit cost targets for each division below the previous year's actual unit cost. Goods and services provided by non-DBOF support activities in the cost-per-output program will receive funding via UCR. The latter activities are either provided free or on a fee-for-service basis without the flexibility of the revolving fund. Some support activities are considered overhead or "general and administrative" costs that are part of the total cost of other activities. DBOF programs acquiring overhead services from other organizations must buy the support through inter-service support agreements and pass the costs on to the final customer—the commanders of mission operations. Overhead is allocated to other organizations to determine their total costs. Obviously, implementation is complex. However, the

entire system is based on a few simple principles.

Principles for the New Financial Management System

There are four main principles behind the financial management philosophy. Central tenets of unit cost resourcing include awareness of total costs, business-like efficiency, market pressures, and mission budgeting.[4] Understanding each is necessary to predict the shape of the new support infrastructure and the potential impact on Air Force operations.

Total Costs

The extreme complexity of combat operations is matched only by the complexity

of mission support, organizational structure, and funding methods necessary to make the system work. As a result, host installations, and flying wings in particular, have direct control over only a small portion of the total resources necessary to accomplish their mission. In essence, the current system creates a fiscal illusion in which lower echelons may waste resources due to incomplete information. For example, commanders generally want more of those resources (such as military personnel) paid from someone else's budget than they would otherwise request. The Department of Defense (DOD) is repricing support to eliminate distortions and make all costs apparent. In effect, prices will rise not because costs are rising but because the new prices will reflect costs that had been there all along.

Business-like Efficiency

Modeling the public sector along the lines of the private sector is a classic paradigm of public administration. Deputy Secretary of Defense Donald Atwood, formerly of General Motors, is strongly behind the emphasis on business-like efficiency. Given the current political pressures to vastly reduce the size of the defense establishment, the need to realize efficiencies in support is not simply necessary; it is vital. Thus, the DBOF is advertised as a means to save money and to preserve an effective force structure.[5]
One way Defense Management Report Decisions (DMRD) directives achieve savings is by consolidating major support functions. The new Defense Finance and Accounting Service and the Defense Commissary Agency are initial steps in this direction. Events in the past year also saw movement toward a defense health agency (although the services still retain some autonomy),[6] and the consolidation of all printing plants under Navy control.[7] Pressure continues to consolidate engineering services into public work centers.[8] We can also easily foresee the consolida-

tion of data-processing centers and central design activities.[9] As more activities move into the DBOF, there will be fewer military personnel in support and greater control by OSD. Looking further into the future, we can envision a defense infrastructure in which the services are dependent on OSD for support. Support activities will operate like businesses but without a profit incentive. In essence, the DBOF becomes the services' general store.

Market Pressures

Support functions under direct appropriations, in order to provide high levels of service to operational commanders and their customers, naturally seek larger budgets. And operators gladly accept higher levels of "free" support. The DBOF, with its market-like structure, allows the operator to determine the desired level of service and to make trade-off decisions based on known requirements and available resources. Giving the money to the customers means that support providers will have to sell their output to survive. The goal is to create a clear incentive for support functions to focus on cost management and responsiveness to customer demands.[10] In turn, the operator will have an incentive to reduce usage of high-value resources.
Introducing market concepts to DOD is not new. Revolving funds have been around since 1951. Martin Bailey, at the time a member of the Institute of Defense Analysis, wrote in 1967, "The principal formal device by which a measure of decentralized decision making is now accomplished is that of revolving funds, including buyer-seller arrangements internal to the defense establishment."[11] There are, however, three fundamental differences between the goals of the current initiative and revolving funds of the past. The first has already been stated—*all* support, not just a small portion, will be in a revolving fund. Second, activities in a revolving fund must pass along all their
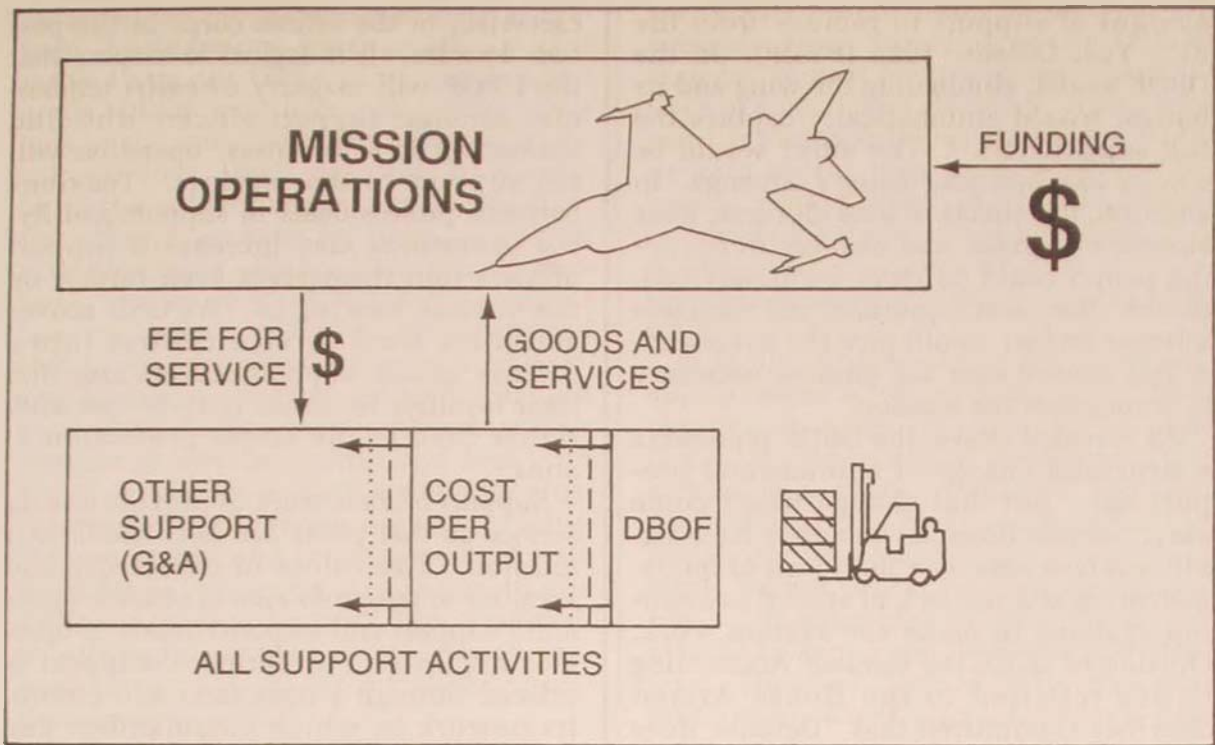
Figure 2. Moving Toward Mission Budgeting

costs. Some significant costs were previously funded by direct appropriations instead of customer payments. Now, only those costs related to maintaining war mobilization requirements will retain direct appropriated funding. The third, and perhaps most dramatic change, is that operators will be free to purchase support from either organic or commercial sources as long as direct and indirect costs are fairly compared.[12] Together, these changes introduce significant elements of a free market into defense support.

Mission Budgeting

When the entire support structure is in the DBOF and operators literally control all the funding necessary for mission accomplishment, then mission budgeting will be a reality. The wing's budget will be its total cost! Commanders, OSD, and Congress will have a complete picture of the full costs involved in operations.

Today, estimating the total cost of, say, an F-16 wing requires a cost model that identifies the total resources necessary for operation. As noted earlier, many of these resources are not under the control of the wing.

Figure 2 depicts all mission operations in the upper box and all support in the lower box. The larger the upper box is relative to the lower box, the greater the "tooth-to-tail" ratio. Total cost visibility, business-like efficiency, and market forces are tools for shrinking the support box. However, the support box includes activities in the DBOF, in cost per output, and other general and administrative (G&A) services. As the portion of support in the DBOF increases, mission budgeting becomes more feasible.

There are major advantages to true mission budgets, not the least of which is eliminating the need for arbitrary cuts. When a wing is eliminated in the defense drawdown, it is difficult for budgeteers to identify the elements, location, and dollar

amount of support to remove from the Five Year Defense Plan (FYDP). In the DBOF model, eliminating the wing and its budget would automatically capture the full support tail.[13] The effect would be similar to a business losing customers. In addition, the effects of base closures, force structure changes, and changes in operating tempo could be more accurately estimated. But most important, the complete mission budget would give the commander full control over the funding necessary to accomplish the mission.

As revealed above, the DBOF represents a structural change of monumental proportions. But that change won't come easy. Service financial managers have significant concerns over the speed of implementation and the lack of special accounting systems to make the system work. Outside of DOD, the General Accounting Office testified to the House Armed Services Committee that "Defense does not have the policies, procedures, and systems in place to implement and operate the Fund in a 'business-like' manner."[14] The remainder of this article analyzes the impact of these changes under the assumption that OSD will solve these technical problems and implement the concept as planned.

Changing Values in Support

In a very real sense, the introduction of a market system between operators and support personnel threatens the basic values underlying officership. These values include loyalty to the profession of arms, self-sacrifice, and an intense focus on mission accomplishment. Each of these values is compromised by the sociological norms and expectations of a free market.

We are (or should be) officers first and specialists second. However, the introduction of the all-volunteer force along with the professionalizing of many support services has increased concern over careerism in the officer corps in the past two decades. It is logical to assume that the DBOF will magnify careerist tendencies amongst support officers who find themselves in a "business" operation selling support to the services. Tensions between professionals in support and flying operations may increase if support officers find themselves even further on the outside looking in. As OSD moves activities from service control into a defense agency, support officers may find their loyalties lie closer to their speciality rather than to the larger profession of arms.

Support officers work to provide quality service so that pilots can best fulfill their mission. The values of officership and loyalties to the profession encourage maximum support and responsiveness to operator requests. Furthermore, support is offered through a command and control framework in which commanders can either direct support actions under their control or go through channels to request support from other commands. When the DBOF is complete, this form of command and control will be a thing of the past. Commanders will get support not because they ask but because they pay. In harnessing the tremendous power of self-interest, the DBOF could reduce the commitment to the traditional military value of self-sacrifice.

The Air Force and the other services attempt to institutionalize an intense focus on mission accomplishment among their officer corps. The DBOF will not threaten this norm for those officers close to force employment. But it does create the potential for an even greater sociological division between operational and support forces than currently exists. The latter's goal will no longer be to assist the former in accomplishing the mission but rather to satisfy the customer, whoever that may be. In practice, this difference may not be apparent, but the change in motives is real. Support functions will provide service to stay in business, not

because their proper role is to assist operators. Furthermore, because officers cost more than civilians of an equivalent grade, DBOF activities will prefer civilians in the same position. Already in fiscal year 1992, DBOF activities must reimburse the military central pay accounts for the officers working for them. As these activities trade officers for cheaper civilians, and as the activities themselves become defense agencies, the command link to the operational forces is weakened. Commanders needing services will find themselves dealing more with bureaucrats outside of service control and less with people who share their same concerns. An example is the recent decision to transfer ownership and management of bulk petroleum from the Air Force to the Defense Logistics Agency. The commander will no longer have direct mission support responsibility for a critical operational requirement.[15]

Not only does the DBOF threaten to erode fundamental military values, it questions the very nature of military support. The only way to protect wartime support missions (defined here as a function that unequivocally requires a blue suiter) within the DBOF is to specifically identify them and either make sure they remain under direct appropriations or are provided for within the revolving fund (by edict or perhaps a subsidy to offset the difference in cost over a civilian). Simply stating that a function embodies a wartime role is insufficient. The burden of proof shifts to the services to show objective cause.

From Revolving Funds to the Free Market

The free market is widely recognized as the most efficient means of coordinating productive activities in a socially beneficial manner. We need only look at the economic collapse of the Soviet Union to verify this proposition. In spite of this evidence, many would argue that military support should be structured along the lines of a command economy. Their argument is that while market failure in the private sector may lead to inefficient results, market failure in providing essential military support could have disastrous consequences. There are also objective differences between the DBOF and a free market.

In reality, the American economy only approximates a free market. Government regulations, taxes, externalities, monopolies, and other defects combine to form serious distortions to efficient economic decision making. The rules governing the DBOF and the limitations of revolving funds further distort the free-market analogy. For example, private businesses operate to earn a profit—a positive incentive. However, DBOF activities must break even. Their only incentive is negative—to avoid going out of business. Furthermore, to meet the milestones of the PPBS, prices must be set two years in advance and held stable during the course of each fiscal year. Military customers will have to anticipate their orders well in advance of the actual requirement. These constraints result not in a free market but rather some form of quasi-market.

As mentioned earlier, the current policy suggests that commanders will be able to purchase support from either commercial or organic sources. But the constraints of revolving funds and our budget system do not offer a level playing field. Organic activities will not be able to compete with commercial vendors. The support functions in the DBOF cannot react to changing circumstances nearly as fast as private businesses, which enjoy much greater flexibility. Nor will Congress allow the services to make major capital investments without line-item control over military construction. Moreover, the latter may seek to underbid military support activities if they believe they can turn a significant profit once the competition

from within government is eliminated. DOD will not have the ability to fully verify private sector costs to ensure comparability. As a result, the increased flexibility of the commander comes at the potential expense of the service's long-run interests to maintain a viable support infrastructure.

If a DBOF activity loses a customer, it must pass along its fixed costs and overhead to those who remain. Unless the function has captive customers (there are many examples of this), it could quickly go out of business. The effect on operations depends on how critical the function is to the mission and the specific rules governing competition. OSD wants to include the following G&A support activities in the DBOF in fiscal year 1994: administrative services, retail supply operations, maintenance of installation equipment (excluding aircraft and vehicles), other personnel support, real property management (RPM) and engineering support, and other base services (which includes security police functions, training and mobilization support, security operations, etc.).[16] Assuming full competition, rising base prices will cause other functions to seek off-base support as well. The effect will be that many services provided within the current support structure will transfer to the private sector. Evaluating the merits of this result is dependent on whether the function should ever have been within the scope of government control in the first place.

Maneuvering within the New Infrastructure

The basic outline of the DBOF suggests a parallel between the commander purchasing support from a revolving fund and a customer purchasing goods in a free market. Satisfying commander's preferences at lower cost is a fundamental objective of the new form of support.[17]

But to work, funding must be pushed to the lowest level possible. The alternative, centralized funds used to procure support services from centralized support agencies, is only one step removed from the current funding arrangement. But as funds dwindle over the coming years, commanders of support functions will maneuver to adjust the new financial management rules to their maximum benefit. As the budget pressure increases, we can expect more subtle and more desperate means for maintaining budget shares.

Even if centralized support is nothing more than a monopoly, commanders still have the option of whether to buy or not, and how much.[18] Competition, however, could lead to unintended inequalities between commands. Figure 3 depicts Air Combat Command (a buyer) and two sources of support, providing commands and private firms. Each organization has general and administrative pools represented by circles. These G&A pools include morale, welfare, and recreation (MWR), RPM, and base operating support (BOS). Support commands like Air Force Materiel Command will have to compete with private firms that probably have fewer and smaller overhead pools. (How many businesses have an auto hobby shop?) The operational commands receiving the benefit of competition could conceivably end up with relatively greater services than support commands. Support agencies anticipating a drop in demand for their services will push to maintain "strategic" withholds to protect their activities. Ostensibly, these withholds are necessary to ensure the continued funding of functions that allegedly shortsighted commanders would fail to procure. Managers argue that commanders would underinvest in support training or fail to invest at all in functions that provide no peacetime benefit but which are critical in war. To the extent that current levels of support from any one agency are more or less than the commander would prefer if given the funds to choose, then
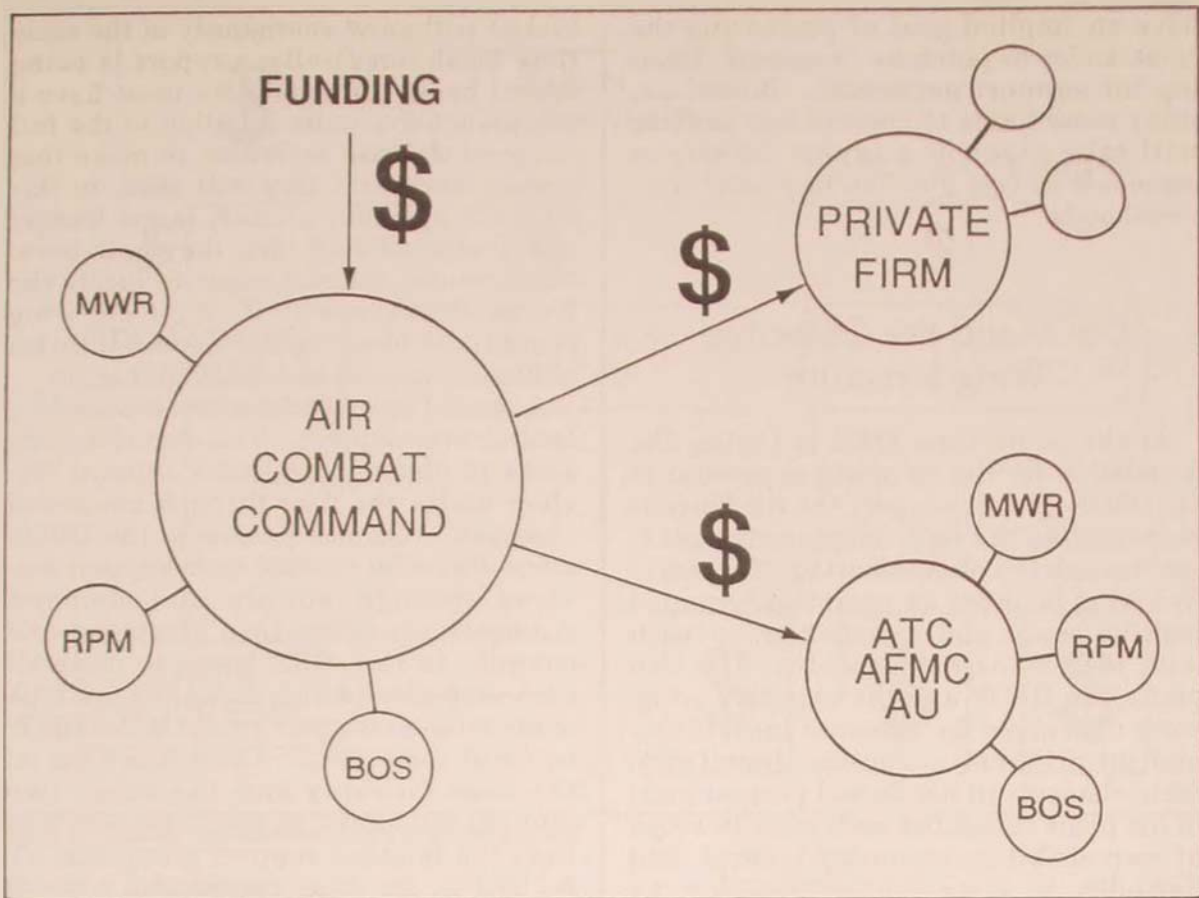
Figure 3. Competition Effects on General and Administrative Costs

even a monopoly situation would be an improvement.

Economic rent seeking is the term used to describe behavior in which people attempt to influence public decision making for the benefit of private interests.[19] Examples include import limitations, subsidies, tax loopholes, and other schemes that provide tremendous gains to a few at the expense of collective welfare. This is not malicious behavior but rather the expected result of the existing institutional incentives. Similar behavior is found in defense when, for example, support officers create new services that even if beneficial may not be the wisest use of resources.[20] Rent-seeking behavior under the current system of direct appropriations is responsible for much of the waste that the DBOF is trying to eliminate. But rent

seeking will not stop because of it. Instead, self-interested behavior will be channeled in other directions under the best of intentions—to preserve war-fighting capability. Requests for withholds to avoid the demands of the free market are only the most obvious example. Another more subtle form of rent seeking is credentialing. This is the requirement for given levels of experience and training for support officers or civilians to qualify for certain positions or grades. An example of this is the identification of mandatory courses to achieve Levels I, II, and III certification in some weapons acquisition disciplines. The intent is to have a more professional acquisition corps in accordance with congressional direction. However, some proposals to extend the credentialling concept to other support areas

have an implied goal of pressuring the commander to purchase "required" training for support personnel. Doubtless, many more forms of creative rent seeking will take place as support functions maneuver as best they can to protect their livelihoods.

DBOF and the Objective Wing Structure

At the same time OSD is laying the foundation for the complete expansion of the DBOF into all support, the Air Force is restructuring the force employment package through the objective wing. The objective wing includes an operations group, a logistics group, and a support group, each with lean management staffs. The two plans, the DBOF and the objective wing, were conceived by separate individuals and for different purposes. Inevitably, basic elements (if not formal propositions) of the plans contradict each other in scope of responsibility, operating control, and flexibility.

Giving the commander greater responsibility is an objective of both the DBOF and the wing-restructuring plan. However, the location and size of the commander's financial management team would necessarily differ for each plan. Assuming that formerly centralized support funding is provided to at least the installation level, then the commander of an objective wing will have much greater financial responsibility. Imagine having to budget not only for direct operations but for all personnel (not just civilian as now), their recruitment and training costs, automated data processing services from regional centers, commissary support from the Defense Commissary Agency, financial support from the Defense Finance and Accounting Service, printing from the Navy, all logistics support from the industrial and stock funds, and other support from as yet unidentified defense agencies. The base

budget will grow enormously at the same time local comptroller support is being scaled back. Commanders must have a comprehensive understanding of the full range of defense activities to make this system work, and they will need, in this author's opinion, a much larger budget and analytical staff than they now have. Furthermore, current plans to locate the financial analysis staff under the wing commander block further decentralization of funding control and decision making.

A second area of contention is operating control over support. The objective wing seeks to place control over support services under the user through command channels. On the contrary, the DBOF offers financial control over support services through supply and demand arrangements rather than command and control. In fact, OSD hopes to place all G&A activities (which comprise the bulk of the mission support group) in the DBOF by fiscal year 1994.[21] Other functions on the base (tenants and the other two groups) will have to purchase services from the mission support group (fig. 4). As long as the wing commander controls both the provider (mission support groups) and two major customers (operations and logistics group), there is a fundamental contradiction between the aims of the DBOF and the command structure of the new wing. If control of support services is centralized in line with other consolidations, it would not be unreasonable to predict a move to strip the commander's control of the mission support group in order to "free" him or her to concentrate on the business of operations. Whether or not the commander has control over these services, he or she must become efficient as well as effective. With the rapid fall in resources, there is no other choice.

Finally, the whole idea of consolidated support that underlies the DBOF and many of the DMR initiatives is contrary to the notion of an expeditionary force. Large, centralized support functions
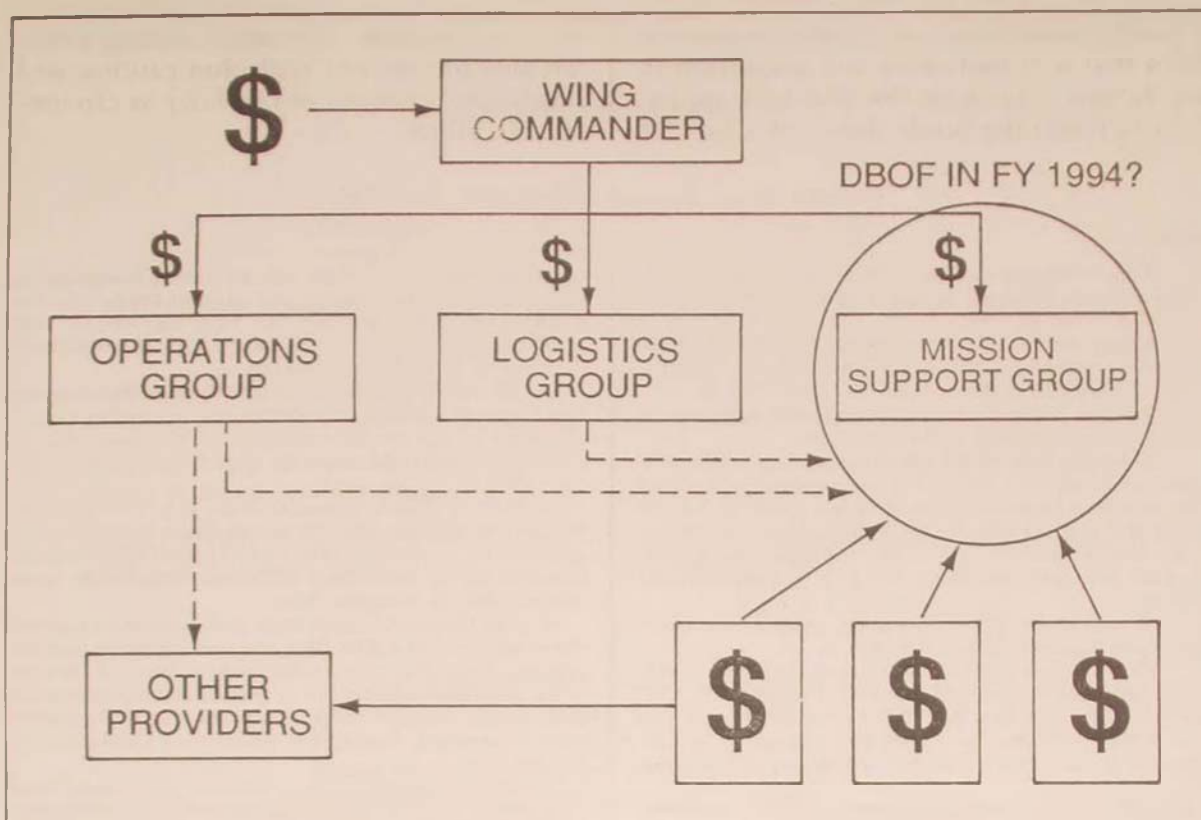
Figure 4. General and Administrative Costs in the DBOF

reflect a garrison mentality (at least in the CONUS). Given the need for efficiency and savings in a peacetime military under attack from all sides, it is not likely that more flexible, but more costly decentralized support arrangements will prevail.

Conclusion

Unit cost resourcing and the Defense Business Operations Fund promise to profoundly impact the defense support infrastructure and current modes of resources management. However, the actual effect on command operations depends on the specific rules imposed by OSD and the procedures selected by the services for final implementation. For example, as funding shifts from support commands to operators, the transfer can be held at the Air Staff, major command, wing, or even squadron level. How far funding author-

ity is decentralized is up to us, not OSD. Nevertheless, modeling the defense support structure according to the philosophy behind total cost visibility, business efficiency, market mechanisms, and mission budgeting suggests enormous change. Operating commanders will have greater funding power than ever before, but at the same time may see direct control over support operations slip away. Commanders must become more cost conscious; and war-fighting capabilities—if all other factors remain unchanged—will increase to the extent they succeed. Depending on one's perspective, the new initiatives represent either a refreshing breath of air or a dangerously defective idea. But attacks against the system stemming from fear of change itself are not productive. No set of rules will give perfect results. It is the net effect of incentives and disincentives to provide maximum defense capability that matters in the long run. What is needed is

a careful evaluation of alternative sets of rules that will best serve our institution in the future. Haste in the planned expansion of revolving funds does not allow for

this deliberation. To avoid serious error, we should proceed with due caution and implement changes as carefully as circumstances allow.   □

Notes

1. Defense Management Report Decision (DMRD) no. 971, "DOD Financial Systems," approved by the Deputy Secretary of Defense, 2 February 1991, 2.
2. Memorandum, OSD Comptroller, subject: Development of a Financial Management System Based on "Cost per Output," 10 August 1989.
3. Congress placed a moratorium on further expansion of the DBOF pending review in fiscal year 1993.
4. Actually, this philosophy is now new. The OSD Comptroller applied many of these concepts with mixed success during implementation of Project Prime in the late sixties and early seventies. See OSD Comptroller, *Project Prime Handbook*, June 1967. The current program applies the same principles but with a new and more sophisticated strategy.
5. Memorandum, OSD Comptroller, subject: Unit Cost Resourcing Guidance, 15 October 1990, 3.
6. Memorandum, Deputy Secretary of Defense, subject: Strengthening DOD Medical Functions, 1 October 1991. Part of the direction calls for a unified DOD medical budget.
7. DMRD no. 998, "Consolidation of DOD Printing," approved by the Deputy Secretary of Defense, 16 November 1990.
8. DMRD no. 967, "Base Engineering Services," approved by DOD Comptroller, 30 December 1990.
9. DMRD no. 924, "Consolidate ADP Operations and Design Centers in DOD," approved by Deputy Secretary of Defense, 18 November 1990.
10. OSD Comptroller, *Defense Business Operations Fund Implementation Plan Report*, 1 January 1992.
11. Martin J. Bailey, "Defense Decentralization through Internal Prices," in *Defense Management*, ed. Stephen Enke (Englewood Cliffs, N.J.: Prentice-Hall, Inc.), 1967, 343.
12. Memorandum, OSD Comptroller, subject: Unit Cost Resourcing Guidance, 15 October 1990, 16; and memorandum, OSD Comptroller, subject: Defense Business Operations Fund Financial Policy, 27 September 1991, 3. Details on the extent of competition are sketchy at best. The more recent guidance encourages commanders to buy from the least cost source (commercial or organic) "*unless* [emphasis added] there is some other policy such as mobilization considerations that prohibits this flexibility."
13. Because the new pricing structure cannot, as of yet, distinguish between unit fixed and unit variable costs, cut-

ting mission budgets will eat into the defense infrastructure at the expense of operating and support funds. As the defense drawdown continues, the fixed cost element will result in rising unit costs. Col Sherry Sims, SAF/FMBMP, deserves the credit for this observation.
14. Donald H. Chapin, "Defense's Planned Implementation of the $77 Billion Defense Business Operation Fund," statement before the Subcommittee on Readiness, House Committee on Armed Services, 102d Cong., 1st sess., 30 April 1991, 2.
15. Refer to OSD Comptroller fiscal year 1993 Program Budget Decision no. 735, "Bulk Petroleum Management," approved on 5 December 1991; and SAF/FMB reclama memorandum for the Department of Defense Comptroller, same subject, dated 21 November 1991.
16. The inference is taken from draft policies and procedures discussed in a joint G&A cost working group (refer to memorandum, OSD Comptroller, same subject, 21 October 1991) combined with the list of general and administrative base support categories from attachment 1 in OSD's memorandum, subject: Unit Cost Resourcing Guidance, 15 October 1990.
17. OSD Comptroller, *Defense Business Operations Fund Implementation Plan Report*, 1 January 1992. The DBOF sets up customer-supplier relationships, and the operating commander as owner of the installation budget is the key customer under this concept.
18. Ibid., 4. Again, the commander (OSD's customer) states the unit requirements. There may be no requirement for services that were heretofore merely nice to have.
19. Charles K. Rowley, "Gordon Tullock: Entrepreneur of Public Choice," *Public Choice*, September 1991, 149–69. The concept of rent seeking was first identified in 1967 by public choice economist Gordon Tullock.
20. This is the familiar case of "empire-building." The self-interest aspect occurs when officers seek to enhance performance reports by touting new services. The current "rules" offer little or no reward for support functions (commands) to manage to lower costs and transfer excess funds to operating functions (commands).
21. Draft guidance by OSD Comptroller, subject: General and Administrative Cost Reimbursement Policies and Procedures, 10 October 1991.

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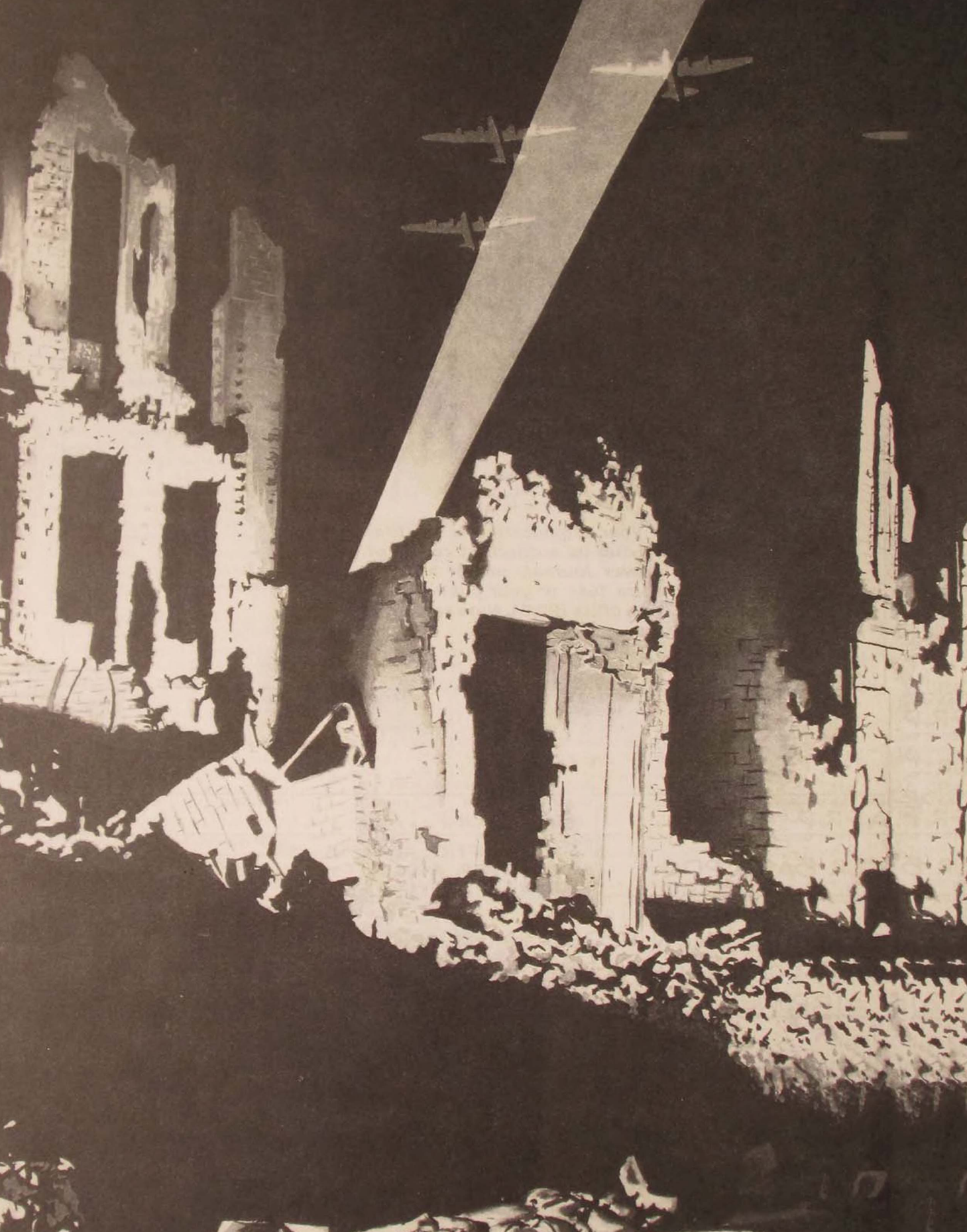
PSYCHOLOGICAL EFFECTS OF AERIAL BOMBARDMENT

MAJ MARTIN L. FRACKER, USAF

ATTEMPTS to exploit the psychological impact of aerial bombardment have a long history and remain central to Air Force doctrine.[1] Examples include the fire-bombing of Dresden, the atomic attacks on Hiroshima and Nagasaki, and the bombing of North Vietnam.[2] Other examples might include the German bombing of London and the British bombing of German cities in World War II, as well as the coalition bombing of Iraqi soldiers in Operation Desert Storm.[3] In at least one instance, psychological effect was a factor in aircraft design.[4] Despite their history, the psychological effects of bombardment have received surprisingly little systematic study. As a result, a well-defined base of knowledge that could guide military planners in maximizing these psychological effects does not exist.

This article addresses this need by considering the effects of aerial bombardment on three distinct groups: civilians, national decision makers, and troops in the field. In each case, the discussion identifies psychological issues that are still unresolved and suggests research that might lead to their resolution.[5]

Effect of Bombing on Civilians

Early proponents of air power stressed the potent psychological effects of aerial bombing on the will of enemy civilians to resist. Giulio Douhet, for example, predicted that just two days of uninterrupted bombing with high-explosive, incendiary, and poison-gas bombs would send a city's population "fleeing to the open countryside to escape this terror from the air."[6] Similarly, J. F. C. Fuller believed that an enemy could force Britain's surrender just by bombing London for 48 hours.[7] In retrospect, these predictions seem less than cautious—witness the fact that the German bombing of London in the Second World War did not lead to British capitulation. Robin Higham, the eminent British air power historian, suggests that air power prophets such as Douhet and Fuller were simply guessing.[8] But one must keep in mind that these visionaries worked from the data that was available at the time, especially information on the effects of German bombing raids in World War I. George Quester, a distinguished professor of military strategy who has taught at the National War College, notes that although these raids caused minimal physical damage, they had considerable psychological impact, inducing panicked Londoners to riot and even assault "Royal Flying Corps officers in the street for alleged failures to do their duty."[9] If such were the effects of relatively light and ineffective bombing attacks, what would be the effects of continuous heavy bombing with incendiaries and gas? To theorists like Douhet and Fuller, the answer was all too obvious.

How then does one explain the failure of World War II bombing campaigns to cause Britons to rise up against their government and demand peace with the enemy? Some writers suggest that civilians are not as psychologically fragile as Douhet and Fuller assumed.[10] But the answer cannot be that simple, for if the massive bombing of Britain could not crush the civilian psyche, then the minus-cule campaigns of the First World War should have been even less effective—which seems to contradict the historical facts.[11] Further, the United States Strategic Bombing Surveys concluded that the Allied bombing campaigns against both Germany and Japan were successful in demoralizing their civilian populations;[12] in the case of the Germans, the bombing may even have turned them against their government.[13]

A more satisfying explanation is Quester's suggestion that the critical variable is not stoicism but expectancy. The bombings in the First World War were a complete surprise to the average British citizen. In the Second World War, the German bombardment again came as a surprise, but—according to Quester—British civilians were encouraged by the fact that poison gas was not used and that the effects of the bombing were much less severe than they had been led to expect.[14] The Germans and Japanese, however, may have been misled by their governments into believing they were safe from air attack. Thus, when the attacks came, they began to believe that defeat was imminent.[15]

Experimental studies support Quester's expectancy hypothesis.[16] One review of 54 experiments concludes that information that comes as a surprise is analyzed more thoroughly than is unsurprising information.[17] Further, social psychologists have observed that people are more likely to try to analyze and explain unexpected events than they are expected ones.[18] This fact may help to explain the impact of the 1968 Tet offensive on support of the American public for the Vietnam War. The offensive, which came as a surprise to most Americans, led them to reevaluate and finally reject American participation in the war.[19] Thus, both experimental and historical evidences suggest that unexpectedly severe or mild air attacks may cause civilians to reassess their chances of winning the war.

Evidently, if aerial bombardments are to

cause a civilian population to rebel against its government, then the ferocity and destructiveness of those attacks must exceed the population's expectations. This conclusion raises a number of questions, perhaps the most important of which is whether one can achieve the desired psychological effects only by attacking the civilian population directly. If so, then most nations with high moral standards are unlikely to use air power in this manner. On the other hand, perhaps one can obtain the same effect by attacking the enemy nation's economic infrastructure rather than its civilians. If so, then there is the problem of determining the target population's expectations (e.g., a worst-case nuclear nightmare or something less severe) and determining whether they can be exceeded. How much is enough to instill the necessary feelings of despair? Further, do other factors raise or lower this threshold? For example, weak commitment to the war's objectives could lower the threshold while anger in response to the bombing (i.e., reactance) could raise it.[20] In addition, the populations of some cultures could have higher thresholds than those of other cultures. At present, these issues pose a challenge to air power theorists and planners.

How can these questions be answered? One approach would be to study populations of nations, such as Iraq, that have been subjected to significant air attacks. Although such studies are valuable, they have limitations. For instance, differences

An F-100 Supersabre being prepared for takeoff on an early Rolling Thunder mission over Vietnam. Characterized by gradual escalation and periodic halts to the bombing, Rolling Thunder merely alerted North Vietnam to the importance of upgrading its air defense systems and gave Hanoi time to make such improvements, as well as repair the damage from earlier raids.

in culture and language may create problems, and researchers may encounter resistance from the population's government. Additionally, these studies represent only a single data point because they are obtained under a single set of circumstances. To fully answer the questions at issue, one must obtain many data points under a variety of circumstances. A more practical approach would be to conduct simulations or analog experiments.

Analog experiments study things that are analogous to one's true interest. This indirect, experimental approach is appropriate when a direct study of the subject is too difficult, dangerous, or expensive to conduct in a controlled, scientific manner. For example, clinical psychologists interested in agoraphobia do not have access to enough patients suffering from this disorder to conduct scientific evaluations of potential therapies. As an alternative, they conduct experiments on common fears such as stage fright and are then able to develop successful treatments for agoraphobia.[21] Similarly, human-factors psychologists interested in aviation find that experiments on pilots in actual flight are too dangerous and that those in simulated flight are too expensive. But they are able to answer some questions safely and

cheaply by conducting analog experiments on dual-axis tracking.[22] Finally, political psychologists interested in international conflict obviously cannot conduct experiments on real nations. As a result, they turn to analog experiments on the Prisoner's Dilemma[23] and are thus able to shed light on many issues, including the mechanisms underlying nuclear deterrence.[24]

These examples suggest that an experimental analog to aerial bombardment might also be possible. In one such experiment, civilian subjects would be asked to decide whether to vote for a president who has led the nation into war or for an opponent who promises to give up the war effort at once. One group of subjects would be led to expect massive, highly destructive bombing, while another group would be told that any air attacks are likely to be limited and ineffective. During the experiment, subjects would

A B-52 lifts off the runway at Andersen AFB, Guam, in December 1972. Unlike the Rolling Thunder operation, Linebacker applied continuous, massive force against the North Vietnamese, eventually compelling them to enter into a truce. Despite this operation's success, it may be premature to conclude that only massive bombing can be effective against an enemy.
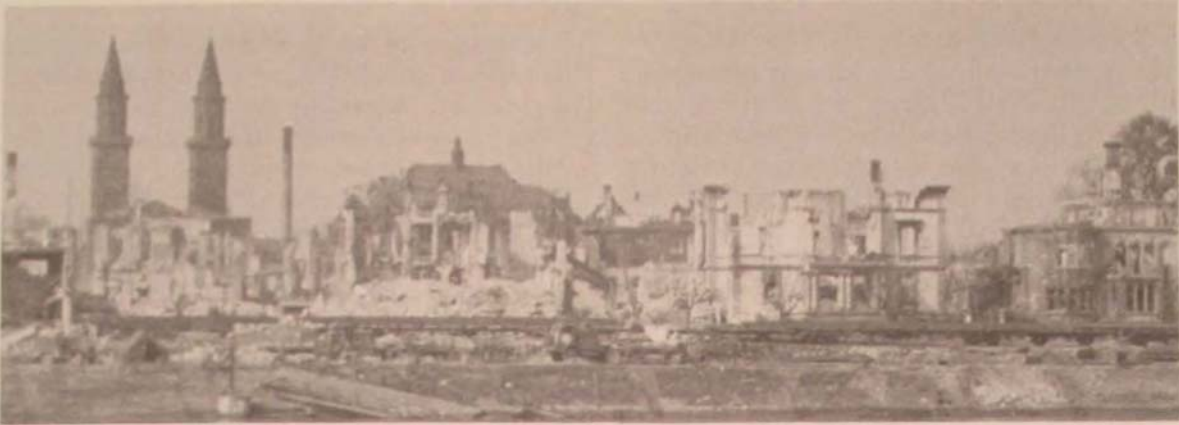
The reaction of civilians to aerial bombardment may be tied to their expectations. In World War II, the German government may have led its citizens to believe that they were safe from attack. After being bombed, however, they became convinced that defeat was inevitable. Above, the ravages of bombing are evident in this German city along the Rhine River in 1945.

receive various "news reports" about what is happening in the war, including stories about aerial attacks against their community. For some subjects, these reports would describe the attacks as devastatingly effective; for others, the reports would describe them as ineffective. If Quester's expectancy hypothesis is correct, subjects for whom the air attacks exceed expectations should be more likely than the others to vote *against* the president. Similarly, subjects for whom the attacks are less effective than expected should be more likely to vote *for* the president.

Of course, this experiment is only one example. Variations of the same experiment could be designed to answer different questions. Variables could include the kind of enemy (democratic or totalitarian), the enemy's terms of surrender (limited or unconditional), the objectives of the war (expelling an invader or gaining access to raw materials), and so forth. With data from such studies, one could begin to describe the impact of bombing on civilians under many different sets of circumstances—and thus guide the planning of bombing campaigns in future wars.

Effect of Bombing on National Decision Makers

Although Douhet prescribed direct attacks on civilians, his real target was not the enemy populace but its government, which he hoped would acquiesce to civilian pressure to make peace with the enemy at any price.[25] As mentioned earlier, such attacks in the Second World War failed to live up to Douhet's predictions. In the case of the Germans, who apparently did turn against their government, the Nazi police state proved capable of suppressing any outward dissent.[26] Perhaps for these reasons, recent history has seen aerial attacks intended to have a more direct effect on an enemy government's decisions. Among the clearest examples of such attacks were the major aerial campaigns of the Vietnam War: Rolling Thunder, Linebacker I, and Linebacker II.

Rolling Thunder (1965–68) and the two Linebacker (1972) campaigns differed markedly in their underlying strategies and in their effects. Rolling Thunder was a gradually escalating bombing campaign against the North Vietnamese punctuated by periodic halts to the bombing.[27] The strategy underlying Rolling Thunder bears some resemblance to the so-called graduated and reciprocated initiatives in tension (GRIT) reduction strategy for conflict management first described by the pioneering political psychologist Charles

Osgood in 1962.[28] In GRIT-type strategies, one of two opposing sides announces a unilateral conciliatory gesture (e.g., the bombing halts) but threatens escalation if the opponent tries to exploit the situation. This strategy failed in Vietnam. Rather, the limited attacks early in Rolling Thunder only alerted the Vietnamese government to the need to improve its air defenses, and the bombing halts gave the government time to make those improvements.[29]   In marked contrast, the Linebacker operations were successful in convincing the North Vietnamese to accept a truce.[30] Rejecting the GRIT-like strategy of Rolling Thunder, the Linebacker campaigns applied continuous, massive force against the North Vietnamese.

One might easily conclude from the Vietnam experience that GRIT-type bombing strategies are not effective in influencing the decision makers of an enemy nation and that only a massive, unrelenting bombing campaign would have the desired effect. Such a conclusion is congruent with Quester's expectancy hypothesis and raises the same questions noted earlier: How does one exceed the enemy's worst expectations? How far beyond those expectations will be enough? How is the threshold moderated by reactance, by the perceived value of the war's objectives, or by the population's cultural values and beliefs?[31]

On the other hand, one may be premature in concluding that only massive bombing can be effective. Considerable evidence indicates that GRIT-like strategies work under some circumstances. In addition to favorable results from analog experiments, political psychologists Philip Tetlock, Charles McGuire, and Gregory Mitchell point to the Austrian State Treaty of 1955 and the end of the cold war as examples of real-world GRIT success stories.[32]

Perhaps GRIT works only in the absence of overt violence or only when the belligerents are weakly committed to their objectives or only when public opinion favors a peaceful alternative to war. Evidently, these possibilities have not yet been tested by means of experiments. Yet, these hypotheses seem to lend themselves well to analog experimentation. For example, experimental subjects could compete with a programmed opponent for control over an initially neutral set of assets. In one condition, the competition could be peaceful; in another, subjects could compete by destroying assets initially belonging to the other. Or subjects in one condition could receive a large monetary reward if they win and a substantial penalty if they lose; in another condition, monetary rewards and penalties could be negligible. If a GRIT strategy works in the "war" or "high stakes" conditions, then subsequent research could compare GRIT to a Linebacker-like strategy using massive attacks. Still other experiments could examine whether GRIT works when simulated opinion polls favor a military solution. In any event, the results of such experiments could complement studies of historical experiences such as the Vietnam War.

Effect of Bombing on Soldiers in Battle

Whatever enemy decision makers do, the soldier is the one who ultimately fights the war.[33] Thus, the effect of air power on the soldier is of considerable importance. Yet, the psychological effect of aerial bombardment on soldiers is far from clear. The Canadian sociologist Anthony Kellett, in his monumental study of combat motivation in World War II, notes that air attack can induce nearly paralyzing shock but observes that there is no consensus on the persistence of this effect as soldiers gain combat experience.[34] As Kellett discusses, British and American studies conducted during the war came to opposite conclusions. British

studies found that repeated air attacks, which became increasingly frightening even though they did little real damage, seemed to sensitize soldiers to the shock effect. On the other hand, American studies indicated just the opposite: repeated attacks seemed to *de*sensitize soldiers.

The disparity between the results of the British and American studies has yet to be resolved. On the one hand, some psychological theory supports the American desensitization hypothesis. For example, opponent process theories of motivation suggest that repeated exposure to a fearful stimulus will tend to elicit less fear over time.[35] Further, in terms of Quester's expectancy hypothesis, repeated bombing experiences are likely to adjust soldiers' expectations until they match reality; future experiences are then likely to have less of a psychological impact. On the other hand, some research suggests that the British sensitization hypothesis may apply under some circumstances. Psychologist Steven Reiss notes that repeated exposure to a fearful stimulus can be either sensitizing or desensitizing, depending upon the exposure conditions.[36] Similarly, clinical psychologist Zahava Solomon's research among Israeli soldiers indicates that sensitization occurs with some soldiers while desensitization occurs with others.[37] Nevertheless,

The contradictory conclusions of British and American studies on the effects of aerial bombing on soldiers have yet to be resolved. The British study finds that repeated attacks tend to sensitize soldiers, while the American study indicates that soldiers become desensitized. Interestingly, it is possible to use either conclusion to explain the huge number of Iraqi surrenders in Operation Desert Storm (above).

Solomon's bottom line seems to support the sensitization hypothesis. The data, he wrote, suggest that "repeated battery will eventually fell even the hardiest souls."[38]

Recent experience in the war with Iraq (Operation Desert Storm) supports either the sensitization or desensitization hypothesis. Consistent with the sensitization hypothesis, Lt Gen Charles Horner—coalition air component commander during Desert Storm—suggests that continuous bombardment by coalition forces was the principal reason Iraqi soldiers surrendered en masse without putting up any significant resistance.[39] If so, the Iraqis clearly did not get used to the bombing. An alternative view more consistent with the desensitization hypothesis holds that the surrenders were induced by the realization that coalition ground forces had so easily penetrated Iraqi defenses. Those defenses had proven formidable enough in the earlier Iran-Iraq War to produce an eight-year stalemate. Thus, the rapid coalition breakthrough may well have come as a shock to the average Iraqi sol-

dier. In keeping with Quester's expectancy hypothesis, this shock may have been sufficient to induce the Iraqi troops to surrender.

Evidently, we need research that clarifies the roles of sensitization and expectancy. Real-world studies like those reported by Solomon may seem ideal,[40] but they face at least two limitations. First and most obvious is the infrequent occurrence of wars in which air power is a significant factor. For this reason, Solomon recognizes the need to consult "studies of psychological and somatic reactions to adversity in general," not just to combat.[41] Second is the dependence of most real-world studies on soldiers' recollections and perceptions of their own states of mind.[42] Psychologists have learned that such recollections and perceptions, though clearly useful, are often inaccurate.[43] The same limitation would also apply to transcripts of the many thousands of prisoner-of-war interviews taken during the war with Iraq. Although we should study these transcripts, we cannot consider them definitive. Analog experiments may prove to be useful adjuncts in overcoming these two limitations.

Some questions about the effects of bombing on soldiers will defy analog study. There probably is no way to simulate the psychological experience of a soldier who is being bombed day and night. Nevertheless, other questions may be more amenable to investigation. For example, we could examine how repeated exposure to generic threats interacts with expectancies about those threats. To do so, we need a laboratory threat that is not actually dangerous.

One candidate for a "safe" threat makes use of the fact that noise of 75 decibels disrupts cognitive task performance, although it is considered acceptable by safety standards of the Occupational Safety and Health Administration.[44] Specifically, while being subjected to 75 decibels of noise, people would perform a cognitive task after being told that their

The psychological goals of aerial bombardment seem elusive largely because the psychological effects of bombardment are not well understood. We still need additional research to define these effects.   Right, an ageless B-52 departs an airfield en route to a daytime bombing mission during Operation Desert Storm.

performance will reflect their intellectual ability—a deception to which people are generally vulnerable.[45] By threatening the subjects' performance, the noise would also threaten the subjects' self-image.[46] (Of course, subjects would eventually be told the truth!)

To examine the Desert Storm question,[47] one could have the subjects perform two tasks in succession. One group could be exposed to the noise during both tasks, while the other would be exposed only during the second task. If the sensitization hypothesis is correct, then the first group should perform more poorly on the second task, compared to the second group. Within each of these two groups, there could be three additional groups. They would differ only in the difficulty of the first task (easy, moderate, hard), and all groups would be told that the second task was equal in difficulty to the first. In reality, all three would receive the same moderately difficult second task. Thus, one group would find the second task unexpectedly hard, another unexpectedly easy, and the third about as expected. If the expectancy hypothesis is correct, then the "unexpectedly hard" group should perform more poorly than the other two.

Questions for a Psychology of Air Power

After nearly eight decades of air power, we still lack research that defines the psychological effects of aerial bombardment. Nations have used air power in the hope that enemy populations would rise up against their governments, that enemy

governments would decide to abandon the war, or that enemy troops would lose their will to fight. These psychological goals have often proved elusive, largely because the psychological effects of bombardment are not well understood. This article has identified several questions about these effects. In general terms, these questions focus on three issues. First, under what conditions will aerial bombardment cause civilians to rise up against their government and demand peace with the enemy? Second, can only massive, unrelenting bombing campaigns persuade enemy decision makers to abandon the use of force, or can GRIT-type strategies sometimes achieve the same goal? Third, are repeated bombing attacks the key to producing paralyzing fear in soldiers, or are other factors more important?

Although theoretical perspectives relevant to these issues vary, a common theme emerges: the role of expectancies. Civilians and decision makers might abandon the war effort only when bombing attacks are much worse than expected. Soldiers might become desensitized to air attack once they know what to expect from such attacks. In each case, disrupting people's expectancies may be the key to their psychological defeat. Yet, these expectancy effects may vary depending upon other factors, such as the perceived value of the war's objectives, reactance to the enemy attack, or the cultural values of a population. If so, then we need research that develops and elaborates a model of how the different factors interact to produce people's responses to bombardment.

Finally, the article has discussed research capable of addressing these issues. Although studies of real-world wartime experience are ideal, they are necessarily limited by the infrequency

with which major wars occur. Further, such studies represent what happened under only one specific set of circumstances. Making generalizations about future wars could be impossible.[48] As we have seen, analog experiments could help by complementing real-world studies. Other experiments may be possible and certainly will be needed. For example, none of the experiments described above addresses the cross-cultural question of whether people in different societies will respond to bombing differently. Nevertheless, this article has identified a place to begin. Now we must undertake the effort.   □

Notes

1. Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, 16 March 1984, urges the exploitation of bombardment's psychological impact on an enemy's armed forces, people, and allies (page 2–17).

2. See Robin Higham, *Air Power: A Concise History* (New York: St. Martin's Press, 1972), on the firebombing of Dresden (page 135); Air Marshal Sir Robert Saunby, *Air Bombardment: The Story of Its Development* (New York: Harper & Brothers, 1961), on the atomic attacks against Japan (page 205); and Guenter Lewy, *America in Vietnam* (New York: Oxford University Press, 1978), on the bombing of North Vietnam (pages 374 and 414).

3. Germany's primary objective in bombing London seems to have been military rather than psychological. Hitler apparently hoped to force the Royal Air Force into the sky where it could be destroyed (Higham, page 121). Nevertheless, it would be surprising if Hitler did not also hope that the bombing would destroy the British population's will to resist. Regarding the British bombing campaigns, the main British objective seems to have been the destruction of German industry (Higham, pages 130–36). Nevertheless, during the interwar years, British military planners assumed that enemy bombing of British cities would severely panic the population and force an early surrender (George C. Quester, "The Psychological Effects of Bombing on Civilian Populations: Wars of the Past," in *Psychological Dimensions of War*, ed. B. Glad [Newbury Park, Calif.: Sage, 1990], 204). Thus, one would expect the British to have at least considered the psychological effects on the German population when they planned the Battle of Germany. Regarding the B-52 bombings in Desert Storm, see the discussion of the effects of bombing on soldiers later in this article.

4. Anthony Kellett, *Combat Motivation: The Behavior of Soldiers in Battle* (Boston: Kluwer-Nijhoff, 1982), 256. Kellett notes that the German Junkers Ju 87 "Stuka" dive-bomber was designed to shock as much as to destroy the enemy and was in fact better at the former than the latter.

5. I do not assume that the reader has any special background in modern scientific psychology. For the most part, I have avoided technical terminology, but the nature of the article requires reference to some psychological concepts that may be unfamiliar to some readers. In those instances, I have provided brief explanations in the notes.

6. Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari (1942; new imprint, Washington, D.C.: Office of Air Force History, 1983), 58.

7. J. F. C. Fuller, *The Reformation of War* (New York: Dutton, 1923), 150.

8. Higham, 48.

9. Quester, 203.

10. For example, see Higham, 10.

11. Quester, 201–14.

12. *The United States Strategic Bombing Surveys (European War [and] Pacific War)* (30 September 1945, 1 July 1946; reprint, Maxwell AFB, Ala.: Air University Press, October 1987), 39, 95.

13. Ibid., 12.

14. Quester, 205.

15. *The United States Strategic Bombing Surveys*, 39, 95.

16. See Quester.

17. Charles Stagnor and David McMillan, "Memory for Expectancy-Congruent and Expectancy-Incongruent Information: A Review of the Social and Social Developmental Literatures," *Psychological Bulletin* 111 (1992): 43–61.

18. Gerd Bohner et al., "What Triggers Causal Attributions? The Impact of Valence and Subjective Probability," *European Journal of Social Psychology* 18 (1988): 335–48.

19. Lewy, 76. Though not a bombing campaign, the Tet offensive illustrates the dramatic psychological impact that surprising military action can have on civilians.

20. By way of analogy, the Tet offensive might not have proved so effective in undermining US public support had the population been more strongly committed to the war's goals (cf. Christopher D. Wickens, *Engineering Psychology and Human Performance* [Columbus, Ohio: Merrill, 1984], 101–6). A good counterexample is the American public's response to the attack on Pearl Harbor. The angry determination to defeat Japan illustrates the concept of *reactance*, the tendency to increase one's commitment to a goal or behavior in reaction to social pressure to do just the opposite (see Robert A. Baron and Donn Byrne, *Social Psychology: Understanding Human Interaction* [Boston: Allyn and Bacon, 1991], 162; and Jack W. Brehm, *A Theory of Psychological Reactance* [New York: Academic Press, 1966]).

21. Geoffrey L. Thorpe and Sheryl L. Olson, *Behavior Therapy: Concepts, Procedures, and Applications* (Boston: Allyn and Bacon, 1990), 89.

22. That is, two simultaneous single-axis tracking tasks. In single-axis tracking, subjects use a joystick and try to keep an error indicator centered on a "zero-error" position. In most experiments, the error cursor moves along the tracking axis in what appears to be a completely random way, and the subject's job is to compensate for each of these movements. In dual-axis tracking, the two axes may both be vertical or horizontal, but more often one is vertical and the other horizontal (see Wickens, 422–45).

23. A social dilemma game. Suppose two fugitives are arrested by the police and interrogated separately. If one confesses and the other does not, then the one who confessed goes free while the other receives a 10-year sentence. If both confess, then each receives a five-year term. If neither confesses, then both receive a one-year sentence.

Obviously, both prisoners would be better off trusting each other and not confessing. In the typical experiment, however, both "prisoners" (usually, volunteer college students) confess. See Anatol Rapoport, *Experimental Games and Their Uses in Psychology* (Morristown, N.J.: General Learning Press, 1973); and Luc Reychler, "The Effectiveness of a Pacifist Strategy in Conflict Resolution," *Journal of Conflict Resolution* 23 (1979): 228–60.

24. Philip E. Tetlock, Charles B. McGuire, and Gregory Mitchell, "Psychological Perspectives on Nuclear Deterrence," *Annual Review of Psychology* 42 (1991): 239–76.

25. Douhet, 58.

26. *The United States Strategic Bombing Surveys*, 12.

27. Lewy, 374.

28. Charles E. Osgood, *An Alternative to War or Surrender* (Champaign-Urbana, Ill.: University of Illinois Press, 1962).

29. Lewy, 393.

30. Ibid., 410–17.

31. Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, N.J.: Princeton University Press, 1976), 80–81.

32. See Tetlock, McGuire, and Mitchell. The Austrian State Treaty of 1955 ended the Allied occupation of Austria and guaranteed Austria's military neutrality.

33. The term *soldier* is used here to denote any member of the armed forces, including airmen, sailors, and marines. One should note, however, that all of the research reviewed herein appears to have been conducted among ground forces.

34. Kellett, 254–57.

35. Richard L. Solomon and John D. Corbit, "An Opponent-Process Theory of Motivation: I. Temporal Dynamics of Affect," *Psychological Review* 81 (1974): 119–45.

36. Steven Reiss, "Pavlovian Conditioning and Human Fear: An Expectancy Model," *Behavior Therapy* 11 (1990): 380–96.

37. Zahava Solomon, "Does the War End When the Shooting Stops? The Psychological Toll of War," *Journal of Applied Social Psychology* 20 (1990): 1733–45.

38. Ibid., 1738.

39. Lt Gen Charles A. Horner, "The Air Campaign," *Military Review* 71, no. 9 (September 1991): 16–27.

40. See Zahava Solomon.

41. Ibid., 1737.

42. See Kellett; Norman A. Milgram, Ruth Orenstein, and Ezer Zafrir, "Stressors, Personal Resources, and Social Supports in Military Performance during Wartime," *Military Psychology* 1 (1989): 185–200; Joseph Schwarzwald et al., "Validation of the Impact of Event Scale for Psychological Sequelae of Combat," *Journal of Consulting and Clinical Psychology* 55 (1987): 251–56; Zahava Solomon, Mario Mikulincer, and Stevan E. Hobfoll, "Effects of Social Support and Battle Intensity on Loneliness and Breakdown during Combat," *Journal of Personality and Social Psychology* 51 (1986): 1269–76; and Zahava Solomon, Mario Mikulincer, and Stevan E. Hobfoll, "Objective versus Subjective Measurement of Stress and Social Support: Combat-Related Reactions," *Journal of Consulting and Clinical Psychology* 55 (1987): 577–83.

43. Timothy D. Wilson, "Strangers to Ourselves: The Origins and Accuracy of Beliefs about One's Own Mental States," in *Attribution: Basic Issues and Applications*, ed. John H. Harvey and Gifford Weary (New York: Academic Press, 1985), 9–36. See also Martin L. Fracker, *Measures of Situation Awareness: Review and Future Directions*, Report No. AL-TR-1991-0128 (Wright-Patterson AFB, Ohio: Armstrong Laboratory, Crew Systems Directorate, October 1991), 8, 16–21; and Martin L. Fracker and Sharon A. Davis, *Explicit, Implicit, and Subjective Rating Measures of Situation Awareness in a Monitoring Task*, Report No. AL-TR-1991-0091 (Wright-Patterson AFB, Ohio: Armstrong Laboratory, Crew Systems Directorate, July 1991), 19. The last two studies found that self-report measures of situation awareness sometimes contradicted more objective measures.

44. Mark S. Sanders and Ernest J. McCormick, *Human Factors in Engineering and Design* (New York: McGraw-Hill, 1987), 468–70.

45. Mario Mikulincer, "Attributional Processes in the Learned Helplessness Paradigm: Behavioral Effects of Global Attributions," *Journal of Personality and Social Psychology* 51 (1986): 1248–56.

46. Ibid.

47. That is, what caused the mass surrenders: constant bombing or the unexpected coalition breakthrough? See the preceding discussion.

48. For a congruent view, see Michael Howard, "Military Science in an Age of Peace," *RUSI: Journal of the Royal United Services Institute for Defence Sciences* 119 (March 1974): 3–11.

BECOMING A BETTER MILITARY WRITER

GREG TODD

HOW WELL you write is important to you personally and professionally. How clearly you communicate on paper will either help or hinder your career, and it will help or hinder your service as well. Certainly, you owe it to your subordinates to be clear and concise in your written directions, and you owe it to your service and your country to make sure that your official writing is competently crafted. It seems a truism that the discipline of good writing promotes clear thinking. And both clarity of thought and clarity of expression are essential to the proper planning and execution of military operations. Additionally, officers have some degree of obligation to write for publication. As a longtime editor associate of mine points out, if military officers fail to write for publication, if they refrain from joining the public dialogue on defense matters, then they abdicate to civilians the shaping of the military's future.

Most of you reading this probably can learn to write better with relatively little pain. Some of you may be hopelessly
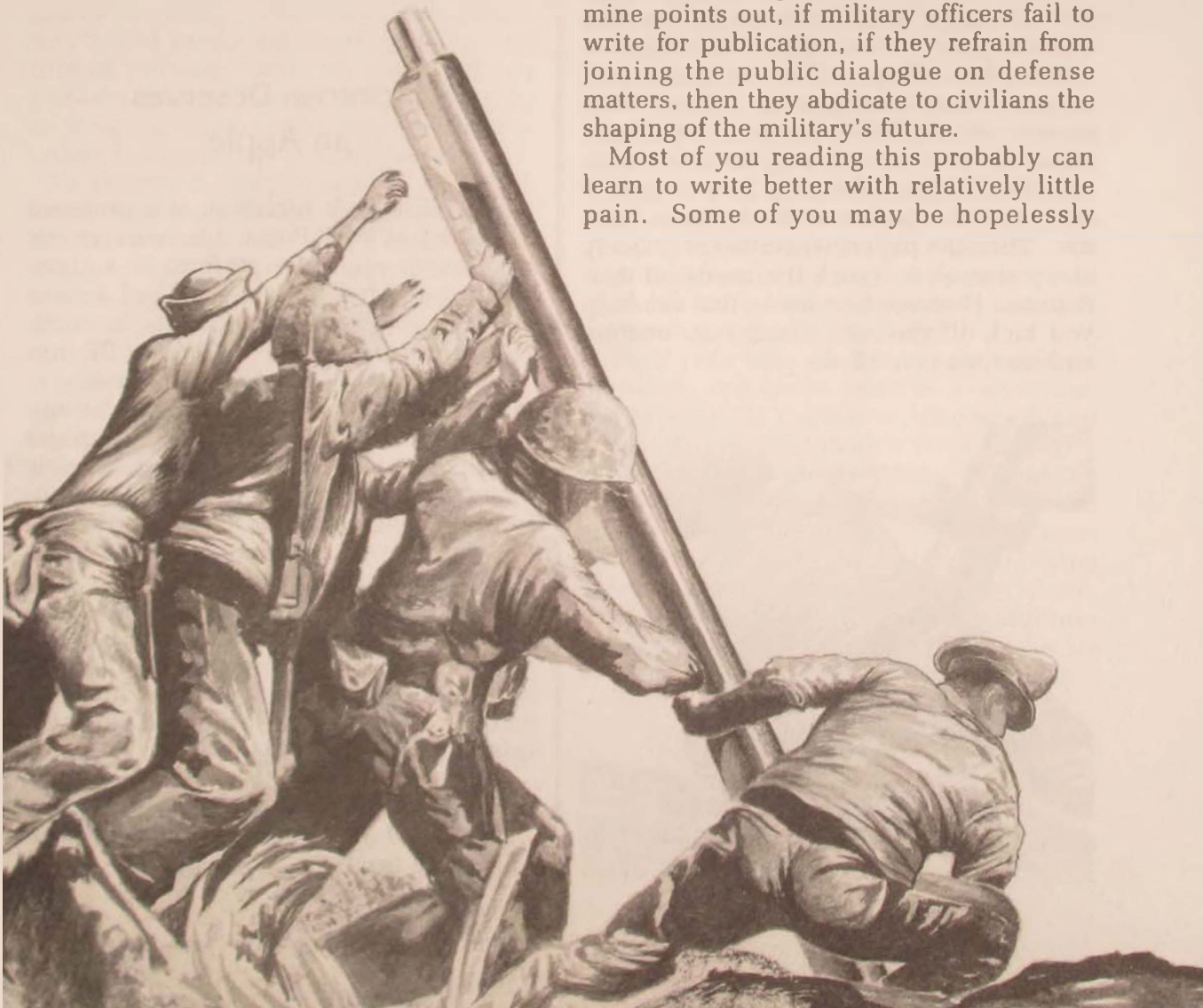
mired in the bog of obfuscation, and some of you are already such good writers that nothing I can say would help. But those of you in the middle can become better writers.

To that end, my first step in this article will be to address in some detail four books that will make you a better writer (and you need to read only two of them!). Second, I will discuss some other references that might be useful if you want to go beyond the first four. Then, in four brief essays and five suggestions, I will try to give you some useful guidance on military writing drawn from 18 years of military editing.

Most of us can write adequately. We have learned the basics of grammar and composition somewhere in our schooling. But we forget; sometimes we go too fast; and we pick up bad habits. Working in a bureaucracy seems to have a terrible aging effect on our writing skills. Like a lawn mower, we can cut a pretty smooth path when we are new, but the summers pass and the sludge builds up in our engine and our blade dulls—and our prose dulls too. Then the papers we write are scarcely sharp enough to knock the heads off dandelions. Here are four books that can help you kick off the rust, clean your engine, and sharpen your blade:

- *Guide to Effective Military Writing* by William A. McIntosh. Harrisburg, Pennsylvania: Stackpole Books, 1986, 224 pages, $14.95 (paper).
- *The Elements of Style* by William Strunk, Jr., and E. B. White. 3d edition. New York: Macmillan, 1979, 92 pages, $4.95 (paper).
- *Words into Type* based on studies by Marjorie E. Skillin, Robert M. Gay, and other authorities. 3d edition. Englewood Cliffs, New Jersey: Prentice-Hall, 1974, 585 pages, $39.95.
- Any first-rate dictionary. My choice: *Webster's Ninth New Collegiate Dictionary* edited by Frederick C. Mish et al. Springfield, Massachusetts: Merriam-Webster, Inc., 1985, 1,564 pages, $16.95 to $23.95.

McIntosh Deserves an Apple

Col William A. McIntosh is a professor of English at West Point. I have never met him, never seen him perform in a classroom, but I bet he's one hell of a good teacher. His book is important. Its subtitle is *A Handbook for Getting Things Written Quickly, Correctly, and Easily.*

This book is written specifically for military writers. Part 1, comprising 116 pages organized into 10 straightforward, sensible chapters, can be read in a couple of sittings—maybe just one. It's so worthwhile that you may want to read it twice. Part 2, which is an alphabetically arranged "checklist of grammar, usage, and mechanics," can be productively scanned, with close attention reserved for the here and there, picking and profiting from the author's judgments on the linguistic crimes we individually commit.

McIntosh begins with an obvious but almost uniformly overlooked basic. Borrowing from Hippocrates, perhaps, he tells us up front,

Given the reality of unending mounds of paper, what can you do to improve the situation? For starters, try doing nothing that will make things worse. Specifically, you must resist the urge to write when writing isn't absolutely necessary. The basic rule every military writer ought to live by is this: *I will write only when I must.*

Such sense fills McIntosh's book, and it's available to you in the space of an afternoon. He offers us golden advice on the elemental necessity to introduce substance to our writing ("Without it, the best you can hope to do is put together a series of empty phrases that may, if you're very lucky, *seem* to have some utility"); on exercising judgment in what we put in and what we leave out ("Both gluttony and starvation make the stomach hurt and injure the body. The object is moderation"); and on the aggravating mechanical nits of putting words on paper ("Form possessives of words ending in s by adding an apostrophe and another s, unless it sounds bad"). Such sense.

In chapter 5, "Organization," McIntosh says what I have always thought about traditional outlines and what I wish I'd had the temerity to point out to my high school English teachers: "The stuff I put after Roman numerals I and III was utterly worthless." Free at last. McIntosh releases us from the stifling, confining, rigid structure of stepladder outlines and educates us instead in a new method of organizing our thoughts. He calls it *brainstorming*, but it goes beyond the common concept of that term. This has nothing to do with sitting in a room with a bunch of other people who don't want to be there either and corporately seeking cosmic inspiration or the lowest common denominator. This is a personal style of brainstorming he brings us to, a method for getting inside our own skulls and drawing our ideas out onto paper in a way that elicits creativity and promotes an organizing process that leaves those old high school outlines to die in chalk dust.

That chapter on organization can help anyone who has to write more than one page on an issue with more than one contention. And McIntosh's chapter 6, on style, and chapter 7, on correctness, should be required reading for all of us.

I can quibble with bits of McIntosh's book (editors always can do that), but the objections would be no more than quibbles. His discussion of collective nouns is oversimplified; that topic is better addressed in *Words into Type*. Also, his discussion of nonsexist language seems to countenance those annoying slash formations like *he/she* and *him/her* (not to mention the abominable *s/he*); but he barks at the unwelcome grammatical intruder who in the admirable pursuit of equality would cast aside number agreement and have us say things like "*Everyone* should have *their* report in on time." On this difficult issue, McIntosh admirably employs throughout his book the solution I prefer— periodically (and gracefully) shifting his use of pronouns, in some sections using the masculine *he* and in other sections the feminine *she*. (Addendum: We all may have to get used to slash formations like *she/he* in dealing with this stickiness; evidence is seen in the notes we receive from our children's elementary school teachers, invariably crafted with slashes.)

Such criticisms are barely worth raising, however, and are so small as to serve better to point out the overarching worth and sensibility of McIntosh's book, cover to cover. And it's short. Rather than trying to be comprehensive and wading into the muck of contentious points of grammar, McIntosh has cut to the basics, simplifying where he could, illuminating everywhere, and working always to help the *military* writer. Read this book. If you take its counsel, you will become a better writer.

The Lasting Little Book

The second book you need to read is even shorter than McIntosh's. *The*

Elements of Style, by William Strunk, Jr., and E. B. White, has only 92 pages—and the pages are little. But perhaps no book ever written on the English language is better, ounce for ounce. In half an evening of reading, you can find in this book a wealth of straight wisdom about writing with style and grace.

The Elements of Style begins with a section containing 11 "Elementary Rules of Usage," followed by a section with 11 "Elementary Principles of Composition." Read these rules and principles; don't just skim them.

Also read, especially and carefully, the closing section of the book, titled "An Approach to Style." This section, just 19 pages long, invites your close attention if you want to be a better writer. It holds a wonderful description of what "style" is and how one achieves it in his writing. Listen:

> Style not only reveals the spirit of the man but reveals his identity, as surely as would his fingerprints. . . . Young writers often suppose that style is a garnish for the meat of prose, a sauce by which a dull dish is made palatable. Style has no such separate entity; it is undetachable, unfilterable. The beginner should approach style warily, realizing that it is himself he is approaching, no other; and he should begin by turning resolutely away from all devices that are popularly believed to indicate style—all mannerisms, tricks, adornments. The approach to style is by way of plainness, simplicity, orderliness, sincerity.

Don't misread that to mean that your writing should be dull, unimaginative, or staccato. To quote again, "The first piece of advice is this: to achieve style, begin by affecting none." Choose precise nouns ("The adjective hasn't been built that can pull a weak or inaccurate noun out of a tight place," Strunk and White remind us), and choose strong, active verbs. Avoid jargon. Seek clarity. Neither overwrite nor oversimplify your writing. Don't be afraid to use wit; don't be afraid to be colorful. Paint a clear and interesting picture for your reader to look at. Make him smile now and then. Make him feel what you feel. The essence of good poetry is to convey emotion, and we could do with a bit more poetry in our prose.

Two References Worth Referring To

The other two books listed above aren't for reading cover to cover, but for *ready* reference. Both should be within an arm's length of where you do your writing.

Words into Type is the best single reference I have found for solving the puzzles of construction that writers encounter. Should you use a singular or plural verb? Should you put a title in quotes or underline it? When do you capitalize? When do you hyphenate? When do you punt?

Words into Type has answers. It is a clear and complete reference for points of grammar, usage, and style, and it should be helpful to you regardless of your level of writing expertise. Whether you have a problem with an unruly comma or with objective case, this book can help you solve it. *Words into Type* is the technical manual to help you write correctly. It also contains excellent glossaries and a lengthy, instructive section on the elements of typography, composition, and illustration. (Regrettably, parts are dated because the current edition came out in 1974, before the computer revolution in writing and publishing. A new edition is scheduled for publication in 1993; one hopes that it will correct that shortcoming.) Yet, the book's greatest strength is its index. A reference book is worthless if you can't find in it just what you are looking for. With the index in *Words into Type*, you can find exactly what you are looking for, quickly and easily. What a relief.

You also need to keep a good dictionary within reach. I use *Webster's Ninth New Collegiate Dictionary*, but several excellent

ones are available. Get a solid, cloth-bound, two-inch-thick one to keep at your side when you write. A cowboy in the wild West needed his six-gun when he rode into a dusty, dangerous town, and you need to have a loaded dictionary at hand when you write into new territory.

Unless you can unfailingly spell correctly words like *dessicate*, *accomodation*, and *embarassing*, you will need a dictionary. (All three of those examples were mispelled in that sentence, by the way. So was *mispelled* misspelled in that last sentence.) But you need a dictionary for a much more important purpose than merely correcting your spelling—the spelling checker in your word-processing program can handle that. Rather, you need a dictionary to help you find the right words to express yourself precisely and to help you use those words properly.

Without using a dictionary to reach for better words, we end up using cliches. We end up with Major Impact. I'm about convinced there is an impish or perhaps deranged officer whose assignment was lost. His name is Major Impact. Absent any orders, he travels covertly from base to post to station, inserting his name in every document he can find, as many times as he can. Thus, nothing "affects" anything anymore; everything has a Major

Impact instead. Somebody catch this guy. Put him away. Or promote him. At the very least, strike his name *every* time you see it crop up in your prose.

Sloppy use of faded nouns like *impact* and puny adjectives like *major* reduces our writing to mush. And it reduces our readers' appetite accordingly. Get in the habit of using a dictionary—and perhaps a thesaurus—to find strong nouns and descriptive adjectives. (Use a thesaurus with caution, however, never relying solely on it. Close words can have quite different connotations. Finding a nugget in a thesaurus is fine, but assay it at the local dictionary before you try to spend it.)

Writing well does take time, but your readers will appreciate the care you take, and habitually using a dictionary will have the beneficial side effects of improving your vocabulary, sensitizing you to proper usage, and expanding your thinking.

On the Second Shelf

Four books will not a library, nor an accomplished writer, make. The four works discussed above can indeed make you a better writer if you are not already familiar with them, but let's now walk a little deeper into the stacks.

The fifth book on your shopping list might well be *American Style and Usage: The Consensus* by Roy H. Copperud (New York: Van Nostrand Reinhold, 1980). This book is a comprehensive comparative study of what disputatious authorities have to say about all the troublesome gremlins that complicate our writing and collectively define American style and usage. The gremlins are lined up here in alphabetical order for ease of observation, or perhaps execution. In preparing the book, Copperud has compared works like H. W. Fowler's *Dictionary of Modern English Usage*, Wilson Follett's *Modern American Usage*, and virtually all the

Dissertations, or perhaps *The MLA* [Modern Language Association] *Handbook*. You may want a thesaurus, a book of quotations, an atlas, an almanac, references for your word processor, and—if you are writing for publication—perhaps a market guide (check your military library for *Markets for the Military Writer*, an excellent listing of military publications that is compiled and distributed periodically by the office of the Chief of Public Affairs, Department of the Army). You may also want several shelves devoted to specialized subject references. But you need to spend some time, too, with books that only unintentionally teach you how to write better.

That puzzling last sentence is meant to pass along good advice found in several quarters and variants: If you want to write good prose, you need to read good prose. Spending 10-hour days in the company of official regs and manuals won't make you a better writer. But spending an evening casually reading the *Essays of E. B. White* will expose you to a stylish writer in action; spending some time with *The Complete Short Stories of Mark Twain* will teach you the remarkable power of finely turned humor. You don't need to hew to my favorites, though. You know good writing when you see it; if you make time to read good prose for sheer enjoyment, you will find yourself writing better.

other superior dictionaries and usage guides. He concisely tells us the range of authoritative opinion on how best to deal with literally thousands of those little gremlins; he gives us the consensus view; and he does so with wit, charm, and clarity. One word of warning: If you care about using words carefully, you will find it hard to put this book down in less than half an hour. I can't look up a single entry without being drawn to others—the book is filled with tasty, seductive potato chips.

You will want other books on your second shelf as well. If you deal in endnotes, buy a copy of Kate Turabian's *A Manual for Writers of Term Papers, Theses, and*

Four Little Essays

1. *On Communication.* You don't have to be a great writer to be an effective writer. Here's how to be an effective writer: Have something of substance to say. Write carefully enough to avoid toxic errors in grammar, mechanics, and usage. Use short sentences and descriptive words. And try to write so clearly and directly that your reader will understand what you have written the first time he reads it.

Rephrased for the computer age, we need to make our writing "reader-friendly." We need to be clear and concise. But that doesn't mean that we need to be dull. Use variety in your writing. Use words your reader can picture. Use ideas he can associate with his own experiences. Understand that there is a debilitating difference between trying to express yourself and trying to impress your reader.

The job of any piece of writing is to communicate. McIntosh makes that generality quite specific: "Writing exists to these ends: 1. To delight. 2. To teach." The enumeration pops up elsewhere as to entertain or to inform. Generally, our official writing is intended to inform, and when we lose sight of that—or when we inform badly—we do a disservice to the military service, the government, and the taxpayers. The cost of badly written correspondence, memoranda, regulations, and doctrine is incalculable. In wartime, the cost might be counted in human lives.

We are often told to "write as you speak." I would modify that slightly, to "write as you speak, only more precisely." Writing enables us to unleash the power of words in a way that casual conversations or on-the-spot discussions don't. Writing is time-consuming, and it requires a careful touch. Writing well means taking the time to express clearly what you really mean. Writing concisely is hard work. "Not that the story need be long," wrote Henry David Thoreau, "but it will take a long time to make it short." When you write, take the time to write well.

2. *On Formats.* Our concern should be with substance. Too often that forest is obscured by a misplaced gaze on the trees of format. Time after time, letters are bounced back to the authors to be redone for reasons having nothing to do with whether they communicate effectively. On one, the scribble says "Washington, D.C., should be abbreviated WASH DC," with an arrow aimed threateningly at the inside address; another must be retyped because it contains more than three hyphenated words; another doesn't have periods in "U.S."; another has too much space above the date, or too little; another doesn't abbreviate "enclosures" just right. So secretaries take the heat, bite their lips, and do the blessed things over, too often again and yet again if some other piddling fault is found. Someone up the chain gloats at having exercised his authority, at having made the world safer for democracy—someone who obviously has too little real work to do. Corporate good will is spent foolishly; time is wasted; and the taxpayers get stuck with the tab.

Formats should be applied to facilitate communication, not to hinder it. They do this by making papers generally recognizable. They should be made available to help an organization communicate, not used as a stick to beat effective writing into submission. Dazzle your subordinates with your common sense! If we want our people to write well, to communicate effectively on paper, then the superiors who read and review those communications have an obligation to judge them for their content. Too many such reviewers seem too concerned with the width of the margins; they probably go home at night and criticize their kids for coloring outside the lines.

3. *Be a Bit Audacious.* Your challenge as a writer is to reach for the right word, not to just always settle for plain vanilla ones. Let your personality show through your writing. Be distinct. Filling your prose with acronyms and jargon impedes communication and puts your reader to sleep. Using perfectly descriptive words sends your message and engages your reader.

Don't be afraid to use an unfamiliar word if it's the right one. If a few of the readers don't understand it, what's wrong with a little education? As Casey Stengel said, "You could look it up." My little boy is walking, talking proof that even second graders have the sense to ask what a word means if they don't understand it. So as long as you are using a word correctly,

you shouldn't inhibit your vocabulary unnecessarily in your writing. True, you want to be clear; simplicity is good; and you don't want to be pretentious. But sometimes the exact word you need is an uncommon one, and you should use it.

4. *Blue Pencil Blues*. We editors need to read McIntosh too (and for this discussion the category of "editors" includes anyone who reviews another's writing and either revises it or suggests revisions to it). We let our egos become too involved in our work. McIntosh puts it this way:

> One of the hardest things editors must do is let their own pet peeves pass unchanged when they don't impede effective communication. Face it: sometimes changing *however* to *moreover* is simply an exercise in power. And that's nonsense. Changing *and* to *but* is another matter, though. Be sure you know the difference. Use your power when effectiveness is at stake; when the choice is simply a matter of personal taste, let the writer alone. It's hard to do, but do it anyway.

Too often, we editors go too far. Too many editors change *happy* to *glad*. Too many editors force their own style on a writer. We should lighten up a little.

Jacques Barzun once wrote a beautiful damnation of editors for *The American Scholar*. The essence of his lament was that writers are the only artists who let somebody else screw up their art after it's finished. Editors should remember that.

Sometimes an editor has to use her blue pencil, or her scissors, or her axe, boldly. Some writing is abstruse, or lifeless, or plain incorrect. Editors owe it to their readers—and to their writers—to make the prose clear, to breathe some life into it if it needs it, and to make it correct. But as they say back home, "If it ain't broke, don't fix it." Editors should encourage writers to write, to write creatively, and to develop their own style. We shouldn't be in the business of discouraging them by forcing them into some prescribed template.

Finally, Five Suggestions

1. *Keep It Simple*. If a phone call isn't an appropriate response to that blivet that just fell on your desk, how about a short, informal, handwritten note? If you have access to electronic mail, learn to use it to send informal messages. If you must write a more formal paper, don't get wrapped around the axle about its format. Clarity should be your purpose, not petty conformity. That holds, too, if you are reviewing someone else's written work; whether writer or reviewer, you should generally confine your concern to the paper's clarity and substance.

2. *Compose on a Computer*. This is the computer age, so get with it. If high school sophomores can learn word processing, then so can you. The vast benefits will soon become apparent. Being able to make instant revisions will make you a better writer. You will find, once you become adept at driving that keyboard, that writing drafts on a computer is quicker than writing in longhand. (If you have a secretary, she probably has plenty to do without the added burden of having to decipher your scrawl, and would no doubt happily format and print your work for you if only you would compose on the screen.) Learning word processing will require some of your time and a lot of your patience, but it will pay terrific dividends.

3. *Relax*. To repeat, write as you speak, only more precisely. And relax: Write as you speak when you are off duty—but without the harsher expletives! Recall Strunk and White's advice on developing your style: "The approach to style is by way of plainness, simplicity, orderliness, sincerity."

4. *Revise*. Revising your written work is a pain and time-consuming, but essential if you are writing something important. When you revise, try to substitute precise words for imprecise ones. Try to sympathize with your reader: Find and clarify anything in your paper that will be

a riddle to him. Make sure your grammar is generally right—editors tire of seeing subjects and verbs separated by a comma. And check your spelling. Use the active voice rather than the passive (you can look it up in *Words into Type*). Unless you are adding something of substance, your revision should be shorter than the original. Kick out the buzzwords and cliches. Avoid acronyms. If you must use acronyms, limit their number, and spell them out once to make sure your readers will know what they mean. And work to make your prose more forceful: Enlist meaningful nouns and descriptive adjectives, deploy some short sentences, order strong verbs into the action, and aim for originality.

5. *Get Your Fingers on Four Books.* Read McIntosh. Read Strunk and White. Refer often to *Words into Type* and to that solid dictionary you are going to keep on your desk. Then enjoy being a better writer. □

I Can Write Better Than That!

OK, then do it! *Airpower Journal* is always looking for good articles written by our readers. If you've got something to say, send it to us. We'll be happy to consider it for publication.

The *Airpower Journal* focuses on the operational level of war, that broad area between grand strategy and tactics. We are interested in articles that will stimulate thought on how warfare is conducted. This includes not only the actual conduct of war at the operational level, but also the impact of leadership, training, and support functions on operations.

We need two typed, double-spaced draft copies of your work. We encourage you to supply graphics and photos to support your article, but don't let the lack of those keep you from writing! We are looking for articles from 2,500 to 5,000 words in length—about 15 to 25 pages.

As the professional journal of the Air Force, we strive to expand the horizons and professional knowledge of Air Force personnel. To do this, we seek and encourage challenging articles. We look forward to your submissions. Send them to the Editor, *Airpower Journal*, Walker Hall, Maxwell AFB AL 36112-5532.

Ricochets
continued from page 3

today are well educated (perhaps not smarter or dumber) and that they would like to know why they are performing a particular task (current management leadership style), I dutifully explained every aspect of the mission. However, during a particularly unpleasant point in the exercise (we were processing hundreds of personnel at the worst possible time), the shift changed. I found myself having to explain to the outgoing shift the whys of their having to stay. I suddenly realized that this was not the time for explanation; it was the time for action. I ordered each airman to the line without question. Otherwise, they would face appropriate punishment for failure to follow the direct orders of a superior. Lesson learned.

This example must have been played over by many people in Operation Desert Storm, albeit with a little more at stake. However, it underscores our uniqueness as an organization, compared to the civilian sector. The military is the only organization that is in the business of breaking things and killing people. Ultimately, we are asking our people to die. (Some may argue that the same is true of fire fighters and police officers; however, the function of armed conflict has always been our primary mission.) As a result, the necessity of command and the inherent discipline required to function as a military unit underscore the need for understanding the difference between a peacetime management operation and a wartime environment. Gen Merrill A. McPeak, Air Force chief of staff, has said that we must organize in the same way that we intend to fight. More importantly, I believe we must think and act in the same way that we intend to fight.

Good leadership involves all the aspects that Captain Rinehart points out: an ability to identify where people fit and how they contribute, an understanding of the goals of the organization, a desire to be a part of the team, and so forth. However, military leadership (command) is unique. It separates us completely from the civilian sector and validates the necessity for our current command structure. It is that aspect of command that may not allow us to totally adopt Dr Deming's philosophy of continuous improvement and statistical analysis. Let's not lose our unique military consciousness. It is a centuries-old, proven ideal

and is absolutely necessary for our effectiveness and, ultimately, our lives.

Capt Raymond P. Clark, USAF
Chanute AFB, Illinois

Captain Rinehart's Response:

I would not presume to debate Captain Clark on the ultimate origin of the traditional organizational structure, because the hierarchical form has been with us for centuries (e.g., the Egyptian and Babylonian bureaucracies). As Sun Tzu wrote in *The Art of War*, "Generally, management of many is the same as management of few. It is a matter of organization." However, the fact that the structure has been with us for some time does not, by itself, signify whether it is inherently good or bad. I refer the reader to Joel A. Barker's *Discovering the Future: The Business of Paradigms* (St. Paul, Minn.: ILI Press, 1989) for a discussion of the fallacy of arguing from antiquity or previous success.

As to Captain Clark's "lesson learned," I am forced to wonder what lesson was missed. Why, for instance, did the troops demand any explanation? Was their previous training inadequate? Did they not understand the enormity of their task or the need for expediency? Were they not motivated or dedicated? The situation was an exercise—a controlled situation made to simulate a real-world emergency. Such events allow participants to practice what they should already know. Did they understand the necessity of realistic training? How much better might they have performed if they had fully understood and accepted the necessity?

I offer a somewhat similar example from my lieutenant days. As the chief of the disaster-response force at an Air Force laboratory, I had the unpleasant duty of leading the response to two real-world accidents. In each case, the noncommissioned officers (NCO) on my team were ready and willing to take the risks involved in bringing the situation under control, despite danger to themselves (e.g., toxic and hazardous rocket propellant) and difficult circumstances (e.g., desert heat combined with full-body protective equipment). How did we get to that state of readiness and ability? Our organization, like every other in the Air Force,

regularly trained the response-team members and conducted major-accident-response exercises to hone their skills. My team understood the *why* of their duties (as well as the *how*) through their training and were able to respond without question when the need arose. Perhaps I was particularly fortunate, and my team was atypical; however, I like to think that all airmen and NCOs are as competent and professional as those I had the pleasure of leading.

I suspect the same is true of Operation Desert Storm. That is, our troops performed well precisely because they had been well prepared ahead of time. This does not belie the fact that emergency situations typically focus our attention solely on the mission to be accomplished, more so than on issues of organizational politics. If we are to "think and act in the same way that we intend to fight," then we need to maintain our focus on the mission and evaluate ourselves according to our contribution to the mission.

Capt Graham W. Rinehart, USAF
Clemson, South Carolina

Since being introduced to the *Airpower Journal* while I attended Air Command and Staff College from 1988 to 1989, I have enjoyed many very informative issues and have continued my professional military education by reading the articles you publish. I hope that recent budget reductions will not adversely affect this publication.

I wish to commend highly Captain Rinehart's article on total quality management. It is absolutely outstanding—one of your very best. In view of the changes taking place in the Air Force, it is extremely timely. Captain Rinehart should be commended for his contribution.

Maj Glenn S. Scadden, USAFR
Hill AFB, Utah

Suppose you own your own business and you want people to spend their money on your products and services. You know they can get similar products and services of varying quality and price from your competitors. Are your customers always right? Generally speaking, the answer is "yes." In other words, either you respect the wishes of your customers by giving them the products and services they want at a reasonable price or they will go somewhere else to spend their money.

Now, let's look at this question from a different perspective. Put your Air Force uniform on. You need help from another Air Force unit on base. You can't get your job done properly unless you get the support you need. You walk up to the customer service counter and expect prompt attention, professional treatment, and quality service. You know very little about the capabilities, limitations, and priorities of the people on the other side of the counter, but you expect them to know exactly what you need to get your job done. You are the customer, and you are always right! Right?

Not necessarily. In fact, technically speaking, you're not even a customer. Why? Because you can't get what you need anywhere else. You may not get treated properly, and you have every right to complain, but you can't walk out and take your business elsewhere.

So, if you're not a customer, what are you? Very simple. You're a member of a team. And so is the person on the other side of the counter. In fact, you're both members of the same team, and the team has a single, common objective: accomplish the mission.

The two scenarios described above illustrate a basic distinction between the private sector and the military, and this distinction should be taken into account when one implements the principles of total quality management in a military organization. When you walk into your local car dealer to shop for a new car, you definitely don't feel like you're on the same team as the salesperson following you around. And you know you don't have the same objectives. In that situation, you're the customer, you're always right, and you know there's another dealer just down the street.

However, when you put on your uniform and head for the base, you're not really a customer anymore. You're a member of a team, and only your teammates can give you the support you need. You might be a pretty important person with a pretty important job, but you're not as important as the team.

And, believe it or not, you might not always be right.

Capt Kenneth R. Bashford, USAF
Mather AFB, California

Captain Rinehart's Response:

In light of the assertion that mission accomplishment should be our primary goal and focus, Captain Bashford is completely correct in pointing out that we are all members of one team. This does not, however, mean that we are not customers and suppliers of one another. The concept of internal customers comes from Dr Kaoru Ishikawa, who says that all processes within an organizational system are interconnected, pointing out that "the next process is your customer." (See Kaoru Ishikawa, *What Is Total Quality Control? The Japanese Way* [Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1985].) For the opposite viewpoint—that internal customers should not be considered— see Stanley M. Davis, *Future Perfect* (Reading, Mass.: Addison-Wesley Publishing, Inc., 1987). If the word *customer* is difficult, you may substitute *user* or *client*; however, as Captain Bashford points out, we have had customer service desks in military shops for some time without bantering the semantics.

Captain Bashford asserts that the military orientation toward the mission—as opposed to an external customer—and the military member's position on the larger organizational team—as opposed to his or her position in the customer-supplier relationship—form "a basic distinction [which] should be taken into account" by those seeking to instill a quality consciousness. That the military is a unique institution seems quite evident; that the military's uniqueness means it cannot benefit from continuous improvement does not necessarily follow. (My focus, from inside, on how I can best serve my customers and accomplish the mission is very much different than my focus, from outside, on how I can best get what I want. The first leads to improved processes and services, the second to disputes and threats.)

We all employ tools to get our jobs done, whether they be wrenches, soldering irons, computers, or airplanes. When we pick up a new tool, it may feel strange and may take us time to learn to use it properly. For leaders charged with accomplishing the mission, the new organizational paradigm was presented as a tool. It may feel unwieldy at first, and—like all tools—it is not good for every problem, but with time and practice its utility may be proven.

Capt Graham W. Rinehart, USAF
Clemson, South Carolina

DOCTRINAL DISPUTE

Lt Col Price T. Bingham's article, "Air Power in Desert Storm and the Need for Doctrinal Change" (Winter 1991), was very interesting and presents some good points. Unfortunately, it misses the mark. Some of the more contentious issues are his views concerning doctrinal change, air power dominance in future wars, other services understanding the importance of air superiority, and his argument for functional componency.

Joint doctrine is authoritative, not directive. Doctrine is not crafted to usurp the command prerogatives of a war-fighting joint force commander (JFC). It provides the JFC a framework or menu of options to assist him in organizing his force so he can effectively accomplish the mission.

Colonel Bingham draws heavily on the Gulf war experience. But it's important that the services do not selectively draw conclusions from that conflict. Otherwise, we will bias the way we prepare to fight the next war and not profit from lessons learned. We should remember the example of the Israelis, who precipitously changed their doctrine based on their success in the 1967 war and came to the wrong conclusions, which they regretted in 1973.

Apparent domination by any service's capability in warfare is limited by the parameters of the situation. Historically, other capabilities were believed to dominate the battlefield (archers, cavalry, artillery, machine guns, armor, etc.) but have fallen to newer technology and applications of warfare. What must dominate is the "Great Captain" who understands the entire spectrum of war and who can, at a given point in time and space, place emphasis on a particular application to bring about victory. Desert Storm truly demonstrated the importance of the synchronistic effect, or combat multiplier, of the total joint force. The commander in chief (CINC) of the joint force recognized the importance of air operations as a part of his campaign plan but equally recognized the importance of maritime and ground operations.

The CINC did effectively use, during one phase of the operation, ground troops and maritime operations to support the employment of air power, but not to the extent the author suggests. As a result of defensive ground positioning and maritime operations, the Iraqis, a poorly led and inept enemy, chose to remain in vulnerable, static positions with limited cover and consequently made themselves more vulnerable to the lethality of air power. Desert Storm was exceptionally unique, and we cannot expect our next opponent to be so inept or the terrain to be so favorable to an action. When ground operations commenced, the CINC employed air power to support the ground scheme of maneuver to accomplish the liberation of Kuwait. In essence, the point of main effort shifted from air operations to ground operations based upon the tactical situation.

I submit that the services recognize the importance of air superiority and strategic air operations. However, strategic air operations are not conducted as a means unto themselves. In his enthusiasm for strategic air operations, the author ignores the key contribution that sea power played in strangling the Japanese economy during World War II and the part the atomic bomb played in ending that conflict. We must closely examine historical examples to gain true insight from the total force experience vice limiting ourselves to examining only one element of warfare.

Air power alone did not defeat the enemy or liberate Kuwait. In the final analysis, it is the man on the ground with his rifle that can and will clear and hold terrain. In order to achieve the CINC's objective, it still required Army and Marine ground forces to seize, occupy, and liberate Kuwait.

Colonel Bingham sells the Marine Corps' understanding of joint doctrine and air power short. The US Marine Corps clearly understands joint doctrine and the importance of air power. We are the only service that operates in all three mediums—air, land, and sea. There is no other service that is more oriented towards joint operations or that recognizes the importance of each service's contribution to the total effort.

The author criticizes the Marine Corps' emphasis on close air support. The primary reason why the US Marine Corps concentrates on using air in a tactical role is our expeditionary nature. We have designed our capabilities to perform as a light-to-medium force that can act as a sea-to-land bridge, an enabling force which provides access for the introduction of heavier land-based forces. The air power employment differences between the US Marine Corps and US Air Force are philosophical. Neither application of air power is incorrect; they are merely different. Both are needed in different degrees to suit different situations.

The author presents a one-sided argument for functional componency. The air component commander (ACC) does not need operational control of all air. Marine sorties for strategic efforts and excess marine air-ground task force (MAGTF) support sorties were provided to the JFC for tasking through his ACC, all within the framework of the omnibus agreement and service componency. While the CINC can organize his forces as he sees fit, service componency (as used in Desert Shield/Desert Storm) makes sense. That is how the individual services are organized, trained, and equipped.

Despite service disagreements concerning air command and control, we collectively are coming closer to resolving doctrine issues pertaining to joint doctrine without becoming doctrinaire.

Colonel Bingham's article possesses some excellent points and will truly provide an interesting vehicle for future professional discussions. As the size of the total force structure shrinks, it's apparent that future wars will be fought by a joint force. The survival of our servicemen and -women on the modern battlefield demands that all services continue to educate each other. To win in the future, we must fight efficiently and effectively as a joint force.

Lt Col H. P. Shores II, USMC
Washington, D.C.

Colonel Bingham's Response:

I agree with Colonel Shores that the services should not selectively draw conclusions from the Gulf war. Unfortunately, his letter is evidence of the tendency of many soldiers and marines to do exactly that. These individuals seek to deny aerospace power's growing dominance of conventional warfare by explaining that the Gulf war was "exceptionally unique."

The situation today is similar in many ways to that which existed at the turn of the century. Developments like the machine gun made many officers in the horse cavalry-dominated armies of Europe very uncomfortable. As a result, these officers found reasons why wars such as the American Civil War, Boer War, and Russo-Japanese War were "unique." Since these wars were unique, they ignored the implications of developing trends. As a result, European armies went off to the First World War well equipped with lances and sabres, but not with machine guns and heavy artillery. Even after this war there were attempts to pretend that the *arme blanche* still had an important role. As one writer has put it, these attempts made for "sad reading and bad history."

Colonel Shores's reference to the Israelis' experience is interesting since their main doctrinal problem in 1973 was the same problem we face today. Like many US soldiers and marines, Israeli army officers in 1967 did not appreciate the degree to which their success was due to the Israeli Air Force (IAF). However, Egypt's soldiers did, and designed a plan to neutralize the IAF. Their temporary success against the IAF in 1973 was the main reason why the Israeli army appeared to be much less effective.

Regarding the use of ground forces and maritime operations to support the employment of air power, Colonel Shores is greatly mistaken if he believes that the Iraqis made themselves more vulnerable by staying in static positions. As my article points out, German officers in World War II were well aware that moving made them more vulnerable to Allied air attack. Perhaps if joint and service doctrine provided better guidance regarding how aerospace and surface forces can complement each other, coalition ground operations would have been designed to force the Iraqis to expose themselves to destruction from the air. In the absence of such guidance, it was more by accident than design that coalition aerospace forces had the opportunity to destroy Iraqi forces on the road to Al Basrah.

Colonel Shores asserts that because the Marine Corps operates in the air and on the ground it understands the importance of air power. This is not necessarily true given the lack of guidance in Marine Corps doctrine on how ground maneuver can be used to enhance the effectiveness of air interdiction. This lack of doctrinal guidance may explain the coalition's lost opportunity at Al Khafji.

Marine ground forces at Al Khafji had the opportunity to play a key role in the annihilation of a large Iraqi force. Such successes have been achieved in the past by Great Captains who used a "panic retreat" by a portion of their forces to draw the enemy into a reckless pursuit. Once the enemy's pursuit completely exposed his force and made it impossible to escape, the Great Captain would spring his trap. Such an opportunity existed at Al Khafji. If Marine forces there had been directed to fake a panic withdrawal, it is quite likely Iraqi forces would have attempted a pursuit to the point where coalition air power could have closed the trap and annihilated the entire Iraqi force.

Lt Col Price T. Bingham, USAF
Maxwell AFB, Alabama

COMPOSITE CONJECTURE

In making his comparison of the Air Force's new composite wings with carrier air wings in the Spring 1992 issue ("A Carrier Air Wing for the Air Force: Challenges for the Composite Wing"), Maj Chris J. Krisinger has missed the boat, so to speak, in at least two fundamental ways. First, it should be obvious that composite wings are being built not to win wars by themselves but—like carrier air wings—to move quickly and efficiently as a show of force and, if necessary, as the appliers of force, perhaps autonomously in a limited scenario but only as initial contingents in conflicts of large proportions. Composite wings will be "preintegrated" for such action, not to be inviolable units but rather functional assets. To worry about a *loss* of flexibility (page 37) misses the point. The integration of theater forces is a *given* when the composite wing is not the gorilla but only a part. Second, there is no new degradation of combat readiness as a result of the formation of composite wings, as suggested by Major Krisinger (page 35). In this case, *unlike* carrier air wings, the elements of composite wings will not redeploy to separate locations after extended deployments together. The composite wing is built to live together and to fight together, and there are no stand-down periods, along with the subsequent

workup cycles, made necessary by extended duty at sea. The Air Force's new composite wings will build on the best of the Navy's carrier air wings and put a new and extremely potent combat asset in the hands of our commanders.

Capt Eric A. Jorgensen, USAF
Sheppard AFB, Texas

DOCTRINE DISCUSSION

Lt Col Phillip S. Meilinger's article about "The Problem with Our Air Power Doctrine" (Spring 1992) is a very interesting history lesson, complete with a couple of sharp barbs to keep our attention. However, it misses the target with its focus on strategic, operational, and tactical missions and targets.

In contrast to Colonel Meilinger's amazement that the strategic campaign against Iraq's industrial base during Operation Desert Storm was being conducted at the same time as the operational campaign against Iraq's army, I believe that strategic, operational, and tactical levels of warfare should occur naturally and simultaneously during any conflict. In fact, for airmen to be efficient in a major conflict, I believe it is crucial that they understand this concept and the necessary differences between these levels, as well as the criticality for the levels to have harmonized objectives. Colonel Meilinger was going in the right direction when he highlighted Gen Hoyt S. Vandenberg's ideas that strategic and tactical air power should be related to targets, not to aircraft nomenclature. But I believe—as I've suggested—that levels of warfare (objectives and strategies) are the real bottom line—not targets or aircraft or, for that matter, campaigns. It is true that various levels of warfare objectives and strategies may have apparent, specific targets associated with them, but the apparent target's warfare relevance can quickly change (for example, when the specific target moves). In fact, the strategic, operational, or tactical aspects of a target may be irrelevant. The key point is that the target supports the strategic, operational, and tactical objectives. Notwith-standing the fact that keeping track of a target's apparent strategic, operational, or tactical relevance can get confusing, the central idea is that there are strategic, operational, and tactical warfare objectives

that every airman must understand, for, as Air Vice-Marshal H. N. Wrigley of the Royal Australian Air Force explained, "The potential of each sortie to create immediate political effects require[s] every airman to understand the broad aspects and policy aims of the war at hand" (Lt Gen Charles G. Boyd and Lt Col Charles M. Westenhoff, "Air Power Thinking: 'Request Unrestricted Climb'," *Airpower Journal*, Fall 1991, 13).

Finally, I again want to commend Colonel Meilinger for his thought-provoking article. It brought out many very valid and vital points. I, for one, certainly applaud his professional contribution to improving our Air Force.

Lt Col Jay L. Baird, USAF
Naples, Italy

Colonel Meilinger's Response:

I appreciate Colonel Baird's letter, but I think there is little actual difference in our positions. First, I was not at all amazed about our ability to conduct three campaigns simultaneously in Desert Storm, and I don't think the article says that I was. On the contrary, the ability of air power to conduct such "parallel operations" is one of its greatest—and unique—strengths; it is a capability simply not possessed by surface forces.

As for the issue of strategic/tactical targets and objectives, I think Colonel Baird and I are in general agreement, but his observation is an important one. There is clearly a difference between objectives and targets. The simple fact that a target has strategic value does not mean it will or should be struck; it must first be included as an objective that fits in with the campaign plan. The relationship should be that once we identify the strategic-, operational-, or tactical-level objectives, we then select the targets associated with those levels. That is, our strategic objective is to eliminate Iraq's nuclear capability, so we target the Osirik reactor; our operational objective is to isolate the Iraqi army in Kuwait, so we target a railroad marshaling yard south of Basra. My main point was that effectiveness and efficiency, not nomenclature, should determine which aircraft strike those targets. Hence, "tactical" F-15Es may be used against the "strategic" reactor, and "strategic" B-52s may be used

to bomb the "operational" marshaling yard. Colonel Baird is quite correct in pointing out

the subtle but crucial difference between objectives and targets.

Lt Col Phillip S. Meilinger, USAF
Maxwell AFB, Alabama

NET · ASSESSMENT

Bougainville, 1943–1945: The Forgotten Campaign by Harry A. Gailey. Lexington, Kentucky 40508: University of Kentucky Press, 1991, 264 pages, $27.00.

By any method of historical accounting, the battle for Bougainville Island was a major campaign of the Pacific war. In a campaign lasting from November 1943 until the end of the war, the 3d Marine Division; the Army's 37th, 93d and American divisions; and the Australian II Corps served in turn on the island, fighting a Japanese garrison of over 65,000 troops. Bougainville was also the focus of major air and naval actions.

Harry Gailey in *Bougainville, 1943–1945: The Forgotten Campaign* has set out to write a definitive history of the fight for the island in the Northern Solomons and, to a great degree, has succeeded. Gailey's account is a solid narrative and analytical history that is generally well researched. His writing style is clear, fluent, and thoroughly readable.

The book begins by outlining the Allied strategy in the Southwest Pacific and explaining why Bougainville was chosen as an Allied base. The island was strategically located and suitable for locating several airfields with which the Allies were able to extend the reach of their air power and complete the isolation of the Japanese base at Rabaul, only 250 miles away. Gailey provides an interesting account of the preassault planning and the Allied deception operations which ensured that when the 3d Marine Division stormed ashore at Empress Augusta Bay on 1 November 1943 there were few Japanese to oppose them on the beach.

From that point on, the Allied strategy was to carve out and defend a perimeter large enough to accommodate three large air bases. Until 1945 a force of two US divisions would successfully hold a small part of the island against

counterattacks by the Japanese 17th Army. Gailey separates the campaign into three phases: (1) establishment of a beachhead and effective defense line by the end of 1943; (2) the US Army's campaign to hold the perimeter to the end of 1944; and (3) the replacement of the US force by the Australian II Corps and their campaign to clear the whole island in 1945. Gailey offers a very good account of the American operations, but his narrative of the Australian operations needs more substantiation.

By the time the Australians took command in Bougainville, the Japanese had exhausted themselves in poorly planned and spasmodic attacks and were in no position to threaten the defense perimeter. The US troops had adopted a low-casualty policy of allowing the Japanese to hold most of the island while slowly starving and dying of disease. Bougainville had become a backwater. Yet, in 1945 Lt Gen Stanley Savige, commander of the Australian II Corps, would initiate an aggressive offensive campaign to clear the whole island of Japanese—a plan that largely succeeded but that also resulted in over 2,000 Australian casualties. Gailey places the burden of guilt for this senseless campaign upon the ego of Sir Thomas Blamey, commander of the Australian Army. Blamey, presumably upset that his troops were relegated to fighting in a backwater, demanded an aggressive policy in order to maintain the reputation of Australian arms in a theater of war dominated by Gen Douglas MacArthur and the US Army. Gailey's interpretation is plausible but is not backed up by adequate research. A closer examination of Blamey's papers and Australian documents concerning this question would be of great value to the history of the Pacific war.

Another shortcoming is a too-brief outline of the Japanese side of the story. Bougainville was a killing ground for the Japanese. Of the 65,000 troops on the island in 1943, only 21,000 were

alive to surrender in 1945. This Japanese debacle is seen only through American and few Australian documents. A study of the Bougainville campaign should include some Japanese accounts.

Despite these omissions, I would strongly recommend *Bougainville, 1943–1945: The Forgotten Campaign* as a worthwhile account of an important campaign. The strategic planning and the naval and air campaign are described well. The author is at his best in his critique of the American and Australian small-unit tactics employed on Bougainville that should make his book especially worthwhile to students of ground operations.

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Dr James S. Corum
Maxwell AFB, Alabama

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Incursion: From America's Choke Hold on the NVA Lifelines to the Sacking of the Cambodian Sanctuaries by J. D. Coleman. New York 10010: Saint Martin's Press, 1991, 294 pages, $19.95.

In view of the seemingly endless supply of books on the Vietnam War, it is pleasant to find one that covers an important topic which barely has been touched—and is a darn good read to boot. It is almost as if the years 1969 and 1970 never happened in Vietnam. Yet as J. D. Coleman, a retired US Army lieutenant colonel, makes clear in this excellent book, a war was definitely being waged then.

In an earlier work, *Pleiku: The Dawn of Helicopter Warfare in Vietnam*, Coleman covered the 1st Cavalry Division (Airmobile) during the Ia Drang campaign of fall 1965, which saw the concept of airmobility introduced to modern warfare on a large scale. With *Incursion*, Coleman picks up the 1st Cav again, but it is a very different division from the one that fought hand-to-hand with the North Vietnamese Army on the bloody landing zones in the Central Highlands. By late 1968, it had become a confident, cocky, hardened division used to having the media limelight. The airmobility concept is now an established fact and has evolved far beyond the first, rather primitive efforts of the early sky soldiers.

The role of the Air Force in the interdiction campaign to stem the flow of supplies into South Vietnam is probably much better known than the other, less spectacular role played out on the ground by Army units. Indeed, few works have even discussed, much less written in depth about, this crucial campaign in which victory may have been almost within grasp. That is a major strength of this work. Coleman manages to pull together a fascinating record of the 1st Cavalry Division's role in the interdiction campaign from late 1968 to mid-1970, when the division pulled out of Cambodia. The struggle between the sky soldiers and the Vietcong and North Vietnamese forces over War Zone C is the core of *Incursion*. It is a story well told and well worth the telling.

The decision by Gen Creighton Abrams to switch strategies in mid-1968 from an emphasis on "body count" to "weighing the rice" may have been one of the true turning points of the war. As Coleman convincingly relates, that strategy began to get results. Abrams had one particular unit—the 1st Cavalry Division—in mind when he decided to launch his new strategy. The amazing movement of the 1st Cav from the northernmost provinces of the I Corps area to III Corps, with an area of operations to the north of Saigon, is one of the forgotten feats of the war. Yet, only days after the movement was initiated, the 1st Cav was conducting combat operations in its new area of operations.

The acceptance of this new strategy was not universal, as Coleman points out in his account of the struggle that the 1st Cavalry Division had with the new II Field Force commander, Lt Gen Julian Ewell. The impact this general had in nearly unraveling the success of the campaign is fascinating reading.

When the book finally turns to Cambodia, that campaign seems almost anticlimactic. The fact that the American and Vietnamese forces could enter Cambodia because the enemy forces in the III Corps area by and large had been eliminated seems to have been missed by most observers. Ironically, the political fallout from the Cambodian incursion has obscured, until now, the story of that campaign. As Coleman points out in his closing, one of the true mysteries of the war is the historical record's almost complete omission of the pacification campaign that Abrams waged so successfully in 1969 and 1970.

Incursion is one of the small number of books on the Vietnam War well worth reading. This is history to be enjoyed. The gallant young men who fought bravely and who performed so well during this campaign deserved better. Colonel Coleman has given them their due—an excellent account of a battle well fought. Read it and gain an understanding of the nature of war as it often is: the great effort and valor of

warriors rendered void by factors far removed from their struggles.

Maj H. Donald Capps, USA
Washington, D.C.

OSS against the Reich: The World War II Diaries of Colonel David K. E. Bruce edited by Nelson D. Lankford. Kent, Ohio 44242: Kent State University Press, 1991, 208 pages, $28.50.

As a special operations historian, researcher, and writer, I am always interested in and feel compelled to read any book that mentions the Office of Strategic Services (OSS), William ("Wild Bill") Donovan (founder of the OSS, precursor of today's Central Intelligence Agency), and Ernest ("Papa") Hemingway. *OSS against the Reich* is one such book. Despite its subtitle, it is more than a compilation of daily notes by Col David K. E. Bruce, Donovan's top deputy. Superbly edited by Nelson D. Lankford, assistant director of the Virginia Historical Society, the book is a revealing historical account. It takes the viewpoint of a top-level manager, who—unlike his contemporaries—made a jeep his desk and the battlefield his office.

OSS against the Reich is a valuable historical record because it is written by a man who was as much at home in New York corporate boardrooms as in European hostels. Indeed, Colonel Bruce had dealings with world leaders (Churchill and Roosevelt), military tacticians (Patton and Montgomery), captains of industry (Mellon and Hurst), as well as the rich and famous of an era that began in the early twenties and stretched across war-torn Europe in the forties. Reared in the elite circles of prewar American society, Bruce moved with ease through the highest levels of European government and society. Whereas other men functioned as "controls" for various agents in the field, Donovan used Bruce to maintain cooperation and communication between the American and Allied forces. He was destined to become one of this country's most important foreign service diplomats in the postwar period as head of the Marshall Plan in France; ambassador to Paris, Bonn, and London; and ultimately head of negotiations to the Paris peace talks in the Vietnam era. He also served as the first American emissary to China and later as an ambassador to NATO.

Although some people may not find *OSS against the Reich* as readable as other first-person accounts of World War II, Bruce manages to convey the feeling and flavor of certain aspects of the war that remain classified to this day. Further, some of the people he was in contact with during the early days of the OSS later became famous or infamous figures in the field of intelligence—among them Allen Dulles, William Casey, and Kim Philby.

The book is divided into a notes section and a diary section. The notes are remarkable for their exquisite detail, covering everything from sumptuous meals to nicknames painted on jeeps. Further, there are many interesting anecdotes and references to people who—unknown to many readers—had a part in OSS operations. They include Commander John Ford, head of the OSS photographic branch; Atherton C. Richards, Hawaiian pineapple executive and OSS deputy director; and even Ernest Hemingway, who signed a paper, "We think we took Paris," after dining for several hours in a cafe after the liberation.

All in all, I highly recommend this book to anyone who has a historical interest in World War II, especially special operations and espionage.

TSgt James W. McClain, Jr.
Eglin AFB, Florida

Vietnam: The Decisive Battles by John Pimlott. New York 10022: Macmillan, 1990, 200 pages, $39.95.

It's the title—not what's between the pages—that gives this otherwise well-written book its problems. Of the 17 military actions described and illustrated in John Pimlott's "Latest and most original addition to Macmillan's acclaimed 'Great Battles' series," less than half are battles and only one—Dien Bien Phu—can be termed truly decisive. Stubbornly trying to fit the round peg of Vietnam into the square hole of this "Great Battles" series, Macmillan and Pimlott have produced a lavish work as full of contradictions as the war it seeks to define.

Lumped together as decisive battles are military actions such as Operation Junction City, Rach Ba Rai River, and Thanh Hoa Bridge. Operation Junction City—one of the longest ground campaigns of the war—was a four-month US incursion into War Zone C aimed at destroying a major Communist sanctuary inside South Vietnam. US commanders claimed that

the operation was a turning point, demonstrating that superior US firepower and mobility could yield significant Communist body counts (2,800 confirmed enemy dead versus 282 American losses). However, Pimlott concludes that "the transient nature of the US ground incursions meant that the enemy could reclaim his jungle sanctuaries" (page 107). This is hardly a description of a decisive battle.

Official Army history describes as merely an ambush the action at Rach Ba Rai River (only a day in the life of the US Mobile Riverine Force's larger Coronado operations). So does Pimlott when he gets down to describing the action: "The VC [Vietcong] ... pinned down both battalions for the rest of the day before melting away during the night" (page 114). There is nothing decisive about this encounter either.

After years of attempting to destroy the Thanh Hoa Bridge during Operation Rolling Thunder (1965–68), the Air Force finally did it on 13 May 1972 (during Operation Linebacker I, May–October 1972), using 14 F-4s carrying newly acquired laser guided bombs. In light of the fact that US troops were withdrawing from Vietnam in 1972, there was nothing decisive about knocking out the Thanh Hoa Bridge—just a sense of relief and mission accomplished. In this case, however, Pimlott's focus on a single mission has the effect of relegating the real air power success story of the Vietnam War—Operation Linebacker itself—to second billing. By matching precision guided munitions with strategic conventional air power to stop a conventional invasion, this operation became a true watershed in aerial warfare. In the few short paragraphs Pimlott devotes to Linebacker, he does judge it "impressive" but clearly misses its military significance.

So what's wrong with this picture book? Quite simply, the problem lies in the discrepancy between what the title suggests and what the book really delivers. Despite the questionable choice (the basis of which certainly isn't clear) of a lengthy, inconclusive ground operation; an ambush; and a bridge-busting mission (among several other examples) as illustrations of decisive battles, one cannot fault Pimlott's description of the particulars. The military actions are placed in their historic context and are accompanied by interesting sidebars that describe weapons and political events, as well as give appropriate chronologies and statistics. The author has no illusions about what went wrong in Vietnam and tells the how and why in balanced, compelling prose.

The publisher, however, makes much of the book's graphics—"3-dimensional computer maps, photos and color paintings that provide a moment-by-moment re-creation of the war." That's a bit much. The photos are indeed good ones; the three-dimensional computer maps are undulating grid-square projections with numbers and arrows. They don't stand alone well and must be cross-referenced with the small terrain maps and large "paintings" usually found on another page. After much page turning, I still couldn't match what was said about Ap Bac to what was on the maps. Then I discovered that item eight (three M-113s in the narrative) was actually item six—Ap Bac village. The numbers in the color painting (keyed to the maps) were reversed. Several of the small terrain maps—much better for locating and understanding force movements than the heralded computer graphics—were taken right out of the official US Army publication *Seven Firefights in Vietnam*. That's what the Army called the 14–16 November 1965 action in the Ia Drang Valley and the fight along the Rach Ba Rai River—both decisive battles in Macmillan parlance.

Vietnam: The Decisive Battles is a lovely package to browse through but not serious enough to justify the $40 price tag unless you collect the "Great Battles" series or have extra space on your coffee table. The narrative is excellent but very condensed. Serious students, especially those interested in the role of air power, have far better sources in Mark Clodfelter's *The Limits of Airpower: The American Bombing of North Vietnam* and Earl Tilford's *Setup: What the Air Force Did in Vietnam and Why*.

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Lt Col Suzanne B. Gehri
Maxwell AFB, Alabama

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Silent Warfare: Understanding the World of Intelligence by Abram N. Shulsky. McLean, Virginia 22102: Brassey's, Inc., 1991, 222 pages, $19.95.

The back cover of *Silent Warfare* promises that this book is "the best place for the general reader to start learning about the real world of intelligence" and that it is "the ideal primer on intelligence." Don't believe it. Many other works meet these claims better than this one. By Shulsky's own admission, his book is too "fundamentally theoretical" to be considered an ideal primer.

The author seeks to "demystify" intelligence and encourage a "flow of ideas between the intelligence and academic communities." While I agree that the application of "social science methodology" can be used to help predict an adversary's behavior, we recently saw the limitations of such an approach in the Persian Gulf. The best we can usually hope for is the development of several *probable* courses of action. However, I disagree with Shulsky's claim that "the heart of the problem of intelligence failure" is "the thought process of the individual analyst." He insufficiently explores the impact that decision makers have in the equation: if warning is rejected or not acted upon—as was the case with regard to Iraq and Kuwait—then is the analyst really at fault? I think not.

Perhaps I am being petty, but Shulsky's avoidance of correct terminology, such as *foreign area studies* experts, the basic research that becomes *intelligence preparation of the battlefield*, and the *fusion* of *all-source* information, did not inspire confidence in his grasp of the subject matter. His comment that "secrecy hinders the management and control mechanisms that are common elsewhere in government" also fails to acknowledge that auditors and inspectors general function within the intelligence community! Shulsky's experience as minority staff director of the Senate Select Committee on Intelligence and as consultant to the President's Foreign Intelligence Board seems somehow to have scarred his perceptions.

Nonetheless, his observation that tension between the intelligence community and policymakers may result from the "failure of the intelligence product to make clear the kind of evidence on which it is based" is a valuable point to ponder. How often do we frustrate our bosses with our unwillingness to tell them the "whole story" because they do not have access to the proper compartmented information? As Shulsky notes, this often leads to the conclusion that intelligence judgments are "just speculative" and "not based on hard data." Furthermore, many operators simply don't trust people in intelligence because they frequently are reluctant to go out on a limb and offer their personal assessment of what it all means.

Something that could actually increase that reluctance to take a stand is President Bush's national security directive of December 1991, which aims to reshape our national intelligence-gathering apparatus to include greater focus on shortages of natural resources, global health problems, and other areas not previously considered central to national security. Interestingly enough, however, Shulsky cites William Colby and Stansfield Turner, former directors of the Central Intelligence Agency, who both recommended greater use of intelligence resources to project future demographic, economic, and environmental trends to serve our nation and the world. Personally, I think that is a good idea, but we must beware forsaking traditional military concerns. Although we won the cold war, there are now even *more* potential adversaries to watch.

I did not find this book particularly "user friendly." Although the author includes many "classics" from the field (e.g., John Barron's *KGB Today*, William Burrows's *Deep Black*, Allen Dulles's *The Craft of Intelligence*, David Kahn's *The Codebreakers*, and Herbert Yardley's *The American Black Chamber*) and provides thought-provoking information in footnotes, the constant back and forth to the notes is distracting. A comprehensive bibliography, perhaps grouped by subject matter, would have provided a valuable tool that serious students might have used to develop coherent professional reading programs.

Shulsky simply does not provide the promised "unique introduction to the world of intelligence." On the contrary, a 27-page article entitled "Intelligence: A Consumer's Guide," by Col John Macartney, published by National Defense University in 1989, does an outstanding job of helping the general reader understand intelligence. Written by an operator-turned-intel-toad, the article comes much closer to being a genuine primer than does Shulsky's book.

Col C. J. Bohn III, USAF
Goodfellow AFB, Texas

Fatal Decision: Anzio and the Battle for Rome by Carlo D'Este. New York 10022: HarperCollins Publishers, 1991. 566 pages, $35.00.

Fatal Decision is the fourth book by Carlo D'Este on World War II and his third on the Mediterranean campaign. I hope it is not his last. It covers material that others have covered

but adds the human touch, especially the personalities and rivalries of the commanders, as well as the appalling existence of the men "at the sharp end." I found it hard to put down and easy to pick up at odd moments.

D'Este traces the roots of his story back to the Allied decision to invade French North Africa. With increasing detail, he follows the Allied armies through Tunisia, Sicily, and the Salerno beaches, to a stalemate on the Gustav Line at Cassino. He shows how many of the problems at Anzio, particularly those that plagued the Allies, were the result of events that occurred during the 12 months before the landing.

Anzio was a gamble and a pet project of Winston Churchill. Two Allied divisions landed almost unopposed behind the front lines near Rome. Churchill hoped they would advance aggressively and panic the Germans into retreating to northern Italy. Maj Gen John P. Lucas, the American commander of the landing, knew how vulnerable he was and acted cautiously. The Germans, under the cool and ever-optimistic leadership of Field Marshal Kesselring ("Smiling Albert"), did not panic and soon assembled a formidable force to throw the Allies back into the sea. What resulted was some of the fiercest and bloodiest fighting of the war. The rainy weather and the terrain limited the usefulness of tanks and air power, and the battle came to resemble World War I trench warfare. Artillery was king, and the infantry was fed into a meat grinder of attrition.

Both Hitler and Churchill took a personal interest in the battle. Hitler saw it as a chance to make the Allies think twice about the upcoming landing in France. Churchill was determined that there would not be another Dunkirk or—less spoken of—another Gallipoli.

D'Este tells each episode of his story three times—first in overview, then in detail, and then from the point of view of the other side. He has made extensive use of primary sources, including Gen Mark Clark's unedited diary, which became available only after Clark's death in 1984. He delves into the personalities and relationships of the commanders, as well as the experiences of the men in the front lines. This gives the book a flavor that the official histories lack.

Several themes reappear throughout the book. One is that staff officers far removed from the reality of combat invariably draw up faulty plans. Another is that jealousies, rivalries, and prejudices frequently result in faulty execution and lost opportunities. A third is that good, capable, aggressive leadership is critical to success. Another lesson that D'Este repeatedly demonstrates is that if joint operations are extremely difficult, combined operations are nearly impossible.

General Clark, commander of the American Fifth Army, does not come off well in the book. He gets out of his command post and visits his troops in the front lines, a characteristic that D'Este admires. However, Clark's dislike and suspicion of the British are portrayed as his reasons for not reinforcing a successful British diversionary attack at the First Battle of Cassino. Furthermore, his obsession with getting to Rome before the British, combined with the passivity of his superior, Gen Sir Harold Alexander, causes Clark to fumble an opportunity to trap the retreating Germans with the forces breaking out from Anzio.

One weakness of the book is its maps. Features have been misplaced on some, and one is unreadable. A single map of central Italy showing the Gustav Line, Anzio, Rome, and another possible invasion site at Civitavecchia would have been useful. With D'Este's emphasis on personalities, an appendix of biographical sketches of the major commanders also would have been helpful. The appendices covering the air and ground orders of battle are thorough and will be useful to war-gamers.

D'Este has a gift for describing the interaction of military personalities and the problems of multinational coalitions. I hope this is not his last book on the Mediterranean theater. By the end of 1944, the multinational stew that made up the Allied armies in Italy received additions of black Americans, Japanese Americans, and Brazilians. I would like to see a sequel covering the battles along the Gothic Line in northern Italy. D'Este would probably show us a side of the struggle we have not seen before.

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The Intifada: Its Impact on Israel, the Arab World, and the Superpowers edited by Robert O. Freedman. Miami, Florida 32611: Florida International University Press, 1991, 417 pages.

This book is a collection of 12 essays divided into three sections that deal respectively with the nature of the *intifada* (the Palestinian drive for independence), the response of external players to it, and its impact on Israeli politics and society. The scope of the individual contributions is wide, ranging from views concerning the effect of the *intifada* on the Palestine Liberation Organization (PLO), the US, the Soviet Union, the Arab world, and American Jewry, to the regional issues of Israeli public opinion, the politics of the Israeli Labor and Likud parties, and Arab Israelis. What follows is a brief synopsis and critique of each contribution in order of presentation.

In the first section of the book, Kenneth Stein's comparison between the Arab revolt of 1936–39 and the *intifada* is very useful for the light it casts on the role that leadership, participation, religion, and duration played in the evolution of the two conflicts, but it does not justify the prognostication offered by way of conclusion. Similarly, Bard O'Neill's conceptualization of the *intifada* as an example of low-intensity conflict is long overdue. He points out that physical limitations and disunity are the important factors constraining protracted popular warfare for the Palestinians. Yet, he too ventures certain speculations concerning the success and failure of the *intifada* which are not borne out by his research. Helena Cobban's article on the close relationship of external PLO direction to the internal leadership of the *intifada* is well reasoned. Logic notwithstanding, the connections she makes are more of a circumstantial than a demonstrable nature, and this betrays a bias toward the strengths of the PLO in full view of its many weaknesses.

In the second section, David Pollock writes a fine-honed analysis of US responses to the *intifada*. He cautions the reader not to take the snail's pace of US initiatives as an indication of an absence of policy. Many aspects of the problem, Pollock argues, have changed fundamentally. For that reason, the author is convinced that a solution and a larger American role in obtaining it are more possible today than ever before. Certainly, recent events have borne out his optimism. Robert Freedman's essay is particularly good for the insight it provides into Soviet Middle East policy, but it has more to do with Soviet perceptions of Israel in the regional political constellation than it does with the Soviet understanding of the *intifada*.

In Gregory Gause's article, the relationship of the Arab world to the *intifada* is gauged against the often conflicting considerations of Pan-Arabism and the interests of the individual Arab states. George Gruen's work on the attitudes of American Jewry to the *intifada* confirms that their support for Israeli policy is slipping on specific issues but remains strong with respect to the defense of the state. The author admits that his views are impressionistic and would have benefited from better documentation. *Caveat lector*!

In the last section of this collection, Asher Arian presents a sociologist's analysis, complete with tables, of Israeli opinion about the *intifada*. He concludes that whereas Israeli positions have hardened over the short term, there has been a concomitant moderation of opinion on security issues and a polarization of attitudes between the Israeli political Left and Right. Nathan Yanai's and Myron Aronoff's contributions should be read together, as they deal with Likud's and Labor's reactions to the *intifada*. Both essays go a long way in explaining the mediocrity of the Israeli political system. Yanai gives us many interesting insights into the personalities of top Likud politicians and shows us how the Palestinian revolution served only to exacerbate divisions already present in the coalition. Similarly, Aronoff counterpoints Labor's tarnished luster as the peace party against its need to find politically expedient short-term solutions to its internal struggles. Elie Rekhess's article shows the ambivalence of Arab Israeli attitudes toward this new form of Palestinianism, while at the same time he documents the rise of a nationalist sentiment because of it. The volume concludes with an excerpted piece by Howard Rosen on the severe economic effects that the *intifada* has had on the Israeli and Palestinian economies.

Collections of essays remain the preferred format for academic writings. Yet, academic essays are, nonetheless, notoriously difficult to put together in a consistent manner. It is to the credit of the editor, Robert Freedman, who has obviously made a judicious choice of contributors, and to the quality of the contributions themselves, that this collection has a seamless character. The articles appear to flow easily one from the other, the level of discourse is always appropriate for both the lay and the academic reader, the writing is good, the analysis is straightforward, and the research pro-

vides an excellent source of information that is applicable to the understanding of larger issues. Notwithstanding the above-mentioned criticisms, this collection should make a welcome addition to the libraries of professional Middle East hands and serious students of Middle Eastern problems.

Dr Lewis Ware
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Gabby: A Fighter Pilot's Life by Francis Gabreski as told to Carl Molesworth. New York 10022: Orion Books, 1991, 277 pages, $20.00.

The title of this book succinctly describes the text, which contains exactly what it promises—an airborne focus on Francis ("Gabby") Gabreski's life. There is little broad analysis of contemporary historical events, and the development of tactics and the experiences that honed Gabreski's fighting style and leadership are held primarily to a personal level. That is obviously what Colonel Gabreski, an ace in two wars, intended.

Gabreski's most detailed descriptions are reserved for his time in the air—his difficulties in learning to fly, the varied performance of the aircraft he flew, and his development of personal tactics and techniques in combat. In short, the book is the fast-moving, personal history of a man who has lived an intensely active life. Honest and straightforward, the account not only provides Gabreski's own insights, but also frequently supplies the opinions of those who worked and flew with him. It does this in language that nontechnical and nonflying readers can easily follow.

Gabreski begins by recounting his initial near failure in mastering flight. He emphasizes that, for him, aviation had not been a lifelong dream. Rather, flying developed into an avenue, first, for proving himself to his family and, ultimately, for aiding his nation.

He also describes his family's immigrant origins and their devotion to church, family, and hard work, adding that much of his early learning came from his father's firm hand. There is a clear picture of the foundation of ethics, faith, and family obligations upon which he was raised and which he believes has influenced him powerfully throughout his life.

In telling his story, Gabreski ensures that readers encounter the everyday routines of fighter pilots of World War II and Korea. He describes his first encounters against enemy fighters, the long intervals between successful sorties against enemy aircraft, and the systematic evaluations of his own and other pilots' performances as they worked to improve their skills in air-to-air combat and the effective defense of Allied aircraft.

As an eyewitness to the attack on Pearl Harbor, a prisoner of war (POW) in a German camp, and as a pilot in MiG Alley, Gabreski offers a personal perspective of the events of World War II and Korea. Because of his considerable experience in two wars, Gabreski is also able to provide detailed insight into the development of teamwork and tactics as an individual pilot and as a squadron and wing commander.

Further, Gabreski provides a view into how major policies were interpreted by individual pilots in the squadron. For example, he comments that the original policy of "Bring the bombers back first, and worry about shooting down German fighters second" made it "hard to tell how many German pilots in damaged fighters lived to fight again another day . . . but we accepted it as best we could" (page 143). Once the policy was changed to allow pilots to chase enemy fighters to earth, Gabreski notes the satisfaction with the destruction his squadron was able to wreak. As for an analysis of how effective that policy change was for Allied forces in the theatre, Gabreski leaves it to more comprehensive evaluations of the tactics and strategies followed in World War II and Korea. His point of view remains a personal one.

In his account, Gabreski moves from the conclusion of World War II to the beginnings of Korea, skimming over the intervening years. Although he notes that Korea was a different war, in that different motives lay behind our involvement, he found that his close-in style of fighting served him just as well with jet aircraft as it did with World War II propeller-driven aircraft.

Gabreski's view—first and foremost that of a fighter pilot—remains primarily within the cockpit; as such, it is a valuable supplement to broader overviews. In addition, he gives the reader a clear picture of a man whose dedication led him to miss his return flight to the States in favor of one more flight over Germany—a mission that landed him in a POW camp for the remainder of the war.

Gabreski's story is a view into an era and into two wars that grow more distant every year.

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Farther and Faster: Aviation's Adventuring Years, 1909-1939 by Terry Gwynn-Jones. Washington, D.C. 20560: Smithsonian Institution Press, 1991, 333 pages, $29.95.

The National Air Races. The Bennett Aviation Cup. The Schneider, Bendix, and Thompson Trophy races. Jimmy Doolittle. Charles Lindbergh. Valeri Chkalov. The swashbuckling early years of civil aviation are revisited in this anecdotal and fast-moving popular history by aviation writer Terry Gwynn-Jones. It is devoted mostly to the numerous speed and distance competitions which stimulated the development of aeronautical engineering during the 1920s and 1930s, taking the reader back to the unregulated world of overpowered racing planes and self-taught pilots. The book is something more than a history of the Golden Age, however, in that the author also gives some attention to the pre–World War I period and to the fledgling airline companies. But areas such as high-altitude research, lighter-than-air progress, and the air-mail service tend to be glossed over. The book's emphasis remains on the Gee Bees, Mystery Ships, and Mister Mulligan.

If much of this seems to be familiar stuff, it is because we have read it all before, most recently in the Time-Life aviation series, in other Smithsonian publications, and in the books we read growing up. This is not to say that *Farther and Faster* is not worthwhile, but only that it breaks little new ground. It is, however, an enjoyable tour through the adventure years of our profession and ends up being informative as well. Gwynn-Jones gives some attention to the obscure, along with the overly familiar, and regales the reader with unusual tidbits. The latter include the 1919 Round-the-Rim flight around the periphery of the continental United States and the coast-to-coast Army Reliability Race of the same year. If his book often seems to be not much more than a compendium of gee-whiz feats based on the most popular secondary sources, it is still an entertaining read and a useful quick-reference work.

It is impossible to do any justice to the subject in a mere 300 pages, and the author wisely confines himself to a kaleidoscopic overview of the numerous events and feats of the era. Even so, the effect is compressed, and the reader is left wishing for more details. Because Gwynn-Jones's descriptions of aircraft are as good as his descriptions of personalities, he rouses a desire to see more photos than even this well-illustrated book can reasonably provide.

Dr Raymond L. Puffer
Norton AFB, California

Notices of upcoming conferences, seminars, and other professional events of a noncommercial nature should be sent to the Editor, Airpower Journal, Walker Hall, Bldg. 1400, Maxwell AFB AL 36112-5532. We reserve the right to edit material for length and editorial content.

USAFA Instructor Opportunities

The Military Studies Division at the United States Air Force Academy is seeking highly qualified captains for instructor duty in the summer of 1992 and beyond. This duty involves motivating and teaching cadets in university-level courses that stress air power, the art of war, military theory, doctrine, and force employment. Since its inception in 1980, the curriculum in professional military studies has evolved into one of the most interesting and demanding areas of study at the academy. A master's degree is required of all applicants. Preferred degrees for military studies instructors are in history, military history, political science, and international relations, or in area studies of the former Soviet Union, Eastern Europe, or the Middle East. Experience in tactical or strategic operations or in operationally related specialties is highly desirable. The division can sponsor a few highly qualified applicants with the appropriate background for a master's degree through the Air Force Institute of Technology (AFIT), with a follow-on assignment to the Military Studies Division. Applicants should have three to seven years of commissioned service, an outstanding military record, and impeccable military bearing and appearance. Interested individuals should consult chapter 8 of AFR 36-20, *Officer Assignments*, for application procedures or write Capt Jeff Cohen, Headquarters USAFA/CWIS, USAF Academy CO 80840-5421 or call DSN 259-3255/3258.

Symposium on Aviation Psychology

The Seventh International Symposium on Aviation Psychology will be held in Columbus, Ohio, on 25–29 April 1993, sponsored by the Aviation Department of Ohio State University and the Association of Aviation Psychologists. The objective of the symposium is to examine and improve the role, responsibility, and performance of human operators in the aviation system. This year's theme has not yet been established, but it will reflect an emerging issue of importance in our field. General areas are cockpit technology, pilot reliability, pilot work load, pilot judgment, crew resource management, human factors in air traffic control, simulation and training, human factors in maintenance, accident investigation, and physiological factors. Anyone who wishes to present a paper or conduct a workshop should submit a brief (300-word) abstract by 30 September 1992 to Dr Richard S. Jenson, Department of Aviation, OSU Airport, 2160 W. Case Rd., Columbus OH 43235.

Recent Releases from Air University Press

The Future of Air Power in the Aftermath of the Gulf War edited by Richard H. Shultz, Jr., and Robert L. Pfaltzgraff, Jr., 1992 (book). This book is a collection of essays by participants in the 1991 conference "The United States Air Force: Aerospace Challenges and Missions in the 1990s," sponsored by the International Security Studies Program at the Fletcher School of Law and Diplomacy of Tufts University, the Air Staff, and Air University. The authors focus on the following issues: strategic factors that will influence future roles and missions, extended deterrence, power projection, future aerospace force structures, low-intensity conflict, and acquisition priorities.

Other recent books, monographs, and papers:

CADRE special series, *The Future of the Air Force.* This series of essays focuses on issues that will affect the decisions that policymakers must make about the mission of the Air Force in the so-called postcontainment world. These decisions will determine the course of the Air Force not only for the rest of this decade but well into the early years of the next century. The authors of the essays address a variety of issues ranging from cooperation between the USAF and Soviet air forces in World War II to the applicability of chance and luck to the high-technology systems utilized in space.

The Silent Call-Up Option: Volunteerism in the Air National Guard by Col Michael N. Killworth, ANG, 1992 (monograph). The author argues that because of the ongoing downsizing of the active duty forces, the Air Force will have to rely more heavily on its reserve organizations to meet future contingencies. In most cases, the president will not authorize reserve call-up authorities to respond to these contingencies. Thus, Air Force commanders will depend on individual volunteers from ANG units as a primary alternative to provide the necessary forces to react to these incidents.

To get a complete list of available publications, contact the Air University Press, Publications Support Branch, CADRE/PTPB, Bldg. 1400, Maxwell AFB AL 36112-5532 or call DSN 493-6452 or (205) 953-6452; FAX number: DSN 493-6739 or (205) 953-6739.

Col Dennis M. Drew, USAF, Retired (BA, Willamette University; MS, University of Wyoming; MA, University of Alabama), is an Air University (AU) professor. At the time of his retirement in 1992, he was professor of military strategy and air power doctrine and dean of the School of Advanced Airpower Studies at AU, Maxwell AFB, Alabama. He previously served as director of the Airpower Research Institute, Air University Center for Aerospace Doctrine, Research, and Education (AUCADRE); as chief of the Strategy and Doctrine Branch and chief of the Warfare Studies Division, both at AU's Air Command and Staff College; and as a missile combat crew commander, missile operations staff officer, and staff division chief at Headquarters SAC. Colonel Drew is a distinguished graduate of Air Command and Staff College and a graduate of Squadron Officer School and Air War College.
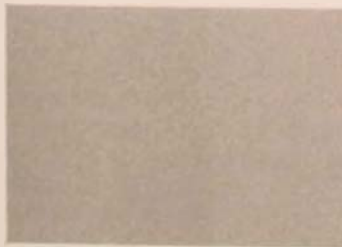
Maj John M. Fawcett, Jr. (USAFA; MBA, Cornell University), is chief, TACOPS, European/CONUS Plans Branch, Headquarters Tactical Air Command, Langley AFB, Virginia. He has more than 1,000 flying hours as an F-4 weapon systems officer instructor. He has served as commander of Headquarters Squadron at USAFA, as air liaison officer during Operation Desert Shield/Storm with the 1st Brigade of the 101st Airborne Division, and as action officer with TAC headquarters. Major Fawcett is a graduate of Squadron Officer School and Air Command and Staff College.

Lt Col John G. Humphries (USAFA; JD, University of Texas School of Law) is deputy staff judge advocate, US Forces Korea, Yong San, South Korea. In previous assignments, he served as staff judge advocate at both Plattsburg AFB, New York, and Air Forces Iceland, Naval Air Station Keflavik, Iceland; as deputy chief of the Military Justice Division at Headquarters USAF, Washington, D.C.; and as chief, Operations Law Branch, International and Operations Law Division, Office of the Judge Advocate General, Headquarters USAF.

Maj Paul G. Hough (USAFA; MS, University of Wisconsin-Madison; MPA, Golden Gate University) is a weapon systems cost analyst in the Information Systems Division, Field Support Branch, at the Air Force Cost Analysis Agency, Arlington, Virginia. He has been a research fellow at the Rand Corporation, Santa Monica, California. He was a budget analyst and a cost analyst in the comptroller's office at Headquarters Tactical Air Command, Langley AFB, Virginia. Major Hough has written for several professional publications and is a graduate of Squadron Officer School and Air Command and Staff College.

Maj Martin L. Fracker (BA, Seattle Pacific University; MS, Western Washington University; PhD, University of Illinois) is a faculty member at Air Command and Staff College, Maxwell AFB, Alabama. Previously, he was a program manager with the Crew Systems Directorate, Armstrong Laboratory, Wright-Patterson AFB, Ohio, and an occupational analyst with the US Air Force Occupational Measurement Center, Randolph AFB, Texas. Major Fracker is a graduate of Squadron Officer School and Air Command and Staff College.
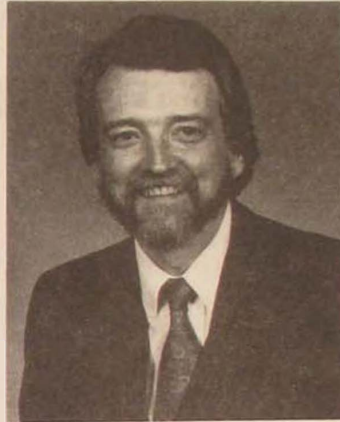
Greg Todd (BS, West Virginia University) is the associate editor of *Parameters*, the journal of the US Army War College. Mr Todd has also been the assistant editor of *Army Logistician* and has written for professional magazines in both the military and civilian sectors.

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