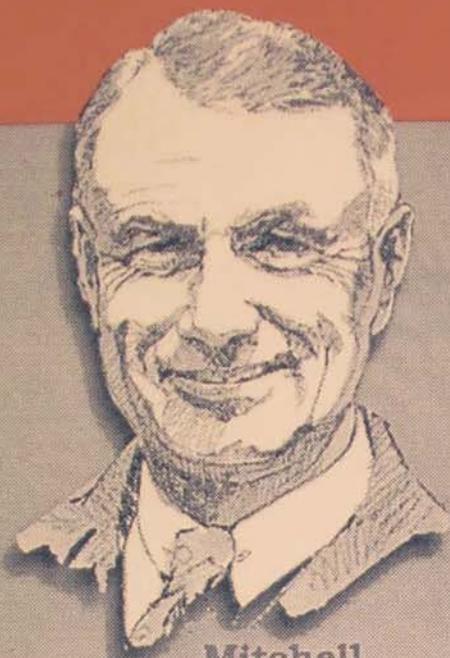


# AIRPOWER

Fall 1996

JOURNAL

Fifty Years of Professional Dialogue  
50 YEARS



Mitchell



Spaatz



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# AIRPOWER

## JOURNAL

Fall 1996

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### The View in the Crystal Ball

FORTY-NINE years ago, on 18 September 1947, the Air Force became a separate service. The *Air University Quarterly Review* debuted as the professional journal of the newly independent Air Force with its Spring 1947 issue. In the Winter issue of that year, Maj Gen Muir S. Fairchild, Air University commander, editorialized that "the United States faces a state of insecurity in the future unparalleled in our history" (page 79). The general painted a grim picture, likening the United States to the great civilizations of history—Ur, Babylon, Egypt, Greece, and Rome. He reminded the reader that the pattern has always been the same:

A young, vigorous nation rises to the heights of power and prosperity. But once so risen, a strange softening process sets in to sap that vigor and vitality which alone made the rise possible. That process is marked by an increase of greed and selfishness among men, by concern for self interest above the common welfare, by unwillingness to sacrifice and to serve, and by lack of sense of individual responsibility to act for the good of the nation as a whole.

. . . where today is the might that was Babylon, the magnificence that was Egypt, the glory that was Greece, the power that was Rome?

. . . unless we maintain clearly adequate Air Power in being, no matter at what sacrifice of goods and treasure, all else may well be futile. (Page 80)

Twenty-five years later, editorial comment of any substance had disappeared, and the September–October 1972 issue of the *Air University Review*—our predecessor—marked the "completion of [the Air Force's] first quarter-century as an autonomous military service" (page 1), with the publication of historian Herman S. Wolk's article "Men Who Made the Air Force." Wolk suggested that, to airmen, autonomy simply meant *recognition*—not of air support or air

superiority or air interdiction—but a recognition of the legitimacy of long-range bombing, which, coupled with atomic weapons, gave promise that strategic bombing could be the "power of decision in modern conflict" (page 10).

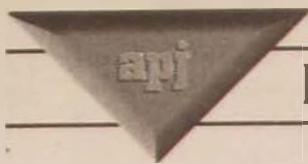
Who were these men? Arnold, Spaatz, Symington, Eaker, LeMay, Vandenberg, and others brought to the fledgling Air Force a "new military philosophy" (page 22). They were the heretics and revolutionaries of their time. They found themselves at a crossroads: World War II had ended, the cold war was beginning, and the United States was dominant from 1945 to 1947. To them, only long-range bombers and atomic weapons—forces in-being—instead of the traditional American peacetime military posture could lead to postwar security. Only deterrence could maintain peace, and only strength could maintain deterrence.

This issue begins *Airpower Journal's* year-long celebration of the 50th anniversary of the Air Force. We will feature historical pieces designed not only to celebrate the occasion, but also to stir comment—perhaps even controversy—as we investigate directions the Air Force may take as it enters both its second 50 years and a new millennium. A glance at the table of contents shows that we start with articles historical and futuristic, operational and strategic, evocative and provocative.

Fifty years ago, the Air Force was learning to operate autonomously, facing interservice rivalry, budget battles, uncertainty, questions about doctrine development, new technology, and a very different world. Today, we seem to be singing the same song, second verse. We are still learning to operate—only now jointly—and we still face interservice rivalry, budget battles, and uncertainty. Furthermore, we're working on change 10 to basic doctrine. Where will

we be as a service in another 25 or 50 years? Would today's airmen be able to recognize the future Air Force? Will we talk of airpower, aerospace power, or air and space power? Will we devolve solely into space and information operations? The scene in the crystal

ball is shifting and nebulous—an image we can see but darkly. We hope that these articles and others will bring that indistinct picture into focus and encourage further speculations for the flight into the next 50 years. □



## Ricochets and Replies

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

Maj Chris Daehnick's response to the "Base Access Constraints and Crisis Response" article by Adam B. Siegel in the Spring 1996 issue was an attempt to defend the indefensible. Moreover, many of the flawed arguments are his, not Mr Siegel's.

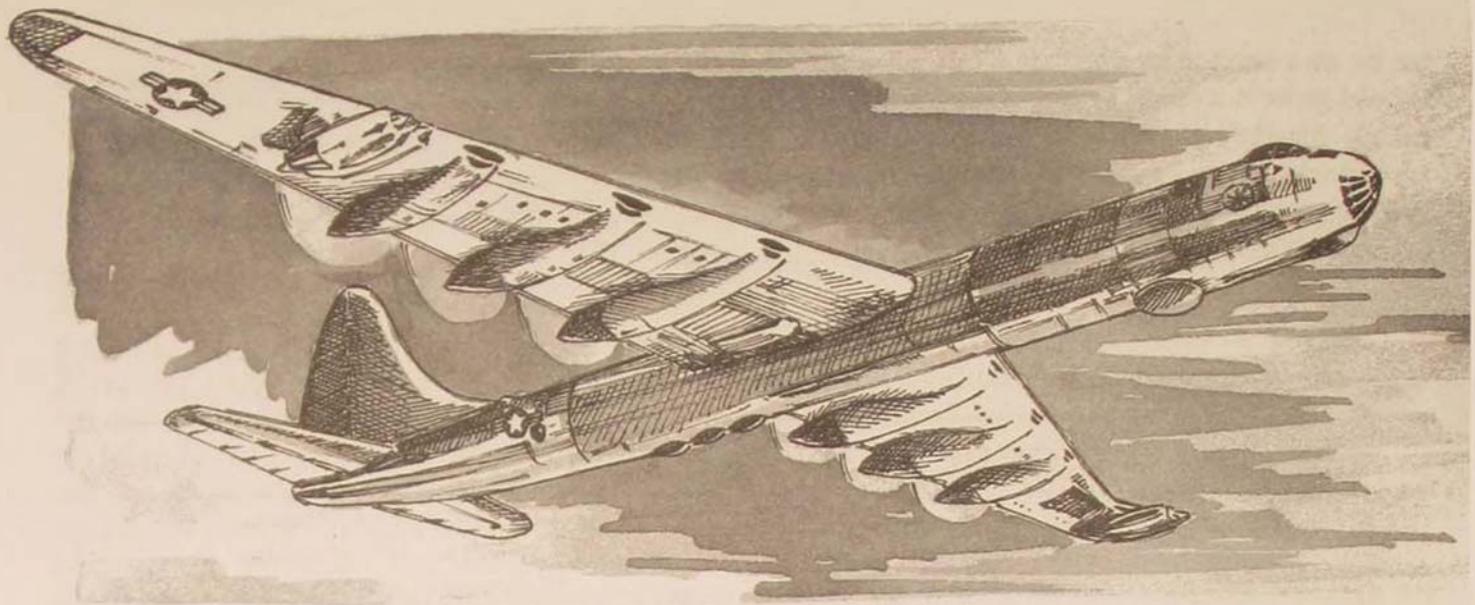
He says that the problem with European overflight authorization for the strike against Libya is a "timeworn example that proves little." On the contrary, it is a great example of problems faced by land-based airpower and it, along with the other examples, is pertinent. It is especially relevant considering that we were dealing with allies and had aircraft and bases in-theater. You can add others, too. For example, during the 1973 Mideast war the US couldn't gain basing rights in Europe, so it had to fly SR-71s round-robin from the East Coast. Recently, the USAF has had a difficult time in obtaining permission to relocate its U-2 operations out of England to the Mediterranean region for the conflict in the former Yugoslavia. We never were able

to get permission to put the U-2s in Italy. In addition, it has taken a significant amount of political will, effort, and time to move the U-2's small Mobile Stretch system into Italy. We still haven't been able to put the larger Deployable Ground Station there.

Major Daehnick also suggests that "to focus only on military-employment issues is to miss the forest for the trees." He goes on to discuss factors which require an enormous expenditure of US time, will, resources, capital, and obligations as if they are easily surmountable. The result is almost always expensive and is seldom responsive. Oftentimes, as Mr Siegel points out, the problems aren't solvable. The Navy doesn't have to deal with these issues nearly as often as does land-based aviation. I would suggest that it is the major who is missing the forest for the trees.

He also compared a 30-knot aircraft carrier with a 400-knot aircraft. Of course the Air Force can fly a bomber from the US and overfly virtually any spot on this earth as a demonstration of national resolve, but airpower is transitory. The two don't equate, however. Long-range, land-based aircraft, simply by virtue of their characteristics, have limited staying power, do not provide adequate presence, and are incapable of provid-

*continued on page 115*



# The Air Force in the Cold War, 1945–60

## Birth of a New Defense Paradigm\*

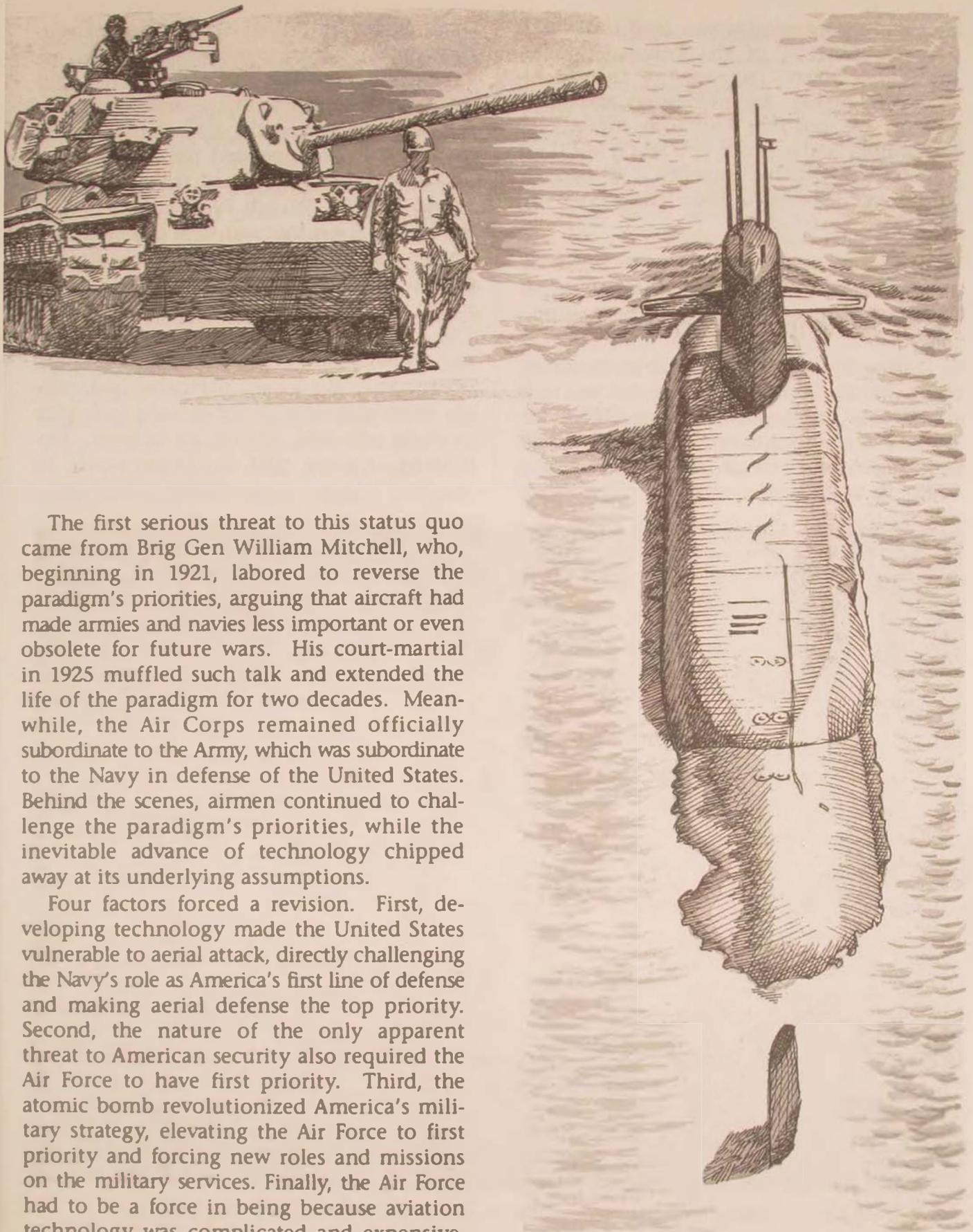
DR. STEPHEN L. MCFARLAND



SINCE THE earliest years of the Republic, jointness for America's military services has been a rare occurrence, most visibly manifested in the Fort Henry, Fort Donelson, and Vicksburg campaigns in the Civil War and those of the South Pacific in World War II. Jointness was not necessary at other times because of a simple paradigm that governed the American military in peacetime—the land and the sea, two military de-

partments, Army subordinate to Navy. The system worked—the Navy was the first line of defense, receiving and deserving the bulk of the defense budget because of its need for constant preparedness and because of the long lead time required to produce its weapons. The Army could always mobilize later, during an interregnum provided by the Navy. A new technology—the airplane—added air to the land-sea paradigm but left its priorities unchanged, as aircraft became auxiliary to land and sea forces.<sup>1</sup>

\*This article is based on a paper presented at the Conference on Interservice Rivalry and the American Armed Forces, held at the Naval Postgraduate School, Monterey, California, 4–7 March 1996.



The first serious threat to this status quo came from Brig Gen William Mitchell, who, beginning in 1921, labored to reverse the paradigm's priorities, arguing that aircraft had made armies and navies less important or even obsolete for future wars. His court-martial in 1925 muffled such talk and extended the life of the paradigm for two decades. Meanwhile, the Air Corps remained officially subordinate to the Army, which was subordinate to the Navy in defense of the United States. Behind the scenes, airmen continued to challenge the paradigm's priorities, while the inevitable advance of technology chipped away at its underlying assumptions.

Four factors forced a revision. First, developing technology made the United States vulnerable to aerial attack, directly challenging the Navy's role as America's first line of defense and making aerial defense the top priority. Second, the nature of the only apparent threat to American security also required the Air Force to have first priority. Third, the atomic bomb revolutionized America's military strategy, elevating the Air Force to first priority and forcing new roles and missions on the military services. Finally, the Air Force had to be a force in being because aviation technology was complicated and expensive,

requiring long production lead times and a major portion of the defense budget. Presidents Harry Truman and Dwight Eisenhower pressed for unification and jointness in the postwar American military to save money and increase efficiency, but these four factors, which compelled a reorganization of the paradigm, made interservice discord nearly inevitable.

### Evolving Technology

During World War II, plans of the Army, Navy, and Air Force for postwar defense were remarkably conservative until 6 and 9 August 1945 changed everything. The atomic bomb blinded most people to the classical rules of war and paralyzed their strategic

thinking but presented a new type of war. Evolving technology overwhelmed old assumptions about war, especially with regard to its speed. Three months separated the firing on Fort Sumter and the First Battle of Bull Run. Five weeks separated the assassination of Archduke Ferdinand and the outbreak of World War I. Though Pearl Harbor forced the United States into war with little warning, America still had five months before its first critical battle at Midway. Nuclear weapons meant the next war might be over in minutes. The Army and Navy offered no new strategy to deal with these changing conditions. The oceans were no longer defensive bastions—the intercontinental bomber, especially with in-flight refueling, was on the horizon. Mobilizing an army after war began would be too late. Airmen proposed the only original



*The B-36, perhaps as much as the atomic bomb, spelled the end of the pre-World War II military paradigm.*

solution, however flawed—deterrence based on nuclear-armed bombers directed against an enemy's large, urban industrial concentrations.

The atomic bomb of the 1940s was an offensive weapon effective only against large, urban industrial targets—the easiest to find and hit—which were appropriate considering the small number of bombs and bombers available and the tactical limitations of the delivery system.<sup>2</sup> The Navy had trouble adjusting to the bomb because for over 150 years, its targets had been enemy naval forces, commerce, or coastal fortifications—all improper targets for early nuclear weapons. Its carrierborne aircraft lacked the range to attack targets in the Soviet interior.<sup>3</sup> The Army's traditional objectives—enemy land forces and territory—were also inappropriate targets for the few atomic bombs available. Gen Carl Spaatz was correct in identifying the atomic bomb as “essentially an air weapon.”<sup>4</sup> The Air Force experience in World War II showed that no defense was possible against such airborne weapons. Offense was no longer just the best defense; it was the only defense.

When David Lilienthal, chairman of the Atomic Energy Commission (AEC), inspected the atomic laboratory at Los Alamos in January 1947, he found only one atomic bomb that was “probably operable.” By the spring of 1947, the AEC had no more than 12 bombs, with none ready for immediate use.<sup>5</sup> Such numbers demanded an Air Force countervalue strategy in which cities were the only useful targets. The Sandstone tests of 1948 perfected the levitated core bomb, which increased yields by up to 75 percent, while the composite plutonium-uranium core allowed the use of cheaper and more available fissionable materials. These technological breakthroughs opened the way for a bigger strategic air force and further reduced the need for spending on the Army and Navy. Combined with Korea and the Soviet development of an atomic capability, more bombs meant dramatically greater complexity in

American defense planning and more opportunities for interservice strife.

The initial vehicle for Strategic Air Command's (SAC) nuclear deterrent was the combat-proven B-29, though its limited range and dependence on overseas bases left room for carrier-launched strategic bombing if the range of naval aircraft could be extended. The Navy-Air Force collision over what the Air Force thought was its function—strategic bombing—therefore focused on the most controversial weapon system of the age: the B-36. As the Air Force struggled to perfect in-flight refueling, the B-36 appeared to be the only bomber that could carry out the atomic strategy forced on the United States by new technology and limited budgets. Built with nearly obsolete technology and procured amidst disproven charges of corruption, this expensive aircraft became the focus of debate over the new technology of nuclear warfare.<sup>6</sup> It was the first weapon in American military history that could strike at overseas enemies without requiring the assistance of the Navy, although questions about its actual range were never completely resolved. The B-36, perhaps as much as the atomic bomb, spelled the end of the pre-World War II military paradigm.

During the open discussion of American strategy that accompanied the “revolt of the admirals”<sup>7</sup> in 1949, the Navy offered mobile, nuclear-equipped, carrier-launched aircraft as an alternative to SAC's city-busting strategy. Though the atomic bomb first went to sea on the USS *Franklin Roosevelt* in 1950, the limited range of carrier aircraft kept most Soviet targets beyond reach and brought carrier task forces into the dangerous, restricted waters of the Baltic and Mediterranean Seas.<sup>8</sup> The Navy fought for a decade to preserve a strategic role, but “what saved the Navy and much of its combat mission,” according to Secretary of the Air Force W. Stuart Symington, “was the Polaris submarine”—firing missiles aimed at the Air Force's urban industrial targets.<sup>9</sup>

## Nature of the Soviet Threat

The Joint Chiefs of Staff (JCS) had identified the Soviet Union as the only threat to America's postwar security. Against such a huge continental power with the world's largest army, no navy, and no overseas trade, the US Army and Navy were impotent in case of war. Whether by *guerre de course* or *guerre de main*, the Soviet Union was beyond the Navy's reach. The Joint Intelligence Staff assumed that war would most probably result from a Soviet invasion of Western Europe and admitted the impossibility of stopping 213 Soviet divisions plus 84 more from satellite nations.<sup>10</sup> The Air Force offered the only reasonable option—a relatively cheap atomic offensive, low in American casualties. Secretary Symington stated it most succinctly: "We can't swap the life of one of ours for each soldier of the many millions under arms in the totalitarian states."<sup>11</sup> Air Force general Hoyt S. Vandenberg said he could "not see how you can engage the enemy in other than that way."<sup>12</sup> America had just lost 405,399 soldiers, sailors, and airmen in a conventional war. An atomic strategic-bombing force could bring victory without heavy losses and also act as a powerful deterrent to Soviet aggression. Although Korea and Vietnam would eventually prove the limitations of this military strategy, in the 1940s and 1950s it was the logical choice against the perceived enemy.

From the time it was formed in March 1946, SAC bore responsibility for carrying out this offense against the Soviet Union because carrierborne aircraft could not yet reach Soviet targets. In the greatest war in human history, the United States had struggled to mobilize 90 Army divisions. In 1947 the Soviet Union had 193 divisions and 10,500 aircraft to thrust into Europe. What force would stop them? The US Army had two divisions supported by 12 tactical air groups. Only Project Vista in the 1950s—the development of tactical battlefield atomic weapons—and the organization of NATO gave ground forces any reasonable chance of

confronting the Soviet army in Europe. In 1947, when George F. Kennan, State Department Soviet expert, identified 10 vital centers in the Soviet Union, they were vulnerable only to SAC bombers carrying atomic bombs.<sup>13</sup> This atomic strategy against this particular enemy made armies and navies unnecessary except in support of SAC's bombers, although airmen had learned the lesson of the Mitchell affair and rarely expressed this conclusion.

The US Navy had no match among postwar navies, and American air superiority over the sea approaches to North America insured that an attack on the United States by sea would be suicidal. The attack would have to come by air, making the Air Force the new "first line of defense." Substituting the Air Force for the Navy in the old paradigm was not what airmen had in mind, however. The Air Force would be the "M-day" force, equipped to bomb the Soviet Union.<sup>14</sup> No bombing mission had been repulsed in the world war, prompting airmen to conclude that no real defense against attack from the air was possible and that the Navy could no longer defend the United States "against sudden and serious attack from abroad."<sup>15</sup> Defense resources, the Air Force argued, should go to the deterrent, atomic strategic-bombing force—defense through offense.

In this climate, the Air Force—specifically SAC—should have received a portion of the Pentagon budget commensurate with its role, but President Truman and Secretary of Defense James V. Forrestal attempted to balance the defense budget among the three services, leaving SAC in the late 1940s with all the responsibility but few of the resources.<sup>16</sup> When Truman replaced Forrestal with Louis A. Johnson in March 1949, the new defense secretary redistributed limited defense dollars to match America's military capabilities more accurately to the Soviet threat, cancelling the Navy's supercarrier—the USS *United States*—and investing more heavily in the Air Force's atomic bomber—the B-36. Korea and



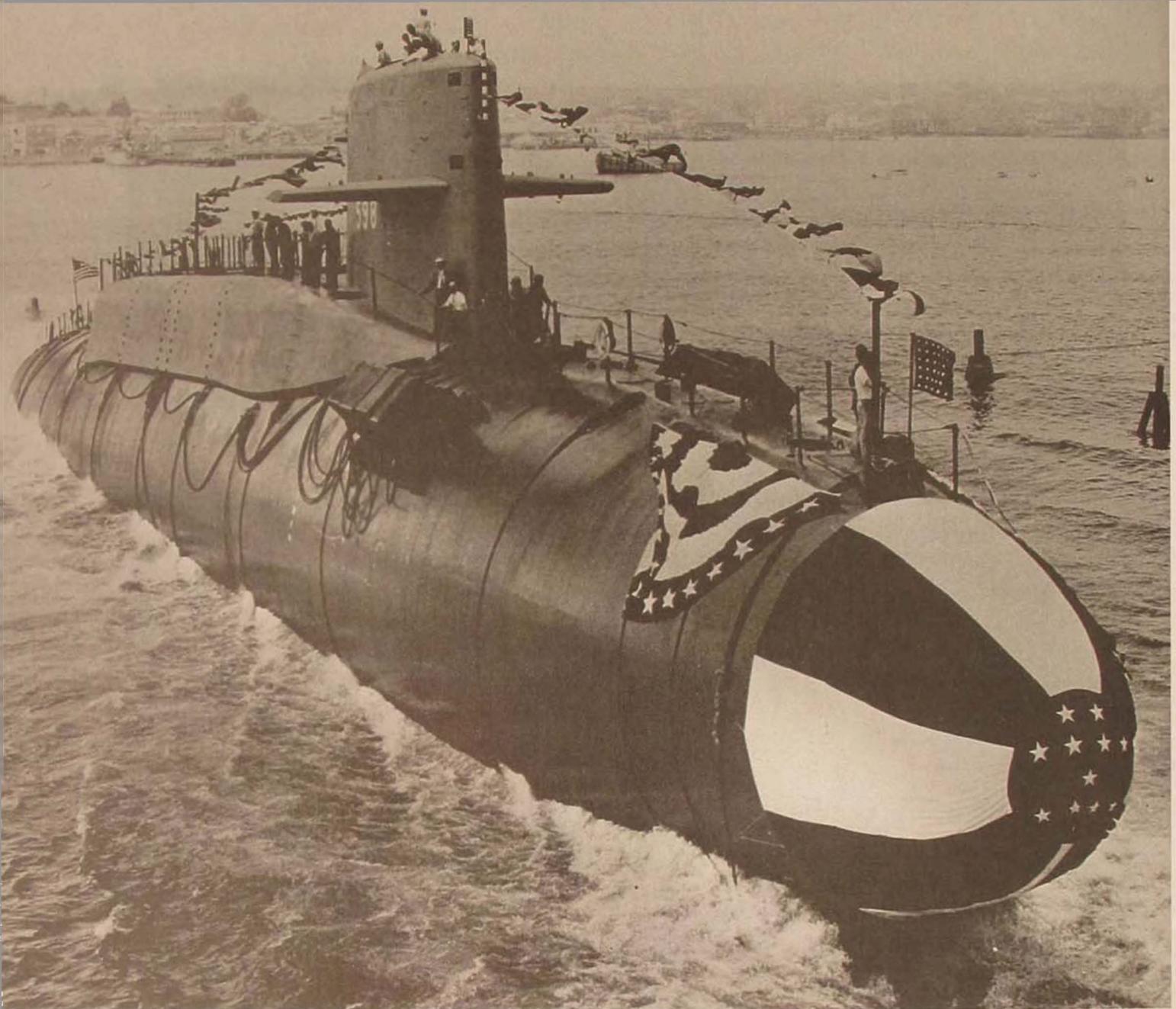
*The atomic bomb blinded most people to the classical rules of war and paralyzed their strategic thinking but presented a new type of war.*

54,246 dead Americans demonstrated the dangers of conventional wars and limitations of nuclear strategies but failed to alter President Eisenhower's judgment that the greatest threat to American security was the Soviet Union. Nuclear forces—SAC initially and the Navy's Polaris option later, matched to deter the Soviet threat—received priority in the Eisenhower defense budgets.<sup>17</sup>

### Roles and Missions

New technology and the nature of the enemy forced new roles and missions on America's military services. The Navy scuttled

unification and failed to delineate roles and missions through the National Security Act. President Truman then issued Executive Order 9877, which tried unsuccessfully to specify roles and missions. These would be the key to budget dollars because whoever controlled the nuclear mission would get the lion's share. Fast carriers and amphibious Marine forces were powerful weapons, but they would be of little use against the Soviet Union. This force was built for the Pacific, while America's national interests at the time were in Europe and the Atlantic. Even more conservative in its thinking was the Army, which largely ignored the atomic bomb while it planned for the next war to be a re-



*"What saved the Navy and much of its combat mission . . . was the Polaris submarine."*

peat of World War II. The war the Army knew how to fight was an invasion followed by a broad-front offensive across Western Europe. The Army and Navy would be of some use in the postwar world against minor enemies but not in the big show—the cold war. Gen Omar Bradley identified these minor conflicts as “the wrong war, at the wrong place, at the wrong time, and with the wrong enemy.” More forcefully he said, “We will refuse absolutely to allow local wars to divert us from our central task.”<sup>18</sup>

The Navy sought a strategic mission.

Adm Chester Nimitz proposed that the Navy assume the mission of bombing the Soviet heartland—a task requiring supercarriers—though Adms Ralph A. Ofstie and Arthur Radford judged strategic bombing “of limited effect, . . . morally wrong, . . . [and] an erroneous concept of war.” In any case, the Air Force already performed such a role, and its defenders responded accordingly. Gen Jimmy Doolittle told Congress’s Thomas Committee in 1945 that aircraft carriers were obsolete, vulnerable, and of “no further use.” General Spaatz argued that the Air

Force should take over naval aviation because maintaining two air forces was a dissipation of money and resources. Symington testified before Congress that the American taxpayer could not afford two strategic bombing forces. General Vandenberg believed that carriers would be useful only in the antisubmarine role. General Bradley, chairman of the JCS, concluded that carriers would be needed only in support of amphibious operations, which the atomic bomb had made unnecessary.<sup>19</sup>

This clash over the bombing mission drove Defense Secretary Forrestal to call the joint chiefs to Key West, Florida, for three days in March 1948. There, the Air Force retained its control over the strategic bombing mission, with Navy assistance, but the Navy won the right to attack inland targets with nuclear weapons. Forrestal informed the chiefs that he and the president had therefore approved the USS *United States*, the first of the supercarriers, in support of the Navy's strategic role. Budget restrictions meant that funding this Navy mission would reduce the Air Force from the 70 groups the Finletter Commission<sup>20</sup> had believed essential to the 48 groups that a \$14.4 billion budget for fiscal year 1950 could afford.

Forrestal called the chiefs to Newport, Rhode Island, in August 1948 to reclarify roles and missions. The Air Force again received primary responsibility for strategic bombing but would have to cooperate with the Navy in wartime.<sup>21</sup> Just as the USS *United States* had destroyed the Key West agreement, the B-36 destroyed Newport. When President Truman asked Forrestal to resign as defense secretary in March 1949, his successor, Louis Johnson, convinced Truman to cancel the supercarrier and divert money to purchase additional B-36s in support of the "atomic deterrent force." The resulting revolt of the admirals convinced Congress to amend the National Security Act, strengthening the secretary of defense and reducing the power of the individual service secretaries.

Opting for B-36s rather than supercarriers meant the Air Force would have the strategic mission while the Navy and Army prepared for smaller, local wars. The Air Force believed that big bombers and atomic bombs would deter such little wars just as they would deter Bradley's big war. According to this logic, the Navy prepared for local wars it could win but would not need to fight. The Army prepared for a major war it could not win. And the Air Force prepared for a major war it would not fight, while ignoring the local wars it would fight.

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*The Navy prepared for local wars it could win but would not need to fight. The Army prepared for a major war it could not win. And the Air Force prepared for a major war it would not fight, while ignoring the local wars it would fight.*

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One could trace this development in post-war JCS war plans, beginning with Pincher in June 1946, which called for land and sea forces to retreat before a Soviet offensive while the Army Air Forces dropped atomic bombs on 20 Soviet industrial, government, and military centers from bases in England and Turkey. After strategic bombing had damaged the Soviet Union, the Navy would launch an air and naval blockade while the Army mobilized for a counteroffensive.<sup>22</sup> In August 1947, the war plan known as Broiler reflected an increasing reliance on the atomic bomb, hoping the atomic air offensive would stabilize the war in the first six months and possibly convince the Soviets to surrender. The joint chiefs approved neither plan, which in any case made little sense because America's atomic stockpile was not up to the task. According to AEC chairman Lilienthal, "It was assumed that we had a stock-

pile. We not only didn't have a pile; we didn't have a stock."<sup>23</sup>

The fall of Czechoslovakia forced the JCS to approve Grabber in March 1948, which was remarkably similar to Pincher and Broiler. The Navy opposed the plan because it required American forces to surrender control over the Mediterranean in the early days of a Soviet offensive, putting the Soviet coast beyond the range of carrier aircraft. But the JCS had to adopt an air-atomic offensive because America's conventional weakness left no alternative. During the Berlin blockade, President Truman's military option was the threat of an air-atomic offensive, despite continuing problems with the atomic arsenal. Navy objections to Grabber and the desire for greater flexibility after Berlin encouraged the creation of the Fleetwood plan, which still relied primarily on Air Force strikes with 133 atomic bombs against 70 Soviet cities but added a naval blockade of the Soviet coast and carrier aviation strikes against Soviet coastal cities. Truman and the Navy objected to the plan, the former because it relied on an immediate atomic offensive, the latter because the atomic offensive exceeded military objectives and violated traditional morality. With budgetary restraints, the small number of atomic bombs available, and the limits of bombing accuracy, Fleetwood's strikes against Soviet cities were the cheapest and most efficient way of fighting the Soviet Union—the objections of the president and Navy notwithstanding.

President Eisenhower's New Look strategy of massive retaliation—NSC-162, announced in his State of the Union Address on 7 January 1954—completed the transition to a strategy based on nuclear deterrence. President Truman had seen the nuclear bomb as a weapon of last resort, but President Eisenhower wanted it as a weapon of first resort and a means of deterring war. If the Soviet Union attacked Europe, the United States would use tactical nuclear weapons to stop the assault while SAC destroyed the Soviet

homeland. By 1960 SAC had identified over 20,000 Soviet and Eastern bloc targets for nuclear attack and had 18,000 nuclear bombs to carry out a nuclear war.<sup>24</sup> Even though the Navy had jumped to 14 aircraft carriers and 16 air groups, the Air Force's aerial nuclear offensive—forced on it by technology, the nature of the enemy, and limited funding—had become America's first line of defense. There was no jointness in this process. In 1956 the National Security Council preauthorized SAC's use of nuclear weapons to insure a rapid response.<sup>25</sup> Gens Maxwell Taylor and Matthew Ridgway wanted minimum nuclear deterrence and a greater emphasis on conventional forces, but Congress and the president supported maximum deterrence and the Air Force. The remaking of America's defense paradigm was complete.

The successful development of the Polaris missile and submarine was the Navy's opportunity to restore a portion of the traditional paradigm. President Eisenhower rejected a Navy suggestion that Polaris replace SAC, with the budget savings used to build up conventional forces. The Air Force wanted to put Polaris under SAC. In August 1959 Air Force general Nathan Twining, chairman of the JCS, established the Joint Strategic Target Planning Agency, with the SAC commander as director of targeting and a Navy officer as deputy director. The agency's assignment was to create a national strategic target list and single integrated operational plan (SIOP). This allowed Polaris to remain under Navy control but with targets set by SAC. The Navy did not consider this a victory, however, because Eisenhower ordered that Polaris be used to suppress Soviet defenses to clear the way for SAC attacks on the Soviet Union. The joint chiefs approved SAC's first SIOP in December 1960—over Navy objections.<sup>26</sup>

## Budgetary Restrictions

The Department of Defense (DOD) came to life in an era of limited budgets. The les-



*Even more conservative in its thinking was the Army, which largely ignored the atomic bomb while it planned for the next war to be a repeat of World War II.*

son of World War II was that airpower, land power, and sea power were inseparable components of national strategy, but despite being the world's richest nation, America could not afford to have the world's largest and most powerful army, navy, and air force. DOD had to make choices and establish priorities. For over 100 years, the Navy had dominated the defense budget. After 1945 the Air Force was going to do to the Navy what the Navy had been doing to the Army for so many years. Navy resistance should have come as no surprise.

President Truman held the line on the military budget, which dropped from \$45

billion in FY 1946 to \$14.5 billion in FY 1947, \$11.25 billion in FY 1948, and \$11 billion in FY 1949 before rising to \$14.2 billion in FY 1950. The conflict between the Navy and Air Force in the immediate postwar period, as Philip Crowl has observed, "was essentially a contest over slices of an ever-diminishing pie."<sup>27</sup> The Army had wanted a postwar force of 25 divisions, the Navy a two-ocean force of 300 ships, and the Air Force 70 groups. When Truman submitted his fiscal year 1949 budget to Congress in January 1948, the \$11 billion he asked for would pay for 11 weak divisions, 277 ships (including 11 carriers), and 48 Air

Force groups. Defense Secretary Johnson's cancellation of the USS *United States* supercarrier was unavoidable in the face of an \$11 billion budget for fiscal year 1949.

In such an atmosphere, interservice strife was unavoidable. This defense budget meant that only the Navy could be number one in the world, leaving the Air Force's M-day force less than capable of performing the role assigned it by the joint chiefs. America's national strategy and the new defense paradigm were based on SAC's atomic bombs, though in the 1940s the continuing influence of the traditional paradigm kept defense spending roughly balanced among the three services. Friction was the product of too little funding and the gradual readjustment of priorities that accompanied evolving technology, changing roles and missions, and the nature of the Soviet enemy.

Only the Korean conflict soothed the discord, raising the budget for fiscal year 1951 to \$47.8 billion, up from a planned \$13 billion before the North Korean invasion, with the Army getting 41 percent, the Navy 26 percent, and the Air Force 33 percent. For fiscal year 1952, the Air Force received 44 percent and the Army and Navy 28 percent each of \$59.9 billion, as the Air Force expanded toward 143 wings. Most Air Force funding went to SAC. Still, Korea and the intensifying cold war brought enough money for the JCS in October 1951 to establish force levels of 20 Army divisions; 409 Navy combat ships, with 12 carriers and three Marine divisions; and 143 Air Force wings.

Defense spending declined to \$28.9 billion in FY 1955 before rising through the late 1950s to \$41.4 billion in FY 1960, with the Air Force claiming 40 percent in FY 1955 and 47 percent in FY 1960 in support of Eisenhower's New Look nuclear strategy. Despite smaller percentages, higher funding allowed the Navy to exceed the strength levels authorized in 1951, rising to 14 carriers. It purchased large aircraft carriers, beginning with the USS *Forrestal* in 1955; tactical nuclear weapons for carrierborne aircraft, be-

ginning in 1952; nuclear-powered submarines, beginning with the USS *Nautilus* in 1954; and the Polaris missile in 1960. These purchases prevented another Navy-Air Force confrontation like the one that accompanied the cancellation of the USS *United States* in April 1949. By the late 1950s, these new weapon systems made the Navy a full partner in national defense, with a strategic mission, an air force, and a future. In the meantime, despite higher percentages, Air Force strength fell to 137 wings overall although SAC continued to grow. Funding for the Army limited that service to only 17 weak divisions. Nevertheless, SAC had first priority—at least until Polaris. Even Admiral Radford, chairman of the JCS, admitted that strategic bombing was "most important."<sup>28</sup>

## Conclusion

World War II proved the need for greater jointness or unification in America's defense paradigm, but the following 15 years brought little progress in that direction. In 1947 the National Security Act created the national military establishment with "three military departments separately administered." Reorganization in 1949 replaced it with DOD but made no move toward greater integration. Measures in 1953 created a direct chain of command that went from the president to the secretary of defense to the joint chiefs to the unified commands but left the individual service secretaries in the loop. President Eisenhower's Department of Defense Reorganization Act of October 1958 gave the secretary of defense greater authority and removed the service secretaries from the chain of command, while maintaining three "separately organized" military departments.

The Army had initiated greater jointness in 1944 with its proposal to Congress's Woodrum Committee for a single executive department with a single civilian and military

leader. The Air Force went along but wanted its independence as the services accelerated toward unification. The Navy prevented unification in order to maintain the traditional paradigm that made it America's first line of defense. Changing technology, the nature of the Soviet enemy, changing roles and missions, and budgetary problems ended it any-

way. Ironically, the Air Force favored unification, yet its atomic air strategy was the least joint of all the plans proposed in the 1940s and 1950s. Later events would prove the limitations of this strategy, just as events of this earlier period revealed the pitfalls of a disunified defense paradigm. □

#### Notes

1. In "Jointness: The Fundamental Problem: A Review of Joint Pub 1," *Airpower Journal* 6, no. 2 (Summer 1992), Col Dennis M. Drew argues that this paradigm was the natural result of the services' different viewpoints and operating environments: the restricted perspective of the Army, which fights for every hill and valley; the Navy, which operates globally, whose weapons have long lead times, and whose conflicts are sharp but limited; and the Air Force, which knows no bounds except "those imposed by technology or human endurance" (59).
2. Aaron L. Friedberg, "A History of the U.S. Strategic 'Doctrine'—1945 to 1980," *Journal of Strategic Studies* 3 (December 1980): 40.
3. Edward Teller estimated that the Navy would not be able to damage the interior of the USSR unless it used a ship or submarine to deliver a dirty bomb of at least 1,000 megatons to a Soviet coastal city. See Richard Rhodes, *Dark Sun: The Making of the Hydrogen Bomb* (New York: Simon and Schuster, 1995), 418. The Soviets attempted the same solution, designing a 40-ton torpedo with a thermonuclear warhead that would be launched by submarine against an American coastal city. The device was never deployed because of aiming problems and the difficulty of launching the torpedo undetected. See A. M. Antonov, "The Birth of Red November," *US Naval Institute Proceedings* 121 (December 1995): 79-81.
4. Rhodes, 225.
5. Gregg Herken, *The Winning Weapon: The Atomic Bomb in the Cold War, 1945-1950* (New York: Knopf, 1980), 197.
6. Congressman James E. Van Zandt of Pennsylvania, acting on information from Cedric Worth, special assistant to the undersecretary of the Navy, had charged that Secretary of the Air Force W. Stuart Symington and Secretary of Defense Louis Johnson had conspired with Floyd Odlum of the Atlas Corporation—which owned B-36 manufacturer Convair—to switch Air Force contracts to buy more B-36s. See House Committee on Armed Services, *Investigation of the B-36 Bomber Program*, 81st Cong., 1st sess., 1949, 13.
7. In 1949 a group of Navy officers led by Arleigh Burke and Arthur Radford protested before Congress when Truman's defense budget forced a reduction from eight to four active carriers and the cancellation of a new supercarrier—the USS *United States*.
8. Herken, 333.
9. W. Stuart Symington, transcript of oral history interview by Hugh N. Ahmann and Herman S. Wolk, 2 May 1978, 199, United States Air Force Historical Research Agency, Maxwell AFB, Ala.
10. Harry R. Borowski, *A Hollow Threat: Strategic Air Power and Containment before Korea* (Westport, Conn.: Greenwood Press, 1982), 93-94.
11. House Committee on Armed Services, *The National Defense Program—Unification and Strategy*, 81st Cong., 1st sess., 1949, 401.
12. *Ibid.*, 476.
13. In congressional hearings, the Navy charged that the United States Strategic Bombing Survey (USSBS) had proved that strategic bombing in World War II was a failure. Franklin D'Olier, who headed the survey, wrote Louis Johnson on 23 August 1949, claiming that the Navy had distorted the USSBS findings and that strategic bombing had been critical to victory. See House Committee on Armed Services, *The National Defense Program*, 405-7.
14. The 70-group Army Air Forces became official policy on 29 August 1945, down from a plan of July 1943 for a 105-group postwar force. See Perry M. Smith, *The Air Force Plans for Peace, 1943-1945* (Baltimore: Johns Hopkins Press, 1970), 58.
15. Michael S. Sherry, *Preparing for the Next War: America Plans for Postwar Defense, 1941-45* (New Haven, Conn.: Yale University Press, 1977), 110.
16. Borowski, 91, 95-97.
17. Herken, 195-96.
18. Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force*, vol. 1, 1907-1960 (Maxwell AFB, Ala.: Air University Press, December 1989), 419.
19. Smith, 60; House Committee on Armed Services, *The National Defense Program*, 398, 409, 422, 491, 514, 473, 522, 525; James C. Freund, "The 'Revolt of the Admirals,'" *Air Power Historian* 10 (January 1963): 2-4; and Warren A. Trest, "View from the Gallery: Laying to Rest the Admirals' Revolt of 1949," *Air Power History* 42 (Spring 1995): 21.
20. President Truman established this commission in 1947 to examine the state of aeronautics in the United States. The President's Air Policy Commission, popularly known as the Finletter Commission (after its head, Thomas K. Finletter), recommended more spending on research and development, a 70-group Air Force, and a strong Air National Guard and Air Force Reserve.
21. Herman S. Wolk, "The Defense Unification Battle, 1947-50: The Air Force," *Prologue* 7 (Spring 1975): 23.
22. Herken, 219.
23. *Ibid.*, 227-28, 235.
24. Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting* (Ithaca, N.Y.: Cornell University Press, 1986), 42.
25. *Ibid.*, 45.
26. *Ibid.*, 53.
27. Phillip A. Crowl, "What Price Unity: The Defense Unification Battle, 1947-1950," *Prologue* 7 (Spring 1975): 5.
28. Trest, 28.

# The US Military in Transition to Jointness

## Surmounting Old Notions of Interservice Rivalry\*

DR DON M. SNIDER

INTERSERVICE RIVALRY is a vivid part of American military history stretching forward from the earliest days of the Republic.<sup>1</sup> The most intense period of rivalry occurred at the close of World War II. Drawing on the lessons of that war and only after years of agonizing political turmoil fueled by service rivalries, President Truman prodded Congress to pass the National Security Act of 1947 as well as its first amendment in 1949. This legislation established the fundamental postwar defense organization for the United States. They created, among other entities, a new Department of Defense (DOD), "unifying" the earlier Departments of War and Navy and creating for the first time an independent air force as a third military department within DOD.<sup>2</sup>

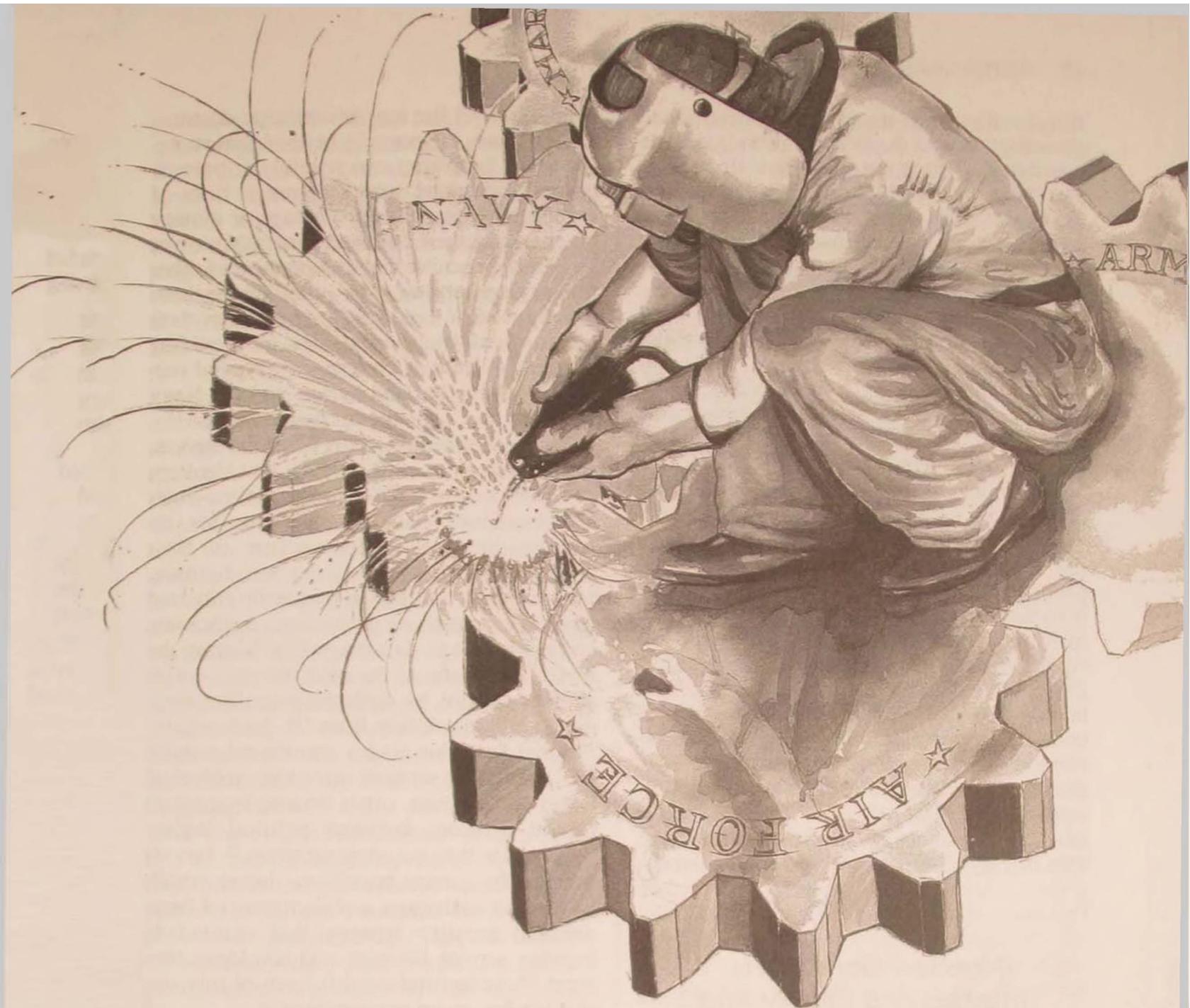
From the "revolt of the admirals," which occurred during the unification debates of the late 1940s to Sen Sam Nunn's (D-Ga.) call in 1992 for "the elimination of redundancy among the nation's four air forces,"<sup>3</sup> accepted wisdom has held that interservice rivalry is bad, even though very logical explanations have been made, both for its existence and for its ebbs and flows over time.<sup>4</sup> In very broad terms, this "wisdom" has rested, over the last decade or so, on the twin beliefs that interservice rivalry has produced some of our nation's most ignominious military disasters, such as Desert One, and that it inherently causes an inefficient

allocation of resources across what are often redundant capabilities—a luxury America can no longer afford.<sup>5</sup> In sum, the wisdom holds that such rivalry is responsible for forces that are often grossly ineffective and almost always very expensive.

Now, as America's armed forces are being reduced and reshaped after the cold war,<sup>6</sup> a countervailing idea is gaining credibility—the idea that interservice rivalry is not inherently bad. Rather, when seen as the flip side of the post-Goldwater-Nichols Department of Defense Reorganization Act process of increasing jointness, it is a "good" thing. Most recently, this thesis, which confounds historically accepted wisdom, has been strongly advanced by a respected bipartisan body—DOD's Commission on Roles and Missions. In its final report, *Directions for Defense*, the commission boldly claims that it is time to "set aside outdated arguments" about "who should do what" among the US military services and instead, given the joint structure in which America now fights wars, it is time to focus on "who needs what" from the perspective of the unified commander.<sup>7</sup> The true challenge now, it concludes, is finding a way to "ensure that the right set of capabilities is identified, developed and fielded to meet the needs of unified commanders."<sup>8</sup>

In view of the commission's having contradicted 40 years of conventional wisdom, its rationale for "setting aside outdated argu-

\*This article is based on a paper presented at the Conference on Interservice Rivalry and the American Armed Forces, held at the Naval Postgraduate School, Monterey, California, 4-7 March 1996.



ments" is, perhaps, even more important than its individual conclusions. Basically, in delineating this rationale, the commission, I believe, has taken account of the changed roles that both the services and the commanders in chief (CINC) now play in America's military establishment. In the late 1940s and early 1950s, roles and missions were bitterly debated because the services themselves executed with their forces the missions over which they fought. That is no longer the case. Now, independent CINCs, reporting only to the secretary of defense and to the

president, execute all military missions—in peace and war.<sup>9</sup> The role of the services under Title 10 has evolved into a quite limited one: "to man, equip, and train" the forces that are subsequently assigned to the CINCs for the execution of missions received from the secretary of defense and the president.<sup>10</sup> Thus, if each service focused in this context on its unique "core competencies"—delivering to the CINCs the best possible set of its *specific* air, land, or sea capabilities as building blocks for joint forces—the commissioners felt confident in concluding that "a conven-

tional criticism of the services, unrestrained parochialism and duplication of programs, is overstated. This is not to say that there is no parochialism and duplication, there is. But our investigation persuaded us that these issues are largely a result of insufficient focus on the real problem of the department—effective joint military operations.”<sup>11</sup>

Why did the commission decide to buck such strongly held conventional wisdom about the nature of interservice rivalry? What evidence might exist in support of its determination that the roles of the military departments and of the CINCs had evolved to the point that historical arguments were no longer valid?

This article addresses a portion of the latter question by maintaining that major progress towards true jointness has been made since the Goldwater-Nichols legislation of 1986, particularly within functions of the military departments that are considered “inputs” to military capabilities (i.e., in manning, equipping, and training). When one considers progress in these areas, which has occurred largely out of the public eye, in the correct context, as provided for by the Goldwater-Nichols legislation, one can consider the residual interservice rivalry—as the commission subsequently did—a “good” thing, controllable and constructive within current ranges. This is truly a historic conclusion, if correct.

### Needed Definitions: Interservice Rivalry and Jointness

As noted earlier, the organizational behavior known as interservice rivalry has been around for a long time. One useful model of the phenomenon holds that to understand such behavior, “it is necessary to understand the interaction of organizational interests (status, force levels, and missions) and organizational ideologies (strategic and tactical doctrines) of each of the four services.”<sup>12</sup> The ideologies referred to are, of course, ingrained in organizational cultures usually associated with the

main tenets of the service’s strategic doctrine. The Air Force, for example, believes that strategic aerial bombing can severely cripple an enemy’s homeland, interdict strategic lines of communication, severely damage or destroy an enemy at the front, and generally serve as an effective coercive tool, independent of other military operations. The other services have equally explicit ideologies derived from their historic and traditional roles in providing combat capabilities for a specific type of warfare—the Army for land warfare and the Navy and Marine Corps for maritime warfare.<sup>13</sup>

Interservice rivalry occurs when the services, each following its own interests and ideology, compete within DOD for peacetime roles and wartime missions—and thus for resources—that they believe accrue to their unique strategic approach to war fighting. Such competition, though frequently criticized by civilian analysts for divisiveness, inefficiency, and confusion in defense policy, “during the first fifteen years of the cold war enhance[d] civilian control by deflecting conflict away from civilian-military lines.”<sup>14</sup> Such organizational behavior is also manifested outside DOD when the services carry their individual issues to Congress, often finding support to exploit divisions between political leaders there and within the administration.<sup>15</sup> Periods such as the current transition, during which the nation undergoes a realignment of basic national security strategy that contradicts existing service interests and ideologies, are most likely to produce this form of interservice rivalry—as we are now seeing.

The most succinct definition of jointness is that offered by Gen Colin Powell, former chairman of the Joint Chiefs of Staff (CJCS): “We train as a team, fight as a team, and win as a team.” He considers jointness to be a fourth major factor that contributes to the high quality of our armed forces, though “less tangible than training or weaponry, or the quality of the best and the brightest of young Americans that are our volunteers.”<sup>16</sup> Joint Publication 1, *Joint Warfare of the US Armed Forces*, presents Powell’s philosophy of

jointness in some detail. Notably, the document emphasizes the idea that unity of effort at the combatant command level is the essence of jointness, noting that this has been true of many military engagements in the nation's history—starting with the joint campaigns of the Civil War.<sup>17</sup>

Adm William Owens, recently vice-chairman of the Joint Staff, goes further, defining jointness as one of the four ongoing revolutions that mark this transition as a watershed in American military history. The other three revolutions cited by Owens are (1) the changes in the world political and economic structures since the end of the cold war; (2) the revolution in the defense budget—down 45 percent in real terms since the peak of the cold war but in an uneven manner, with variable costs and capabilities (combat forces or “tooth”) now receiving only 35 percent of defense appropriations, while fixed costs and capabilities (support forces and structures or “tail”) receive about 65 percent; and (3) the operational-technical changes occurring within the “revolution in military affairs,” which refers to the broad implications of information dominance for future conflict and for US armed forces.<sup>18</sup>

To Owens this “revolution” in jointness—best described as achieving higher joint combat effectiveness through synergy from blending particular service strengths on a mission basis—was facilitated by the Goldwater-Nichols reforms. These measures greatly strengthened the roles of the combatant commanders vis-à-vis the service chiefs—as well as by subsequent experiences in the Gulf War.<sup>19</sup> The most recent manifestation of this revolution is the current role of the Joint Staff and unified commanders in planning and programming for new military capabilities (e.g., the role of the enhanced Joint Requirements Oversight Council [JROC], which the vice-chairman himself heads).<sup>20</sup>

Other officers define jointness in more traditional terms of military strategy and doctrine—as a response to the evolving nature of warfare. Accepting the postulate that

in the future the services will fight and operate jointly—even in lesser contingencies—Frederick Strain elaborates on jointness as embodying the increasing synergism of modern military forces—complementary operations built around a key force (instead of key service) required to spearhead the effort, and so forth.<sup>21</sup> Contrary to older ideas of the uniqueness and completeness of each service's capabilities, Strain holds that “no single weapon or force reaches its full potential unless employed with complementary capabilities” of the other services.<sup>22</sup>

As these few definitions show, jointness means different things to different people. But all of them tend to focus on the efficient integration of service capabilities at the level of the joint force commander (JFC). Therefore, they apply to the services' activities that occur on the “input” side of their individual force-generation processes. The term *input*, as noted earlier, refers to the services' Title 10 authorities to man, equip, and train their units—to be assigned subsequently to a joint force for employment by the JFC.

Focus on the input side is important for several reasons. Historically, as well as during the current defense transition, the most visible and audible rivalries among the services have occurred on the “output” side (e.g., most recently in the debate during 1994 and early 1995 over combat roles and missions leading up to the commission's *Directions for Defense* report—essentially arguments over “who did what most effectively in the last war”). There is always significant coverage of interservice rivalries on the output side of the debate. More importantly, since the end of the cold war, many changes towards increased jointness have occurred on the input side, but most have been out of the eye of the public and largely unevaluated or even commented on in the academic literature. Among them there are, I believe, grounds for understanding and accepting the new view that in the context of increased jointness, interservice rivalry is not such a bad thing.

## A Look at the Evidence

By means of three military activities on the input side, each service, until recently, has fulfilled its responsibilities in a very individualistic manner with little cooperation or jointness with the other services: (1) the formulation of military strategy, (2) the development of joint doctrine, and (3) the design and implementation of joint training and training evaluations. These three activities provide credible evidence to support the thesis of this article. At the same time, they hold the greatest potential, along with improved joint professional military education (PME), to make permanent the observable changes in service cultures—changes in the direction of establishing a widely acceptable, overarching joint culture.

### *Formulation of Military Strategy*

In the latter years of the cold war, during the Reagan buildup, individual service strategies were still dominant. For example, Secretary of the Navy John Lehman's "600-ship maritime strategy" caused intense interservice rivalry over resources needed to execute the Navy's military strategy of horizontal escalation.<sup>23</sup> Since that time, during the two phases of the post-cold-war defense transition (Bush phase: 1988–92; Clinton phase: 1992–96), a number of influences have been identified that effectively ended the era of service dominance in formulating multiple—often incompatible—military strategies. In so doing, these influences also ended a major point of contention that had for decades been fueling interservice rivalry.

The first influence occurred during the Bush administration. Under the leadership of the Pentagon team of Secretary of Defense Dick Cheney and General Powell, an unclassified, joint national military strategy was published in 1991—probably the first in the Republic's history.<sup>24</sup> It was a post-cold-war strategy focused on regional, conventional warfare conducted by the unified CINCs, developed in conjunction with and as the strategic

rationale for the "base force" of the Bush administration.<sup>25</sup> As such, it was more of a "force building" strategy to legitimize the first phase of the post-cold-war demobilization than it was a war-fighting strategy, though it was applied to a remarkable degree in the preparation of the unified campaign plan for the Gulf War. More to the point for this discussion, it became the strategic basis for planning and programming within DOD, thereby supplanting the earlier, individual strategies of the services.

The second influence—a particularly strong one—against independent service war-fighting strategies was the success of joint operations in the Gulf War. Conducted almost entirely as a coalition operation, with US forces organized and commanded totally within a unified structure, the war left little doubt that individual service operations (therefore individual service war-fighting strategies) were a thing of the past—and for good reason. The devastating synergy created within the theater of operations by the careful integration and orchestration of only the needed building blocks of each service told the whole story.<sup>26</sup>

Nothing speaks as loudly to the American people as success. Operation Desert Storm conclusively demonstrated that the expensive military buildup during the late cold war period had purchased the most technologically advanced and capable military services in the world. Further, Gen Norman Schwarzkopf's unified command structure competently integrated these forces, leading them to an astounding victory with remarkably few American casualties. At that point, both civilian and military leaders accepted the idea that no service should go to the elected representatives of the American people to request resources for anything other than the creation of joint war-fighting capabilities.

However, as time passed and administrations changed, the services did return during 1993–94 to publishing separate "strategies" to defend their unique roles and missions: "From the Sea" for the Navy and Marine Corps, "Land Warfare in the 21st Century"



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for the Army, and “Global Presence” for the Air Force. Undoubtedly, the services created these strategies in anticipation of the work to be done by the Congressional Roles and Missions Commission in 1994–95.

Even then, however, a very noticeable difference existed between these service strategies and those of the earlier cold war period: they all accepted the execution of their services’ core responsibilities under joint command structure, usually integrated with and complemented by capabilities of the other services. Jointness—in operational war-fighting strategy at least—was the framework in which a much more circumscribed interservice rivalry would proceed for programmatic and budgetary purposes. No longer was the rivalry to be over mutually exclusive military strategies of each service, as it was in the early years of the cold war. Now, within an accepted joint

strategy of power projection in response to regional contingencies, the services will vie over the effectiveness and efficiencies of alternative military contributions to that common strategy.<sup>27</sup> This type of interservice competition provides civilian leaders in the Pentagon and Congress the opportunity to maximize the return on taxpayer dollars spent on defense and to increase military effectiveness.

#### *Development of Joint Doctrine*

Military doctrines are useful and important to the services, far beyond the degree generally understood by an outside observer. As Barry Posen points out in his classic treatment of the subject, their importance derives from two facts: (1) “by their offensive, defensive, or deterrent character, doctrines affect the probability and intensity of arms races and

of wars" and (2) "by both the political and military appropriateness of the means employed, a military doctrine affects the security of the state that holds it."<sup>28</sup> As Posen notes, states can be negatively affected by their military doctrine under a number of circumstances (e.g., if it is not integrated with the political objectives of the state's grand strategy or if it is insufficiently innovative for the competitive dynamics of the state's security environment, and so forth).<sup>29</sup> In our own history, inappropriate military doctrine, particularly on the part of the US Army, contributed directly to national failure in Vietnam.<sup>30</sup>

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Historically, the development of military doctrine has been the domain of the services; unsurprisingly, each service executed doctrine in a different manner. At the extremes are the Navy, which used "a fragmented, bottom-up, fleet-driven process," and the Army, which has always been a top-down, doctrine-driven organization with branch schools and even major commands charged with doctrine development.<sup>31</sup> As mentioned earlier, until it became painfully obvious in Desert One, Grenada, and Lebanon that unrelated service doctrines were a major impediment to successful joint operations, little impetus existed for the creation of joint doctrines. As noted in the Locher report, "the absence of JCS [Joint Chiefs of Staff] emphasis on joint doctrine means that Service doctrine dominates operational thinking. This becomes a problem because services are diverse and have different approaches to military operations.

When US military forces are jointly employed, service doctrines clash."<sup>32</sup>

Key to post-cold-war development of joint doctrine and to its teaching through the joint PME system was the Goldwater-Nichols legislation of 1986. For the first time, it provided the CJCS both the singular responsibility and the authority for the development of "doctrines for the joint employment of US armed forces."<sup>33</sup> Over time, this authority facilitated the expansion of the Joint Staff—in particular, the Operational Plans and Interoperability Directorate (J-7) and in 1987, the establishment of the Joint Doctrine Center at Norfolk, Virginia. As expected, the creation of these institutions, along with a top-driven process for the development and review of joint doctrine, heightened service interest in the same areas.

In 1993 the Navy and the Air Force established their own centers for doctrine development at Norfolk Naval Base and Langley Air Force Base (AFB), Virginia, respectively (the Army had for decades maintained a command for training and doctrine in the same vicinity at Fort Monroe, Virginia). Centralizing the development of naval war-fighting doctrine represented a major step for the Navy—one that followed bitter, Gulf War lessons of the price to be paid by an institution out of touch with the war-fighting doctrines of the other services.<sup>34</sup> Lastly and more recently (in 1994), the Joint Warfighting Center was established at Fort Monroe and subsumed the activities of the earlier Joint Warfare Center (Florida) and the recently established Joint Doctrine Center. This completed the creation of joint institutions for the development of both joint doctrine and joint training procedures, as well as their integration.

Much has been accomplished already by this new process. Several capstone documents<sup>35</sup> of joint doctrine have been completed, and almost 200 other joint doctrinal publications are under development.<sup>36</sup> But all this activity has not been without problems. The overall process is still incomplete by some standards, in that it is not yet well integrated with his-

torical research of joint operations and the incorporation of lessons learned.<sup>37</sup> It also has been slow in developing joint operational concepts and necessary simulations for their evaluation that accurately reflect joint warfare. No less than the current CJCS, Gen John Shalikashvili, has lamented the absence of such capabilities: "Yet, despite the importance we have attached to simulations, nobody has yet developed a single fully-tested, reliable, joint warfighting model."<sup>38</sup> Further, the writers of joint doctrine still reside largely within the services, since the new joint institutions are not manned for such a load. This has allowed the services in effect to delay or simply not complete the development of doctrines not wanted—a passive way of forestalling jointness in selected areas.<sup>39</sup>

The process has also created several instances of real interservice conflict over the content of the new joint war-fighting doctrines. Not surprisingly, many of these issues are direct descendants of those fought over by the services in the late 1940s but updated for current capabilities.<sup>40</sup> Examples include the authority of the joint force air component commander (JFACC) (how and under whose authority will the JFC integrate the capabilities of Air Force and Navy/Marine air?); battlefield interdiction (who will the JFC designate to conduct the interdiction campaign, and with what assets?); and close air support (how will the Army's helicopter capabilities for close air support be integrated with those of the air component commander?). Notwithstanding these current conflicts, however, these new controversies clearly are occurring within a totally accepted framework—that of the JFC. In other words, interservice rivalry in the area of joint doctrinal development has "progressed" to a new and much more circumscribed arena, where the focus is how best to support one joint commander in mission accomplishment. To anyone familiar with American war-fighting experiences, this is indeed progress in jointness.

### *Design and Implementation of Joint Training*

Training combat forces and evaluating them to ensure that training standards have been met and maintained are among the most important and cherished responsibilities of the military services. To provide a "trained and ready Army" has been the favorite phrase of a series of Army chiefs of staff. During the cold war, this responsibility made sense strategically. War plans then required massive forces, both in forward defense and for reinforcement from the continental United States (CONUS). These trained and ready forces were, therefore, frequently sent overseas to their planned theater of employment, where they reinforced forward-deployed forces and exercised in the field under control of the regional CINC, who—in an actual short-notice war—would receive those forces and fight the theater campaigns. Return of Forces to Germany (REFORGER) exercises in Europe were well known during the latter three decades of the cold war, with Army divisions and Air Force wings annually deploying to Germany to exercise with NATO allies.

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But with the passing of that era, the scope of trained and ready forces needed at any one time has been greatly reduced, as have US forward-deployed forces in many regions of the world. In the future, the military will rely on critical mobility assets to project military power for regional conflicts. Unfor-

tunately, as forward-stationed forces have been drawn down, combatant commanders (CINCs) have less capability in-theater to receive and organize these "response" forces for combat. In many cases—as in Somalia, Rwanda, Haiti, and Bosnia—there may be few to no forward-deployed forces already in-country. Thus, stateside "force packages" must be flexible in their composition yet already integrated and ready to fight as a joint team before they deploy from the United States as a power-projection force. Indeed, some may have to fight their way in. Thus, knowledge of joint war-fighting doctrines and high states of joint training readiness in executing those doctrines are characteristics that will provide US forces the needed competitive edge in this new environment.<sup>41</sup>

Recognizing this changed environment, General Powell initiated major changes for joint training in his last triennial report on roles and missions (February 1993). He recommended that the Unified Command Plan (UCP) be changed to put certain forces in CONUS under a single joint commander for purposes of ensuring joint training and readiness of power-projection forces. The secretary of defense approved the plan in April 1993. Implementation included the phaseout of four unified or component commands and the creation of new missions for one joint command—US Atlantic Command (USACOM).<sup>42</sup>

Implementation of these changes towards increased jointness in peacetime has created numerous conflicts. One such conflict is outlined here since it represents how the trend towards jointness (in this case, the peacetime, stateside integration of smaller, joint-force packages) has come astride of deeply held Title 10 authorities of the services. In the case of training, the authorities are deeply held, both because of the enormous resource implications as well as the need for the services to retain, in light of external strategic ambiguity, a very high degree of flexibility in war planning—specifically the assignment of "below the line" forces to CINCs.<sup>43</sup>

In this case, the issue concerned how the CINC was to ensure, under his new authorities, the joint-training readiness of projection forces if it was not known in peacetime which forces would be assigned in wartime. This situation led, naturally, to a request that those forces be assigned to the unified command in peacetime. Both the services and the reserve components recognized that the resource implications of such a move were enormous. The services viewed this request as a potential raid on the huge appropriation (i.e., the operations and maintenance appropriation) granted annually to them to train their forces and, thus, as a direct infringement on their Title 10 authorities.

The disputes raged inside the Pentagon for two years (1993–94), over two administrations, and two CJCSs; two Congresses ultimately offered changes to Title 10 to preserve their own options in determining who receives which appropriations. The issue was finally resolved in late 1994, when the CINCs received a new type of peacetime authority—"training readiness oversight"—over assigned service and reserve component units. The new authority did not, however, change the role of the services in determining the training status of their units—in no case could a unit of a service be deployed until validated for deployment as "trained and ready" by its parent service.<sup>44</sup>

Notwithstanding this dispute and others, USACOM has enjoyed steady progress in implementing the new authorities by creating a joint training program that allows units from all services "to train as they will fight."<sup>45</sup> At both the tactical and operational levels, regional CINCs specify the joint tasks they consider mission-essential in the new environment, and the service forces assigned to USACOM form into joint task forces for exercise and evaluation at multiple levels of integration. The three-tier training and evaluation program allows services to evaluate their units on tactical and operational missions and allows USACOM to exercise and evaluate joint forces at the operational level, as well as train and evaluate JFCs and staffs in a

variety of scenarios and by a variety of means (e.g., traditional field exercises, hybrid exercises with some live play in the field, constructive or virtual simulations, command post exercises [CPX] in synthetic environments, academic seminars with retired flag-officer mentors, and computer-assisted instruction).<sup>46</sup>

In other areas of military training, progress towards jointness is also apparent, particularly in what was previously known as interservice training. Under the impetus of Powell's roles and missions report of 1993, as well as subsequent decisions by Les Aspin—then the secretary of defense—interservice approaches to the initial skills training of new service recruits have accelerated.<sup>47</sup> Nearly 400 joint courses are offered today, most for individual or advanced-individual skill training. The Air Force now sends 29 percent of its boot-camp graduates to a multiservice environment for initial technical training, and the level is expected to rise to 50 percent in coming years. By 1997 the Joint Primary Aircraft Training System (JPATS) will be in place, offering initial fixed-wing training to pilots of all services, followed by a four-track, follow-on training structure for different aircraft/missions—but still on a strict interservice basis. No longer are the Army and Navy—or even the Air Force—“growing their own” pilots.

## Conclusions

On the “input” side of current military activities, the three areas surveyed demonstrate a marked degree of increased jointness: a common war-fighting strategy, an increasing number of joint doctrines flowing from newly organized institutions, and joint training evaluations institutionalized to provide more effective joint-force packages for future power-projection missions. However, appearances may confuse the reality of what has been done with what remains to be done. The current CJCS, in fact, believes there is still a huge gap when “one compares the way the services train and prepare forces to

perform service missions and the way the joint world prepares its forces to operate.”<sup>48</sup>

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*Simply put, although interservice rivalry still exists, it is now focused on a much more refined and more important issue—how best to provide military capabilities for the common purpose of enhancing the war-fighting effectiveness of the JFC.*

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As expected, on the flip side of increased jointness is a continuation of interservice rivalry. This includes recurring conflicts among the services and between the services and the Joint Staff and CINCs over sensitive Title 10 authorities that the services use as a barrier to further encroachment by joint activities. But I believe it is also fair to conclude that the type of interservice rivalry found in these input areas is of a different qualitative character because of its circumscription by the joint framework increasingly imposed on all players by the Goldwater-Nichols legislation. Simply put, although interservice rivalry still exists, it is now focused on a much more refined and more important issue—how best to provide military capabilities for the common purpose of enhancing the war-fighting effectiveness of the JFC.

Undoubtedly, other factors beyond the scope of this article are also at work influencing the level and character of interservice competition. One of the most prominent is the tight budgetary climate within DOD; another is the unresolved strategic ambiguity in national security planning. In my judgment, both of these factors have tended to heighten interservice rivalry. This tendency makes it all the more remarkable that the influences of the Goldwater-Nichols legislation in such areas as strategy, doctrine, and training are demonstrating significantly increased “jointness,” along with a new character of interservice rivalry.

It remains to be seen whether this new type of interservice rivalry is constructive over the longer run, particularly when budgetary and strategic factors may change. Some observers believe it can be, citing the creative aspects of such competition to foster innovation, efficiencies, and savings in a time of fiscal austerity.<sup>49</sup> Others, drawing on the experiences of history and the more recent Gulf War, express caution. Casting the current dynamics as the slow creation of a new joint culture, they believe it would be well to proceed slowly—particularly at the operational and tactical levels in the field—lest proven service cultures be eroded without anything of substance to replace them.<sup>50</sup>

My own judgment is that the evidence cited on the input side of the services' activities

points clearly to the creation of a new joint culture, one built around increasingly defined and accepted ways of integrating the war-fighting capabilities of the services. Thus, although historical criticisms of the organizational behavior known as interservice rivalry perhaps were valid in earlier eras, they are not valid now. Presently, very constructive forces are at work, especially as they complement earlier reforms in joint PME that also have contributed to the new culture. Creation of a true joint culture will take decades; for now, progress is being made, and this constructive brand of interservice rivalry is a net positive influence on it.<sup>51</sup> The Roles and Missions Commission, in that regard, had it right. □

#### Notes

1. See Allan R. Millett and Peter Maslowski, *For the Common Defense: A Military History of the United States of America* (New York: Free Press, 1994), particularly 92–100 and 498–507.

2. Definitive studies of this period include Paul Y. Hammond, *Organizing for Defense: The American Military Establishment in the Twentieth Century* (Princeton, N.J.: Princeton University Press, 1961); Demetrios Caraley, *The Politics of Military Unification: A Study of Conflict and the Policy Process* (New York: Columbia University Press, 1966); and Samuel P. Huntington, *The Common Defense: Strategic Programs in National Politics* (New York: Columbia University Press, 1961). For a more recent history, see Thomas D. Boettcher, *First Call: The Making of the Modern U.S. Military, 1945–1953* (Boston: Little, Brown and Co., 1992).

3. Sen Sam Nunn, "The Defense Department Must Thoroughly Overhaul the Services' Roles and Missions," 2 July 1992 (mimeograph).

4. For the definitive explanation, based on the separation of powers between Congress and the executive branch, see Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1957). For a new and interesting extension of older theories, see Deborah D. Avant, *Political Institutions and Military Change: Lessons from Peripheral Wars* (Ithaca, N.Y.: Cornell University Press, 1994).

5. The most comprehensive study that supports these conclusions also laid the foundation for the reforms of the Goldwater-Nichols Department of Defense Reorganization Act of 1986. See Senate, *Defense Organization: The Need for Change: Staff Report to the Committee on Armed Services, 99th Cong., 1st sess., 16 October 1985*, Senate Print, 99-86 (hereafter referred to as the Locher report). See pages 354–60 for six historical examples of DOD operations, including Desert One and Grenada, in which service rivalries had decidedly negative consequences.

6. For a recent written debate on the current state of post-

cold-war defense reductions, including the impact on interservice rivalry, see Don M. Snider et al., "The Coming Defense Train Wreck . . . and What to Do about It," *Washington Quarterly* 19, no.1 (Winter 1996): 89–128.

7. *Directions for Defense: Report of the Commission on Roles and Missions of the Armed Forces* (Washington, D.C.: Department of Defense, 24 May 1995), ES-1 to ES-5; 1-1 to 1-4.

8. *Ibid.*, preface by Mr John P. White, commission chairman.

9. Military departments are still considered "executors" of a few domestic support missions, such as the Army's responsibility to support civilian agencies in domestic disaster-relief operations (e.g., during Hurricane Debbie in Florida in 1993).

10. See DOD Directive 5100.1, *Functions of the Department of Defense and Its Components*, 25 September 1987 (mimeograph), 11–13.

11. *Directions for Defense*, 1-4.

12. Richard K. Betts, *Soldiers, Statesmen, and Cold War Crises* (New York: Columbia University Press, 1991), 116.

13. See Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: Johns Hopkins University Press, 1989).

14. Betts, 116.

15. Huntington discusses the same behavior, but from the perspective of the influence of the separation of powers and the resulting strategic, organizational, and budgetary pluralism within DOD. See *The Soldier and the State*, 400–27.

16. Gen Colin L. Powell, "A Word from the Chairman," *Joint Force Quarterly*, Summer 1993, 5.

17. Joint Publication 1, *Joint Warfare of the US Armed Forces*, 11 November 1991.

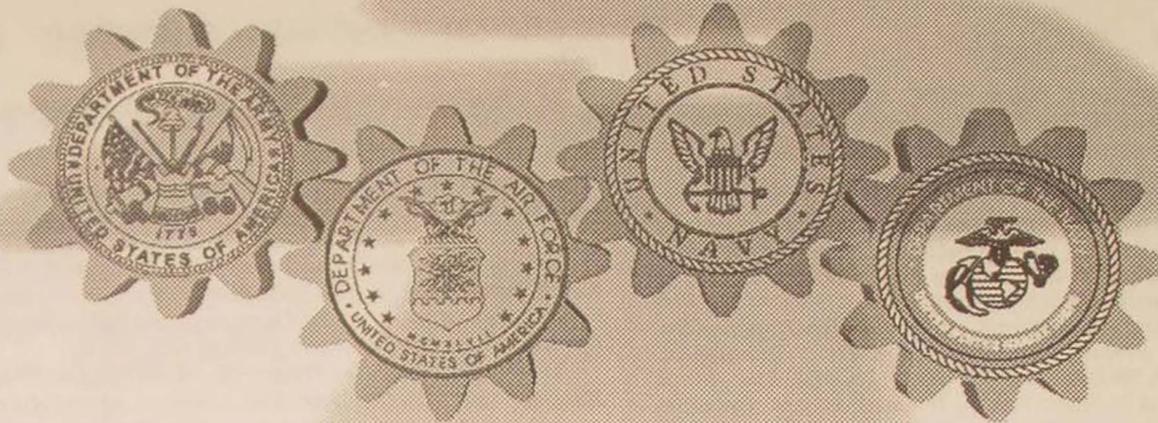
18. Author's discussion with Admiral Owens following the admiral's presentation to a Capitol Hill Club seminar, Washington, D.C., April 1995.

19. Adm William A. Owens, "Living Jointness," *Joint Force Quarterly*, Winter 1993–1994, 7–14.

20. Adm William A. Owens, "JROC: Harnessing the Revolution in Military Affairs," *Joint Force Quarterly*, Summer 1994, 55-57.
21. Lt Col Frederick R. Strain, "The New Joint Warfare," *Joint Force Quarterly*, Spring 1993, 17-24.
22. *Ibid.*, 22.
23. See chapter 7 of the Locher report for an analysis of the causes of weak strategic planning within the Office of the Secretary of Defense and the Joint Staff, as well as the services' ability to exploit the weak strategic goals that resulted.
24. See Gen Colin L. Powell, *National Military Strategy of the United States, January 1992* (Washington, D.C.: Government Printing Office, 1992).
25. See Don M. Snider, *Strategy, Forces and Budgets: Dominant Influences in Executive Decision Making, Post-Cold War, 1989-1991*, Professional Readings in Military Strategy, no. 8 (Carlisle Barracks, Pa.: Strategic Studies Institute, US Army War College, February 1993).
26. There are many good histories and analyses of the Gulf War. One of the best is Rick Atkinson's *Crusade: The Untold Story of the Persian Gulf War* (Boston: Houghton Mifflin Co., 1993).
27. For an excellent discussion of the nature and demands of the new military strategy, see L. Benjamin Ederington and Michael J. Mazarr, eds., *Turning Point: The Gulf War and US Military Strategy* (Boulder, Colo.: Westview Press, 1994), particularly chap. 9, "Force Projection/Crisis Response," by Jeffery Record; chap. 10, "The Future of Command and Control: Toward a Paradigm of Information Warfare," by C. Kenneth Allard; and chap. 14, "Military Strategy for an Era of Transition," by Martin van Creveld.
28. Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars* (Ithaca, N.Y.: Cornell University Press, 1984), 15-16.
29. For a more recent study of the influences of military doctrines on the innovativeness of military organizations, see Stephen P. Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, N.Y.: Cornell University Press, 1991), particularly chap. 1.
30. For support for this conclusion, see chap. 3 of Avant; and Andrew F. Krepinevich, Jr., *The Army and Vietnam* (Baltimore: Johns Hopkins University Press, 1986).
31. See Rear Adm Frederick L. Lewis, "Naval Doctrine Command," *Joint Force Quarterly*, Autumn 1993, 113-16; and Robert A. Doughty, "Reforming Joint Doctrine," *Joint Force Quarterly*, Summer 1993, 40-47.
32. See Locher report, 165.
33. House, *Report no. 99-824: Goldwater-Nichols Department of Defense Reorganization Act of 1986*, 99th Cong., 2d sess., 12 September 1986, conference report to accompany H.R. 3622.
34. Lewis, 113-16.
35. Capstone documents cover broad functional areas such as joint operations, intelligence, logistics, and so forth.
36. "Joint Doctrine Publications," *Joint Force Quarterly*, Summer 1993, 112-13.
37. Doughty, 40-47.
38. Gen John Shalikashvili, "A Word from the Chairman," *Joint Force Quarterly*, Autumn-Winter 1994-1995, 7.
39. Robert B. Adolph, Charles W. Stiles, and Franklin D. Hitt, "Why Goldwater-Nichols Didn't Go Far Enough," *Joint Force Quarterly*, no. 7 (Spring 1995): 48-53.
40. Michael Leurs, "Joint Doctrine: New Pubs, Old Controversies," *Joint Force Quarterly*, Summer 1994, 111-15.
41. Edward C. Ferriter, "Which Way Joint Doctrine?" *Joint Force Quarterly*, no. 8 (Summer 1995): 118-19.
42. Paul David Miller, "A New Mission for Atlantic Command," *Joint Force Quarterly*, Summer 1993, 80-87.
43. This arcane issue of military war planning results from the fact that in peacetime, US active duty forces—particularly the Army—are not balanced. There are more force packages of "fighters" (infantry, armor, etc.) than there are complementary packages of "supporters" (logisticians, engineers, communicators, etc.). Therefore, the services will not assign support units to a CINC until just before a force package deploys, retaining their flexibility to respond to the needs of more than one CINC. Additionally, as has happened in every major deployment of US forces since the end of the cold war, some units for combat support packages have to be activated from reserve components to correct this imbalance, making planning more problematic by the vagaries of political decision making on reserve call-ups.
44. Col Robert Hart, Military Fellow, Center for Strategic and International Studies, Washington, D.C., interview with author, June 1995.
45. Clarence Todd Morgan, "Atlantic Command's Joint Training Program," *Joint Force Quarterly*, no. 8 (Summer 1995): 120-23.
46. *Ibid.*
47. Gen Henry Viccellio, Jr., "The Joint Challenge to Interservice Training," *Joint Force Quarterly*, no. 7 (Spring 1995): 43-47.
48. Shalikashvili, 4-7.
49. Stephen Peter Rosen, "Service Redundancy: Waste, or Hidden Capability?" *Joint Force Quarterly*, Summer 1993, 36-39.
50. Bernard Trainor, "Jointness, Service Culture, and the Gulf War," *Joint Force Quarterly*, Winter 1993-1994, 71-73.
51. One should note that this is not the first time in American postwar history that interservice rivalry changed from an unhealthy character to a constructive one. Interestingly, both changes occurred towards the end of a period of ambiguity in strategic guidance to the military from political, civilian leaders. See Samuel Huntington, "Interservice Competition and the Political Roles of the Armed Services," in Henry A. Kissinger, ed., *Problems of National Strategy: A Book of Readings* (New York: Praeger Publishers, 1965).

*Neither a wise nor a brave man lies down on the tracks of history to wait for the train of the future to run over him.*

—Gen Dwight D. Eisenhower



# Service Rivalry Overshadowed\*

DR WILLIAM E. TURCOTTE

**T**HIS ARTICLE proposes that although service rivalry will—and *should*—continue, it will be less significant in the future. New senior resource competitors, integrative technologies, and integrative decision points at the joint planning level will create a multidimensional conflict matrix with governing influence over national military strategy and congruent supporting force structure. Momentum is building to prioritize service functions according to their contribution to joint warfare assessment capabilities rather than by service preference or essence. We are entering a McNamara-like era of conflict; however, in this era the determination of service functions that will prosper or decline is in the hands, or minds, of senior, joint military officers—not the dreaded whiz kids. The opportunity now exists for the chairman of the Joint Chiefs of Staff (CJCS) to be the most influential strategy and future force structure advisor to the secretary of defense. Nonetheless, it is reasonable to ask whether one can find officers with the experience, knowledge, and perspective to

intellectually advise and decide on the very best joint force structure.

Instead of *service rivalry*, one could easily substitute other terms, such as *competition*, *conflict*, and *unnecessary duplication*. All of them imply unhealthy circumstances, with one organization seeking resources, capabilities, or status at the expense of others. Often we think of the employed tactics in a pejorative way. Pursuit of suborganizational goals does not complement goals of the larger organization, thus contributing to aggregate inefficiencies and friction. This bifurcation of interests, some people suggest, is the result of individuals or organizations narrowly perceiving and pursuing subgoals to expand or protect their own spheres of activity<sup>1</sup>—a pursuit thought to use expert, connective, and alliance power. At least that can be the often exaggerated view of competitors who fear specific or unspecified resource losses. As in most conflict situations, one side is regarded as an enemy; communications become guarded; and a subculture develops, promoting selective perceptions of resource opponents as unfair or even unscrupulous. New members so-

\*This article is based on a paper presented at the Conference on Interservice Rivalry and the American Armed Forces held at the Naval Postgraduate School, Monterey, California, 4-7 March 1996.

cialized into that culture view opponent organizations selectively and warily.<sup>2</sup>

As an example, in the early phases of the Program Objectives Memorandum (POM) process,<sup>3</sup> there is guarded concern that other services might learn of an initiative—particularly systems initiatives—threatening to their function or perceived share of the larger budget. POM briefers are often quick to observe that another service's program is out of balance and cannot be funded (read "except at the expense of others"). I have, for example, heard more about the Army's need to reduce personnel to fund modernization from non-Army briefers than I have heard from Army briefers. We can recall as well the great chagrin of the chief of naval operations when the Air Force chief of staff suggested that the Navy had 23 aircraft carriers—or should we say "air capable" ships?—while the Navy was using all of its influence to retain 12 large deck carriers. To some people, a landing platform helicopter ship (LPH)/landing platform dock (LPD) at about 40,000 tons does look like an aircraft carrier. Indeed, in all other navies, it is an aircraft carrier. But in the US Navy, for sound reasons, only the large deck carrier fully satisfies power-projection requirements. Did the Air Force chief err on his ship-identification exercise, or was he making a more subtle point? Why the strong Navy reaction? Could the real issue be the deep-strike mission? Was it a harmless observation?

All of this rivalry and these competitive claims would be less significant if the services were profit-making organizations. Product claims could be tested in the free market, and consumers of security could buy them according to perceptions of value. Alternative service capabilities might then be contrasted by return-on-investment analysis or similar economic valuations. During the 1950s, for example, no amount of argument from the Ford Motor Corporation could characterize the Edsel as a success. It failed in the marketplace.

But the Department of Defense (DOD) does not have a marketplace, nor do we have

really good measures to judge competing capabilities—especially when they are used across varying spectrums of warfare and over an exceptionally long time frame. Instead, reduction and expansion of certain capabilities will be accompanied by continuing argument—not defining measurement—by sophisticated people. Rarely will convincing proof exist that competitive capabilities are superior except in narrow and sometimes constrained scenarios.

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*Nonetheless, it is reasonable to ask whether one can find officers with the experience, knowledge, and perspective to intellectually advise and decide on the very best joint force structure.*

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Grand strategy, military strategy, technological implications, and future budgetary uncertainties guarantee a sharp rivalry of ideas. Perhaps we should "globally reach," or perhaps it is better to be "forward from the sea" or prepare to win major land wars. Maybe we should prepare to do all of these in two near-simultaneous major regional conflicts while carrying out peacemaking, peacekeeping, and humanitarian operations. All of these have different implications for future force structure and the prosperity of functions that best fit whatever is prioritized.

Major military strategy alternatives are the inevitable support for preferred force structure and will not favor service capabilities equally. They will be heatedly debated, and such debate will be made more contentious by the growing emphasis on truly new technologies, the implications of the system of systems,<sup>4</sup> the substitution of certain technologies for presently accepted service-dominated functions, and the shifting choice of preferred functions and capabilities to higher, more integrated, joint decision points.

All of this will reduce service independence in prioritizing preferred capabilities. Selection of optimum joint-force capabilities will be improved by information and command systems, leading, I suspect, to more centrally determined, highest valued capabilities across foreseen dimensions of integrated use. Longer-distance precision capabilities, unmanned reconnaissance (soon to be strike) vehicles, and space wonders offer the possibilities of obsolescing—or at least diminishing—certain service functions. Possibilities do not, by themselves, generate easy acceptance when the stakes are high. Ownership, control, and preponderant use of these possibilities in an environment of shrinking resources will promote intense rivalry. New technologies will suggest recapitalization but not on a one-for-one replacement basis. Depending on which platforms are adversely affected, we can anticipate intense argument that, to some people, will have characteristics of rivalry.

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*Rarely will convincing proof exist that competitive capabilities are superior except in narrow and sometimes constrained scenarios.*

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This open rivalry of ideas regarding future force structure deserves encouragement. Managed conflict and tension of ideas are good insurance against functional or platform stagnancy. Conflict, some people argue, is needed in knowledge-based and technology-producing organizations<sup>5</sup>—descriptions that seem to fit today's and tomorrow's military. Of course, uncontrolled conflict can lead to chaos, and crisis organizations have little room for conflict when they are actually carrying out their functions. Thus, one should stimulate rivalry and competition of force-structure ideas, including views by one service on the emphasis of another service. One hopes, too, that competing ideas will not yield compromises of unnecessary duplication—or

capability over capacity—broadly described by David Chu.<sup>6</sup> One suspects that, as the Joint Staff measures recapitalization against future budget expectations, it will feel compelled to search out and reduce duplication.

After this benign election year, we will likely see increasingly intense debate as budgets continue to shrink. Balancing a budget in seven years and retaining substantial entitlements will surely lead to DOD decreases. Most likely, in about a year, a new equivalent of the Bottom-Up Review will be chartered. This review will surely include a close examination of technology thrusts, and this time the key player will be the Joint Staff, who will use the integrative Joint Requirements Oversight Council (JROC)<sup>7</sup> to make service functions compete against Joint Warfighting Capabilities Assessments (JWCA).<sup>8</sup> Vice-chiefs of the various services now spend about 10 hours per week in the JROC—an organization with powerful future potential to shift key force-structure recommendations away from former conflict-resolution points in the Office of the Secretary of Defense (OSD). When the emphasis is on capabilities and systems—not platforms—and when joint war-fighting areas such as sea, air, and space superiority are discussed as entities, vice-chiefs will dare not miss a meeting as the best integrative—not service—position is sought as the CJCS's position.

The service chief's view is but one position in the new debate. Positions of war-fighting commanders in chief (CINC) count, and they tend to look for the best military capabilities to meet regional needs. It is not in the CINCs' interests to represent a service preference if it contradicts a theater's requirement, and CINCs inevitably have a near-term orientation. CINCs themselves are not in agreement on what service capabilities are most important. Moreover, they compete for the amount of forces available to them and seem always to want more—not fewer—current capabilities. CINCs have their own needs, and geographical (GEO)CINCs have different needs than functional CINCs. The representations of Transportation Command

(TRANSCOM), for instance, are a powerful future influence on the type of future lift—more so than the service view. Strategic Command (STRATCOM), Space Command, and Special Operations Command (SOCOM) have their own organizational essence, compete for overall resources, and will ally with or oppose services or CINCs, depending on their agenda, power, and access to resources. An array of functional defense agencies (e.g., Defense Logistics Agency, Defense Intelligence Agency, National Security Agency, Defense Institute of Security Assistance, Defense Mapping Agency, Defense Nuclear Agency, etc.) have their own sense of what is important. Their emphasis can conflict with service priorities.

So the cliché of service rivalry, an old refrain, has given way to a complex multiplayer bargaining and rivalry environment. Services, GEOCINCs, functional CINCs, and defense agencies view today and the future through different lenses. The Joint Staff is positioned to be the only military body that addresses integration and conflict resolution from a total organizational perspective. That is what the Goldwater-Nichols Department of Defense Reorganization Act sought, and that is what it seems to be achieving. That need has always been there, and by default it was passed to OSD, while the services, unable to agree amongst themselves, lamented the substitution of civilian analysis for military judgment. Now the CJCS is licensed for strategy formulation, military requirements determination, requirements prioritization, and, perhaps most importantly, program recommendations and budget proposals. And the CJCS and his staff are military—not the young whiz kids of former secretary of defense Robert S. McNamara's Planning, Programming, and Budgeting System (PPBS) era. Service positions are but one feature of the new competition for priorities within joint capability assessment. Indeed, driven together by a common bond of resource peril, services may increasingly become allies against shifting alliances and disputes among the new and increasingly powerful senior resource players. These new,

complex alliances will be issue-dependent and will shift, requiring the most astute, energetic, and knowledgeable leaders to fully represent service capabilities and resource aspirations. Services will ally as they see resource or power shifts to the CINCs (e.g., training responsibility from service to Atlantic Command [LANTCOM] or transportation determinations to TRANSCOM or theater logistics to joint theater logistics commands or service assets to defense total-asset visibility).

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*Many issues will provide opportunities for heated discussion, sniping, occasional nasty press leaks, and subtle courting of sympathetic congressional staffers.*

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Inevitably, the services, in pursuit of what they believe, will still deploy organizational snipers to take a shot or two at each other. But these will be mere tactical-proficiency exercises in contrast to the old "revolt of the admirals" organizational wars of the 1940s. Many issues will provide opportunities for heated discussion, sniping, occasional nasty press leaks, and subtle courting of sympathetic congressional staffers. These issues include independent decisiveness of airpower or sea power; the utility of long-range bombing; theater-based air versus carrier aviation; alternatives for theater ballistic missile defense; rapid deployment of robust Army power versus Marine expeditionary forces; declining blue-water threats; the deep-strike mission; vertical short takeoff and landing (VSTOL) technology; surface-ship long-distance weapons versus carrier battle groups; jointly developed attack aircraft; new attack submarines; force components that should be more ready than others; forward presence; and so forth.

Talk as they may, services will find more and more of their problems resolved at the Joint Staff level. JROC, JWCA, or similar in-

tegrative decision points have at least the potential to make the big calls and the most influential representations to the secretary of defense. This will be particularly the case if databases are organized around capability assessments. Moreover, integrative thinking—stressing a Joint Task Force approach—dominates the GEOCINC level. Although conflict of opinion exists, the governing incentive is the best combination of capabilities—not capabilities most favored by a service.

The naval service, as the test bed for the subsequent Joint Staff emphasis on functional missions and recapitalization, has experienced a shift from platform-community dominance to a new focus on major functional mission areas as the mechanism for assigning resources. Platform communities are still present, but their former power has been reduced. Now they must use mission/functional areas as criteria for gaining resources at the expense of other areas, and, of course, the mission-area sponsors themselves are competing. Indeed, the Naval Postgraduate School was commissioned to discover decision tools to gain “quantifiable” evidence to judge competing proposals.

An older matrix has been replaced by a new one at the Joint Staff level. Matrix organizations tend to encourage rather than suppress conflict.<sup>9</sup> They place functional pieces of an organization in competition with larger, integrative mission outputs of the entire organization. The integrative resolution point in the matrix is the JROC, and the principal decision tool will be JWCA. Within that assessment concept, services must let relative capabilities compete with each other.

Further, individuals are sources of conflict. What can one say about an officer’s disposition to view resource-allocation choices from a joint, rather than a service, perspective? The new emphasis on joint tours and joint education will contribute to a balanced and integrative point of view. But contradictory influences exist also. Can we expect soon to hear cries of “Beat the Joint Staff” rather than “Beat Army” or “Beat Navy” or “Beat

Air Force”? (Note that no one says, “Beat the Marine Corps,” which may account for its recent success in resource competition.) Perhaps we should charter a Defense Football Agency to stock all football players and then issue them to the academies. We will also need a Joint Football Capability Assessment and a Joint Football Oversight Council to prioritize allocations. Indeed, if any academy is to beat Notre Dame, perhaps the best players should all be allocated to one academy under a CINC Football. (Which academy should be favored?)

As a source of rivalry, officers continue to be strongly socialized into the beliefs and culture of one service. As officers progress toward command, socialization and knowledge are fractionalized into increasingly narrow war-fighting specialties within each service. Mastery of increasingly complex technologies dominates energies and perspectives for at least 15 years and even up to 20 years for nuclear submariners. As we have seen in medicine, new and narrower officer specialties are emerging. Professional subdivisions have their own advocacy and decision-making lenses. Tactical aviators like multipurpose fighters; physicians like X-ray machines; tankers like tanks; special operations forces like face paint; surface-warfare officers like particular types of ships, and so forth. All of this is not so much an intentionally biased position against other capabilities. Rather, we all have a natural tendency to advocate what we know best and to slight capabilities that remind us of the limitations of our professional knowledge.

Although this perceptual limitation is unflatteringly labeled parochialism, it is really the human preference for what one knows best. It is not, in my judgment, a conscious rejection of those areas that one does not know well. And new areas of specialization are coming. Will the information warrior be more important in advocacy than, for example, the infantry warrior? More broadly put, will technologies designed to assist war-fighting functions become ascendant over

the functions themselves—and will that be a new source of rivalry? I recall when business moved into the computer age. Computer experts, typically young, were initially subordinate to older functional managers. However, as computer systems increasingly linked functions, both status and power shifted toward computer experts at the expense of older, more experienced leaders with only one functional orientation. Will then the cyberwarrior be the profession of preeminent influence? Is a new CINC of information warfare likely?

Mastery of technological war-fighting units suggests intense and narrow assignments through the O-5 and probably early O-6 segments of careers. Some officers may divert from that pattern but, historically, at risk to advancement. Soon after that, officers will be asked to take a larger view of strategy and total, relevant force structure. Can they bring balanced knowledge of competing capabilities to a JROC/JWCA process? What education, job experience, and incentives will transform perspective and knowledge into that of a balanced, integrative joint-capabilities decision maker or advisor? Processes, by themselves, are not integrative. Very, very smart human beings make processes work. It will take the rarest and most determined officer to make integrative, across-the-services capabilities judgments in this increasingly central decision-making structure.

To summarize, rivalry has roots in differing individual perspectives, new strategic concepts,

powerful functional and regional orientations, and technological initiatives, each having differing force structure implications. Budget reductions add stress and sometimes urgency of choice. All of these conditions and more exist in abundance. New and powerful competitors have joined the struggle for power and resources. Services are no longer the key rivals. The field is crowded. Defense agencies, GEOCINCs, and functional CINCs can on some issues dominate service preferences. Traditional defining platforms and a service's organizational essence may be threatened by advances in technology and capabilities for more centralized decision making. The complexity of the current array of power centers mandates central, integrative mechanisms such as JROC and JWCA. Moreover, Goldwater-Nichols underwrites authority for joint integration of capabilities. All of this is somewhat similar to the not-so-widely-applauded McNamara PPBS revolution. This time, however, the decision structure emphasizes senior, joint, military officer perspectives—not the whiz kids of the sixties. Will this structure be more acceptable to the services? I doubt it. Joint Warfighting Vision 2010, mandated by the CJCS, is instructive. According to *Inside the Navy*, "none of the service chiefs can agree on what Joint Vision 2010 should look like."<sup>10</sup> Who was it who said, "When God wishes to punish us, he answers our prayers"? □

#### Notes

1. Philip Selznick, *TVA and the Grass Roots: A Study in the Sociology of Formal Organization* (Berkeley: University of California Press, 1949), 30-37.

2. See Perry M. Smith, *Assignment Pentagon: The Insider's Guide to the Potomac Puzzle Palace* (Washington: Pergamon-Brassey's, 1993).

3. See William C. Keller, *The Defense Resource Allocation Process* (Newport, R.I.: Naval War College, June 1988).

4. William A. Owens, "The Emerging System of Systems," *US Naval Institute Proceedings* 121, no. 5 (May 1995): 35-39. In this article, the former vice-chairman of the Joint Chiefs of Staff outlines his views on the revolution in military affairs.

5. David R. Hampton, Charles E. Summer, and Ross A. Web-

ber, *Organizational Behavior and the Practice of Management* (Glenview, Ill.: Scott, Foresman Co., 1973), 669-70.

6. See David S. C. Chu, "Refocusing the 'Roles and Missions' Debate," *Marine Corps Gazette*, November 1994, 20-25, for an examination of interservice competition as it affects the roles-and-functions debate.

7. For an explanation of the significance of JROC and JWCA, see William A. Owens, "JROC: Harnessing the Revolution in Military Affairs," *Joint Force Quarterly*, Summer 1994, 55-57.

8. *Ibid.*, 56.

9. Hampton, Summer, and Webber, 764-67.

10. "Gen. Shalikashvili's Joint Vision 2010 Draws Ire from Service Chiefs," *Inside the Navy* 9, no. 5 (5 February 1996): 1.

# Where to Draw the Line between Air and Land Battle

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ADDRESSING THE services' congressionally mandated Roles and Missions review, Gen Merrill A. McPeak, at the time chief of staff of the Air Force, suggested that modern land warfare contains

four "battles"—the *rear battle*, which includes base and supporting elements, the *close battle*, where the main opposing ground forces engage one another, the *deep battle*, incorporating hostile territory well beyond the line of contact, and the *high battle*, the area of air and space combat.<sup>1</sup>

He proposed a division of responsibility between these areas on the battlefield where the ground forces commander would fight the close and rear battles, while the air forces commander would fight the deep and high battles.

General McPeak went on to say that

the commander with responsibility for the close battle does not require systems or capabilities that reach across the boundaries into the deep and high battles. If there are such systems in the field or on the drawing board, they might be good candidates for retirement or transfer to another service. Alternatively, the commander with responsibility for the deep battle does not need forces that are configured for direct support of close combat operations. If there are any, they too could be transferred or cut.<sup>2</sup>

General McPeak has suggested that commanders should have full command authority and ownership of the assets used in their respective battle areas. If adopted, this concept would give the Army responsibility for its own

close support, eliminating close air support as an Air Force primary function.<sup>3</sup> This proposed arrangement would be similar to the close-air-support concept of operations practiced by the Marine Corps. Needless to say, General McPeak's suggestions have stoked old flames of debate between the air and land services.

The Army has questioned the Air Force's sincerity about providing air support since World War I, when the airplane gained its importance as a new weapon of warfare. Ground commanders saw the chief task of the Air Force as support for the ground forces. Army field service regulations in effect when the United States entered World War I stated, "The infantry is the principal and most important arm, which is charged with the main work on the field of battle and decides the final issue of combat. The role of the infantry . . . is the role of the entire force. . . ."<sup>4</sup>

While the infantry got bogged down in the trenches in World War I, advances in weapons technology and doctrine for employment, including that for the airplane, began to demonstrate revolutionary capabilities for warfare. Airmen believed airpower should be concentrated instead of divided evenly between individual ground commanders.

It was the Germans who first effectively demonstrated what massed airpower could do. During their great offensive of March 1918, they concentrated some 300 aircraft for direct support of the ground advance. . . . Control of the air having been quickly gained, they were able to harass the movement of troops with virtually no interference.<sup>5</sup>



A German instruction on "The Employment of Battle Flights," . . . described battle aircraft as "a powerful weapon which should be employed at the *decisive* point of the attack. . . . They are not to be distributed singly over the whole front of the attack, but should be concentrated at decisive points. Less important sectors must dispense with the support of battle flights."<sup>6</sup>

The idea of concentrating airpower should not have been a revelation. It was merely a practical application of one time-honored principle of war—mass.<sup>7</sup> Air leaders further argued that not only should airpower be concentrated for decisive results, but control should be vested in an air commander who understands the capabilities and limitations of airpower. Although Army officers disagreed

with this concept, airmen saw it as nothing more than following another principle of war—unity of command.<sup>8</sup>

After learning from the success the Germans were having with concentrated "battle flights," the American Air Service commander, Gen William ("Billy") Mitchell, convinced Gen John J. Pershing, commander of the Allied Expeditionary Force, to "concentrate (air) units from various ground commands into a powerful unified force . . . controlled by him (Mitchell)."<sup>9</sup> Although "obtaining such strength had not been easy, for he had to meet the resistance of ground commanders who wanted the air units elsewhere . . . his work at Saint-Mihiel and the Argonne were landmarks in



*Basically, Air Force responsibilities for interdiction and close air support require no change. What is needed is more trust and understanding between joint service components.*



the development of airpower and the doctrine of employment."<sup>10</sup>

Following World War I, General Mitchell was already predicting the decisiveness of airpower, stating he was "sure that if the war lasted, air power would decide it."<sup>11</sup> General Mitchell "believed that for any given operation, available air units should be placed under the control of an Air Service commander. This air officer, having received the over-all plan of an operation from the superior command, would proceed to draw an appropriate air plan."<sup>12</sup> At the same time, however, the Army concluded that "aviation must continue to be one of the auxiliaries of the principal arm, the infantry."<sup>13</sup> In the middle of these two opposing views, two important lessons were recognized by all:

There were critical times, such as when one's front was ruptured, that required committing all available aircraft to land battle. The great battles of 1918 also demonstrated that centralized control of aviation could be as valuable in defensive warfare as in offensive operations.<sup>14</sup>

Nevertheless, "experiments in centralized command encountered opposition in the ground forces, particularly among the corps and army commanders, who wanted to retain direction over 'their' aviation."<sup>15</sup>

## Thesis

The central issue became what airpower is best used for and who controls it. This debate has raged throughout every conflict since World War I, including Operation Desert Storm.<sup>16</sup> This paper examines where to draw the line between air and land battle and who should control operations on either side of that line. The focus is on designation of the fire support coordination line (FSCL), which traditionally delineates air and land operations, and similarly, the Air Force missions of interdiction and close air support.

The Air Force defines its roles as aerospace control, force application, force enhancement, and force support.<sup>17</sup> This paper does not ex-

amine the Air Force roles of aerospace control (General McPeak's high battle), force enhancement, or force support (General McPeak's rear battle). Nor does it cover the force-application mission of strategic attack, which along with interdiction, comprises the deep battle. The main emphasis is on the seam between the remaining two force-application missions of interdiction and close air support.

The thesis is that, with modification, the FSCL can provide an appropriate mechanism to divide responsibilities between air and land commanders. The doctrinal definition for the FSCL needs to change to accommodate more air commander involvement for its placement. Basically, Air Force responsibilities for interdiction and close air support require no change. What is needed is more trust and understanding between joint service components.

## Air and Land Delineation

The first question to answer is, Do we need a line at all to segregate service responsibilities for different geographic areas in a theater of operations? Why not just give all the forces to the joint force commander (JFC) to fight the war as he sees fit? In a sense, that is exactly what happens. The JFC has ultimate responsibility and command authority for military operations in his area of responsibility.<sup>18</sup>

However, even a JFC's area of responsibility is bounded by distinct lines separating adjacent areas of responsibility. Geographic delineation provides *unity of command* for areas containing broad, continuing missions.<sup>19</sup> The unified commanders and their staffs are theater experts, attuned to the threats and employment of combat forces within their respective areas. Recognizing the uniqueness of each geographic theater, individual unified commands are best prepared to conduct warfare within their own areas of responsibility, but not in adjacent areas.

Similarly, air and surface components are experts in the employment of combat forces

in their particular medium. Air, land, and sea combat are all starkly different, and the members of these components spend the majority of their careers honing the skills of their respective professions. Just as unpalatable as it would be for a ground commander to acquiesce authority for fire and maneuver of his forces to an airman, it is equally unacceptable to airmen for a ground commander to presume control of airpower.

However, Army training and doctrine today still consider the chief task of airpower is to support sustained land operations, which it considers the *decisive* combat element.<sup>20</sup> One of the tenets of Army operations is *depth*, defined as

the extension of operations in time, space, resources, and purpose. . . . What is most important . . . is the fact that in any operation the Army must have the ability to gain information and influence operations throughout the depth of the battlefield. This ability highlights the joint nature of deep operations, which means participation by the other services.<sup>21</sup>

Clearly, Army doctrine does not intend to draw an arbitrary line to delineate close and deep battle and abdicate responsibility for deep battle to the air component commander. The problem is, even though Army doctrine espouses control of the battlefield at depth, traditionally ground commanders are

far more concerned with the battle immediately in front of them than they are on threats and forces deeper behind enemy lines; this is a dangerous fixation, for in at least two well-known cases—the fall of France in 1940, and Kasserine in 1943—it contributed to notable defeats.<sup>22</sup>

It was prescribed at the time that tactical air was to be used for the immediate and direct support of ground forces, that the mission of the air arm was the mission of the ground forces, and that ordinary tactical air units would be under ground commanders. Under such a philosophy of air operations, the air campaign during late 1942 and early 1943 in North Africa proved to be a model of inefficiency.<sup>23</sup>

Consequently, in the aftermath of the battle at Kasserine Pass, American airpower was placed under centralized control of airmen.<sup>24</sup> Ensuing doctrine stated:

Land power and air power are co-equal and interdependent forces; neither is an auxiliary of the other . . . control of available air power must be centralized and command must be exercised through the air force commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited.<sup>25</sup>

Conversely, current Marine Corps doctrine subjugates its airpower to a supporting role. In addition to discussing close air support to support the ground forces, the Marines refer to the Air Force mission of interdiction as deep air support.<sup>26</sup> The Marine Corps concept of operations is for independent Marine air ground task force (MAGTF) employment using its organic combined arms, which includes its supporting air component.

Considering Army Air Corps history and Marine Corps doctrine, one can imagine that airpower would be employed quite differently if exclusive control was given to ground components. In North Africa during World War II, "Air operations reflected an addiction of Army commanders for protective umbrellas and a singular lack of understanding of both the capabilities and limitations of airpower."<sup>27</sup> Even in Desert Storm, the confrontation between the Army field commanders and the Air Force was not so much about the performance of airpower as the Army's ability to control it. As the Air Force saw it, the Gulf War was a model for future conflicts. But neither the Army nor the Marines wanted to go to war that way again.<sup>28</sup>

The ground components' concept for employment of airpower is understandable, given one's primary concern is for the battle raging around him. It is far easier to appreciate the effects of airpower when one sees enemy forces he is engaged with destroyed by air attack rather than be told that the bridge providing resupply to those same forces has just been destroyed by air attack. In a letter



*The Army's preoccupation with the decisiveness of ground battle, relegating other combat elements to supporting roles, tends to shorten its perspective of depth to the close battle.*

to Gen George C. Marshall, Brig Gen Paul M. Robinett reflected the prevalent opinion held by most ground commanders in Tunisia during World War II:

What was needed were not reports or photographs of ships being sunk, ports being smashed, or cities being bombed to ashes, but seeing Allied aircraft over their front-line positions and attacking targets in the path of Allied operations. . . . To them, the only way to achieve such results was by placing aircraft under ground force command.<sup>29</sup>

A similar analogy can be drawn from the airman's perspective. A fighter pilot about to engage a large enemy formation of aircraft would much rather have the Army's surface-to-air missiles be targeted against higher-threat enemy fighters than less maneuverable bombers. In this case, the most effective use of

surface-to-air missiles is against enemy bombers, which present the greatest threat to the joint force as a whole. However, even though the priority for defensive counter air is to preclude the bomber from reaching its target, which may even be the fighter pilot's home airfield, a certain immediacy exists in the heat of battle when one's very survival is at risk.

The emotion of ground combat begs for every available asset to support the present battle. This is evident in Army doctrine, which seeks

to apply overwhelming combat power to achieve victory at minimal cost. . . . Overwhelming combat power is achieved when all combat elements are violently brought to bear quickly, giving the enemy no opportunity to respond with coordinated or effective opposition.<sup>30</sup>

The Army plans to sequence all combat elements for decisive land engagement. "Many other operations lead to or support decisive operations. For example, two supporting ground battles, an interdiction operation, and a deception operation could all support a separate decisive ground battle."<sup>31</sup> The Army's preoccupation with the decisiveness of ground battle, relegating other combat elements to supporting roles, tends to shorten its perspective of depth to the close battle. This short-sightedness was still prevalent in Desert Storm, where "the ground generals who controlled the war—Schwarzkopf and Powell—were not inclined to accept the notion that an invading army could be destroyed from the air."<sup>32</sup>

Conversely, Air Force doctrine states, "Aerospace control normally should be the first priority of aerospace forces."<sup>33</sup> After aerospace control and strategic attack, the Air Force sees the most effective force-application roles progressively diminishing from the deep battle (interdiction) to the close battle (close air support).<sup>34</sup> However, Air Force doctrine still embodies the important lessons from World War I: "Although close air support is the least efficient application of aerospace forces, at times it may be the most critical by ensuring the success or survival of surface forces."<sup>35</sup>

## Fire Support Coordination Line

With the Army focus on the close battle and the Air Force's on the deep battle, it seems only natural to delineate responsibility for these battles. The separate services are best trained and equipped to fight these respective battles and are likewise ill-prepared to perform other than supporting roles outside their areas of expertise. The argument so far is wholly consistent with General McPeak's proposal to delineate responsibilities for close and deep battles. What General McPeak has not addressed is where to draw that line.

Traditionally, the line that separates close and deep battle is the FSCL. Joint service doctrine defines the FSCL as follows:

A line established by the appropriate ground commander to insure coordination of fire not under his control but which may affect current tactical operations. The fire support coordination line is used to coordinate fires of air, ground or sea weapons systems using any type of ammunition against surface targets. The fire support coordination line should follow well-defined terrain features. The establishment of the fire support coordination line must be coordinated with the appropriate tactical air commander and other supporting elements. Supporting elements may attack targets forward of the fire support coordination line without prior coordination with the ground force commander provided the attack will not produce adverse surface effects on or to the rear of the line. Attacks against surface targets behind this line must be coordinated with the appropriate ground force commander. Also called FSCL.<sup>36</sup>

The Air Force interprets the FSCL as a *restrictive* measure where air attacks inside the line need to be controlled by the appropriate ground commander and attacks beyond the line need to be controlled by the air component commander. During Operation Desert Storm, coalition aircraft operating inside the FSCL "could only attack under direction from ground or airborne controllers. As the . . . corollary to this rule, helicopters and tactical missiles beyond the FSCL would be controlled by the JFACC (Joint force air component commander)."<sup>37</sup>

The fact that fires inside the FSCL may affect current tactical operations suggests the FSCL will be placed in proximity to friendly surface forces. Also, the word *support* in fire support coordination line implies that those fires are supporting an ongoing close battle. Therefore, air-to-surface attacks inside the FSCL constitute the Air Force mission of close air support and are restricted by applicable measures. There is no argument concerning the need to restrict weapons employment inside the FSCL.

The Army, on the other hand, views the FSCL as a *permissive* measure. While the Army establishes a FSCL to coordinate fires of air, land, or sea weapons systems inside the line, fires beyond the FSCL do not affect current tactical operations and are therefore considered unrestricted.<sup>38</sup> The reason to restrict other components' fires inside the FSCL is to avoid fratricide by fires not under Army control.<sup>39</sup> The Army intends to engage targets beyond the FSCL and has some assets to do so, but coordination with air or sea components is not deemed necessary since there is little perceived risk of fratricide. In other words, targets beyond the FSCL are considered to be in a free-fire zone.

The Air Force disagrees. Simultaneous to the close battle, the Air Force is attacking targets in the deep battle before they come in contact with friendly surface forces. Therefore, fratricide is a valid reason to restrict fires beyond the FSCL, just as it is inside the FSCL. Friendly aircraft are attacking targets in airspace that unrestricted surface-to-surface ordnance flies through. Army doctrine recognizes "the highest probabilities of conflict between aircraft and indirectly delivered supporting fires occur . . . in the immediate vicinity of firing unit locations and target impact areas. With the exception of these two areas, the probability of aircraft and indirect fire conflict is relatively low."<sup>40</sup> Not only fixed-wing aircraft operate beyond the FSCL, but helicopters as well. The big sky theory, suggesting an acceptable low probability of an artillery shell hitting a friendly aircraft, does not "fly" with airmen.

Joint doctrine provides contradictory guidance on whether the FSCL is *restrictive* or *permissive*. While the joint definition for the FSCL does not stipulate either restrictive or permissive, Joint Publication 3-0, *Doctrine for Joint Operations*, clouds the issue by saying that the

Fire Support Coordination Lines (FSCLs) are *permissive* fire support coordinating measures. . . . An associated benefit of employing an FSCL is the reduction in potential for

fratricide. . . . Commanders employ *restrictive* measures to enhance the protection of friendly forces operating beyond the FSCL. (Emphasis added)<sup>41</sup>

Apparently, restrictive measures to prevent fratricide beyond the FSCL are an appropriate consideration for combat commanders. Another argument to restrict fires both inside and outside the FSCL is to avoid duplication of effort. Although striking a target with multiple service assets, hopefully for the airman not simultaneously, may increase the probability of success, it is not the most efficient use of resources. Uncoordinated multiservice attacks on the same target do not constitute the intent of joint warfare. "Joint and combined operations demand careful synchronization of operations to effect . . . mutual support, efficient use of all available resources, and the ultimate application of force to achieve the strategic purpose."<sup>42</sup> Even if the Army maintains that the low probability of fratricide does not warrant restricting its ability to engage targets beyond the FSCL, efficient use of limited joint resources to avoid duplication of effort seems prudent.

The point is that some management tool is needed to separate areas where functional components have the preponderance of assets to employ, while they are not the primary force provider in adjacent areas. The FSCL is an appropriate *restrictive* measure to delineate close and deep battle responsibilities. What is key is a common understanding of the term. Fires inside the FSCL are clearly the purview of the ground component commander.<sup>43</sup> Operations beyond the FSCL do not directly affect the current tactical operations of the appropriate ground commander and should therefore be considered part of the deep battle.

## Control

If the Army will accept that restrictive measures are appropriate beyond the FSCL,

the next point of contention is who should control the deep battle. The Army believes it should "use deep operations to set the conditions for decisive future operations."<sup>44</sup> Ground commanders want control of all assets they consider necessary to accomplish the mission the JFC assigns them.

In conducting simultaneous attacks in depth, Army forces employ long-range, intelligence-acquisition and targeting assets, including electronic warfare and joint assets, to track enemy forces, to complicate their operations, and to determine the effects of our strikes in depth.<sup>45</sup>

Combat experience shows the Army's focus on the close battle tends to shallow its perspective in deep battle employment. Despite the lessons from two world wars, in Korea the Army's

idea of interdiction was to disrupt the enemy's lines of communication immediately behind the front. FEAF's (Far East Air Forces) Vice Commander for Operations, Maj. Gen. Otto P. Weyland, likened this to "trying to dam a stream at the bottom of a waterfall. . . . Aircraft were often directed to targets that were of dubious value or even nonexistent."<sup>46</sup>

Besides the differing philosophy on how best to employ airpower, the Air Force also disagrees with the ground-oriented view that "fires, including aerial-delivered fires, exist for the purpose of supporting ground maneuver. The notion that ground maneuver can be used as a device to advance the range of airpower is decidedly absent."<sup>47</sup> While early air advocates argued that strategic attack from the air would decide the outcome of future conflicts, contemporary airmen believe that

we must rethink our positions on the role of airpower in modern war, for Desert Storm suggests that a new world situation has combined with new technologies to usher in a new era of warfare. . . . Because of airpower's superior speed and firepower, surface forces will at . . . times support the dominant air effort by seizing and holding airfields, suppressing

enemy air defenses, or making the enemy vulnerable to air attack by flushing him from prepared positions.<sup>48</sup>

Without getting bogged down in the controversy about the decisiveness of airpower, it is reasonable to say that airpower is capable of more than just a supporting role for land battle. The Air Force is the service best trained and equipped to fight the deep battle of a land-oriented conflict. Other services possessing assets with the range capable of engaging targets beyond the FSCL should play a supporting role to the primary air battle that is taking place.<sup>49</sup> Furthermore, since airmen have the most at stake, the air component commander should control the deep battle with supporting forces coordinating their activities to preclude fratricide and duplication of effort. "Historical experience indicates that the integration of different capabilities is likely to be more timely and responsive to changing conditions if those responsible for planning are also responsible for controlling execution."<sup>50</sup>

Ground components need a better appreciation for the capability and competency of airmen and their employment of airpower.

Each of the Services has organized, trained, and equipped superbly competent forces whose ability to fight with devastating effectiveness in the air, on land, and at sea is the foundation on which successful joint action rests.

For the dedicated professional, building Service competence is an intense, lifelong affair.<sup>51</sup>

As ground components gain longer-range weapons such as the Army tactical missile system (ATACMS), and the ability to see deeper with Air Force systems like the joint surveillance target attack radar system (JSTARS) and space-based satellites, their interest in the deep battle increases correspondingly.<sup>52</sup> Desire to retain control of organic assets and influence the desired effects of interdiction is only natural. The underlying principle for establishing control is to retain unity of effort in an area where respective components have the preponderance of assets.<sup>53</sup>

Again, the problem is twofold. First, there is a basic disagreement between the services on the efficacy of airpower. Ground components maintain that airpower used in operations other than close air support is just another means of support for the ultimate decisive land battle. The Air Force believes that airpower is not merely a means to an end, but an equal participant in accomplishing the theater commander's mission.<sup>54</sup> Second, ground commanders believe themselves best qualified to prepare the deep battlefield for the future close battle they may fight and they mistrust the Air Force's responsiveness to their desires.<sup>55</sup> Airmen contend that since predominantly air assets are being used, airmen are best qualified to employ resources in the deep battle.

The problem with the Army point of view is that the ground situation divides the theater into corps areas of responsibility. There will be several corps, or corps-equivalent, commanders with competing interests for the best use of limited theater assets not organic to a corps. A corps commander on one side of the theater may have few if any deep targets of interest coincident with his counterpart on the opposite side of the theater, let alone the corps commander adjacent to him. The situation in North Africa prior to Kasserine Pass exemplifies the potential consequences:

Major General Lloyd R. Fredendall, U.S. II Corps Commander with de facto control of the aircraft in XII Air Support Command . . . denied a request for air support from the French XIX Corps. . . . In consequence, while the French came under heavy Axis Assault, aircraft from the XII Air Support Command flew air cover for the U.S. 509th Parachute Regiment, with no enemy air or ground forces to attack in front of the Americans.<sup>56</sup>

Each corps could exhaust all the available assets and still not fulfill its desired target requirements. This creates a situation in which no corps commander will ever be completely satisfied, which was still the case in Operation Desert Storm:

Amazingly, despite a distribution of targets made by an Army deputy CINC (Waller) using

lists provided by ground force commanders, and approved overall by an Army theater CINC (Schwarzkopf himself), ground commanders still complained that they weren't getting sufficient air support!<sup>57</sup>

"As many forces as the Army field commanders had at their disposal, they had a seemingly insatiable appetite for more."<sup>58</sup>

The Army point of view ignores the second part of the primary lesson learned about the employment of airpower from World War I—that airpower needs to be centrally controlled.<sup>59</sup> Airpower is a theater asset unconstrained by geographic boundaries established between ground echelons. Airpower employment follows the same principles of war that apply to all the services, particularly *objective, mass, maneuver, and unity of command*.<sup>60</sup> Indeed, after the disaster at Kasserine Pass, Gen Dwight D. Eisenhower adopted the airpower doctrine advocated by Air Vice-Marshal Arthur Coningham. The resulting doctrine, used for the remainder of World War II, became United States Air Force tactical air doctrine. Coningham's basic principles included:

- The strength of airpower lies in its flexibility and capacity for rapid concentration.
- It follows that control must be concentrated under command of an airman.
- Air forces must be concentrated in use and not dispersed in penny packets.<sup>61</sup>

In today's doctrine, centralized control of theater air assets is normally accomplished by designation of a JFACC.<sup>62</sup> He takes guidance from the JFC on the priorities for limited theater air assets, expressed in the apportionment decision.<sup>63</sup> Assets employed beyond the FSCL support the deep battle and should be controlled by the JFACC. The JFACC interfaces with other component commanders, who provide appropriate liaison to the JFACC's staff.

Joint doctrine provides guidance on who should control interdiction, which together with close air support comprises the seam between the deep and close battles:

Commanders of air forces will most often possess the superior capability to execute interdiction. Such a commander will normally be designated the JFACC by the JFC and assigned the responsibility to conduct detailed execution planning and coordination of the overall interdiction effort.

Whoever is designated this responsibility must possess a sufficient command and control infrastructure, adequate facilities, and ready availability of joint planning expertise.

Whoever is responsible for joint execution planning is also responsible for ensuring unity of effort for interdiction execution. This includes deconfliction, coordination, control measures, and adjustments to the interdiction plan.<sup>64</sup>

The . . . JFACC will . . . plan and execute the theater-wide interdiction effort.

The JFACC is normally the supported commander for air interdiction.<sup>65</sup>

In major land operations, the Air Force normally has the preponderance of interdiction assets and the theater air control system to control interdiction. By designating a JFACC, the JFC ensures unity of command for the deep battle and can delegate responsibility for synchronizing theater assets to achieve his goals.

In addition, Department of Defense Directive 5100.1, *Functions of the Department of Defense and Its Major Components*, designates the Air Force as the only service tasked with interdiction as a primary function.<sup>66</sup> Finally, Operation Desert Storm results validate the fact that the Air Force is prepared to assume JFACC responsibilities and control interdiction.<sup>67</sup>

Joint doctrine supports the Air Force view that the JFACC should control interdiction and apply whatever restrictive measures are necessary beyond the FSCL to prevent fratricide and duplication of effort. Synchronization of air and land components' respective deep and close battles produces the most dramatic effects on enemy surface forces.<sup>68</sup> Consequently, the JFACC should have an equal voice in placement of the FSCL.

## FSCL Placement

The Air Force prefers to keep the line close to friendly ground forces in order to have better access to targets that are not immediately engaged but that may have a near-term effect. Over time, the Army has established the line farther and farther from the forward edge of the battle area.

In the late stages of the Korean War the "bomb line" was placed as little as 300 meters from the front line of troops. When the FSCL was placed beyond the Euphrates River, well in advance of friendly forces, in the last stage of DESERT STORM, this effectively created a sanctuary for Iraqi Republican Guard forces escaping the Allied advance.<sup>69</sup>

"After the war, it became clear that the positioning of the boundary was one of the most important miscalculations in the final hours of the war."<sup>70</sup>

It is false to assume that since all fires inside the FSCL require coordination with the appropriate ground commander, drawing the line farther out gives ground commanders control of more air assets. Actually, just the opposite is true. From the Air Force's perspective, air-to-surface attacks that may affect current tactical operations are sufficiently close to friendly forces as to warrant restrictive close-air-support measures. Therefore, air assets tasked to operate inside the FSCL are those allocated to close air support.<sup>71</sup> Since theater apportionment determines the percentage of air assets dedicated to specific airpower missions, the number of aircraft apportioned to close air support remains the same but is responsible for covering a larger area.<sup>72</sup> Establishing the FSCL farther from the forward edge of the battle area actually decreases the concentration of close air support, violating the principle of *mass*. The FSCL should be established as close to friendly ground forces as possible to get better concentration of fire power from assets apportioned to close air support. "The most reliable way to maximize the enemy's risk is to place the FSCL at the range where artillery and missiles stop being

the greatest threat to the enemy and air attack becomes the greatest threat."<sup>73</sup>

The "appropriate ground commander" that presently designates placement of the FSCL is each corps commander. As previously mentioned, theaters of operation are divided by multiple corps area boundaries. Independent designation of FSCLs within each corps area could result in a stair-stepped line across the width of the theater. The JFACC's input, derived with a theater perspective, will tend to smooth the FSCL, contributing to more effective air operations on both sides of the line.

The present doctrinal definition specifies that the appropriate ground commander will designate placement of the FSCL in coordination with "the appropriate tactical air commander and other supporting elements."<sup>74</sup> While this joint doctrine definition is consistent with Army doctrine, it ignores the significant theater air contribution in the deep battle, relegating airpower to a supporting role. In addition, the theater perspective of the JFACC necessitates his focus be at the *operational* rather than *tactical* level of war.<sup>75</sup> The joint doctrine definition for FSCL needs to reflect more of an Air Force perspective. Air-to-surface attacks inside the FSCL are close air support for surface forces. Attacks beyond the FSCL support the deep battle (interdiction).

## Interdiction

Army and Air Force contention over conduct of the deep battle is basically over command and control of interdiction. For that reason, it is important to clarify what interdiction is, how it is accomplished, and how interdiction differs from close air support. Keep in mind that General McPeak has suggested that redundancy in this area can reduce defense spending.

Joint doctrine defines interdiction as "an action to divert, disrupt, delay or destroy the enemy's surface military potential before it can be used effectively against friendly

forces."<sup>76</sup> Simply put, interdiction is an effort by one or more services to attack enemy personnel and resources before they engage in surface combat. It is desirable to interdict enemy forces as far from friendly forces as possible with the prioritized objectives to:

1. Destroy enemy forces before they can ever be used against friendly forces.
2. Limit the military potential of engaged enemy forces to a manageable level.
3. Control the time of engagement to that most advantageous to friendly surface forces.

Effective interdiction denies the enemy most of the tenets of Army doctrine—initiative, agility, depth, and synchronization, while allowing friendly forces to exploit these tenets.<sup>77</sup> Interdiction diverts enemy military potential from offensive to defensive operations required to protect his force and delays enemy capability to react to the friendly scheme of maneuver. Interdiction denies sanctuary to enemy forces separated from the close battle, thereby disrupting their arrangement for maximum combat effectiveness. Interdiction is a force multiplier that can give friendly surface forces a decisive advantage on the battlefield.<sup>78</sup>

There are several key points that the interdiction definition provides. First, effective interdiction does not mandate destroying the enemy's military potential. Merely denying the enemy use of his military potential for a predetermined period of time can satisfy interdiction requirements.<sup>79</sup> The time required for friendly surface forces to defeat enemy lead elements and prepare for subsequent engagement with attrited follow-on forces could describe that period.<sup>80</sup>

Second, the enemy's surface military potential includes surface forces, lines of communication, command and control networks, and combat supplies.<sup>81</sup> Ideally, interdiction would prevent enemy forces from ever being used against friendly forces. Such was the case during Operation Desert Storm, when the Iraqi III Corps

attempted to prompt a ground war by launching attacks into Saudi Arabia from . . . southeastern Kuwait; the most prominent attack was against the Saudi Arabian town of Al Khafji. . . . Attempts to assemble Iraqi reinforcing columns in Kuwait were detected by a variety of night reconnaissance systems, including the newly arrived JSTARS . . . E-8 aircraft, and the columns were routed by air attacks. Having failed to precipitate a greater ground war, the Iraqis simply took to their defensive emplacements to await their fate.<sup>82</sup>

Severing the lines of communication of engaged enemy surface forces can likewise render these forces impotent by isolating them from their command and control architecture and denying them resupply.

An enemy that cannot move is vulnerable in fast-paced maneuver warfare, especially on a nonlinear battlefield. Creating a mobility advantage for friendly surface forces denies the enemy initiative and agility. Severing enemy lead elements from their command and control inhibits their ability to synchronize combined arms for decisive engagement. High consumption rates, especially when the enemy is forced on the defensive, demand excessive resupply efforts to continue as a combat-effective force.<sup>83</sup> Enemy forces without depth have lost their capability to resist, which is one of the ultimate objectives of warfare.<sup>84</sup>

Finally, interdiction is defined by time rather than location—before the enemy's surface military potential can be used effectively against friendly forces. The time dimension is a relative concept and can be confusing. However, defining interdiction in terms of time is necessary since trying to determine a range at which the enemy's surface military potential can be used effectively is arbitrary and changes with acquisition of longer-range weapons.

What is actually of crucial importance in the planning of interdiction operations is *time*. It has, to be sure, usually been the case that interdiction closer to the front was designed to affect the battle over a shorter term than were actions deeper in the enemy's territory. But in

the age of air power there is no necessary correlation between distance and relative immediacy of effects. A commander might, for example, order an attack on an airfield hundreds of miles behind the front because he had intelligence that an airborne assault was to be staged from it in a matter of hours.<sup>85</sup>

Operation Desert Storm demonstrated another aspect of interdiction—its effectiveness in pursuit of a retreating enemy force. Pursuit of the Iraqi army

began after intelligence information indicated (and airborne aircraft had confirmed) that a general retreat of Iraqi forces was under way (evening of 25 February). From that time until the ceasefire at 8:00 a.m. local time on 28 February, the focus of air interdiction became one of pursuing and destroying the retreating army.<sup>86</sup>

Interdiction is conducted at sufficient distance from friendly surface forces so as not to require detailed integration and coordination with surface commanders' maneuver and fire support.<sup>87</sup> This is not to say that interdiction is always independent of surface operations. In fact, if the closer enemy surface forces are to have a near-term effect on friendly forces, the more closely interdiction operations need to be coordinated with the surface scheme of maneuver.

The JFC determines the priorities for interdiction. If surface forces are not yet engaged, the focus may be to create a maneuver advantage for friendly forces. If they are outnumbered against echeloned forces, the interdiction focus may be on follow-on forces, sometimes referred to as attack of the second echelon. In some instances, the focus may be to interdict forces that have a near-term effect on friendly surface forces. The priority is theater-specific depending on the threat and the JFC's concept of operations.

The key to successful interdiction is to sequence actions against specific targets to produce desired results. Once targets are identified, the best weapon systems to accomplish the objectives are selected. It is immaterial which service component provides

the asset, as long as all the efforts are synchronized. Like strategic attack, interdiction is not limited to a particular type of target, the weapon system to be used against it, or its location on the battlefield. What defines interdiction is the desired effect—divert, disrupt, delay, or destroy the enemy's surface military potential before it can be used effectively against friendly forces.<sup>88</sup>

## Close Air Support

Interdiction in the deep battle is different from close air support in the close battle. Attacking enemy surface forces that have an immediate effect against friendly forces requires detailed integration or coordination with the fire and movement of friendly surface forces. Such actions are not interdiction, but close support for engaged surface forces. Joint doctrine defines close support as that

action of the supporting force against targets or objectives which are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with the fire, movement, or other actions of the supported force.<sup>89</sup>

Close support does not necessarily mean air support of ground forces. The definition is general enough to include potential surface force support for air forces in the deep battle.

Joint doctrine differentiates close air support as

air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Also called CAS.<sup>90</sup>

Although generally the case, close air support does not have to occur inside the FSCL. Fixed- and rotary-wing aircraft could provide close air support for a special forces unit in-

terdicting a bridge behind enemy lines. In this case, support is not for the close battle, but for the special forces conducting interdiction in the deep battle. Their operations need to be integrated with the supported air component commander conducting the deep battle.

The requirement for detailed integration or coordination with the fire or movement of friendly surface forces versus air forces differentiates close air support from interdiction.<sup>91</sup> This requirement exists for two reasons—to prevent fratricide and to avoid duplication of effort. Detailed integration or coordination with the fire or movement of friendly surface forces is required when weapons employment will affect current tactical operations. If weapons employment does not affect current tactical operations, it is not close support, but interdiction—actions affecting enemy military potential before it can be brought to bear on friendly forces.<sup>92</sup>

## Conclusion

This article focuses on the delineation between the deep and close battles with respective control vested in air and land component commanders. The JFC has responsibility for all military operations inside his theater of operations. He divides areas of responsibility between functional components to take advantage of service expertise and limit their span of control. While the theater is subdivided into separate corps areas of responsibility for the ground components, the air component is responsible for the airspace over the entire theater.

Just as the close battle is fought predominantly by surface components, the deep battle is fought by the air component. All services have assets that can support both close and deep battles. We need to mature away from the ground-oriented view that the deep battle is only a supporting activity for the ultimately decisive close battle. The deep battle is equally important to the success of the

joint force as a whole. In fact, there may be times when the mission of the surface commanders' assets is to support the deep battle. A recent example is when "Army AH-64 Apaches helped destroy Iraqi air defense installations on the first night of the air campaign" during Operation Desert Storm.<sup>93</sup>

The FSCL is an appropriate delineation between the deep and close battles. However, the definition needs to be modified to reflect equal importance between the deep and close battle and shared responsibility for designation between air and land component commanders. Air and land components need to recognize the FSCL as a restrictive control measure, regardless of which side one is operating on. Operations inside the FSCL require coordination with the appropriate ground commander while operations beyond the FSCL require coordination with the air component commander, who operates with a theater perspective at the operational level of war.

With respect to the focus of this article, operations beyond the FSCL are interdiction. All services have assets that can contribute to interdiction. The Air Force, however, has the preponderance of interdiction assets for sustained land warfare, in addition to the command, control, communications, and intelligence expertise to conduct an interdiction campaign. The emotion of land warfare necessitates that the Army's focus be on the close battle. Ground components should trust the Air Force to produce the most favorable conditions for success within the priorities established by the JFC. The JFC should delegate responsibility for the deep battle to a JFACC. Other components support the JFACC in accomplishing theater deep-battle objectives.

Operations inside the FSCL are close support

for the appropriate ground commander. There may be times that all available assets are required to capitalize on or preclude a tenuous close-battle situation. The Air Force must be able to support the close battle consistent with the priorities determined by the JFC. Notice that this point of view differs from General McPeak's implication that close air support be eliminated as an Air Force mission.

In addition to a common definition, professional trust is necessary between the services so that each is not pursuing its own self-fulfilling aims but competently employing its combat power for the benefit of the joint force as a whole. Gen Charles A. Horner characterized his perspective of service cooperation as the JFACC during Operation Desert Storm as follows:

Trust was the key factor. Land, sea, air, and space were all sub-elements of the overall campaign; there was no room for prima donnas. You need people schooled in their own type of warfare, and then you need trust in each other.<sup>94</sup>

The JFC determines the priorities when there is a conflict over use of limited theater assets. The individual components employ their forces and support, and they are supported by other forces subservient to the theater objectives and priorities. The ultimate objective is to apply the military instrument of national power to achieve political objectives as quickly as possible with the most efficient expenditure of resources. Separating land and air responsibilities for close and deep battle to capitalize on service strengths contributes to this success. □

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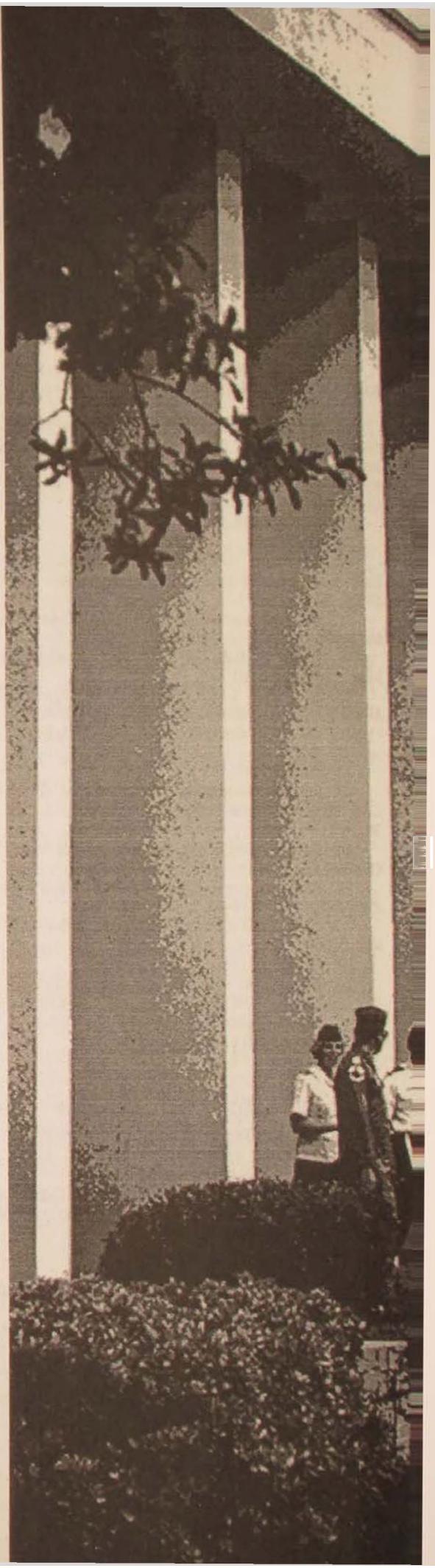
# Professional Military Education and the Emerging Revolution in Military Affairs\*

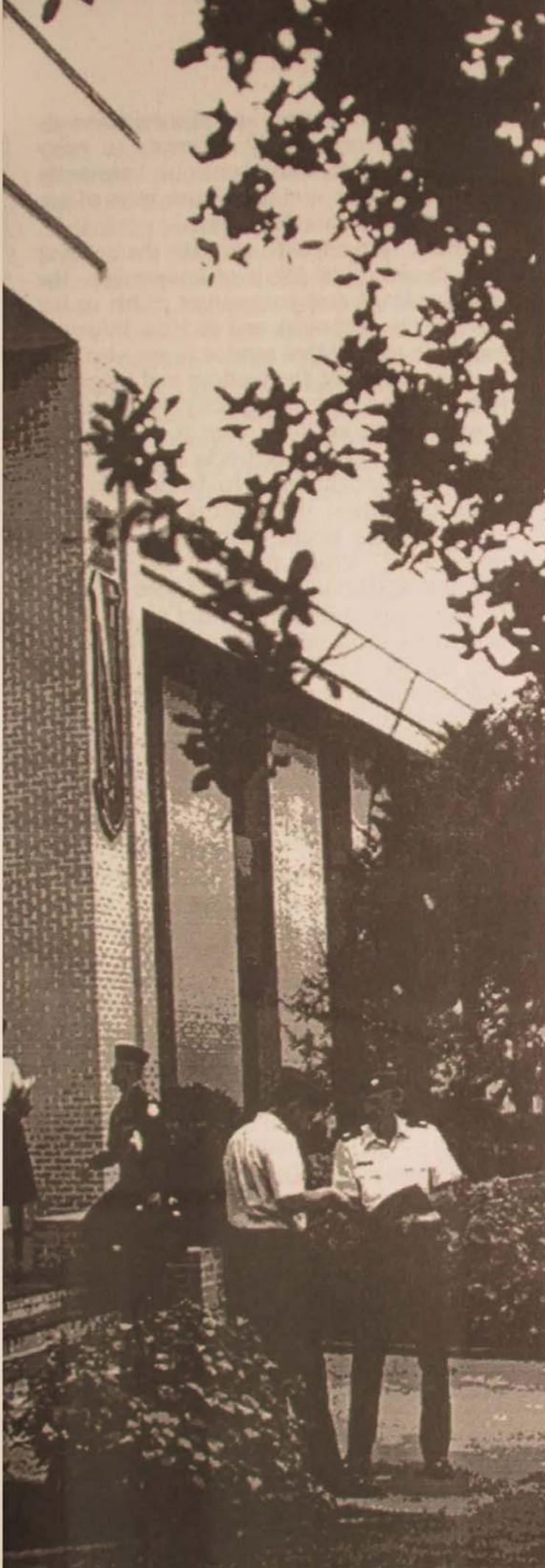


STEVEN H. KENNEY

*Professional attainment, based upon prolonged study, and collective study at colleges, rank by rank and age by age—those are the title reeds of the commanders of future armies, and the secret of future victories.*

—Winston Churchill, 1946





**M**ILITARY THEORISTS and scholars throughout history have noted the occurrence of profound, discontinuous changes in the conduct—sometimes even the nature—of warfare. Recently, significant intellectual effort has focused on such an emerging “revolution in military affairs (RMA),” defined by the Office of the Secretary of Defense (Net Assessment) as “a major change . . . brought about by the innovative application of new technologies which, combined with dramatic changes in military doctrine and operational and organizational concepts, fundamentally alters the character and conduct of military operations.”<sup>1</sup> The notion of an RMA differs from the Soviet concept of a “military-technical revolution,” primarily by its emphasis on the nontechnological dimensions of military power. In the RMA paradigm, the “brainware” component is as important as—perhaps even more important than—the hardware component. Given this fact, consideration of the future focus and conduct of professional military education (PME) can be counted among the most vital tasks facing the Department of Defense (DOD) today. As we look to the future, the answers to two related questions are of potentially great importance. First, how can we leverage PME to better understand and exploit the potential of the RMA? Second, how can we leverage the RMA itself to enhance PME?

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Education clearly is a critical component of managing and adapting to change in any organization and any area of endeavor. As their environments and the demands placed upon them change, individuals need to learn new facts and new ways of doing things—perhaps most importantly, new ways of *thinking about* things that can help equip them for a new and very different world. In the military, arguably, the importance of education to equip us for revolutionary change is greater than it is in any other arena. As the world proceeds rapidly into a future of great uncertainty, the ability of our officers and enlisted personnel to think innovatively and strategically, to apply finely honed critical faculties and knowledge bases in any situation, “on the fly,” could be our single greatest force multiplier. If our military forces do not adequately understand the nature of the national security environment and do not intuitively grasp the fine points and implications of key trends in that environment and on the battlefield, the consequences could be immeasurably grave. At the microlevel, such failure could well be a matter of life or death; at the macrolevel, it could be a matter of national survival.

The PME system was established—and it has been maintained, continuously assessed, and improved—not with any “RMA” in mind, but certainly with the understanding that soldier training by itself is not enough. PME operates at the interface of intellectual development and operational art. It is intended to develop soldiers, sailors, and airmen with unparalleled intellectual and operational capabilities. The 1989 report of the Panel on Military Education, US House of Representatives (Skelton Panel), describes four “attributes of a strategist.” In the panel’s view, a strategist must be *analytical* (“able to move beyond . . . competency in any given subject area and develop inter-relationships”), *pragmatic* (“on top of emerging trends and constantly aware of the need to revalidate his strategic constructs”), *innovative*, and *broadly educated*.<sup>2</sup> As we enter a period of tremendous

change and increasing complexity, these attributes are increasingly necessary in every officer, and PME must continue constantly to strive for new and innovative ways of ensuring that they are developed.

PME is intended to provide the student with three critical kinds of knowledge: the ethos, culture, and core values of his or her service; the technical and tactical skills appropriate to how that service wages war; and, most importantly, the wisdom and judgment to be applied in a multiplicity of situations. If we imagine an RMA, then it is important to consider whether and how some or all of these aims might have to be transformed. Must the ethos and culture of a service change as the world changes, or are these immutable? While many of the technical and tactical skills that have long been necessary to wage war will remain relevant on the future battlefield, some may become obsolete, some may change in nature, and other, novel skills may become critically important. The manner in which military judgment is honed may not change, but the kinds of situations in which this judgment must be applied may be utterly different from those that have been faced by soldiers up to the present day. The challenge for PME is to look at its *raison d’être* through the lens of the future and determine how to meet requirements that are themselves not yet clearly defined.

## Revolution in Military Affairs: The Challenge

The challenges posed by the emerging RMA are legion, and PME will play an increasingly critical role in preparing our forces to understand and address them. We need consider only a handful of these challenges to get a sense of how important PME will be. First and foremost, we are faced with an environment of tremendous *ambiguity and uncertainty*. With the end of the cold war and with technology advancing at dizzying rates, it is a challenge to articulate and think through

the operational requirements of the near-term, let alone the long-term, future. The identity of future competitors is unclear. New state and nonstate actors, their intentions and capabilities largely opaque to us, increasingly populate the landscape. We continue to wrestle with the implications of a diminished super-power threat, decreased resources for defense, and a plethora of limited, regional conflicts and operations other than war (OOTW). The seeds of a genuine revolution in international politics already are germinating, promising changes on the order of those seen following the French Revolution, in 1815 with the Concert of Europe, in 1870 after the unification of Germany, in 1919 with the end of World War I, and in 1945 with the end of World War II and the creation of the United Nations. The common—and vexing—characteristics of all such international politico-military transformations, including today's, are uncertainty, vulnerability, ambiguity, complexity, and change. As the world changes, the fundamental purposes of military organizations—of the military itself—may change. The crucial role of PME will be to help future officers understand *how* the world is changing and to enable them to *determine* how the military must change to fit this new world.

New capabilities may call into question the roles and missions of established organizations and the relevance of their well-understood concepts; the concepts or organizations to replace them will not be self-evident. Indeed, if we consider the emerging notion of "information warfare," it is increasingly unclear even what constitutes a "military" action and what does not, or where one would draw the line between war and peace. The PME system is uniquely suited to the vital task of preparing future military leaders not simply to operate but to *thrive* in such an environment, to adapt to rapidly changing conditions, and to reorient their thoughts and actions in real time to contingencies that may not be what they seem.

Second, the "information revolution," while it offers previously unimaginable advantages to the future warrior, also presents significant

challenges. The technology that is currently "digitizing" the battlefield (as well as the staff process, acquisition, and every other aspect of military affairs) will continue to move forward, likely at a rate even faster than we know today. People who are uncomfortable with, or who inadequately understand and exploit, the range of automated systems at their disposal will be unacceptably disadvantaged and likely will be vulnerable. The importance of information in warfare now rivals, and arguably may come to exceed, that of explosive force. Increasingly, the movement and manipulation of data—bytes and bits—is the indispensable enabler for positioning forces, putting steel on target, and executing all other critical functions of warfare. In the emerging revolution, information becomes akin to inventory, in that it loses its value and may become a *liability* with precipitous speed if it is not exploited in a timely manner.

PME provides a laboratory in which the future warrior can gain fluency in every aspect of the burgeoning information revolution. It offers a forum in which tomorrow's strategists and commanders can collectively define the embryonic notion of information warfare. It is the ideal setting for developing and inculcating the philosophy of jointness that information-based warfare demands. It is the venue in which we are able to consider how command and control will change as information becomes more distributed, to articulate and analyze the potential new operational and organizational concepts enabled by real-time sensor-to-shooter links, and to address a host of other information-technology issues that are not yet even recognized.

Thinking to date about the emerging RMA has suggested that the future environment will be characterized by *new warfare areas*. Whereas today's forces think in terms of mechanized ground combat, carrier operations, or air-to-air engagements, the forces of 2020 may find themselves in a world of long-range precision strike, information warfare, dominating maneuver, and space warfare. This kind of wholesale change in the para-

digms of war carries with it a host of lesser-included changes that will challenge future forces. For example, new warfare areas will necessitate the development of *new doctrines*. Once written, these doctrines will need to be absorbed, critiqued, and understood by new generations of warriors. Consistent with the maxim that form follows function, *new organizational concepts* will be necessary to maximize our capabilities in the new warfare areas. Indeed, previous historical examples of RMAs suggest that new warfare areas are defined less by new technologies than they are by new organizations consciously designed to exploit *existing* technologies in unprecedented ways. A historical example would be the World War II blitzkrieg concept, in which the German army combined tanks, aircraft, and radios in Panzer units unlike the unit organizations in any Allied army.

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### *New warfare areas will necessitate the development of new doctrines.*

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New *areas of expertise* and *specialization* may be necessary. By the year 2020, the role of an infantry soldier, a combat aircraft pilot, or a ship's navigator may look utterly different than it does today. The nature of the RMA may necessitate the establishment of other roles to complement or replace these well-recognized forces. In 2020, we may find it necessary to deploy space warriors, or hackers, instead of (or in addition to) a more traditional military force. As they have been for generations in more familiar specialty areas, PME institutions will be vitally important to elevate training in these emerging areas into high art, and to hone the practitioners of such new warfare areas into virtuosos.

The very *shape* and *nature of the battlefield* likely will change, and the PME system will be the key to preparing our future warriors for such change. Indeed, the vernacular is already changing to *battle space*, a place po-

tentially very different than any battlefield we have previously known. The battle space of 2020 may be geographically vast, literally thousands of kilometers wide and deep; it may extend beyond geography entirely to include space and cyberspace; some analysts argue it will go beyond the three dimensions of breadth, depth, and height to include the fourth "dimension" of time.

With such changes in our conceptualization of *where* war is fought, there will be corresponding changes in *how* it is fought. The pace and tempo of future warfare will be unprecedented. In the RMA future, the battlefield objectives—the centers of gravity—may be fundamentally different than those we imagine today. As early as the 1980s, the Army began exploring the notion of "nonlinear warfare." In a linear paradigm, changes in input are proportional to changes in output, and the whole is equal to the sum of the parts (e.g., two men do twice the work that one man can do). Nonlinearity is better understood in terms of chaos theory (i.e., "characterized by random interactions, complex feedback loops, and wild changes in results based on small variations in initial conditions").<sup>3</sup> Warfare in the future may be dominated by nonlinearity, with small, extremely capable units, enhanced by extraordinary battlefield information and awareness, operating independently of each other and discontinuously in terms of time, space, and enemy forces. The military forces required to successfully execute this type of warfare will need education in areas that are not yet clear—education that can be provided only by the PME institutions of the future.

Other potentially defining characteristics of warfare in the future battle space include *asymmetry* (attacking or responding with forces wholly unlike the forces against which one is poised, with the aim of invalidating enemy assumptions and set-piece plans), *nonlethality* (might information warfare, or new neural or other nonlethal agents, become so prevalent as to have decisive effect on their own?), or *civilianization* (information



*The challenges posed by the emerging RMA are legion, and PME will play an increasingly critical role in preparing our forces to understand and address them.*

warfare is again a useful example—to what extent might war be fought from stateside computer consoles by individuals who have never donned a uniform?). Work to date exploring the RMA has begun to consider the implications of these and other trends as they relate to future operational and organizational concepts, but this is only a beginning. In-depth consideration of the shape and nature of the future RMA environment is an activity ideally suited to the joint and service PME institutions, for it is in these institutions that the environment will be understood and future leaders will be fashioned.

The preceding discussion is, of course, only exemplary, and it is by no means exhaustive. The point is not to dwell on what the emerging RMA might look like; although

some aspects of this future are relatively clear (e.g., the ever-increasing reliance on information technology in all aspects of military affairs), the majority of the “answers” are still well outside our grasp. Rather, the point is to survey the *kinds* of issues and problems the future warrior will be required to master, and the sheer volume of intellectual and operational changes that will characterize the RMA environment. As noted in the recent report of a panel on joint PME convened by the chairman of the Joint Chiefs of Staff, “Now more than ever, the officer corps must be able to think creatively, reason critically, and act decisively in the face of ambiguity and uncertainty; [further,] they must . . . anticipate, welcome, and utilize the wave of technological advances sweeping us forward.”<sup>4</sup>

To be successful in navigating the revolutions of the future, military officers will need greater mental agility than ever before, and they will have to be able to draw upon a larger, broader spectrum of concepts and skills. They will be required to think, not like bricklayers, who are given materials and told what to do with them, but like architects, who can themselves determine what kinds of structures will be necessary and appropriate for the future environment.<sup>5</sup> More than ever before, as warfare moves into uncharted waters, innovative, career-long learning will be of critical importance to the military and other members of the defense establishment to foster the requisite "architect mind-set." The utility and value of PME in the period ahead cannot be overstated.

### Historical Precedent of PME and RMA

The foregoing allusion to blitzkrieg is instructive when one considers the potential role of PME in developing revolutionary new approaches to military affairs. The emphasis on officer and other professional education in Germany during the interwar period was enormous, and one can argue that the seeds of that particular RMA were planted and nurtured in the *Kriegsakademie*. Gen Hans von Seeckt, chief of the German General Staff and commander of the army between 1919 and 1926, instituted policies that significantly expanded and enhanced the education of the officer corps that later developed the blitzkrieg concept and led the German army in World War II.

Precommissioning educational requirements for officer aspirants were increased, and the program of instruction for those accepted as candidates was, according to James Corum, "one of the most strenuous officer training systems ever devised."<sup>6</sup> Officer candidates spent two full years in practical academic and troop instruction, with significant emphasis placed on how technology developments such as motorization might affect future op-

erational- and tactical-level warfare. Upon completion of this regime, candidates continued their formal education at the unit level, including lectures and seminars, staff rides to consider specific tactical problems in the field, and preparation for the extremely demanding exams for entry into the General Staff.

Officers who successfully completed the General Staff exams embarked upon an additional *four-year* period of education and training which continued to emphasize technology applications, tactical problem solving at the higher (combined-arms regiment, division, corps, and army) levels, and innovative concepts for waging war. Pedagogy consciously fostered such innovation. For example, there were no "correct" solutions for the tactical problems; each officer's response was judged individually and debated in seminars. The system of PME in Germany in the interwar period was characterized by its broad curriculum, practically oriented pedagogy, emphasis on leading-edge technologies and operational concepts, combined-arms focus, and inculcation of independent thinking. When the German army launched its lightning attacks on Europe in 1939 and 1940, the officers who led it had undergone an unprecedented professional education process. This reorganized army executed a revolutionary operational concept that arguably could not have been conceived without such an emphasis on officer professional development.<sup>7</sup>

The US military also experienced a nascent RMA in the interwar period, which it then exploited with overwhelming success in World War II. As in the German case, one cannot overlook the role of PME in fostering this RMA. The victory of American forces against Japan was enabled by revolutionary new operations and organizations—carrier aviation, carrier battle groups, and "island hopping"—painstakingly developed over many years of war gaming at the Naval War College in Newport, Rhode Island. The program at Newport was unlike any other before or since in its almost total reliance on war gaming as a pedagogical method. In 1932, for example,

out of a 326-day academic year, no less than 304 days were devoted to gaming.<sup>8</sup> Over two decades, PME at the Naval War College played a critical role in the development of a new strategic outlook and operational focus for the US Navy. Particularly from 1930 onward, the game scenarios and designs tested concepts for large-scale, joint Navy-Army amphibious operations—long wars fought thousands of miles across the Pacific, made possible by logistics fleet trains and carrier-based aviation operations that were still only notions at the time.

The gaming at Newport provided future World War II commanders the opportunity to think through and repeatedly experiment with operational requirements for a war unlike any the Navy had ever planned for or fought. Importantly, the latest aircraft developments and other technology advances were continually woven into the play of the games and tested to the extent possible in fleet exercises that were built around war college game concepts. According to Michael Vlahos, "Through the interwar era [Newport] was the operating theater of the War Plans Division. In war-game and postmortem analysis, Washington's plans against [Japan] were tested and measured, purified and recast. Newport was the laboratory."<sup>9</sup> The fact that these plans detailed a revolutionary new type of warfare indicates the importance of the war college venue. Only in such a setting could this laborious, deliberate, and unprecedented process of experimentation and learning have been executed.

With the exception of the Naval War College, during the interwar period the higher-level PME institutions (i.e., command and staff colleges and war colleges) were not in the business of innovation to the same extent as the more specialized lower-level branch schools (e.g., the Army Infantry School). The impact of PME on military innovation during this period also varied by service. For example, the Army War College, US Army Command and General Staff School, and Army Industrial College all prepared officers

for mobilization planning, as well as for staff duty at varying levels. These institutions transmitted doctrines already in widespread acceptance but did little experimentation or innovation. At the same time, each of the Army's branches maintained its own school, as they still do today. It was at this level that the Army educational establishment had the explicit mission to develop new doctrine, weapons, and tactics. These schools acted as think tanks and worked closely with the department and bureau staffs to develop doctrinal and weapons innovations. Among the innovations developed in the branch schools were early theories about strategic bombardment (Air Corps Tactical School), mechanized warfare (Cavalry School), and the integration of radios and radar in ground campaigns (Signal Corps School). Unfortunately, the structure of the PME system was not well designed to *institutionalize* such innovations. Ideas that emerged in the branch schools tended to develop in isolation, partly because the higher-level institutions made little attempt to integrate new concepts for servicewide application. Those attempts that were made, primarily through board studies at the General Staff level, also did not have much success. More importantly, no doctrinal agency existed to draw together ongoing studies and experimentation, lessons of innovations observed in foreign nations, and lessons of training exercises.<sup>10</sup>

### PME and RMA: Present and Future

The above examples touch only slightly on the role of PME in these two historical RMAs. They are intended simply to suggest the dual value of PME in adapting to periods of profound change in warfare—the specific, substantive teaching it provides and the overall attitudinal *learning* that it makes possible. Consideration of PME in the context of an RMA is important because of the impact this education can have on the officer-student,

both in terms of factual knowledge and, perhaps more importantly, in *ways of thinking or looking at the world*. PME is the venue in which future military leaders can absorb the most up-to-date knowledge about trends in politics, international relations, economics, technology, and so forth. Additionally, it provides the opportunity for these officers to learn the state of the art in military strategy and operational planning. These areas have long been the critical substance of an officer's development in PME, and they will continue to stand as prerequisites to an understanding of the nature and conduct of warfare.

One of the great challenges in considering PME of the future is determining how and how much of the necessary "RMA perspective" falls *outside* of these areas. To what extent must the future war planner or battlefield commander have mastered the nuances of chaos theory or computer programming? Might a background in biotechnology or anthropology be a prerequisite for conducting future threat estimates? How might a course on successful (and unsuccessful) innovations in commercial business contribute to the development of future DOD concept developers and program managers? The future will be characterized by an unprecedented interdependence of information and erosion of the "walls" between areas of knowledge. In this future, we will look increasingly to PME to develop leaders who can bring to bear their education in a diversity of areas, including areas that may now seem well outside what has traditionally been considered military affairs.

As important as any particular subject area, PME can be the venue in which future leaders hone their ability to think innovatively and *futuristically*. Indeed, the impact of PME on the future officer's worldview is particularly important as we move into a period of potentially revolutionary change. The report of the Skelton Panel focused considerable attention on the role of PME in fostering jointness. According to the panel, PME should develop fluency not only in the missions, practices, and capabilities of an officer's in-

dividual service but also in the planning and conduct of joint-force operations. In looking to the future, one finds it useful to think about PME in similar terms but to substitute RMA where the panel spoke of jointness.

For example, it is often stressed that service and joint PME should both contribute broadly to the fostering of a joint perspective and that they should help shape *attitudes* about the employment of joint forces. In the future, it will be important for PME to foster an analogous "RMA perspective" such as that alluded to in the paragraph above—a broad-based understanding that the world of 2020 will look profoundly different from the world of today, and comfort with highly advanced technologies and previously unfamiliar ways of waging war. The battlefield commander of the future must be at ease with the prospect of developing and employing "RMA forces" that in many cases do not yet even exist; indeed, in an era of fundamental change, PME is the ideal (and may be the only) arena in which future commanders and operators, as a group, can themselves *identify* what new kinds of capabilities and concepts are necessary and how they might be employed.

In the same vein, both service and joint PME are intended in large part to develop an understanding of how different services and forces optimally work together. In the future, it will be critical for PME to develop in its student population a sense of how new warfare areas will be integrated and how they will enhance and support each other. Analysis to date has suggested that "the RMA" will be at the intersection of a Venn diagram whose circles are the warfare areas of precision strike, information warfare, dominating maneuver, and space warfare. Whether these are the "right" four warfare areas is, in the context of this essay, irrelevant. The point is that victory will reside in a complex *fusion* of capabilities across the spectrum of warfare, to a degree that even current notions of joint warfare cannot begin to suggest. The operational and organizational concepts for this new way of warfare do not yet exist, and PME can pro-

vide a uniquely capable laboratory in which to develop and test them.

Importantly, PME institutions are an arena for the development of doctrine; this is particularly true of Army PME institutions (e.g., Army Command and General Staff College, where a key goal is to develop combined arms doctrine and assist in its integration throughout the Army), but to a lesser degree it is characteristic of all the service schools. The report of the Skelton Panel places great emphasis on the potential role of PME in developing *joint* doctrine, suggesting that the National Defense University (NDU) schools in particular be "given a major share of the responsibilities for . . . developing workable joint doctrine [and] related organizational concepts, practices, and procedures."<sup>11</sup>

In the same manner, PME institutions represent an ideal venue for the development of "RMA doctrine," which will undergird the highly complex and fluid, information-based, joint and combined warfare of the future. The development of such doctrine will be a long and painstaking process, given that we are only beginning to understand and articulate the shape and nature of the emerging RMA. Indeed, it is almost certainly too early to be developing any authoritative or prescriptive doctrine for the RMA. The eventual RMA doctrine will be a product distilled from extensive, unfettered *experimentation* and intellectual ferment. By providing an environment that promotes and supports such experimentation, PME will be instrumental as we move along this road.

### Innovation in Process and Pedagogy

As with the substance of PME, the *process* of PME will also face a range of unprecedented challenges and opportunities in the future RMA environment. Innovations in educational technology and pedagogical methods, which in and of themselves may have little to do with military affairs, can be

assessed for their potential application in PME. Although some innovations may facilitate military education in uniquely valuable ways, others may be inappropriate or even injurious in the unique context of PME. It is important to consider how "distance learning" techniques (e.g., satellite broadcast or videotaped courses, interactive on-line seminars, etc.), multimedia instructional programs, artificial intelligence and "expert systems," virtual reality, and a host of other so-called hyperlearning tools might be utilized in PME. Incorporating these innovations into PME offers, in one view, both direct and indirect benefits: attractive for their potential to directly facilitate learning, such tools and methodologies would also increase the officer-student's familiarity with and understanding of technologies and procedures likely to dominate the future operational and planning environment.

A range of advanced technologies and other information resources must be considered for their potential utility in PME. For example, one can apply commercially available neural networks to great effect in many types of courses as customized decision-support tools, preparing students to use similar technologies that may have a prominent role on the future battlefield. Increasingly sophisticated tools are being designed to assist users in searching through and exploiting the vast proliferation of data sources; many of these are able to categorize and *qualitatively evaluate* information vis-à-vis specified goals and objectives, and even to engage in dynamic recalculation as additional information is obtained *during* the user's decision process. Such technologies also will have an important place in the design and execution of military operations, and they can and should be incorporated in PME programs. Still more exotic are visualization and "data mining" tools currently under development. These tools are designed to build a graphic "map" for the user of the connections between discrete but related concepts and data points. The technology is believed to have great potential for increasing com-

prehension and retention of information and concepts, as research indicates that the human brain responds differently—in some ways more effectively—to visual cues than to text.

Although the amount of information and knowledge that military personnel must assimilate grows exponentially, there are still only 24 hours in the day. Thus, it will be important to continue increasing *educational productivity* in PME through the extensive use of advanced educational technology and new pedagogical approaches. Great strides in this area have been made at Air Command and Staff College (ACSC) at Maxwell AFB, Alabama, and similar advances increasingly are occurring at other PME institutions. At ACSC, each student receives a powerful laptop computer at the beginning of the program, into which is loaded the school's entire "paperless" program of study. The curriculum has been completely restructured along multidisciplinary lines, with increased horizontal integration across academic as well as military specialty areas. Students receive 100 books when they arrive, theirs to keep upon graduation, which range from Sun Tzu to Alvin Toffler, from business school texts to science fiction. Contact (classroom) time has been reduced in favor of independent and group research and affective learning. Often, the products of student research projects are folded back into the program for the use of subsequent classes, sometimes in the form of highly advanced educational software tools. The program at ACSC is a unique combination of traditional and novel substance, conceived and executed with an eye toward the high-tech future, that must be considered as a harbinger of the direction that future higher education may take.

The verdict is not yet in, even in civilian educational circles, on the kinds of technology and other approaches suggested above. However, ongoing work at such leading-edge institutions as the Learning Research and Development Center, the Institute for the Learning Sciences, and the Institute for Aca-

demical Technology suggests significant benefits. Consideration of the high-tech future for PME is at a similarly early stage, but a concentrated look at the issues and prospects through an RMA lens would be of potentially great value. As suggested above, some factors unique to PME may argue against otherwise salutary educational techniques. For example, one prominent trend in education in the last decade has been "asynchronous learning"—that is, individualized programs of learning whose pace *and content* are largely or entirely directed by the student. Although innovative, a program design that allows officers to tailor their education, based on individual interests and preferred learning modes, may not be appropriate for the unique environment of PME, given the critical importance of uniformity in the knowledge base of our future military leaders.

Similarly, the logical (to some people, inevitable) extension of the distance-learning concept is a system in which *no* schools or classrooms exist—all teaching and learning would be done on-line or through some other combination of hyperlearning tools.<sup>12</sup> Here again, there could be some unambiguous benefits. Perhaps most obviously, in an era of shrinking budgets and personnel reductions, one might save significant sums of money by not sending thousands of officers to in-residence PME each year. Officers could spend more time in operational assignments while still gaining their professional education. However, much as grade school and high school are valued for their role as a primary socialization experience, so too does PME provide a vital affective component. It is not clear to what extent esprit de corps and the joint, *team* perspective and mind-set so critical to military operations could be replicated in a "virtual" PME environment.

## Issues and Considerations

Several specific, interrelated issues must be at the center of debate over the future of PME.

### *Textbooks or Hypertext?*

First is the matter of pedagogical approach. Should PME adopt a new, high-tech approach or retain the established classroom, textbook, and lecture model? Should we shift to a virtual PME program or continue to require residence at institutions? Such arguments are red herrings; as in all higher education, PME must craft an idiosyncratic balance of the old and new, the proven and the innovative. Virtual or distance learning offers a number of benefits—most importantly, the flexibility it allows for both students and faculty to pursue educational objectives on the fly.<sup>13</sup> On the other hand, in this approach one loses the ability to spend concentrated time on education; the student at a resident PME institution is there for PME and nothing else and is not forced to pursue his or her education episodically, as other duties and distractions permit.

Similarly, educational technologies can facilitate the transmittal of a great deal of information, but information by itself is inadequate. PME is much more than the transmission of facts; it is about inculcating analytical skills, critical thinking, and ethos and wisdom. Some people feel that a technology-based approach is not well suited to this more affective kind of learning, that such concepts and skills can only be imparted face-to-face. Affective learning—students learning from each other and absorbing the experience of their predecessors—clearly remains paramount, but this can and must be *facilitated* by new educational technologies, electronic networking, and other technological means.

### *Philosophical Approach*

Even more important than any debate about technologies and techniques is the matter of philosophical approach. The traditional pedagogy is, simply, no longer valid—for PME or any other form of higher education. An approach that is *teacher* and *teaching*-centered (i.e., characterized by relatively passive

*transmittal of information*, in lecture form, from subject-matter experts to student receptors) must be replaced with an approach that is *learning* and *student-centered*—a participative, experiential process in which information is exchanged in two-way dialogue between “coinquirers.” PME must evolve from such passive transmittal and absorption of information to active engagement in the *construction* of knowledge, from classroom learning to real-world fusion of theory and practice, from text and speech orientation to multiple representations of ideas, and from learning as an individual act in isolation to learning as a collaborative act in the context of other ideas.<sup>14</sup>

PME must increasingly become demand-driven as opposed to supply-driven. It may be useful to think in terms of a “precision learning” paradigm in which students can tailor their educational programs to what they most need to learn, at the pace and level most appropriate for them. Greater interaction between students and PME faculties and administrations in the development and continual evolution and tailoring of programs will result in more efficient and effective learning. We need more “instant” minicourses on specific topics, developed and executed in real time in response to rapidly changing educational and individual requirements. Ideally, one would develop such courses at the joint level, with service and other PME institutions pooling faculty, technologies, and other resources to the needs of the moment while still pursuing their more enduring objectives.

### *PME Structure—Beyond Institutional Orthodoxy*

We must also consider the structure of the overall PME system. The importance of service-specific *education* remains great, and this will not change so long as separate military services exist. However, whether this specialization in education must continue only in separate, service-specific *institutions* is not

intuitively clear. Perhaps individual campuses devoted to a particular service or particular type of military activity (e.g., command and staff responsibilities or operational-level planning) will coexist alongside multiple satellite campuses throughout the world. For the foreseeable future, the services *should* maintain their PME institutions, but cooperation among them must be enhanced to conserve resources, to make optimum use of new technologies, and to achieve common, joint outcomes. Rather than merging institutions formally so that the individual components of the merger cease to exist, the services can and should do more to merge their institutions "virtually" (i.e., link them in computer networks, share faculty members, etc.).

A separate but related question has to do with whether we need wholly new PME institutions as we move into the emerging RMA. Pointing to the recent establishment of the Information Resources Management College at NDU, some people believe that new PME institutions will be critical and that simply adding an hour or two of RMA instruction to established programs at existing institutions will be woefully insufficient. Others argue that, while studying and considering the implications of the information revolution and the RMA are important, focusing future PME solely on these concepts, to the exclusion of more traditional warfare and national security concepts, would be a mistake. Segregating consideration of new warfare concepts to discrete institutions may in fact be precisely the *wrong* way to move the thinking of the military as a whole toward an emerging RMA. To do so risks leaving all the old assumptions and old ways of thinking intact at the *existing* institutions, which will continue to have a significant influence on succeeding generations of officers. If a critical mass is to form around emerging RMA ideas, a more effective approach may be to give these ideas a prominent—though not exclusive—place in existing courses and institutions.

One must begin thinking of PME more as a comprehensive, cradle-to-grave system, in-

tegrated with training. As in the civilian world, it is absurd to think today that a soldier's or an officer's education can ever be completed. One must make time and devise methods to continually deepen knowledge and hone skills. Currently, we have few refresher courses or other institutionalized avenues by which one may enhance and bolster a command and staff or war college education. A single stint at a particular PME institution may not be adequate preparation for a rapidly changing global politico-military environment. It is worth considering how future soldiers might benefit from periodic, brief, but focused bursts of PME throughout their careers—or from a system in which PME is essentially constant with the aid of distance-learning technologies and techniques touched on above.

#### *New Faculty Maestros*

The question of appropriate faculty mixes for future PME is also important to consider. Because technology and new concepts such as complexity and chaos theories will largely drive the emerging military revolution, we will need different kinds of experts to round out faculties at PME institutions across the system. The majority of faculty historically has been concentrated in the social sciences. We will still have a great need to retain these individuals to convey to students the intangibles of warfare (the wisdom, judgment, and historical experience that is at the core of warfare and thus must be at the core of PME). But we will have to supplement them with more engineers, computer scientists, psychologists, biologists, and others who can provide insights and new ways of thinking about new kinds of military problems we are likely to face.

The example of the nonprofit group "National Faculty" is a good one to keep in mind when considering how to keep up with changing faculty requirements in PME. This organization maintains databases and employs a range of technologies to virtually "import" teachers and other scholars from across the

country to remote locations, enabling them to teach in multiple locations simultaneously.

This model could be usefully applied in PME to create a dispersed national faculty and perhaps even to have top graduates of PME institutions become virtual faculty members teaching from the field.

### *Student Population—Whom Should We Educate?*

We must consider as well the *focus* of future PME and decide whether it should remain the preserve of the elite or become more of a mass activity. The emerging RMA will demand a greater level of intellectual sophistication on the part of all personnel. At the same time, the military, like any organization, will produce only a handful of strategists—a small innovative elite—alongside a larger group of individuals who will absorb and actualize the concepts developed by others. Should PME continue to be tailored for the former group, to ensure that revolutionary new concepts in fact are developed? Conversely, *can* such innovations be actualized by military forces that are not being educated across the board in the ways of the emerging RMA? The question is how to gear PME appropriately for both types of individual, since the type of education required for one likely will be very different than that required for the other.

The emerging RMA may require development of an intellectual superstructure—a body of knowledge workers who will have missions and responsibilities far broader and more diverse than leading forces in battle. At the same time, we should extend and deepen PME throughout the force, as we increasingly will rely on personnel of all ranks to execute tasks and employ ideas far different and more challenging than those we know today. It is worthwhile to consider adopting and expanding for other PME levels and institutions the approach now in place in the service command and staff college second-year programs, in which an elite group is selected

from the larger student body, in a very discriminating process, to pursue an advanced course of study.

### *Incubators for Innovation*

Finally, we must stress the critical role of PME as a haven for heretical ideas in a revolutionary period. PME institutions are, arguably, the only venue in the military in which people can challenge accepted practices and theories without damaging daily operations. In a revolutionary time, our only recourse will be to jettison some of these accepted practices and theories and replace them with ideas that have no precedent. PME institutions must be the bastions of independent—even iconoclastic—thought, where we can generate such ideas and work them into the military mainstream. To make them so will require a commitment on the part of the institutions to protect and nurture individuals who take intellectual risks. An interdisciplinary curriculum, academic freedom for the faculty, and consideration of a range of ideas from any and all intellectual sources must be the hallmarks of future PME, in order to provide an education that meets the challenges of the RMA.

## Conclusion

The issues and questions raised in this article are critical to the future of PME and, more broadly, to the development of military affairs. Technological and pedagogical innovations are already beginning to emerge throughout the PME system. One aim of this discussion is to consider how such innovations might facilitate our adaptation to and exploitation of an emerging RMA. Even more important is the *substance* of PME in the context of an RMA (i.e., the content and educational aims of various PME programs). The object at this point is not to make pre-

dictions or recommendations about what should be taught and learned in future PME—nor is it to suggest *how* future PME should be taught. As with the RMA itself, it is too early in the intellectual process to speak definitively in these areas.

Rather, the object is to *begin to consider*, in light of the emerging RMA, what should be learned in PME, who should learn it, how future officers should be taught, and who should teach them. The object is to push the intellectual process forward and to consider how a period of revolutionary change in military affairs might both affect and be affected by PME content and process. This article does not provide the answers. Rather, we must pose questions about the RMA to today's PME teachers, program developers, and other specialists in education, for it is *their* expertise that can best answer the questions. For example, what substantive issues related to emerging new warfare areas will be most important to consider in PME curricula as they evolve? What substantive issues related

to emerging new warfare areas will be most difficult to address in future PME? What *core competencies* will be most important to foster in PME? Who will be the educators in future PME, and what backgrounds must they have? What existing or emerging educational technologies can best facilitate PME? What effect will potential organizational innovations in the military have on PME? How can PME *facilitate* organizational change? How can PME best foster innovative, unorthodox thinking and intellectual risk taking in our future military leaders?

The intellectual excellence necessary for the US military to thrive in an era of uncertainty and profound change can realistically take root only in the PME arena. The emerging RMA environment will call for fundamental shifts in our thinking, and the role of PME in clarifying the nature and direction of those shifts—even in acclimating us to the notion that such shifts are necessary—will be of tremendous importance. □

#### Notes

1. Andrew W. Marshall, director of net assessment, Office of the Secretary of Defense, memorandum, 23 August 1993.

2. House, *Report of the Panel on Military Education of the Committee on Armed Services*, 100th Cong., 1st sess., 21 April 1989.

3. Michael J. Mazarr, "The Revolution in Military Affairs: A Framework for Defense Planning" (Paper presented at the US Army War College Fifth Annual Conference on Strategy, Carlisle Barracks, Pa., April 1994).

4. *A Strategic Vision for the Professional Military Education of Officers in the Twenty-First Century*, Report of the Panel on Joint Professional Military Education of the Chairman, Joint Chiefs of Staff (Washington, D.C., March 1995), 5-6.

5. Credit for the analogy goes to Col John Warden III, USAF, Retired.

6. James S. Corum, *The Roots of Blitzkrieg: Hans von Seeckt and the German Military Reform* (Lawrence, Kans.: University Press of Kansas, 1992), 82.

7. For additional, detailed background on the German PME and training system in the interwar period, see *ibid.*, 68-96; Martin van Creveld, *The Training of Officers: From Military Professionalism to Irrelevance* (New York: Free Press, 1990), 28-34; and David N. Spires, *Image and Reality: The Making of the German Officer, 1921-1933* (Westport, Conn.: Greenwood Press, 1984).

8. Michael Vlahos, *The Blue Sword: The Naval War College and the American Mission, 1919-1941* (Newport, R.I.: Naval War

College Press, 1980), 134. This book is an extraordinarily rich and detailed portrait of the Naval War College program in the interwar period.

9. *Ibid.*, 114.

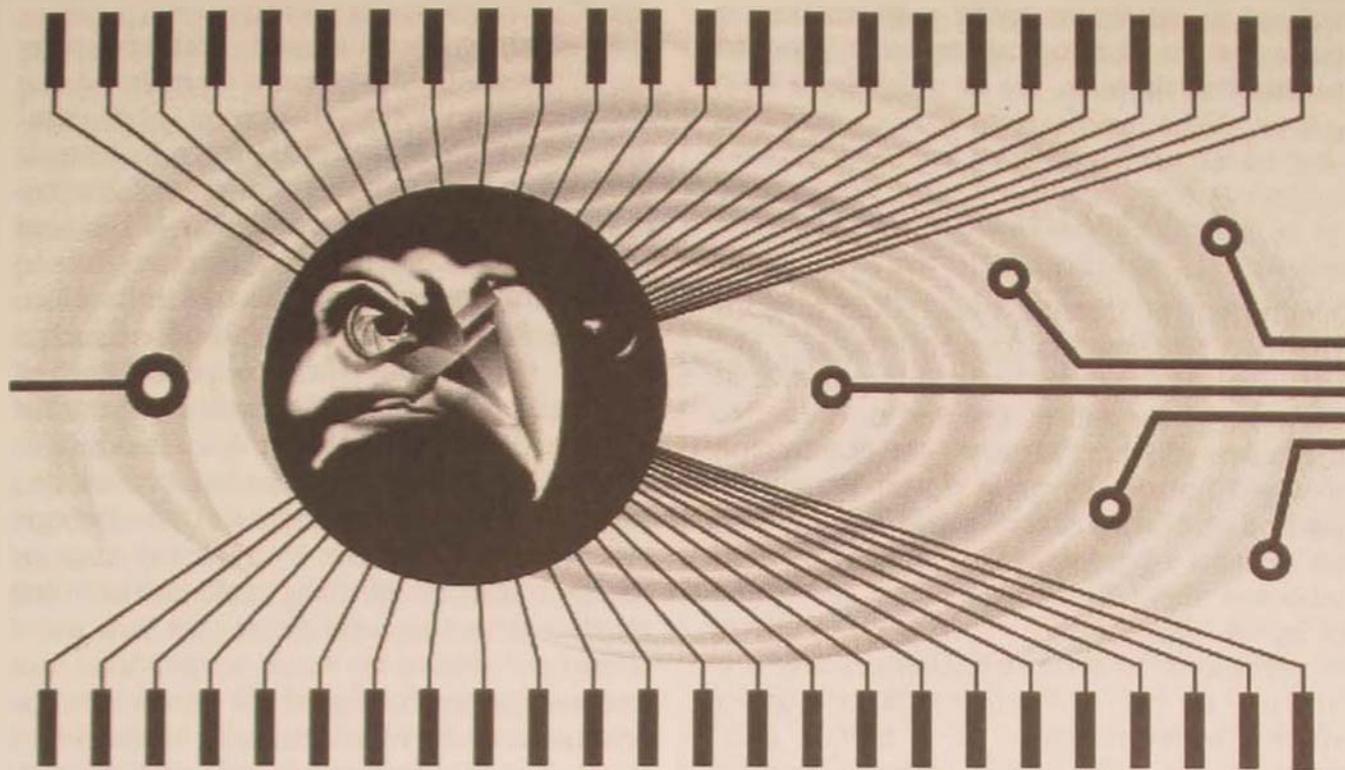
10. Discussion drawn from Dr Allan Millett, Mason Professor of Military History, Ohio State University, presentation to the Conference on Professional Military Education and the Emerging Revolution in Military Affairs, National Defense University, Washington, D.C., 22-23 May 1995.

11. *Report of the Panel on Military Education*, 63.

12. See Lewis J. Perelman, *School's Out: A Radical New Formula for the Revitalization of America's Educational System* (New York: Avon Books, 1992).

13. The benefits and drawbacks of a "virtual PME" approach are explored in "Professional Military Education (PME) in 2020," prepared by the students and faculty of Air University, Maxwell AFB, Ala., June 1994, as part of the *Spacecast 2020* study. For a revised version of the paper, see "Professional Military Education in 2020," *Airpower Journal* 9, no. 2 (Summer 1995): 27-41.

14. Discussion inspired by Maj Gen Richard Chilcoat, commandant, US Army War College, presentation to the Conference on Professional Military Education and the Emerging Revolution in Military Affairs, National Defense University, Washington, D.C., 22-23 May 1995.



## “ . . . OR GO DOWN IN FLAME?”

### TOWARD AN AIRPOWER MANIFESTO FOR THE TWENTY-FIRST CENTURY

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**T**O LEAD IS to choose. Choosing commits one's group to courses of action and to consequences. In 1995 the leaders of the United States Air Force asserted that long-range planning in the Air Force was "broken" and that they would fix it. Doing so requires vision, a sense of the evolving environment, and a process for linking visions to strategies and

tasks. Bureaucracy without vision mistakes activity for progress. Vision without the wherewithal for change is called dreaming.

Today, planning matters because the Air Force, in our view, is poised between two courses—one to "live in fame," the other to "go down in flame," as the Air Force song goes. Bad choices forebode institutional irrelevance or, worse, disintegration and defeat. Some

people may find contemplation of a future without an Air Force to be a distraction, a waste of time, or a logical impossibility. But it is none of those.

## Why Change?

By now it is hardly news that the whole Department of Defense must come to grips with two fundamental discontinuities. The first involves the "why" of military power in the wake of the fall of the Berlin Wall. No one knows whether "history"—the domination of world politics by great power struggles—has ended, simply taken a breather, or is in the process of transformation. Thus, it ill behooves the United States and its armed forces to await history's return lying down. As nettlesome as today's challenges are, it is difficult to see any circumstances under which the reemergence of a hostile great power would enhance the national security of the United States. In the cold war, the Air Force used bombers and ballistic missiles to help deter its going hot. Today's environment mandates that we rethink the capabilities required to deter tomorrow's great powers from hostile postures.

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The second involves the "how" of military power in the enveloping onrush of information technology. Simply put, "being digital," to use Nicholas Negroponte's meaning of the new ontology, means that the high ground is no longer aerospace, in and of itself, but cyberspace.<sup>1</sup> Understood in its broadest terms, cyberspace is the great confluence of all the various bits and information streams

that, together, generate the strategic "top sight" prerequisite for victory.

By history, predilection, and structure, top sight seems the natural domain of the Air Force—but only if chosen and commanded. To do this, the Air Force first needs to redefine itself from an atmospheric institution to an infospheric one. This is the soul of our manifesto, and our essay now turns to envisioning and guiding this transformation.

To understand the implications of such a change for the Air Force requires starting from first principles. The mission of the Air Force is not merely what it does (tending to air and space operations) but what it contributes (determining how to operate for strategic effect). Knowing how to transport mass or energy to targets—plinking tanks or flattening cities—has its time and place. Yet, it is but a subset of knowing how to get and use knowledge to confound or terminate the production, distribution, and, increasingly, control of all sources of opposing military strength. Technology permits us to achieve ends—strategic superiority—through many means: space-based, atmospheric, ground-based, and maritime systems, both manned and unmanned. If a separate Air Force exists for strategic purpose, then information, rather than any one attack method, becomes central—hence, a rationale for the Air Force to drop its atmospheric orientation in favor of an infospheric one. Just as the Air Force was born to exploit the technology of flight, so must it evolve to reflect subsequent technologies of equal strategic heft. Our notions of the high ground must change, as airmen accept the coup d'oeil as the peer to and the enabling means for the coup de grace.

The Air Force was founded on the principle that mastery of the new technology would allow a nation to leap over World War I's bloody stalemate and strike a strategic blow to the enemy's war-fighting machine. Air—the atmosphere—became the high ground. Taking it made victory everywhere else only a matter of time and will. It so happened that in the first interwar period (and we may

well be in another one), this technology was reified in the manned aircraft, since only the human body had the sensors and computing power needed for airpower's chores. But technology is protean by its very nature, and, as Operation Desert Storm was the first to demonstrate, the information realm is becoming tomorrow's high ground. Simply put, if you can see the enemy and the enemy cannot see you, then only modest applications of precisely aimed and correctly timed force suffice to command the battle space. It is this ground that the Air Force must seek to command.

Before examining the transition from an atmospheric to an infospheric force, fairness requires that we note two alternative visions—the “constabulary” Air Force and the Air Force that wages information warfare. Both capabilities—one based on conducting peace operations and the other on targeting enemy information systems—seem new and valid tasks. Neither, however, provides a reasonable heart and soul for tomorrow's Air Force.

The constabulary Air Force—so brilliantly elucidated by Carl Builder—is, nevertheless, highly problematic. Very little force is left; “food bombs” on friends may be necessary, but hardly suffice for strategic leverage against enemies. It provides little insurance against the reemergence of serious great-power rivals. A weakened constabulary Air Force might even summon such fools forward. Once alienated from its core focus, the air constables may not be able to recover if history returns.

Adopting the trendy profundity and modernity of information warfare as a primary mission is often (wrongly) read into *Cornerstones of Information Warfare* (1995), the Air Force statement on the subject. Yet, discipline and causality in the grinding application of power—not inscrutability or novelty—distinguish warfare from brawling or from fancy. Strategic information operations—the unleashing of viruses, worms, Trojan horses, and others of that seemingly magic (or perhaps mythic) menagerie described by Doug Waller in *Time*—tend to reach their highest utility

against enemy national infrastructures just prior to conflict. This fact alone should suggest wariness in putting any military in charge (and even more so for strategic information defense). At the operational level, no one really knows how much good—let alone bad—information attacks can do. Such operations are opportunistic and thus antithetical to an ethos built on strategy-to-task generation. Foes without an information infrastructure to disrupt may leave such a redefined Air Force with nothing to do.

## The Air Force as a Joint Force

How does our vision of seizing and controlling the high ground harmonize with the vision of the other services and the Joint Staff? The latter's *Joint Vision 2010* was designed to scan the strategic horizon, promote joint force, and thereby inform the “visions” of the separate services. It seeks virtue in unchangeable aspects of fighting. Will there be precision strike in the future? Yes. Will one side strive to have greater awareness than the other? Of course. Would it be efficacious if joint forces could envision and engineer the dominating maneuver of full-spectrum dominance? Absolutely. Does focused logistics facilitate resupply? Unremarkably so. Alexander, the Great Khan, and Napoléon would applaud these attributes, finding them familiar.

What is left unsaid, though, matters more. Neither legislation nor downsizing makes jointness necessary, so much as the tendency of every service's target acquisition and prosecution systems to overlap. Title 10 federates the armed forces, while the battle space is as indivisible as the cyberspace. It can no longer be divided into neat domains and parceled out to each service to fight its own war—the Navy in the littoral, the Army in the fields, and the Air Force high and deep. They just keep getting in each other's way.

A future Air Force cannot help envisioning

the totality of the joint and integrated armed forces. At the heart of this joint vision is likely to be a vast, interconnected, interoperable, and ultimately integrated metasystem (a "system of systems" or, farther on, an "organism of organisms") to which all services contribute and from which all of them draw. The metasystem is not the elusive silver bullet or golden BB but the convergent architecture of capabilities nurtured by deliberate planning. It will not be a single machine or even a single network, but its users will not care—as far as they are concerned, it will be the common instrument with which they all go to war. Feeding it will be rules of engagement, commanders' intents, strategic intelligence, bit streams from space, continuous logistics reports, status of forces, weather observations, sensors from everywhere, operator inputs, and even the output of global news networks. It will supply the raw material of nearly total situational awareness, from global overlay to designated targets. If the metasystem is to do serious work, we have to plan it, from the start, as an integrated system, even though initially composed of legacy devices and code. We cannot simply glue today's increasingly inadequate systems at their edges and be done with them. Such a conceit grossly understates both the requirements for real-time battlespace control and the degree to which technology can empower greater vision. In the end, someone must be in charge of building and maintaining the metasystem for whoever is asked to command it. Who better than the Air Force? It was the Air Force's *Spacecast 2020* that introduced the notion of "global view" and the institutional pronouncement of a new and virtual form of engagement in "global presence" that followed in hot pursuit.

It is not for the Air Force to populate the entire metasystem—an organic construction of various pieces being built, tested, used, refined, reused, swapped out, and retired in their turn. What the Air Force must do is envision its architecture (and all that implies: requirements, doctrines, tests, protocols, agents, and objects). Once that is well understood, the

metasystem will grow naturally—with the Air Force vision of top sight the ghost in the machine. Guardianship over the metasystem is the aspect of controlling and exploiting the high ground that differentiates a next-generation infospheric Air Force from an Air Force frozen in the complacent amber of slightly faster, slightly stealthier atmospheric operations. An infospheric Air Force possesses capabilities that lock out all competitors and make their air and surface forces noncompetitive with ours.

An "armed" force with information but no means to convert it into striking power, needless to add, is pointless. The best "OO" (observe, orient) does not obviate the need for "DA" (decide, act). The metasystem informs command; it does not replace it. Operators are still in charge, and the Air Force will get its fair share at the top. As for weapons, an infospheric Air Force must nevertheless be armed. For tomorrow's evanescent battlefield, we may need faster means of energy delivery, lest targets disappear before energetic force can engage them. Tomorrow's Air Force can and ought to listen to its visionary operators and scientists and engineers: seek real-time engagement weapons ranging from lasers to neutral particle beams and high-powered, focused microwaves. Indeed, the need for fast sensor-to-shooter coupling, consistent with reifying information, calls for the Air Force to strengthen its command over strategic (not just nuclear) weaponry, particularly that closely linked with the metasystem itself.

## Tomorrow's Missions

If jointness provides one leg for tomorrow's Air Force, the emerging mission profile of the US armed forces provides the other. The United States took away four enduring missions from the cold war: strategic deterrence, conventional overseas intervention, guarding the lines of communications, and dissuasion (e.g., air strikes against Libya). Students of the new chaos often add peace operations

and support for domestic authorities, but neither may last (one political party does not like doing them, and the other party does not like resourcing them) nor carry much relevance for the Air Force. Technology and today's need to deter and defer major-power rivalry suggest that three new "antiwar" missions, to use Alvin and Heidi Toffler's phrase, will emerge over the next quarter century: extended information dominance, global transparency, and strategic defense.

Technology both permits and requires that information dominance sought by the United States be extended to its friends. Apart from "stealth" (rare, expensive, and always incomplete), tomorrow's battle space will be far more transparent than today's—to both sides. Why? Everything creates a signature of some kind—be it sound, odor, contrail, pressure, movement, or twitches in the geomagnetic environment. Every new bit illuminates the battle space—from discovering the tank in the weeds or the aircraft in the clouds—and the number of bits per buck has been doubling every 20 months, a trend with at least a decade left. The more bits, the more illumination; a sufficiently dense covering of bits, so to speak, increases the odds that enough of them will land on everything worth identifying. This is not purely a military phenomenon: indeed, the most powerful forces for the generation and dissemination of information include the World Wide Web, cheap and plentiful video cameras, commercial satellites, and do-it-yourself unmanned aerial vehicles (UAV). Exactly *which* capabilities appear *when* can always be debated, but the trend lines are laid in (and may yet be accelerated by fortuitous discoveries here or abroad). To be present is to risk being sensed by one phenomenology or another; the attendant revolution in precision guidance means that to be sensed is to be killed. Thus, to linger transparently is to court death. All this may or may not favor defense over offense (even if movement creates more signature than hiding). It most definitely favors the party that can integrate

the various information flows into a coherent picture of the battle space rather than an opportunistic series of isolated appearances.

In this environment, today's platforms simply cannot pass unnoticed en route to or when engaged in tomorrow's major fights. That fact, together with today's public sensitivity to casualties, suggests that sending large numbers of young men and women overseas to war against secondary enemies (those who cannot directly threaten the United States) need no longer be how the armed services always go to work. More and more frequently, greater leverage may come from empowering our allies to fight for themselves, particularly when aided by over-the-horizon applications of energy. Empowering is the key concept; telling our friends the location of enemy targets to within the blast radius of their ordnance permits them to defend themselves against larger foes tied to ancient parameters of force. The means by which friends are so empowered are the very same bit streams that feed the metasystem, only this time packaged for delivery rather than ingested organically—hence, the first mission of extending to friends the information advantage enjoyed by the United States. Should they cease being friends, they cannot drink from this font of information. Without information, they must fight parched and blind.

The global transparency mission naturally follows. The surest deterrence to any nation aspiring to hostile great-power status may be the certain knowledge that it is under continual watch. US power can be, as the Air Force argued, "globally present" even when it appears to be physically detached. Let others so much as open factory doors in the desert, pick up the handset to summon their craft, roll a tank out of its shed onto the road, launch an aircraft out of a runway deep in the forest, and somewhere, somehow, some part of the metasystem knows—and can instantly alert whoever can best boresight thereto. This knowledge need not be converted always into engagement; its demon-

stration alone may dissuade. Thus, the second new mission of the armed forces: to endow the instrumented world with a degree of transparency so clear that no country can challenge us in the dark. The evil that lurks in the hearts of humans may forever hide, but not the means to convert evil thoughts into evil deeds. Add to this the instant wherewithal to denude will of means, and ill will becomes an aggravation instead of a threat.

The third mission, strategic defense, flows from the second. Over 90 percent of trying to stop a ballistic or cruise missile is finding it. To an aircraft, a Mach 25 missile is a blur; to a photon, however, it hangs in space. The same metasystem that can arm an ally with information and make the entire world transparent to US power can also sweep the skies for air and space threats and dispatch their coordinates to whatever methods are chosen for their engagement.

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*Note that none of these new missions have anything to do with the human mastery of flight. . . .*

*It is time for the Air Force, as America's premier technological agency, to move on.*

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It would be hard to imagine three missions that inherently favor the new Air Force more. This is so not because the Army and Navy are absent—for they do play—but because they reflect the orientation and myths that have always fueled the Air Force. This is truly *cosa nostra*—"our thing." Their guiding principles—call them dominating medium, top sight, or campaign planning (warfare as a solvable problem of the systemic application of force to a specific end)—follow directly from the inspiration that sent earlier generations to the flight line. Those who recognize a change in the possibilities and employ it in warfare, ob-

served Douhet, have considerable advantages over those who wait until the power of transformational change is used against them. Note that none of these new missions have anything to do with the human mastery of flight. That was yesterday's problem—and one thoroughly solved. It is time for the Air Force, as America's premier technological agency, to move on.

## Implications of an Infospheric Air Force

The test of an organizing principle lies in how well it informs the many decisions an institution as complex and vital as the US Air Force must make. The original theory of airpower did precisely that. It gave the organization its mission, put the mission in the context of the other services, suggested how the mission might be fulfilled, prioritized tasks within the mission, steered acquisition strategy (and so fostered the world's greatest aviation industry), defined the essence of being an airman, and thus contributed to the creation and sustainment of airpower. Today the Air Force wrestles with seemingly intractable existential problems. If today's vision is to be more than words, it must be the basis by which today's issues are reexamined in a new light—one so powerful that it makes the obscure visible and thereby transforms apparent crisis into authentic opportunity.

A vision that does not reflect facts risks becoming illusion. No better example of this law exists than the current F-22 program. To the atmospheric Air Force, the F-22 is a must-have—the next obvious step in a continuous, logical train of sleek machines. The F-22 remains another souped-up, short-range, manned fighter, even if stealthier and laden with more silicon. Perhaps the F-22 can be justified, based on a cold assessment of its costs—which are certainly crowding out many other investments and perhaps opportunities (and in a world where everyone else has given up going against our F-15s,

much less F-22s). Perhaps an infospheric Air Force would also buy them. Vision, after all, is the beginning, not be-all, of analysis. But an atmospheric Air Force cannot help buying the F-22, regardless of anything that might be known about the threat.

Whoever would hold the high ground needs to attend to three activities that will or must become the *raison d'être* of air and space forces: (1) operating militarily in a transparent world, (2) understanding space, and (3) defending the American homeland from aerospace threats. Taken together, these needs are the inescapable facts of the future. They are facts, not problems. A fact is something that cannot be changed. Problems arise from ignoring or trying to alter facts. Air and space forces must focus on the facts of the future and use them advantageously.

First, in a transparent battle space, big things make more kinds of signatures than smaller ones. Encasing a human in the life-support systems necessary to operate in the high atmosphere or in space requires plenty of weight and cube, and even then, such an effort may be frustrated by the high "G" loads necessary for maximum agility. Remove the human body from the cockpit, and combat air vehicles can surge ahead. The effort to put "space-derived data into the cockpit" can be redirected to contribute to other parts of the metasystem more effectively. Data need to go to warheads, not task-saturated humans who also have to worry about staying straight and level, breathing, controlling temperature, urinating, and—more importantly perhaps—being captured and exploited. Once the human is removed, small vehicles can quickly become very, very small and very, very fast and pose new problems to defenders. Once pilots are understood as information-processing components—the natural tendency of an infospheric Air Force—the rational allocation of these functions between carbon and silicon can proceed apace.

UAVs illustrate some of the difficulties an atmospheric Air Force engenders for force planning. Just the names of today's models—

Hunter, Raptor, Talon, Predator, Dark Star, and so forth—are good clues that, even unmanned, the UAV is meant to fight rather than just see. Dreams of air-to-air combat among UAVs lie just below the surface. At several million dollars each, every aircraft must be increasingly well protected (which adds features, which increases cost, which. . .). How strange it will seem when someone decides that a \$100,000 UAV not only suffices but costs less than the missile otherwise required to shoot it out of the sky. A flock of expendable UAVs would occur far sooner to an infospheric Air Force than it would to an atmospheric one.

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*Instead of preening for pointless battle, Air Force Space Command ought to pick up its mantle as the premier information force in the world.*

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Second, whither space? Space operators cannot be happy without some way of emulating their air-combat cousins. Despite however much real importance space holds for air and ground combat, the chances that it can be used as a war-fighting arena, in and of itself, are slight (and was thus, even when the Soviets were around). It is bad enough that such urges feed the usual round of institutional fantasies. But they seriously color the space-faring community's approach to "everyone else's" space assets. The belated discovery that our forces could be imperiled with spacecraft-derived information—Saddam Hussein could have seen the "left hook" coming with overhead imagery—gives birth to a task of shooting such craft from the heavens.

Such a task is problematic. It allows people to deny the inevitability of space-mediated transparency on the battle space under the ill-considered argument that we can eliminate it—all of it—when the time comes. Further,

despite the cowboy appeal inherent in "shooting the desperadoes out of the sky," it pushes the armed forces very close to operational doctrine that would, in practice, target everyone else's spacecraft—perhaps appropriate for a third world war, but for no lesser contingency. The "black hull-gray hull" challenge that navies have long faced rarely resolved itself in the injunction to sink all hulls. With satellites so cheap (a simple three-meter capability can soon be purchased for \$50 million, no questions asked) and third-party sources so ubiquitous, it will be well-nigh impossible to find out where the bits are being picked up, how they are being sluiced from satellite to satellite, or even which portal or switch in the self-healing global phone or internet system takes them to their destination.

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*With proliferation, weapons of mass destruction and disruption become strategic equalizers potentially available to any flyspeck nation.*

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Instead of preening for pointless battle, Air Force Space Command ought to pick up its mantle as the premier information force in the world. Virtually everything it owns exists to foster battle-space awareness, connectivity, and strategic intelligence. That understood, the Space Command of the Air Force would be pushing its data as the firmament that makes sense of all other sensors' attempts to paint the battle space. Working under an infospheric Air Force, the command would not have to be asked twice. Conversely, an atmospheric Space Command, by making short shrift of its information role, risks losing top sight to an emerging ground-based cacophony of small remotely piloted vehicles, high-altitude "pseudolites," and ground sensors. These should all be interactive elements in the metasystem rather than being expedient

acquisitions undertaken without a metasystem vision or architecture.

The same holds true for space-acquisition issues. Should the Air Force pursue a trans-atmospheric vehicle (TAV)? If it seeks to put a pilot in charge, the quest may prove quixotic; there is no medium up there from which to execute the Hans Solo flights of fancy that air permits. Yet, if the TAV is understood as a radically cheap way to get a pound into orbit, it opens up a wide variety of vistas, not the least of which are for the proliferation of information and top sight.

Third, the Air Force must become the planet's foremost expert on coping with delivered weapons of mass destruction, which used to separate the professionals in the geostrategic big league from the amateurs in the farm clubs. With proliferation, weapons of mass destruction and disruption become strategic equalizers potentially available to any flyspeck nation, as retired Air Force general Larry D. Welch has pointed out. The cheapest and most insidious are weapons of mass-information destruction. Close behind are biological weapons capable of being delivered by very small, sensor-evading vehicles. Overseas, they render ports and staging bases unusable for a deployment. But they could also hold the American homeland at risk. The threat might come from a ballistic missile—a benign space-launch vehicle modified by hostile will—or from a cruise missile launched from a shipborne container. The capability to touch the American homeland may be such a strategic equalizer that the risks of blackmail and checkmate rise as weapons and means of delivery proliferate. Who better to defend the homeland than the people who build the metasystem that alerts us to hostile will in actuation?

Some form of active strategic defense must become a competency that air and space forces pursue. The former Strategic Defense Initiative Office gave every service a piece; with the Soviets gone, the tough issue of "who's really in charge?" can and must be revisited. Nuclear weapons are no less

awesome under a different paint scheme. To argue that a temporary absence of hostile wills lets us ignore hostile means is to forget the value of long-range planning over threat-of-the-moment programming. The dismal prospect of a "peer competitor," although not yet true, may, unless we contemplate it, become a 2015 or 2025 fact. Ignoring facts, as we have said, is a problem. Thus, tomorrow's Air Force must posture itself to command the "high ground" in a very real sense. The high ground is the "infosphere," not the atmosphere or the aerospace. To the high ground's metasystem of knowledge must be added the joint-force wherewithal to engage everything an enemy values below.

### Tomorrow's Airman Redefined

Central to a redefinition of the Air Force is what it means to be an airman. In World War II, a high percentage of all airmen were subject to risk as aircrewmembers. Today's Air Force has far fewer but more efficiently manned aircraft; further, no more than 1 percent of those aircraft can be in the air at any one time. Upon how thin a base of pilots at risk can the Air Force rest? Yet, what would substitute as self-definition in an infospheric Air Force?

How have other services coped with similar requirements for change? The Army, heavy and difficult to move, has no choice other than staying with the "getting ready to get ready" template for combat, consistent with the traditional cycle of initial response, buildup, counterattack, and consolidation. Perhaps the digitized Army converts tanks into interactive simulators for "virtual mission rehearsal" during the long, slow ride to "buildup"—or perhaps the short work that transparency makes of tanks may be too frightening to contemplate. Either way, armor constitutes the skin rather than soul of the Army. At its heart is its self-definition as the will of the American people made manifest

in force; this force, in turn, is expressed by being on scene—today in a real context, but over time also in a virtual one. The Marines have gone further than the Army in shedding weight: tanks are a burden that light, lethal, and agile forces may aim to shun. They will ride into the future on a self-definition that draws on the chaotic and complex context in which they work their craft. A marine is a human transformed into the transcendent rifleman. A marine strives to be nothing more nor less than a marine. Similarly, the Navy will understand what transparency can do to the surface fleet. Yet, it was and is wedded to the sea before it is wedded to any instrumentality of mastering it. To command the seas and engage adversaries "from the sea" is not necessarily to exert power with mass but to exert discrimination with energy—the medium remains the message for the Navy.

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*Central to a redefinition of the Air Force is what it means to be an airman. . . . Upon how thin a base of pilots at risk can the Air Force rest?*

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What then of the Air Force? Habituated to being the willful, rebellious little sibling of the Army, the Air Force found it difficult to change without clinging to the instrument that won it independence. Then came ballistic missiles and the forced welding of *aero* and *space*. Will the even greater evolution to cyberspace—it is really nothing more than that—create a fuss, even though it is absolutely faithful to the vision of airpower's founders? Of course. The combat airman is the last emotional vestige of knighthood, the product of the warrior's quest for one-on-one combat. We breed cranky individualism because we believe, when all is said and done, that warfare really is about LeMay being superior to Khrushchev, or Horner being superior to



*The combat airman is the last emotional vestige of knighthood, the product of the warrior's quest for one-on-one combat.*

Saddam. An atmospheric Air Force that seeks a personalized "right stuff" but limits its attainment to rated officers risks an exploitable schism among its various communities—especially as those of us in Nomex are surrounded by those of "them" in battle-dress uniforms or hospital whites or office uniforms. All the while, the keystrokers and technowizards greatly outnumber what some of our leaders seem to believe are the few elite "real" warriors. An infospheric Air Force is inherently based on the teamwork inherent in the construction of the metasystem. Fortunately, the Air Force chief of staff has set a new course: cooperation, teamwork, and an understanding of the Air Force as a system of teams within teams. There is a solid base upon which to build.

The Air Force apex will always be defined as the masters of the medium, but in an infospheric Air Force, the medium of air can yield a bit to the various space media. The notion of the cyberjock grappling with the dynamic exigencies of the metasystem in real time is not yet here; people who stare into the screen rarely have to react in real time with "Tek War" tempo. Yet, as the metasystem becomes increasingly integrated with sensors and weapons, such real-time control will become increasingly possible, and no one who has spent any time with any masters of the game can doubt their acuity.

And if risk defines the apex, consider that as processing power grows and spectrum remains fixed, the ability to illuminate, command, and control the battle space may reintroduce

the essentiality of physical presence. Tomorrow's cyberwarrior, strapped to the console; armed with top sight; dedicated to the continuity of illumination; running into the tangible battle space to build, maintain, or enhance the filigrees of the metasystem, will be the very definition of grace under pressure.

## Implications for Roles and Missions

Such a transition, however necessary and overdue, cannot be made overnight. It must be carefully planned and delicately engineered. In the interim, someone must remain responsible for selecting the technical solutions necessary to mind the atmospheric store. That used to be the service; increasingly, it is the Joint Requirements Oversight Council. Within the Air Force, beneficial bureaucratic inertia and persistent affection for the manned air-superiority fighter will provide sufficient checks and balances against dizzying change. Moreover, an independent Air Force is not an autonomous one. Congress, the Joint Staff, many agencies, and the other services must agree to any new self-definition the Air Force advances. Metasystem architects and builders must be funded by the American national security corporation, which cannot lose its share in commanding the atmospheric market as one of its product divisions comes to a new understanding of the business in which it ought to be engaged. The change we propose is easier to debate than implement, but this is a characteristic of revolutionary change—witness the airplane and the intercontinental ballistic missile. So how should we proceed?

If the Air Force understood itself to be organized, not around the aging technology of flight but the nascent technology of top sight, it might be able to play the continuous roles-and-missions debate in a far more constructive manner. Like any shrewd firm, it would cast off low-information missions in

favor of high-information ones, strengthen its core competence, and position itself for vigorous institutional life well into the next century, all the while contributing to fostering jointness without risking its own identity.

The current division of services by media is problematic for the Air Force. Take any given mission. Step 1 in roles and missions is to assign each service responsibility for weapons emerging from its particular medium: ground, sea, or air. Step 2, which breeds hair balls, is to argue that systems emerging from one medium are, of course, superior to systems from another. Service prestige is put on the line in defense of technical characteristics that play randomly across the face of combat. This builds a litigious bureaucracy—not an institution. The Air Force, by virtue of its need for theory rather than sentiment as its organizing principle, inevitably puts its coherence rather than end strength on the line every time such issues arise.

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What should theory say about the Air Force's strategy for missions allocation? Start with the oft-revisited struggle over the "four air forces" in general—and close air support in particular. Declaring that there is but one Air Force and three other services also possessing air arms is to deny the facts and to fuel continuing debate whenever the embers of fact are fanned. Even so, "one" atmospheric Air Force disdains every other service's use of aircraft in general and—when it feels like it—jealously guards the close air

support mission in particular. So the institutional Air Force does it, but with very little enthusiasm—using the wrong aircraft, under the wrong command philosophy, and not nearly as quickly or responsively as it could, in spite of the valor of its warriors. Meanwhile, the Army makes do with never-satisfactory coordination mechanisms and then puts all the capabilities it needs in yet another platform for the mission—the helicopter—since the Air Force allows it no other choice. The answer for the Air Force is obvious: let this mission and its associated equipment go. The Marines have proven that a ground force can supply its own jet-propelled airpower organically. Close air support is a necessary but low-yield and low-information component of warfare—one which contributes very little to top sight and rarely, if ever, has strategic effect. As long as armies fight armies, close air support will be necessary. But it is nowhere written in stone that the Air Force must fulfill this responsibility.

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*The Air Force stands not before a crossroads but at the edge of a precipice. . . . Only by braving the chasm can the Air Force ascend the other side. The lure of descent is familiar to the aviators struggling to retain control of the force, but so were horse and sail to other services in their day.*

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A similar debate entails long-range missiles, notably for air defense. These missiles are an Army bailiwick in the US—oft-contested by the Air Force as unwarranted intrusion into the deep battle. Here, the Air Force strategy should be obvious: seek the radars and the fire-control internetting, and leave the missiles to whoever wants to drag them around. It keeps the top sight over the increasingly nonlinear battle space and yields the trigger.

True, this split is notional as long as fire control and guidance are intimately connected to specific missiles, but such coupling is precisely the wrong way to establish missile guidance in the future. Why could not a Pave Paws radar or an Aegis radar guide a Patriot missile as well as a Patriot radar can? Ultimately, the metasystem informs the firing-control mechanism, and the Air Force, if it is smart, will put first claims on the metasystem as the core of the military's information machine.

Today's roles-and-missions debates seem to look back to the last few days of February 1991. Let others win by that criteria. Instead, look ahead and make claims based on what 2015 or 2025 portends—a global battle space reappropriated by the microsecond. It is a short hop to extend the Air Force's acknowledged claim to tactical-missile-defense battle management to overall cognizance of the entire complex information flow required to shoot down another missile. No longer should the Army, Navy, and Air Force take three poorly coordinated approaches—each firing from its own medium. Again, an atmospheric Air Force jealously guards its claim to the right firing platform; an infospheric Air Force goes for the jewels.

If the Air Force wishes to contend with other services over platforms, the way to do it is not to waste time arguing over one or another medium but lay claim to the information-rich components: the Longbow, the Guardrail, the Hawkeye, and—why not some day—the Aegis battle system (and, yes, it matters little who actually drives the vehicles compared to who works the operational controls and architectures).

An infospheric Air Force can also take the lead in maturing our understanding of information operations. An infospheric Air Force realizes that A-2 (intelligence) and A-6 (computers and communications) can no longer reside in their own little stovepipes separated from A-3 (operations). The transition from an atmospheric to an infospheric Air Force will also give long-term planners in a newly

created A-5 at least five years of work to do, examining every aspect of the force and seeing where it fits into the new structure.

A related issue entails what the Air Force should keep organic rather than slough off to the private sector. An atmospheric Air Force retains its air base orientation, and the result, plain to see, is the retention of so much ancillary functionality that it has far more nurses than operators, with nearly 20 percent of the total Air Force in the health professions. The military's ability to command large forces in single-minded pursuit of worthy aims must be retained. Yet, an infospheric Air Force would ask which elements need to be military to ensure continuity of information and command operations under stress. It would carefully review the current practice of outsourcing technical wizardry lest it be forced to go without in-theater, as metasystems are racked with battlefield stress compounded with new forms of information warfare.

## Conclusions

We fully expect that change will be tortuous and torturous. We also know that "without vision, the people perish." The Air Force stands not before a crossroads but at the edge of a precipice. To affix its affections, theory, and force structures exclusively to aircraft transporting mass to targets is to slide forward into the abyss. Only by braving the chasm can the Air Force ascend the other side. The lure of descent is familiar to the aviators struggling to retain control of the force, but so were horse and sail to other services in their day.

Will the Air Force fly across like Daedalus or drop like Icarus? If folly is chosen, count on it being proclaimed wisdom. Yet, the inexorable march of contingency leads to one of two outcomes. The better outcome is for splinter groups to arise and chip off Air Force missions piecemeal, leaving the institution a withering core. The worse outcome

is for the ideology of the atmosphere to withstand all challenge, alienating people who see the future with the clarity it presents—until the Air Force wakes up to find the revolution grasped firmly abroad by those with few tears left for it. Either way, if the Air Force fails—in doing our nation and our allies the favor of succeeding—we leave it to historians of the next century to discover the answer to our final question: Why did the Air Force—given the choice of living in fame or going down in flame, as posed in its own song—choose descent and demise?

The leap from an atmospheric to an infospheric Air Force is the next logical step, as paradoxical as it may seem. Air forces have always capitalized on speed, range, freedom of maneuver, and vantage that their medium provides. Yet, nothing travels faster than information. Nothing impedes the distances that knowledge can travel. Nothing makes movement more intelligent, economical, and fruitful than information. And nothing would provide the vantage that a metasystem provides. Atmospheric solutions sufficed until technology permitted multiple solutions from any medium. The metasystem, however, demands an integration of exoatmospheric components with those provided from the air and the surface. This is not the vision or role that the Army, Navy, and Marine Corps are in a natural position to advance on—although they may lay claim to bits and pieces, thereby frustrating the larger aim. This opportunity is the Air Force's to lose. Done properly, the issue becomes not so much "What is the future of the Air Force?" but "What is the Air Force of the future?"<sup>2</sup> □

### Notes

1. See Nicholas Negroponte, *Being Digital* (New York: Knopf, 1995).

2. These questions are paraphrases of Alvin and Heidi Toffler's questions about the economy.

# Clausewitz's Theory: On War and Its Application Today

COL LARRY D. NEW, USAF

CARL VON CLAUSEWITZ, the renowned theorist of war, stated that "a certain grasp of military affairs is vital for those in charge of general policy."<sup>1</sup> Recognizing the reality of government leaders not being military experts, he went on to say, "The only sound expedient is to make the commander-in-chief a member of the cabinet."<sup>2</sup> Many governments, including that of the United States, are so organized that the chairman of the Joint Chiefs of Staff is by law the top military advisor to the president. Our record of military success in this century indicates Clausewitz was right. The stronger the relationship between the nation's senior military commanders and the government, the more effective we have been at using the military instrument of foreign policy to achieve national political objectives. The strength of that relationship depends on the commander's ability to communicate and the statesman's ability to grasp the inherent linkage between the nature of war, the purpose of war, and the conduct of war. Clausewitz called this linkage a para-



doxical trinity with three aspects: the people, the commander and his army, and the government.<sup>3</sup> The people have to do with the nature of war, the military with the conduct of war, and the government with the purpose of war. This paper addresses how Clausewitzian theory applies to America's recent history and how the theory that holds true may be applied to future situations in which the military instrument is considered or used in foreign policy.

## Definitions

Before embarking on a discussion of the nature, purpose, and conduct of war, we must first establish a point of reference for each of these terms. This paper addresses these three terms in reference to Clausewitz, who spent a great deal of effort theorizing about these three elements and their relationship with war. The purpose and conduct of war are

fairly straightforward. The purpose of war is to achieve an end state different and hopefully better than the beginning state—the reason for fighting. The conduct of war refers to the tactics, operations, and strategies of the war—the how of fighting. The more nebulous term is the *nature of war*. This term is made even more vague in Clausewitz's writing for a few reasons. First, the reference for this writing is a translation of Clausewitz from his native German to English. Second, the reference uses a few different terms such as *nature*, *kind*, and *character* apparently synonymously. Third, Clausewitz starts his writings on war by defining it as absolute in nature. Then, over a span of 12 years and eight books, he recognizes most wars are not fought absolutely but with limited means defined by the political objective.<sup>4</sup> The absolute nature of war refers to its horror. War is about people and property being destroyed, damaged, and captured. That is the primary reason why the decision to use the military instrument of foreign policy should not be made without considering all its implications. The discussion in this paper uses Clausewitz's latter idea and describes the nature of a war to be what means a state is willing to dedicate to fighting a particular war versus the nature of war in general. Thus, this paper uses the purpose as the ends, the nature as the means, and the conduct as the techniques applied in war.

## The Nature of War

Clausewitz stated, "The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish . . . the kind of war on which they are embarking."<sup>5</sup> The nature of US wars since World War II has been primarily asymmetric. With the advent of nuclear weapons and sophisticated biological and chemical weapons, or weapons of mass destruction (WMD), the United States has relied

on these weapons as a deterrent to those with similar capabilities. At the same time, we have withheld their use, viewing them as a last-resort measure to be employed only when our survival is at stake. Therefore, with one possible exception, we have fought wars with limited means. The exception is the cold war. It could be argued that from the resources dedicated to the cold war arms race in terms of quantity, quality, and share of gross domestic product, the United States dedicated all means available—an unlimited war—to the cold war. On the other hand, notwithstanding the cold war exception applied to the Soviet Union, our adversaries in large-scale wars such as Korea and Vietnam have not had weapons of mass destruction. However, they did use all means at their dis-

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*The stronger the relationship between the nation's senior military commanders and the government, the more effective we have been at using the military instrument of foreign policy to achieve national political objectives.*

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posal to fight the wars, making them unlimited wars from their perspective. Asymmetric wars result when their nature is limited for one side and unlimited for the other. The failure to recognize the asymmetric nature of these wars contributed to their dubious results. In the case of Vietnam, there was an apparent assumption that our superiority at the point of contact would lead to victory. Though we did not lose battles in the field, we lost the war to a patient enemy willing to dedicate unrestricted time and resources to their cause. In both wars, the means we were willing to commit did not achieve a victory. They ended with a cessation of hostilities under conditions far short of our idea of a desirable end state.

There are two points to consider about the concept of limited versus unlimited wars. First, they are not mutually exclusive types but exist on a continuum. The term *limited* only has meaning in its relation to the unlimited means a country has available. The unlimited means define one end of the continuum while the limited end has no absolute value; it can approach but not reach zero or war would not exist. This will have a bearing in the ensuing section on future wars. The second point is that limited and unlimited are ideas also used in reference to war's objectives. War's objectives will be addressed in the section on the purpose of war rather than in the nature of war.

Our last large-scale war, the Persian Gulf War, gave a hint of what future wars may portend. With both sides possessing WMD, the nature of war may have two faces. The primary face reflects the weapons directly brought to bear, and the shadow face reflects those weapons not used but that exist as a deterrent to each other. The primary face of the Gulf War's nature was asymmetric in that the coalition fought with limited means while Iraq's president, Saddam Hussein, called on his nation to fight a jihad, or holy war. (In retrospect, Hussein's jihad was more a strategy of intimidation than of execution. The air war placed Hussein's army in a state of isolation and decimation, and they either surrendered or retreated, virtually en masse, when engaged by coalition ground forces.) Iraq called for all means and dedicated many more of their assets than did the coalition in terms of a portion of their gross domestic product. Yet, the shadow face of the war's nature was symmetric in that both sides possessed but withheld using WMD. Presumably, Iraq was deterred from introducing WMD as a result of the warning from Secretary of State Jim Baker that the US would retaliate in kind.<sup>6</sup> If so, Baker may have set a precedent by deterring Iraq's chemical and biological weapons with US nuclear weapons. This precedent could reinforce common treatment of these weapons as the generic term *weapons*

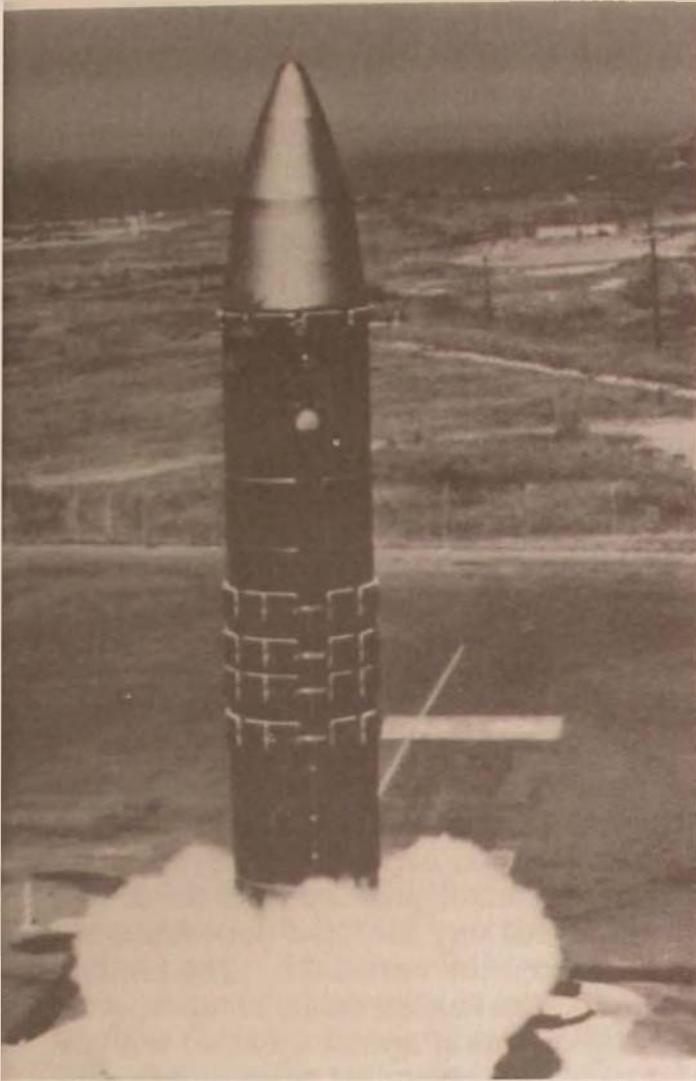
of mass destruction implies. Treating the nuclear, biological, and chemical weapons in a generic WMD category is in the US interest. We have taken the approach of destroying our arsenal of biological and chemical weapons to set an arms-control example for the rest of the world. Our only deterrent in the WMD category is our nuclear capability.

## The Nature of Future Wars

With the US emerging from the cold war as the world's only superpower, the nature of future wars seems to have acquired two characteristics similar to the Gulf War. First, our most likely conflicts appear to be against enemies that are fighting a total war from their perspective. The ethnic, religious, and ideological conflicts that seem most predominant for the near future are historically fought by zealous people with unlimited means. Second, with the current proliferation of WMD, the likelihood of future belligerents possessing and directly using them increases. Both of these points should impact our national security strategy.

As we look around the globe, our potential adversaries are ones whose militaries are inferior to ours. Hence, it would seem they would only provoke a conflict with us if they miscalculate our reaction, or believe their total means will prevail over our limited means. This was true for the Gulf War and Somalia, and will likely be true for future wars in that region. It would also seem true for the war in the former Yugoslavia, a war we are about to increase our involvement in, and North Korea, one that certainly has potential.

Weapons of mass destruction can not only lead the US to the moral dilemma of whether to directly use our own WMD, or what means we are willing to commit, but they also necessarily drive our grand strategy in three ways. First, we must continue to possess a sufficient deterrent to WMD by having credible like-weapons of our own. De-



*A Peacekeeper missile launch. Our only deterrent in the WMD category is our nuclear capability.*

terrence has a successful track record à la the cold war and the Gulf War, and, as such, constitutes a prudent investment. For deterrence to work, it must present such a credible and convincing threat to an adversary that he does not want to risk suffering their consequences. Second, we must consider the possibility of attack on us with WMD any time we contemplate using the military instrument of foreign policy against an adversary who possesses them. Third, once we have decided to take the risk of facing an adversary who may use WMD, we must be prepared for the change in the nature of the conflict if

deterrence fails and the weapons are directly employed against us. Our decision to retaliate with nuclear weapons would change the nature of the war to one of symmetry. Both sides would be fighting with means approaching, if not on, the unlimited end of the continuum previously addressed. These factors require a reevaluation of the purpose and conduct of the war, as well as its nature. The paradoxical trinity of nature, purpose, and conduct, and the enemy's ability to escalate would determine how far we are willing to escalate. An escalation decision without considering the paradoxical trinity leads to an end state different and probably less desirable than the original. Another factor in the escalation decision needs to be the credibility of deterrence for future conflicts once deterrence has failed in the current conflict.

Recognizing these changes in the nature of current and future war also provides insight into the technology development and acquisition we need to fight future wars. As mentioned above, we need to continue to develop and stockpile nuclear weapons within the constraints of nonproliferation and other international treaties, and within the levels assessed as being required for deterrence. This military approach should be accompanied by continuous economic and diplomatic efforts towards increased arms control and arms reductions. The high demand for WMD and their availability on the international market make the chances of their elimination slim. While we may be able to reduce our nuclear arms, it would not be prudent to eliminate them while a threat exists which they may deter. We should push technology towards producing means of deterrence that will convince adversaries they cannot afford to suffer the consequences of employing such weapons against the US or our allies. Finally, with the drawdown of forces after the cold war, we need to optimize our investments on conventional capability to sustain superiority over adversaries who may dedicate all their means to achieving their objectives.

The nature of war is changing. Wars in

the future may be asymmetric in terms of the primary face of their nature, but there may be a deterred symmetric face representing WMD possessed by both sides. Before deciding to enter wars, we need to recognize the inherent dangers of fighting wars of asymmetry, the deterrence that may be involved in a shadow face of the war, and the risk of deterrence failing. We must also arm ourselves to conduct and win not only a war of asymmetry, but also to present a credible deterrence and a suitable retaliation if deterrence fails.

## The Conduct of War

The conduct of US wars is bringing a few trends of note to the surface. Since the end of the Vietnam War, the US has not had a stomach for major commitments overseas. Even the popularity of the Gulf War came only after the outstanding results of the first few days of the air battle became apparent. America expects quick and decisive victories. America also expects few losses. The "Dover factor," the image of flag-draped coffins being unloaded off C-5s or C-141s at Dover Air Force Base, Delaware, can be a strong negative in American sentiment about war. In addition, the "CNN factor," among other things, drives the US to minimize collateral damage. As was the case in the Gulf War, collateral damage results in an immediately transmitted global image inciting strong negative sentiment. These trends will affect the conduct of future wars and must, therefore, be considered for strategy and weapons acquisition.

A few points are apparent when trying to minimize the Dover factor. First, as the quantity of forces decreases and the technological abilities of the world's militaries increase, the quality of our forces needs to increase to offset the net reduction in relative effectiveness. Second, US surface forces have not suffered attacks from hostile aircraft since the Korean War, which has led many to assume that air superiority was an automatic American

prerogative. We must not forget that air superiority is not free or automatic. Guaranteeing air superiority requires an investment in the right aircraft capabilities in adequate numbers and the proper training. We have been able to achieve this so far by the Air Force making air superiority its number one priority for acquisition via the F-22 program. However, budgets to sustain air superiority have come under attack in recent years. Reducing or delaying the national investment in air superiority undermines America's expectations about the conduct of war.

Minimizing the Dover factor also requires a strategy that attacks the enemy's center of gravity, taking away his will to fight, while minimizing risk to our forces. The Gulf War showed that this can be accomplished decisively by cohesive employment across the enemy's spectrum of warfare, from tactical to strategic. Iraq's will to fight, from its foot soldiers to its national command authorities, was all but eliminated by the air war. Air forces of all the coalition services, employed under centralized control, prevailed while our surface forces suffered very few losses (total Americans killed in combat were 147<sup>7</sup>). The ensuing ground action was essentially an unexpected mop-up operation against a fielded military that started at a strength of 44 army divisions!<sup>8</sup> The prewar estimates using traditional thinking (direct confrontation on the ground) were that Americans would suffer as high as 45,000 casualties, 10,000 of which would be fatalities.<sup>9</sup> Gen H. Norman Schwarzkopf, the coalition forces commander, vindicated this necessary change in strategy when commenting on the conduct of future wars by saying, "I am quite confident that in the foreseeable future armed conflict will not take the form of huge land armies facing each other across extended battle lines, as they did in World War I and World War II or, for that matter, as they would have if NATO had faced the Warsaw Pact on the field of battle."<sup>10</sup> An effective, casualty-conscious strategy and a commitment to air superiority will help minimize the Dover factor

and the accompanying detrimental loss of will in future conflicts.

To minimize collateral damage and its accompanying negative repercussions requires precision weapons. Precision guided munitions also allow us to kill more targets with less exposure to enemy defenses, again minimizing the Dover factor. The Department of Defense has already recognized this and is making significant investments in acquiring precision guided munitions, and retrofitting and building systems to deliver them. This trend must continue to meet the expectations of America in fighting future wars.

Winning a quick victory in war requires both the possession of the means with the ability to employ them and a strategy that recognizes the nature and the purpose of war are married to its conduct. As in the above discussion, we have seen that asymmetric-nature wars tend to be protracted. This is especially true when extending the duration of war to influence the will of the opponent is a strategy of the side fighting the unlimited war. The participant with limited objectives should design strategy to draw a decisive and quick conclusion and employ the means necessary to do so. This becomes an ironic dichotomy since limiting the means of war inherently tends to protract the war as well. Therefore, the limitations applied to the means of war must be balanced with a thorough assessment of the time required for victory. Time will be a function of not only our means but also their relation to the opposition's means and the rate at which they are anticipated to be encountered. Noncoherent limitations on the means of war can be a recipe for disaster, especially in asymmetric war.

The side pursuing a limited war must also consider the possibility that if the adversary is successful in protracting the war, the result will be loss of the former's popular support. This could be the case in the current US decision to increase involvement in the war in the former Yugoslavia by sending a significant number of ground troops to the theater.

This could well turn out to be an asymmetric war with any of the three main belligerents protracting hostilities, especially since we have announced a one-year time limit for our involvement. We could be setting ourselves up for another dubious end state. We have to recognize the country's expectations about the conduct of war. Maintaining popular support calls for quick, decisive wars, avoiding both the detrimental aspects of the Dover factor and the negative impact of collateral damage. Therefore, the decision to enter the war must tie the conduct to the nature and also the purpose if we are to succeed.

## The Purpose of War

The purpose of war is a principle we have had problems with since the end of World War II. At that time, our entire nation understood and supported the national reaction and goals after a direct and deliberate attack on America. We seem to have an aversion to articulating the desired end state when making the decision to use the military as an instrument of national policy. Initial air-war planners for the Gulf War assumed political objectives from pieced-together speeches and statements made by President George Bush. These gained legitimacy and were adopted in toto as they were briefed up the chain of command ultimately to the president.<sup>11</sup> Rearticulating the desired end state is also problematic when conditions change during the conduct of war.

This trend is likely caused by the politics of decision making. Politics in a democratic society tend toward ambiguity in policy. They may be pushed toward, but seldom achieve perfect clarity. For the president of the United States to avoid failure in using the military instrument, he or she has to balance the politics with the clarity needed in policy. Such clarity will enable subordinate military objectives to achieve the desired end state. This becomes even more important in today's world in which a new term has been



*The "Highway of Death" has come to symbolize how Iraq's will to fight was all but eliminated by the air war.*

coined out of necessity to describe the non-traditional uses of the military. Military operations other than war (MOOTW) describes the nation-building, humanitarian, peacekeeping, transnational, and other types of military employment that have recently emerged. The trend evidenced in the current debate about deployment of forces to the former Yugoslavia is towards a bottom-up approach versus directing a top-down approach. To wit, military options are requested without directing what the desired end state or political objectives will be. Clausewitz's warning on this point was "no one starts a war—or rather, no one in his senses ought to do so—without first being clear in his mind what he intends to achieve by that war and how he intends to conduct it."<sup>12</sup> The former chairman of the Joint Chiefs of Staff, Gen Colin Powell, voiced his feelings on this issue saying,

"Whenever the military had a clear set of objectives, . . . as in Panama, the Philippine coup, and Desert Storm—the result had been murky or nonexistent—the Bay of Pigs, Vietnam, creating a Marine 'presence' in Lebanon—the result had been disaster."<sup>13</sup>

Another danger is that the purpose of war can become detached from the conduct of war when the purpose changes without a corresponding reevaluation and adjustment in the conduct. This led to failure in Somalia in 1992. We were successful in our original purpose of ensuring that food reached the starving masses. The failure occurred when an additional aim of getting rid of the tribal warlord, Mohammed Farah Aidid, was not matched with an appropriate change in the means or overall military strategy. The likelihood of war's purpose changing increases with MOOTW, as it does with asymmetric

war that becomes protracted. It follows that our decision to enter future wars must provide for anticipating changes in the purpose of the war and consider the required corresponding changes to the war's conduct.

Another issue raised in considering the purpose of wars is the selectivity required by today's demands for American involvement. Our 1992 military bottom-up review with a two-major-regional-conflict baseline set the military posture the Clinton administration submitted to Congress for funding. This posture is showing signs of being overtaken. Field commanders are flagging the problem by warning of nonmission-ready status. Unacceptable stress on personnel is indicated by increased problems with substance abuse, spouse and child abuse, suicide, and so forth. In the current budget environment, increasing our force structure seems unlikely. The alternative is to be more selective in tasking the military. Fortunately, politics drives policy to a certain amount of selectivity. For example, in 1991 the military response in Somalia, the limited to no response in the former Yugoslavia, and no meaningful response to the Kurdish situation in the ethnic Kurdistan region were all driven by politics more than by military capabilities. However, as the list of situations in which a military response is desired grows, we are driven to selectivity based on military capability. That selectivity requires establishing clear criteria for how much of our military we are willing to have engaged in what types of conflicts. This would set and maintain a consistent US policy that will not confuse other nations or the American public. Excellent criteria were introduced by Defense Secretary Caspar Weinberger after the Beirut, Lebanon, disaster in 1983. There, 241 Marines were killed in one suicide attack during their 14-month peacekeeping mission. Weinberger's criteria said

1. Commit only if our or our allies' vital interests are at stake.
2. If we commit, do so with all the resources necessary to win.

3. Go in only with clear political and military objectives.
4. Be ready to change the commitment if the objectives change, since wars rarely stand still.
5. Only take on commitments that can gain the support of the American people and the Congress.
6. Commit US forces only as a last resort.<sup>14</sup>

There is a problem in our democratic system with applying rule 1. Regardless of how clearly "vital interest" is defined, in practice, it normally turns out to be what the president says it is without suffering too much political backlash from the public or the Congress. To wit, the current debate between the executive and legislative branches about whether the US has vital interests in the former Yugoslavia. The virtue is that the problem is being addressed by the debate taking place. This same process needs to occur for future situations. Rule 5 about popular support is inherently tied to rule 1 in determining vital interests. Weinberger's rules encapsulate many of the points in this paper. With our down-sized military, in addition to the political and policy aspects, military capability in terms of aggregate military tasking should be a consideration in decisions to enter conflicts with the military instrument.

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***"No one starts a war—or rather, no one in his senses ought to do so—without first being clear in his mind what he intends to achieve by that war and how he intends to conduct it."***

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One of the most critical steps a policymaker must take is to define the purpose or desired end state of the conflict. The first step to deal with ambiguity in purpose is to recognize that it is inherent in our system. We must work toward clear political objectives to estab-

lish a guiding framework for the military planner to work from. The subsequent steps are for the military and political leadership to iterate the means and ends until a clear set of political and military objectives is reached. This requires institutionalized teamwork between the military and political leadership. Hand in hand with establishing the purpose is contemplating the changes to the purpose that are possible and acceptable. Without establishing a purpose for war, one will never know how to fight or when he is finished fighting.

## Conclusion

The strength of Clausewitzian theory is that much of it has withstood the test of time and is still applicable even now. If reincarnated today, he would probably be working on a twentieth-century edition of *On War*. With any sense of humor, he could

follow the lead of Rush Limbaugh and title it *See, I Told You So!* He could point out, as this paper attempts to do, the importance of his paradoxical trinity in terms of the nature, the purpose, and the conduct of war. He could pat himself on the back for the success he had in his endeavor to "develop a theory that maintains a balance among these three tendencies, like an object suspended between three magnets."<sup>15</sup> He could reiterate how critical it is for the political leader to understand this trinity and how necessary it is for the military commander to help in that understanding. We should take heed to his theory where it proves true. To use the military successfully, we need to understand the limits of how and why we make war. There is a declining military experience in the legislative and executive branches of government. Our nation is best served when commanders are not only familiar with the enduring verities of war, but also are able to communicate them effectively to those formulating national policy that involves the use of the military as its instrument. □

### Notes

1. Carl von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (Princeton, N.J.: Princeton University Press, 1989), 608.

2. *Ibid.*

3. *Ibid.*, 89.

4. *Ibid.*, 81.

5. *Ibid.*, 88.

6. James A. Baker III with Thomas M. DeFrank, *The Politics of Diplomacy: Revolution, War, and Peace, 1989-1992* (New York: G. P. Putnam's Sons, 1995), 359.

7. Colin L. Powell with Joseph E. Persico, *My American Journey* (New York: Random House, 1995), 527.

8. Edward C. Mann III, *Thunder and Lightning: Desert Storm*

and the Airpower Debates (Maxwell AFB, Ala.: Air University Press, 1995), 11.

9. *Ibid.*, 5.

10. H. Norman Schwarzkopf with Peter Petre, *General H. Norman Schwarzkopf, the Autobiography: It Doesn't Take a Hero* (New York: Bantam Books, 1992), 502.

11. Richard T. Reynolds, *Heart of the Storm: The Genesis of the Air Campaign against Iraq* (Maxwell AFB, Ala.: Air University Press, 1995), 29, 53, 95.

12. Clausewitz, 579.

13. Powell, 559.

14. *Ibid.*, 303.

15. Clausewitz, 89.

*Personally, I'm always ready to learn, although I do not always like being taught.*

—Sir Winston Leonard Spencer Churchill (1874–1965)

# LEADERSHIP BETWEEN A ROCK AND A HARD PLACE

MAJ LEE E. DEREMER, USAF



*Integrity requires the courage of sometimes saying no—or at least a persistent asking “why?”—from all of us to others of us who institute unexamined regulations that often require “no-win” solutions for both the system and personal integrity.*

—Richard D. Miller, Chaplain, Colonel, USAF



WHAT IF AN operational leader told you that he had such conflicting demands that he was in a “no-win” dilemma? He could satisfy either demand but not both—and to fail to satisfy either would ex-

act great professional and personal cost. Most people would say something like, “Sure, there’s a solution. You just haven’t considered all your options. Innovate. Improve.” Whatever the words, the message would be the same: find a solution. We expect that; it’s our culture.

Our mind-set envisions success in spite of external constraints. The overriding assumption is that solutions to dilemmas do exist and that these solutions will be honorable to all parties without sacrificing the mission. A further assumption is the existence of clearly right and wrong choices in such dilemmas.

Life is not always so tidy. High military rank is often accompanied by competing or even conflicting interests. Problems can arise for which no painless options exist. For example, an organization's integrity may conflict with constraints that diminish the unit's safety and mission accomplishment. If that is the case, these demands are mutually exclusive. Since we can't compromise integrity, we must find a solution to the dilemma by changing the constraints. If *that* isn't possible, then rather than compromise integrity, leaders must sacrifice themselves professionally to change the constraints in order to resolve the dilemma and preserve the mission and the safety of their people.

Consider operational leaders faced with the legitimate concern for the effectiveness and safety of people under their command and with externally imposed constraints that not only complicate the mission but also unnecessarily imperil their people. These leaders face two realities. First, they don't have a lot of options. Second, none of the options are attractive.

Gen John D. Lavelle faced such a dilemma toward the close of the Vietnam War. As the commander of Seventh Air Force, he was responsible for conducting the air war in Southeast Asia. He was relieved of command on 6 April 1972. The problems he faced, the solution he chose, and the ramifications of his choices offer us lessons about decision making. This honorable officer would be retired as a major general rather than full general—the rank he held as commander of Seventh Air Force. Never before had such an action occurred in American military history.<sup>1</sup>

## Dilemma

When General Lavelle assumed command of Seventh Air Force in Saigon, South Vietnam, on 1 August 1971, he inherited rules of engagement (ROE) that had evolved over three years. The ROE maintained the basic restrictions of a 1968 agreement by the Johnson administration<sup>2</sup> and consisted of directives, wires, and messages defining the conditions under which US aircraft could attack enemy aircraft or weapons systems. Seventh Air Force consolidated those directives into a manual of "operating authorities" and disseminated it to the units. Aircrews received briefings on the ROE prior to each mission.<sup>3</sup>

Essentially, aircrews could not fire unless they were threatened. Enemy surface-to-air missiles (SAM) or antiaircraft artillery (AAA) had to "activate against" aircrews before they could respond with a "protective reaction strike." Warning gear installed in the planes alerted aircrews that an enemy SAM firing site was tracking them.<sup>4</sup>

American aircrews lost this advantage late in 1971, when the North Vietnamese took several actions to vastly improve their tracking capability, the most important being the integration of their early warning, surveillance, and AAA radars with the SAM sites. This integrated system allowed the North Vietnamese to launch their missiles without being detected by the radar warning gear of US aircraft.

General Lavelle believed that because those mutually supporting radar systems transmitted tracking data to the firing sites, the SAM system was activated against US aircraft anytime they were over North Vietnam. He also learned, through the bitter experience of losing planes and crews on two occasions, that US aircraft were much less likely to evade SAMs when the radars were so netted. He later testified that this experience provided sufficient rationale for planned protective-reaction strikes, noting that "the system was constantly activated against us."<sup>5</sup>

The North Vietnamese also improved their tactics by using ground controlled intercept



*Radar systems, such as this one south of Hanoi, changed the 1972 air war over North Vietnam and created General Lavelle's dilemma.*

(GCI) radars to track US aircraft. Azimuth information developed by GCI surveillance was fed to fire-control radars. This netting effectively eliminated tracking with the Fan Song radar and allowed more than one missile site to be directed against a single US aircraft. General Lavelle later testified to Congress that he "alerted his superiors to the enemy's netting of his radars and advised them that the North Vietnamese now possessed the capability of firing with little or no warning."<sup>6</sup>

The air war had changed. General Lavelle made repeated and futile attempts to get the ROE changed to reflect the new threat to his

aircrews and planes. However, not only did Washington refuse to change the ROE but the Joint Chiefs of Staff (JCS) severely criticized General Lavelle for a lack of aggressiveness in fighting the air war. He received a personal visit from the chairman of the JCS, who made it clear that he was to find ways of prosecuting the war more aggressively within the constraints of the ROE.<sup>7</sup> The general had a problem. What took priority: the ROE or the safety and effectiveness of his command?

He chose the latter, authorizing a strike on 7 November 1971—the first of 20 to 28 missions from that date to 9 March 1972. Regarding

these missions, Lavelle stated that he "made interpretations of the ROE that were probably beyond the literal intention of the rules."<sup>8</sup> Each strike involved six to eight aircraft, for a total of 147 sorties out of approximately 25,000 flown during the period. Each mission attacked missile sites, missiles on transporters, airfields, 122 mm and 130 mm guns, or radars.<sup>9</sup>

In response to a JCS inquiry about Seventh Air Force's authority to strike a GCI site on 5 January 1972, General Lavelle replied that, since his aircraft were authorized to hit radars that controlled missiles or AAA, he believed they were also authorized to strike GCI radars that controlled enemy aircraft. He later received another JCS message that, although sympathetic, said he had no authority to strike a GCI radar and that he should order no such strike again.<sup>10</sup>

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*When a leader starts cutting corners in integrity (intentionally or unintentionally), that action can pervade the entire organization.*

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Although amended on 26 January 1972 to authorize strikes against primary GCI sites when airborne MiGs indicated hostile intent,<sup>11</sup> the ROE still didn't address the netted SAM threat. This amendment was as close as General Lavelle got to persuading the JCS to adopt satisfactory rules of engagement.

## Consequences

On 8 March 1972, a senator forwarded to the Air Force chief of staff a letter written by an Air Force sergeant—an intelligence specialist in Seventh Air Force. It alleged ROE violations and ongoing falsification of daily reports on missions. The Air Force inspector general (IG) flew to Saigon to investigate the matter and confirmed that "irregularities existed in some of 7th Air Force's operational reports."<sup>12</sup>

General Lavelle immediately stopped all strikes in question and assigned three men to find a way to continue the protective-reaction sorties but report them accurately. The conclusion was that this couldn't be done.<sup>13</sup>

On 23 March 1972, General Lavelle was offered reassignment at his permanent grade of major general or retirement. He opted for retirement, effective 7 April 1972.<sup>14</sup> Little did he know what lay ahead.

The Air Force, having already announced that General Lavelle retired for personal reasons, would be forced to admit on 15 May 1972, after congressional inquiry, that the general had not only retired but had also been relieved of command because of "irregularities in the conduct of his command."<sup>15</sup> This revelation led to hearings before the Armed Services Investigations Subcommittee of the House Committee on Armed Services.

In his statements before the committee, General Lavelle convincingly maintained that he did not order the falsification of any reports. Although he insisted throughout the investigations by the Air Force and Congress that he learned of the falsified reports only after the IG investigation, as commander, he accepted full responsibility for those reports.

Reports on four of the missions were found to contain falsehoods.<sup>16</sup> General Lavelle stated that he traced the probable cause of the false reporting to the first protective-reaction strike, which he had directed from the operations center. When his lead pilot reported by radio that the target had been destroyed and that they had encountered no enemy reaction, the general stated, "We cannot report 'no reaction.'" As General Lavelle explained, "I could report enemy reaction, because we were reacted upon all the time [with the existence of the upgraded radar]."<sup>17</sup> Unfortunately, since his instructions to the pilot were vague, aircrews made false statements on some subsequent operational reports.

Congress accepted General Lavelle's explanation of the confusion over his intent regarding the reporting of the protective-reaction

strikes—but only after many months of inquiry. By that time, few people were interested in clearing his name; consequently, General Lavelle would be remembered as someone who disregarded the ROE, fought his own unauthorized war, and made everyone falsify reports to keep it secret.

Although none of these allegations appear to be true, General Lavelle did make mistakes. His first was failing to make clear that Seventh Air Force demanded absolute integrity of its people. Had he done so, there would have been no mistaking his intent concerning operational reports. Indeed, such action might have had the effect of curbing widespread practices—unknown at the time—that were compromising the military's integrity. Specifically, widespread disclosures were made of illegal bombing and falsification of official records of these illegal raids, which had been going on for years before General Lavelle even appeared on the scene. These revelations caused the chairman of the Senate Armed Services Committee to drop his probe in August 1973. According to the chairman, "Air Force and Defense witnesses gave us to believe that falsification was so rare and so contemptible that it was good cause to remove General Lavelle from his command and drum him out of the service because he had ordered documents falsified."<sup>18</sup> However, the chairman's decision didn't even merit publication in any of the papers or periodicals that had previously convicted the general in print.

His second mistake lay in choosing to work around the ROE to accomplish the mission yet keep his crews safe. That meant bending the unrealistic ROE, an action that produced both positive and negative results.

From a positive viewpoint, despite the vastly improved North Vietnamese air defenses, no American lives or aircraft were lost during the raids in question. To that extent, General Lavelle's decision had the desired effect. Ironically, the conditions for protective-reaction strikes—relaxed in January 1972, as mentioned above—were abolished in March 1972, but not before the issue of

integrity in reporting would cost General Lavelle his command.

General Lavelle's actions also had negative effects that he had no way of foreseeing. Therein lies the danger of working around bad ROE rather than having them changed. His decision to "interpret the ROE liberally" had several ramifications.

It led to continuing decay of the command's integrity, which contributed to the falsification of operational reports, which led to the sergeant's letter to the senator, which led to the IG investigation, which led to Lavelle's being relieved of command, which the Air Force kept secret, which led to a congressional investigation. This phenomenon is now commonly referred to as the "slippery slope effect." That is, when a leader starts cutting corners in integrity (intentionally or unintentionally), that action can pervade the entire organization.

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### *A commandwide climate of integrity is indispensable.*

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For General Lavelle, it would get much worse. By this time, he *really* had no control of events, and some of the ramifications of his actions could have had strategic implications for peace negotiations and the credibility of the armed services.

Specifically, at the same time General Lavelle began strikes on the newly integrated radar-SAM/AAA network, Henry Kissinger was in Paris conducting secret peace talks with the North Vietnamese. General Lavelle had no way of knowing about the talks, and Kissinger didn't know about the bombing. But Le Duc Tho of North Vietnam knew about both. To him, Kissinger was either lying or very poorly informed. Shortly thereafter, the talks broke off abruptly.<sup>19</sup>

General Lavelle, as well as the Air Force, Army, and Navy, would feel shock waves from his operational decision: Lavelle was

accused of criminal misconduct;<sup>20</sup> court-martial charges were filed against him and 22 other officers;<sup>21</sup> the nomination of Gen Creighton Abrams as chief of staff of the Army was delayed for over four months;<sup>22</sup> the Senate Armed Services Committee conducted an extensive and critical look at the command and control structure of the Air Force;<sup>23</sup> General Lavelle's retirement rank was reduced to major general;<sup>24</sup> naval aviators said that they had been involved in protective-reaction raids not authorized by the ROE;<sup>25</sup> Department of Defense IGs now reported directly to the service secretaries rather than to their service chiefs;<sup>26</sup> and the Senate Armed Services Committee placed an indefinite hold on promotions for about 160 Air Force officers.<sup>27</sup> Amazingly, none of the threatened action against any of the affected officers came to fruition. Although the investigations were eventually dropped, they underscore the fact that operational decisions are not made in a vacuum and that negative effects, however unintentional, can be extensive.

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*History places some people in circumstances that require them to choose either to do the right thing or keep their careers intact.*

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Instead of choosing between continuing the missions under intolerable circumstances or obeying the poor ROE, General Lavelle could have averted the problems listed above by ceasing operations until authorities changed the ROE to reflect the reality of the threat. Doing so would have meant going outside the chain of command when his superiors were unresponsive—an action that almost surely would have cost him his command. The option existed, but he chose not to take it. As it turned out, he lost his command anyway. Had he lost his command while demanding proper ROE, he would have (1) forced a change in the rules instead of

leaving them to chance, (2) provided an example of the importance of taking care of people under our command *and* maintaining integrity, and (3) avoided the personally and strategically undesirable outcomes he could not foresee.

## Lessons Learned

Two important lessons should be clear for operational leaders. The first is understanding the importance of integrity at all levels of command. The second is accepting the fact that sometimes leaders may have to sacrifice themselves because it's the best thing for the organization, the people, and the country.

The first lesson isn't difficult to understand, but it's tough to apply because choices aren't always clear in positions of increased responsibility. Nevertheless, a commandwide climate of integrity is indispensable. To accept anything less than absolute integrity in personal and professional behavior is to invite breakdowns like the one described by the noncommissioned officer who broke the story on false reports in Seventh Air Force:

We went through the normal debrief, and when I asked [the aircrew] if they'd received any AAA, they said, "No, but we have to report it." I went to my NCOIC and asked him what was going on. He told me to report what the crew told me to report. . . . The false information was used in preparing the operational reports and slides for the morning staff briefing. The true information was kept separate and used for the wing commander's private briefings.<sup>28</sup>

This speaks to the possibility of a wide problem. But in October 1972, the Air Force responded quickly and well to the challenge of reestablishing the standard by sending the following message to all units. It's as applicable today as it was then:

Integrity—which includes full and accurate disclosure—is the keystone of military service. Integrity binds us together into an Air Force

serving the country. Integrity in reporting, for example, is the link that connects each flight crew, each specialist and each administrator to the commander-in-chief. In any crisis, decisions and risks taken by the highest national authorities depend, in large part, on reported military capabilities and achievements. In the same way, every commander depends on accurate reporting from his forces. Unless he is positive of the integrity of his people, a commander cannot have confidence in his forces. Without integrity, the commander-in-chief cannot have confidence in us.

Therefore, we may not compromise our integrity—our truthfulness. To do so is not only unlawful but also degrading. False reporting is a clear example of failure of integrity. Any order to compromise integrity is not a lawful order.

Integrity is the most important responsibility of command. Commanders are dependent on the integrity of those reporting to them in every decision they make. Integrity can be ordered, but it can only be achieved by encouragement and example.

I expect these points to be disseminated to every individual in the Air Force—every individual. I trust they help to clarify a standard we can continue to expect, and will receive, from one another.<sup>29</sup>

That's the kind of message each commander needs to make clear from the outset—the kind of standard people should demand from each other. Still, a valid question remains: "Who can maintain absolute integrity? Not me and not you, so how useful or realistic is such a demand?" The answer begins with other questions. Without such a standard, how would you introduce yourself to your unit? By telling them you expect "really good integrity," "their best effort," "what suits each person"? The point is that the standard for integrity is just that—a standard. None of us will attain it every day, but we gain much by holding it before the unit. Consider this: if the standard doesn't apply fully and continuously, then what good is it

as a core value? Its value exists precisely in its utility.

The second lesson is more difficult to discuss because the object of the lesson—sacrificing one's career if circumstances require it—is rather unpalatable. Indeed, people are often ridiculed for taking such a stand. Yet, history places some people in circumstances that require them to choose either to do the right thing or keep their careers intact. As the Stoic philosopher Epictetus tells us in *Enchiridion*, "Remember, you are an actor in a drama of such sort as the Author chooses—if short, then in a short one; if long, then in a long one. If it be His pleasure that you should enact a poor man, or a cripple, or a ruler, see that you act it well. For this is your business—to act well the given part, but to choose it belongs to Another."<sup>30</sup>

Furthermore, we must recognize that playing the part can exact a great price. Doing the right thing doesn't always result in accolades. The Book of Ecclesiastes has a simple, timeless message: "I returned and saw that the race is not always to the swift nor the battle to the strong, neither yet bread to the wise nor riches to men of understanding, nor favors to men of skill, but time and chance happeneth to them all" (9:11). The Book of Job is even more blunt: Job learns that life isn't always fair and that bad things happen to good people. Despite this realization, people must lead—and they must lead within the roles in which history places them.

## Conclusion

Abraham Lincoln once remarked that "if you once forfeit the confidence of your fellow citizens, you can never regain their respect and esteem." Indeed, as unpleasant as the realization might be, sometimes leaders face dilemmas for which no comfortable solution exists. It's not entirely fair for me to criticize General Lavelle for his decisions, since I didn't experience his dilemma. Indeed, if I had to choose between the alternatives he

considered, I probably would have made the same choice.

Nevertheless, the fact remains that even if leaders are faced only with gray areas that offer no clear choice, that still does not absolve them from the dilemma. There is a better choice: demand change. If the issue is important enough, the decision maker should demand resolution of unsatisfactory constraints (in this case, the ROE). Even though this option will likely cost the leaders their careers, it is the best decision for the institution and for the people under their command.

This article represents just the first half of the effort. The follow-up work must be an assessment of command ethics. Once we agree that a climate of integrity is a critical leadership issue, we'll want to measure that climate. Such an assessment must identify valid, reliable indicators of the ethical health

of a command. It should highlight positive signs as well as warning flags of behavior that need to be addressed before a problem arises. That, it seems to me, is the key: having enough situational awareness in the command to foresee a problem—or at least to recognize one as it is developing—rather than seeing it only in hindsight.

Each commander can accept this challenge informally while preparing for new levels of leadership. Measuring how well the challenge is met might not be possible. That is, ethical lapses might still occur, and we have no way of knowing whether they would be more severe or more frequent in the absence of such an effort. What is certain, however, is that this examination—both before assuming command and during command—can ultimately groom more professional people and produce more effective units. □

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3. House Committee on Armed Services, Investigations Subcommittee, *Report on H.R. 201, Unauthorized Bombing of Military Targets in North Vietnam*, 92d Cong., 2d sess., 1972, 2.
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7. Seymour M. Hersh, *The Price of Power: Kissinger in the Nixon White House* (New York: Summit Books, 1983), 504-7.
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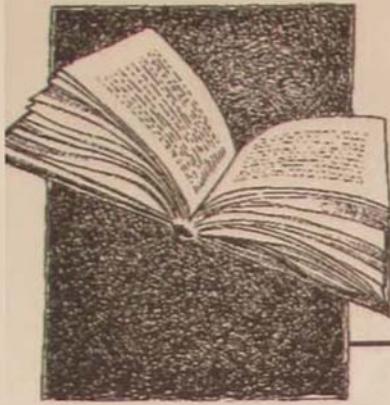
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28. Senate Committee on Armed Services, *Hearings before the Committee on Armed Services*, 92d Cong., 2d sess., 1972, 168-69.

29. Message, chief of staff, US Air Force, to US Air Force personnel, 13 October 1972.

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## A Review Essay

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# WHY MEN FIGHT

DR. MARK R. SHULMAN

**F**OR TOO LONG, military historians have attempted to adhere to Clausewitz's description of war as merely politics by other means—by which he meant the high politics of kings and ministers. To this they have added the primary units and nationalism as tools for leaders to manipulate common soldiers. But a new generation of professionals is supplementing this view, pointing to race, ideology, morality, discipline, and even sexuality as sources of motivation. Borrowing new social and cultural historical methodologies, three young scholars in particular offer strikingly innovative and telling interpretations of what bonds people in combat. Where some see the fog, they see the sinews of war, as they move the study of war beyond narratives of winning and losing. Profs Leonard Smith (Oberlin College), Craig Cameron (Old Dominion University), and Omer Bartov (Rutgers University) have recently published studies of one to three divisions that afford important insights into what holds armies together and drives them forward.

In August 1914, the French Fifth Infantry Division (*5e DI*) rushed into battle at Charleroi, losing 20 percent of its officers and a third of its men. On the front line, French citizen-soldiers found themselves trapped between a German stronghold and their own com-

manders. The men knew that to continue their assault meant sure defeat; yet, the doctrine of offensive allowed no room for strategic retreat—an oversight that would eventually leave a hole in the line as well as too many grieving mothers and widows. One regiment took advantage of the confusion and commenced a less-than-strategic withdrawal.

Several weeks later, the Germans—attempting to trick their opponents into quitting the field by calling "*Sauve qui peut*" ("Every man for himself")—found themselves heeded, as the entire *5e DI* left Courcy. High command could not tolerate unilateral decision making by the troops and dispatched a series of memos that explicitly threatened to shoot anyone leaving the front but implicitly allowed soldiers to proportion effort and sacrifice to the tactical goals. By Christmas the soldiers could even "declare" a Christmas truce.

The result of this negotiation between officers and men endured for nearly three years. However, once given a few months respite from the lines in the spring of 1917, the beleaguered *poilus* (infantrymen) of the *5e DI* collected their wits and "went on strike" rather than return for more. Faced with the debacle of the Chemin des Dames offensive, they wanted to renegotiate the terms of their contract. Again, command could not allow

such a blatant show of power by the men. Instead, it interpreted the strike as a mutiny, forcing military justice to mete out prison or death sentences for a few dozen men. Face saved, Marshal Philippe Pétain could then afford to renegotiate the proportionality of war, from a position enhanced by his show of force as well as by America's recent entry into the fray. During the war's final year, the citizen-soldiers fought aggressively and effectively to preserve the legitimacy of rights and the sanctity of honor as Frenchmen, according to Smith's *Between Mutiny and Obedience: The Case of the French Fifth Infantry Division during World War I* (Princeton, N.J.: Princeton University Press, 1994).

The laws of war—a societally and historically based set of codes—are all that distinguish soldiers from scoundrels and murderers. Without them, armies lose their legitimacy, and officers cannot command. Soldiers become disaffected, and the front disintegrates into sectors of mayhem. A clearly defined code of *jus in bello*, on the other hand, will drive soldiers to greatness, preserve their society, and allow generals to bring other resources to bear for their best chance to win.

Bartov's fascinating books *The Eastern Front, 1941-1945: German Troops and the Barbarisation of Warfare* (New York: St. Martin's Press, 1986) and *Hitler's Army: Soldiers, Nazis, and War in the Third Reich* (New York: Oxford University Press, 1991) argue that the Nazis' immoral ideology undermined the Wehrmacht's professionalism. With the invasion of the USSR in 1941, the German war machine plunged into an extended series of mass murders more representative of Hitler's fascism than of the Prussian General Staff, which had for decades provided the model of military modernity and effectiveness.

This disintegration undermined the Wehrmacht within the first year of Operation Barbarossa, as Hitler trapped his soldiers in circumstances even more nonnegotiable than the *poilus* would have dreamt possible. Whereas French soldiers could cling to Republican ideology, only Nazi racial hatred,

virulent anti-Bolshevism, brutal punishment, and guilt held the German army together. The lightning war had been premised upon technological and strategic superiority, and required the conquest of all of Eurasia to supply the resources needed for a long, sustained campaign. Blitzkrieg had to win quickly just to feed itself. But the Soviet Union was too large, too strong, and increasingly too sophisticated, so the Wehrmacht found itself bogged down in a horrifically large-scale front.

Because Hitler had needed a short, sharp campaign, he had planned for one, leaving his men completely undersupplied for Russia's winter. Pathetically, they padded summer uniforms with newspapers as temperatures fell far below freezing. Dozens of divisions went without provisions because the horses drawing supply wagons had died and were eaten. Without shelter, overworked, and criminally undersupplied, the men suffered from lice, skin infections, respiratory disease, frostbite, bladder inflammation, and a legion of psychological ailments. Deaths inflicted by their human enemies only punctuated this existential brutality. All order disintegrated as blitzkrieg became the Ostkampf (struggle in the East). One year of the invasion of Russia had reduced the Army of the East by 750,000—only a handful of them evacuated. Many of those were killed neither by Soviet soldiers and partisans nor by winter, but by the brutal and capricious discipline inflicted by the Nazi army upon its own. Compelled to expedite the Jewish holocaust, to burn thousands of Soviet villages, and to pillage food and clothes for their own survival, soldiers were also executed for failing to adhere to the Nazis' racial laws about consorting with the enemy. During the course of the war, the Wehrmacht "legally" executed some 15,000 German soldiers, mostly for this or for desertion.

German soldiers faced this brutality defenseless, without the ability to decide to retreat, the conviction that they were defending their homeland (despite claims otherwise), or even the barest of supplies. Nor could

they rely on primary groups. For example, the Großdeutschland Division suffered 98 percent casualties within 14 months and lost somewhere between two and three times its original complement through the course of the war.

Hitler's armies remained on the eastern front only because they had no escape, held together by Nazi ideology and the distance from refuge. After a year or two or three, the most humane of men were so brutalized that they could not help embracing Nazi ideology as the only rationalization available. To shoot 600,000 prisoners of war (POW) and participate in the process that starved, exposed, or overworked another 2.5 million to death, soldiers of the Wehrmacht embraced Hitler's *Kampf* (struggle) as their own. They had to dehumanize their opponents and to believe that the eastern front marked the line of apocalypse. Trained from childhood in the Hitler Youth, then in the army, they knew no other reality. The Nazi race war, with all its barbarity and lawlessness, comprised their world.

At the same time, half a world away, Americans faced analogous trials. Cameron's *American Samurai: Myth, Imagination, and the Conduct of Battle in the First Marine Division, 1941-1951* (Cambridge, England: Cambridge University Press, 1994) complements Bartov's work on the barbarization of war but faces a greater challenge in writing not about a fascist state but the world's oldest and most successful democracy. Instead of addressing "Roosevelt's armies," therefore, Cameron focuses on his own former service—the elite Marine Corps. In contrast to Nazi generals whose soldiers had served in the Hitler Youth since childhood, the Marine Corps took recruits who believed (at least nominally) in freedom and democracy—virtues generally seen as anathema to fighting effectiveness. Undeterred, the makers of the Marine Corps image instilled a doctrine that dehumanized virtually everyone—in the name of democracy.

During the interwar period, a few innovative and politically savvy generals had sought and found a new mission—amphibious op-

erations—that reshaped the spirit of the corps. Because of the chasm between US grand strategy (which called for a defense of the Philippines) and the reality of scarce interwar resources, Navy and Marine planners understood that a war with Japan would see the fall and eventual recapture of the archipelago. While the Navy concentrated on a Mahanian decisive battle, the Marines trained to invade islands.

By 1942 the worst case became a reality, and the corps set out to recapture the islands. By then, the Marines had become rigidly devoted to a masculinized doctrine that relied more on heroics than upon material. Their training program reflected this doctrine, teaching marines to work as a group and to dehumanize friends and enemies. Women (and by extension, homosexuals) became the first targets of this process as "others" against whom hard, self-reliant warriors defined themselves. Japanese fanaticism and atrocities played a large part in their becoming the second set of victims. At Guadalcanal, the Japanese fought with an intensity that appeared disproportionate to the marines' opinions of their likelihood for success. Fighting to the last man, as most warriors understand, rarely serves military effectiveness, and it barbarizes those who have to kill to the last man. The Japanese Bushido (code of chivalry) quickly pushed the marines farther from their self-image as warriors and closer to that of murderers.

To compensate for this loss of justification, the marines took on a third group of others—the American soldiers who fought alongside them. The US Army's mechanized view of war as a "process" further encouraged the marines to personalize the struggle. By the middle of the war, Cameron concludes, the men of the 1st Marine Division had internalized a worldview in which they measured themselves against those deemed sexually, racially, or militarily inferior. Each of these choices had costs as well as rewards. While the first allowed men to embrace the suffering of warfare, it became a fetish that degraded military effectiveness. While racism enabled men to kill their enemy

at close quarters, it also undermined their sense of humanity, encouraging them to cut out POWs' gold teeth or to make necklaces of Japanese ears. In generating a sense of self drawn in contrast to American soldiers, marines failed to take ordinary precautions that not only would have saved more of their own lives, but also would have enhanced their military effectiveness.

Celebrating a half century of that war's outcome, historians must acknowledge the

costs of victory. Each of these young historians brings remarkable insights from the new social and cultural histories to a field too long dominated by a traditional discourse of winners and losers. If we accept the new interpretations, we find a more complete and accurate picture of war: why and how men fight, what differentiates war from organized mayhem, and what separates victory from defeat. □

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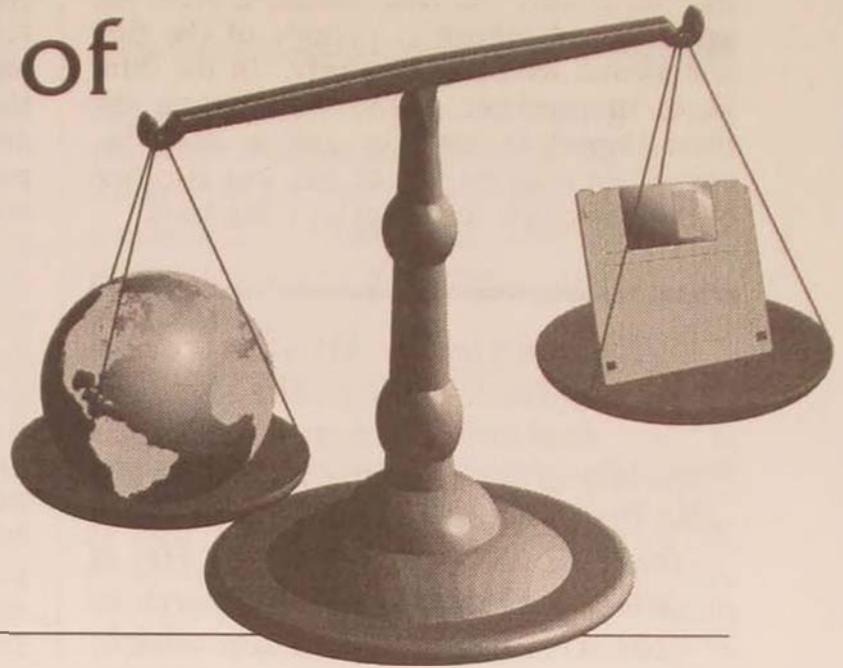
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# The International Legal Implications of Information Warfare



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*Because exploiting [information systems] will readily cross international borders, we must be cognizant of what the law allows and will not allow. We must have good legal advice as we get into this.*

—Gen Ronald R. Fogleman  
Chief of Staff of the Air Force



IN HIS REMARKS, quoted in *Computerworld* in June 1995, General Fogleman was speaking of "information warfare." Information warfare is believed by many to be the means by which the next "big" war will be fought and, more importantly, the means by which future wars will be won. The term itself is enigmatic, embracing concepts as old as war itself and as new as the latest technology. The recent meteoric rise in prominence of the concept is inextricably linked to the dra-

matic advances in communications technology and information systems, specifically the computer.

Some scientists suggest that the most important invention is not "wireless communication, flying, the internal combustion engine or the atomic bomb but the digital computer;" for, while the others may be a threat to our environment, our privacy or our lives, none of them can threaten our image of ourselves in the way the computer can.<sup>1</sup>

Nor may any of them affect how wars are fought as much. The futurists Alvin and

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Heidi Toffler, authors of *The Third Wave* and *War and Anti-War*, claim we have entered a new era, an information age they refer to as the "third wave" to differentiate it from the agrarian and industrial periods of the first and second waves, respectively. In the third wave, information ascends to become the most important resource and as such becomes not only an end of war, but also one of the significant means of winning wars.

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**[Exemplified by AWACS, ground satellite communications stations, and orbital communications satellites,] "the American military is also the most information-dependent force in the world. . . ." [It] is also the most networked force in the world, a combination which, absent adequate defenses, makes the American military extremely vulnerable to information attacks.**

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Many scoff at the idea as so much hype. Perhaps some is overhyped, but it is important to realize that

the American military is the most information-dependent force in the world. It uses computers to help design weapons, guide missiles, pay soldiers, manage medical supplies, write memos, control radio networks, train tank crews, mobilize reservists, issue press releases, find spare parts and even suggest tactics to combat commanders.<sup>2</sup>

The American military is also the most networked force in the world, a combination which, absent adequate defenses, makes the American military extremely vulnerable to information attacks. The country's heavy civilian reliance on computers in communications, air traffic control, banking, and the stock exchanges has prompted one who should know, National Security Agency director

Vice Adm John McConnell, to comment that "we're more vulnerable than any nation on earth."<sup>3</sup> The Joint Security Commission has characterized American vulnerability to information war, or infowar, as "the major security challenge of this decade and possibly the next century."<sup>4</sup> Individuals, terrorist groups, or foreign countries capable of penetrating the military's information systems could wreak havoc on our national defense.

Some say the war has already begun. Robert Ayers of the Defense Information Systems Agency (DISA) has concluded that Department of Defense (DOD) computers were broken into by unknown persons in excess of 300,000 times in 1994. Indeed, DISA itself tried to test the military's vulnerabilities by hacking into 8,932 DOD computers. DISA successfully gained control of 88 percent of them, using only "front door" attacks. Even more discouraging is the fact that only 4 percent of those hacked into even knew they had been victimized, and, shockingly, only 0.2 percent reported it.<sup>5</sup>

How, then, does the law of war and other international law limit this new form of warfare, if at all? To answer that question, this article first explores the definition of the term *information warfare*, then discusses the appropriateness of applying the law of war to information warfare techniques.

## Definitions

How the law of war and international treaties proscribe the scope and use of information warfare hinges largely on how information warfare is defined. Unfortunately, the definitions are multifarious. Indeed, there are even various terms used in lieu of or in addition to the term, including *infowar*, *information operations*, *netwar*, *command and control counterwar (C<sup>2</sup>W)*, *third-wave war*, *knowledge war*, and *cyberwar*.<sup>6</sup> The term *information-based warfare* is sometimes used to denote a subset of information warfare, but can also

describe a precursor of a narrower concept of infowar:

Information-based warfare is an approach to armed conflict focusing on the management and use of information in all its forms and at all levels to achieve a decisive military advantage especially in the joint and combined environment. Information-based warfare is both offensive and defensive in nature—ranging from measures that prohibit the enemy from exploiting information to corresponding measures to assure the integrity, availability, and interoperability of friendly information assets.<sup>7</sup>

Some also distinguish *information-age warfare* from *information warfare*. The former term “uses information technology as a tool to impart . . . combat operations with unprecedented economies of time and force,”<sup>8</sup> while the latter “views information itself as a separate realm, potent weapon and lucrative target.”<sup>9</sup>

*Information assurance* is most often used by nonmilitary individuals and organizations to denote only the defensive aspect of information warfare, though many in the corporate community employ the term *information warfare* interchangeably.

Winn Schwartz, author of the book *Information Warfare: Chaos on the Electronic Superhighway*, defines *information warfare* as “an electronic conflict in which information is a strategic asset worthy of conquest or destruction.”<sup>10</sup> He also defines three classes of information warfare: class 1 is *personal information warfare*, class 2 is *corporate information warfare*, and class 3 is *global information warfare*. The Computer Security Institute defines it as being

distinct from “computer crime” because it implies an aggressive act on the part of one adversary—whether an individual, a competing organization or a rival government—against another in an ongoing struggle for hegemony in the marketplace or the political arena.<sup>11</sup>

It goes on to distinguish *information warfare* from “information gathering” by noting that the former carries with it the threat of inter-

rupted operations and destroyed assets in addition to the loss of secrets normally associated with another’s information gathering.<sup>12</sup>

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***Arguably, denying all information-transfer media and disrupting or destroying every transmission goes beyond a military objective by incapacitating the entire civilian populace as well.***

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According to the *Washington Post*, “the Pentagon formally defines infowar as the effort to seize control of electronic information systems during a conflict.”<sup>13</sup> In point of fact, this assessment of the Pentagon’s definition of information warfare seems far too narrow. Indeed, some in the Pentagon have defined information warfare so broadly as to encompass virtually the full spectrum of warfare activities. In a publication recently released by the Air Force entitled *Cornerstones of Information Warfare*, information warfare is defined as “any action to deny, exploit, corrupt or destroy the enemy’s information and its functions; protecting ourselves against those actions; and exploiting our own military information functions.”<sup>14</sup> It emphasizes that under this definition information warfare is dependent only on the nature of the action, not the means by which it is accomplished. Thus, the conventional bombing of a computer center is information warfare under this definition, but it would not be under definitions offered by Schwartz and others. The National Defense University defines it as “the use of information and information systems as weapons in a conflict where information and information systems are the targets.” This would presumably include the wartime use of propaganda and psychological operations (psyop).

However the term is defined, its very name may make matters slightly more complicated

from a legal perspective. Under the broadest definitions, information warfare would be an activity engaged in both during peacetime and conflict. Calling a peacetime activity "information warfare" may unnecessarily suggest the applicability of the laws of war or

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***Who is a "combatant" in the information age? If teenage hackers in the enemy's country unilaterally decide to aid their government by creating havoc through their use of computers, are they now fair game for attack by the opposition?***

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the appropriateness of defensive measures. It was perhaps for this reason that the United States Army has referred instead to the concept as "information operations." In spite of this, the term *information warfare* seems already too entrenched in the American vocabulary to change anytime soon. And obviously the vocabulary does not drive the law. Calling a pencil a nuclear weapon, for instance, does not make it one, but it would certainly introduce unnecessary confusion if a foreign country learned that the Pentagon was purchasing one million of these new "nuclear weapons."

## The Law of Armed Conflict

Despite the lack of a universally agreed upon definition of information warfare, this article concentrates on that aspect of information warfare dealing with the use of information systems for offensive or defensive purposes. Conventional attacks against information systems can largely be dealt with using traditional law of armed conflict (LOAC) constructs to assess military necessity, pro-

portionality, collateral damage, and the like. It is the use of nontraditional "information weapons" that raises the most interesting questions under current law and that will be the focus of this article.

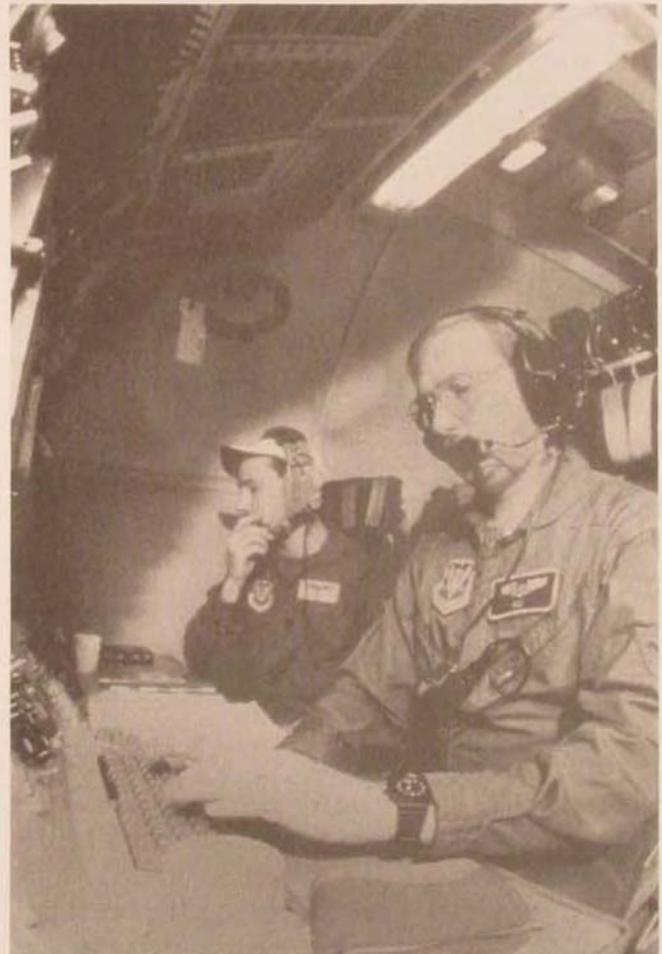
### *Armed Conflict*

The *law of armed conflict* is also variously referred to as the *law of war*, though the former term seems more popular as nation-states today rarely declare war but frequently involve themselves in armed conflicts. The law of armed conflict necessarily applies whenever two nation-states are involved in an armed conflict.<sup>15</sup> But what is "armed conflict"? The expression "international armed conflict" is not defined in the Geneva Conventions or elsewhere in international law, but several commentators would consider that, at a minimum, it would apply "wherever regular armed forces engage the regular armed forces of a foreign state or enter the territory of a foreign state without permission."<sup>16</sup> "Engage" appears to envision a physical confrontation, and "enter[ing] the territory of a foreign state" envisions a physical entry, thus in both cases skirting the concerns raised by information attacks. Some may find it less problematic, characterizing an information attack as force if there is a physical manifestation such as an explosion. But this comprises only a fraction of the potential manifestations of information attacks. "Armed conflict," as presently understood, seems far less likely to be applied to the simple manipulation of bits inside a computer, although this may soon change since the nefarious manipulation of bits could, in some cases, already cause significantly more harm than could a bomb.

*Armed conflict* under shared Article 2 of the Geneva Conventions was specifically chosen over the term *war* because of its broader scope, but its scope in 1949 could hardly have envisioned the information warfare conflicts possible today. The commentator Jean C. Pictet concluded that "any difference arising between two States and leading



*A SATCOM facility in Southwest Asia during Desert Shield/Storm (right). An AWACS crew during Desert Shield/Storm (below right). A NATO III satellite (below left).*



to the intervention of members of the armed forces is an armed conflict within the meaning of Article 2, even if one of the Parties denies the existence of a state of war."<sup>17</sup> This only shifts the question to what constitutes "intervention," but again the thrust seems to be one of physical confrontation. If an information attack does not fit the definition of an "armed conflict," then many if not all of the laws of armed conflict are not even applicable.

#### *Cyberspace versus Land, Sea, Air, and Space*

The Geneva and Hague Conventions both deal, by their titles, with the issues of laws of war on land or at sea. Even the 1977 protocols to update the Geneva Conventions continued this connection to the land or sea, while other law of war treaties dealt with the air and space. This corporeal division worked well for first- and second-wave societies dealing with agrarian and industrial matters, but falls short in proscribing conduct in the information age. Information warfare takes place in what has come to be known as cyberspace, an ethereal place that does not neatly fit into the land, sea, air, space dichotomy.<sup>18</sup> Information warfare involves conduct and effects that transcend national boundaries and render such distinctions superfluous.

Further actions in cyberspace do not come cloaked in military garb. The information attack against a military computer could be the work of a curious teenager down the street, the work of terrorists in a nearby country, or the work of a belligerent government halfway around the world. One cannot always trace the source of the action, and even when the action can be traced back, it may lead only to an anonymous remailer. When an intercontinental ballistic missile (ICBM) is launched from Russia, it is a fairly clear signal of the start of an armed conflict. Even if an information attack can be traced to Russia, it is unclear whether the teenager, the terrorist group, or agents of the government are at the

keyboard. Some may say that this is little different from the anonymous terrorist attacks occasionally suffered by military personnel and installations. The killing of American soldiers in German discos is a prominent example. In such a case, the United States merely relied on other sources of intelligence to fill in the ambiguities. In the German disco case, intelligence sources were able to sufficiently point the finger at Libya to justify military air strikes against it. Perhaps the same can be done in the area of information attacks, though it is interesting to note that the State Department's antiterrorism unit narrowly defines terrorism to be only politically motivated *physical* attacks. Thus, information attacks would not generally even fit within the definition of terrorism.

#### *Basic Principles*

There are three basic principles central to the law of armed conflict. It is instructive to analyze the applicability of LOAC to information warfare by analyzing these basic principles.

**Principle of Military Necessity.** The first principle of LOAC is that of military necessity. Briefly, it "permits the application of only that degree of regulated force, not otherwise prohibited by the laws of war, required for the partial or complete submission of the enemy with the least expenditure of life, time and physical resources."<sup>19</sup> Professor Francis Lieber defines it as "those measures which are indispensable for securing the ends of war and which are lawful according to the modern law and usages of war."<sup>20</sup>

This first principle would seem to pose few hurdles for information warfare. It is unclear what exactly is the scope of the term *regulated force*, but this term could pose some problems with the employment of certain types of computer viruses. Viruses are often listed among the available "information weapons." Viruses, worms, Trojan horses, or logic bombs are all programs or sections of computer code that are designed to wreak

havoc on a recipient's computer. They can be designed to trigger upon the occurrence of a certain event or to activate randomly. Randomly triggered viruses, worms, Trojan horses, and logic bombs may not properly fit the definition of the use of regulated force.

The negative definition encompassed in the concept of military necessity, permitting that which is not otherwise prohibited by the laws of war, currently works to the advantage of information war advocates, since much of the law of war was set down prior to any conceptualization of information weaponry and information warfare tactics. This relative void thus does little to impede this new form of war, though as will be seen below, some international treaties may provide some barriers.

The stipulation that the submission of the enemy be accomplished with the least expenditure of life, time, and physical resources also favors information warfare, since it is largely viewed as a bloodless type of warfare. Information attacks may take little time, as they can potentially travel at the speed of light and they generally are aimed at disrupting information systems. Therefore, information warfare attacks are less likely to result in the loss of physical resources or lives, though some attacks do aim to physically destroy chips internal to a computer to cease its operation.

While not much has yet been written on how information warfare will be conducted, Col Owen E. Jensen recently wrote an article "for those seeking a few fundamental principles to guide them in applying information warfare to specific scenarios."<sup>21</sup> In his article, he emphasizes the importance of the Principle of Decapitation, which he describes as follows:

Cut or deny *all* the enemy's information-transfer media—telephone, radio frequencies (RF), cable, and other means of transmission. Sever the nervous system. Deny, disrupt, degrade, or destroy *every* transmission.

Stop all "gray system" access. Close off to the enemy all third-party communications satellites (COMSAT), whether they belong to international

consortia or to commercial enterprises or are assets of uninvolved nations. (Emphasis added)<sup>22</sup>

The all-inclusive nature of this principle raises several legal issues: (1) its scope probably exceeds the bounds of military necessity, (2) it probably violates the treaties concerning international telecommunications satellites (INTELSAT) and international maritime satellites (INMARSAT), and (3) it probably violates the treaty concerning neutrals. Only the first issue will be addressed here. The latter two will be addressed in the appropriate sections below.

Again, the principle of military necessity allows only for the application of that degree of regulated force required for the partial or complete submission of the enemy with the least expenditure of life, time, and physical resources. Arguably, denying all information-transfer media and disrupting or destroying every transmission goes beyond a military objective by incapacitating the entire civilian populace as well. Taking out all information-transfer media would bring down a country's stock market, banking system, air traffic control, emergency dispatches, and more. This would almost certainly result in the loss of civilian lives and may well be deemed disproportionate to the military objective. The difficulty in the information age, however, comes in drawing the line. In the United States, for example, over 95 percent of military communications traverse civilian lines. The use of fiber optics and packet switching makes it virtually impossible to take out only the military communications. Nevertheless, taking out the entire civilian system would seem too blunt an approach under the law of armed conflict. Taking out military communications centers and military radio frequencies and manipulating military messages so as to create confusion and render even good messages suspect would be a far more defensible position. If the enemy's military shifted to civilian communications centers and civilian frequencies in response, it would now be more clearly legal to attack

them, even with the consequent collateral effects to civilians.

The Air Force's *Cornerstones of Information Warfare* notes a troubling asymmetry between offensive and defensive actions under information warfare:

The military may, consistent with the law of armed conflict, attack any militarily significant target. In the context of information warfare, this means we may target any of the adversary's information functions that have a bearing on his will or capability to fight. In stark contrast, our military may defend only military information functions. There are many information functions critical to our national security that lie outside the military's defensive purview.<sup>23</sup>

Indeed, as previously noted, reliable sources estimate over 95 percent of military communications traffic over commercial communications systems.<sup>24</sup>

The issue raises another point, though, and that is who is a "combatant" in the information age? If teenage hackers in the enemy's country unilaterally decide to aid their government by creating havoc through their use of computers, are they now fair game for attack by the opposition? If civilian radio and television stations unwittingly broadcast coded messages to the enemy's troops, can they be attacked?

**Principle of Humanity.** The second basic principle is the principle of humanity. Its aim is to prohibit "the employment of any kind or degree of force not necessary for the purposes of war that is for the partial or complete submission of the enemy with the least possible expenditure of life, time and physical resources."<sup>25</sup>

The law of land warfare forbade the employment of "arms, projectiles, or material calculated to cause unnecessary suffering." Included as examples were lances with barbed heads, irregularly shaped bullets, bullets with the hard-shell heads filed off or bullets dipped in an inflammatory substance, and projectiles filled with glass.<sup>26</sup> The 1981 Convention on the Prohibition or Restriction on

the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects added weapons that resulted in nondetectable fragments in the body, field mines, booby traps, and incendiary weapons.<sup>27</sup> These proscriptions are all very specific and fail to form any cohesive framework from which logical extensions could be made. Thus, while bullets dipped in an inflammatory substance are banned, the United States has long claimed that nuclear weapons are not excluded per se under the principle of humanity. Additionally, all of the specific weapons listed are rudimentary weapons of an older era with little real connection to any of the weapons envisioned for use in information warfare. With such specificity and incongruity, it would be difficult to automatically exclude any information weapon, though the overarching ban on weapons calculated to cause unnecessary suffering may provide a hazy boundary.

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*The issue of neutrals may pose interesting legal issues under information warfare.*

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Herein lies another problem with the language employed in information warfare: the theoretical talk of certain types of computer programs as "weapons." The law of armed conflict requires any nation desiring to implement a new type of weapon to make a determination prior to its use regarding its compliance with the principle of humanity.<sup>28</sup> If one calls up a computer program, whether it be a virus, worm, logic bomb, or something else a "weapon," this may unwittingly trigger a required review. Certainly, computer programs in and of themselves have not previously been considered weapons in the international community, though their effects may have some striking parallels with conventional weapons in some uses.

Some "weapon" use may also be constrained by domestic law even in its international application. For instance, if in the course of employing international infowar data-collection techniques, "United States persons" become subjects, Executive Order 12333 may apply. In pertinent part, it states:

*2.4 Collection Techniques.* Agencies within the Intelligence Community shall use the least intrusive collection techniques feasible within the United States or directed against United States persons abroad. Agencies are not authorized to use such techniques as electronic surveillance, unconsented physical search, mail surveillance, physical surveillance, or monitoring devices unless they are in accordance with procedures established by the head of the agency concerned and approved by the Attorney General. Such procedures shall protect constitutional and other legal rights and limit use of such information to lawful governmental purposes.

*2.5 Attorney General Approval.* The Attorney General hereby is delegated the power to approve the use for intelligence purposes, within the United States or against a United States person abroad, of any technique for which a warrant would be required if undertaken for law enforcement purposes, provided that such techniques shall not be undertaken unless the Attorney General has determined in each case that there is probable cause to believe that the technique is directed against a foreign power or an agent of a foreign power. Electronic surveillance, as defined in the Foreign Intelligence Surveillance Act of 1978, shall be conducted in accordance with that Act, as well as this Order.<sup>29</sup>

While domestic law is beyond the scope of this paper, it is worth emphasizing that even operations taking place entirely in a foreign country or countries may be constrained not only by the foreign country's law and international law, but by domestic law as well. This is not peculiar to information warfare; rather, it applies across the board.

Other data-collection techniques will likely be treated in the same way that espionage is currently treated. That is, while it is not prohibited by the laws of armed conflict, it is

punishable by the laws of an enemy state if the enemy can capture the spy and exercise its jurisdiction over him or her. Infowar roles that may fit this bill are "sniffing," "dumpster diving," and "cracking." Sniffing generally entails the use of software to record the first several characters of a telnet session. This information generally includes the username, Internet Protocol (IP) address, and password—enough information for the sniffer to breach security and/or pose as the sniffee. Dumpster diving, while oftentimes listed as an information warfare technique, is nothing more than the low-tech search through the trash of the opposition in search of user IDs, passwords, and the like to allow infiltration of the enemy's information systems. Cracking is the more sophisticated use of computers to access or create back doors to the enemy's computer systems. It may also involve setting up Trojan horses, circumventing firewalls, or attempting to obtain root access.<sup>30</sup> In addition to or in lieu of espionage laws, some countries may also have computer crime laws under which such conduct may be prosecuted.

Of particular note in this area is the United Kingdom's (UK) Computer Misuse Act. The act broadly proscribes many actions that would be included within the sniffing and cracking functions described above:

(1) A person is guilty of an offence if—

(a) he causes a computer to perform any function with intent to secure access to any program or data held in any computer;

(b) the access he intends to secure is unauthorised; and

(c) he knows at the time when he causes the computer to perform the function that that is the case.<sup>31</sup>

Of even greater significance, however, is the fact that the act purports to apply extraterritorially, as long as any significant link with British jurisdiction exists.<sup>32</sup> A significant link includes any access of a computer in the UK.<sup>33</sup> Based on the fact that the Internet is designed to withstand nuclear attack by

sending message packets through any working node, the scope of this act is perhaps broader than its language would at first appear. Thus, if a French operative were to attempt to make a nefarious entry into a US Department of Defense computer and the message, by happenstance, were routed through the UK, the French operative could be tried and convicted under the law of the UK. There would, of course, still be the sticky situation of obtaining jurisdiction over the Frenchman. If he were operating under the direction of the French government, France would be unlikely to turn him over. On the other hand, the Frenchman may be well advised to vacation somewhere other than England for fear that authorities there would seize him upon his entering the country and try him.

**Principle of Chivalry.** The third basic principle of the law of armed conflict is the principle of chivalry. Its premise is that the waging of war should be done "in accord with well-recognized formalities and courtesies."<sup>34</sup> This principle recognizes that deception is often key to military victory and does not outlaw its use, but it does circumscribe how and when it may be used within the broad constructs of *ruses* and *perfidy* (or treachery).

By international treaty, "[R]uses of war . . . are considered permissible."<sup>35</sup> *Ruses* consist of the use of trickery without reliance on any protected sign, symbol, or status. The use of misinformation to convince the Iraqis that the United States would attack from the shore was a proper use of a ruse. The ruse was designed to encourage the Iraqis to set up their troops to defend an attack from the shore, and thereby allow for more effective attacks against relatively unprepared forces away from the shore and an unsupported Iraqi rear flank.

*Perfidy* on the other hand is prohibited under the law of armed conflict. Thus, Protocol I to the Geneva Conventions states, "It is prohibited to kill, injure or capture an adversary by resort to perfidy. Acts inviting the confidence of an adversary to lead him to

believe that he is entitled to, or is obliged to accord, protection under the rules of international law applicable in armed conflict, with intent to betray that confidence, shall constitute perfidy." The protection that one is obliged to accord an enemy is largely identified by certain protected symbols that have been set out in a series of international agreements.

Various treaties have established protected status for symbols designating medical activities,<sup>36</sup> historic, artistic, scientific or cultural objects,<sup>37</sup> civil defense,<sup>38</sup> prisoner of war camps,<sup>39</sup> civilian internment camps,<sup>40</sup> and dangerous forces.<sup>41</sup> The UN emblem, the flags, uniforms and aircraft markings of neutrals and of the enemy and the white flag of surrender<sup>42</sup> also all denote a special status.<sup>43</sup> None of these symbols would seem likely to come into play in information warfare operations. The protected status recognized by these symbols, however, may. For instance, suppose Iraq sent a bogus E-mail message to low-level coalition force commanders in the Persian Gulf purporting to be from the commander of all coalition forces indicating that Iraq has surrendered and all hostilities are to cease immediately. If a commander acted on this message, believing it to be real and suffered heavy casualties from an Iraqi force he thought was surrendering but was actually attacking, would Iraq be guilty of violating the law of armed conflict?

The question raised is whether such action constitutes a ruse or perfidy. Arguably, although Iraq did not directly claim to be surrendering, its act of spoofing the United States into so believing and taking advantage of the protected status of surrendering troops, may well place its actions into the category of perfidy and therefore constitute an LOAC violation.

### **Neutrals**

The issue of neutrals may pose interesting legal issues under information warfare. Generally, nation-states desiring to maintain neutrality may not allow belligerents to cross their territory or to use their ports except to perform

emergency repairs. How, then, does this general concept apply in the information era where communications channels criss-cross a nation's territory and may well be used by belligerents on either or both sides? The Convention on Neutrals<sup>44</sup> would seem to suggest that a neutral could condone the use of its communications cables without risking its neutrality:

Art. 8. A neutral Power is not called upon to forbid or restrict the use on behalf of the belligerents of telegraph or telephone cables or of wireless telegraphy apparatus belonging to it or to companies or private individuals.<sup>45</sup>

However, if a neutral tried to prohibit the use of its communications channels to one of the belligerents, it would have to prohibit use of the same to the other belligerent(s) as well or place its neutral status in jeopardy:

Art. 9. Every measure of restriction or prohibition taken by a neutral Power in regard to the matters referred to in Articles 7 and 8 must be impartially applied by it to both belligerents.

A neutral Power must see to the same obligation being observed by companies or private individuals owning telegraph or telephone cables or wireless telegraphy apparatus.<sup>46</sup>

In point of fact, the common use of fiber-optic cables and packet-switched networks may well make it nearly impossible to deny the use of communications facilities to a belligerent without also denying those facilities to one's own populace. Significantly, the treaty does not address telecommunications satellites, though the same problems may well exist in selectively denying use to some users without jeopardizing all users.

## Conclusion

General Fogleman was insightful for recognizing the importance of ascertaining the legal boundaries and implications of activities taking place under the catchphrase of information warfare. Unfortunately, for the same reasons that many recognize this information age

as a third wave or new era, many of the issues now being raised are without clear precedent. This paper has dealt only with the customary international law implications, and in this arena we see that most of the law to which legal scholars are looking for guidance was developed, in many cases, decades before information warfare concepts were envisioned. Nevertheless, certain basic principles can be carried forward—principles such as military necessity, proportionality, and chivalry. The specifics on how these general principles will be applied to certain specific information warfare scenarios will likely require gradual honing. As countries begin to agree on certain standards, these may well develop into a new customary international law. More immediate desires for regulatory guidance may prompt nations to seek consensus through the treaty-making process. Some prominent thinkers in this area have claimed that our first- and second-wave legal system is so hopelessly unable to deal with third-wave issues that it must be replaced promptly and ignored to the extent necessary in the interim. This seems an overreaction prone to anarchy. On the other hand, some claim that the issues raised by information warfare are really no different than those that have been raised throughout time and that thoughtful application of the existing law is all that is needed. This extreme also seems off the mark and betrays a naiveté of dealing with complex issues in an entirely new realm. However, for now we have only the existing law and must apply it as makes best sense, working to fill the law's gaps as they are identified. The fast-moving world of the third wave will provide challenges in accomplishing this, but the ease and speed with which information can be exchanged may also facilitate the task. □

## Notes

1. Joseph Weizenbaum, *Computer Power and Human Reason: From Judgment to Calculation* (San Francisco: W. H. Freeman, 1976), as cited by Manfred Lachs, "Views from the Bench: Thoughts on Science, Technology and World Law," *American*

*Journal of International Law* 86 (October 1992): 673. Lachs is a judge and former president of the International Court of Justice.

2. "The Pentagon's New Nightmare: An Electronic Pearl Harbor," *Washington Post*, 16 July 1996.

3. "Onward Cyber Soldiers," *Time*, 21 August 1995, 44.

4. *Ibid.*, 40.

5. "The Pentagon's New Nightmare."

6. John Arquilla and David Ronfeldt, of the Research and Development (RAND) Corporation, have defined information warfare as being the sum of netwar and cyberwar. *Netwar* they define as "societal-level conflict waged through Internetted modes of communication." *Cyberwar* they define as "conducting and preparing to conduct military operations according to information principles."

7. This was the working definition recognized by the School of Information Warfare and Strategy of the National Defense University as of 16 November 1993.

8. *Cornerstones of Information Warfare* (Washington, D.C.: Department of the Air Force, 1995), 2.

9. *Ibid.*, 3.

10. Winn Schwartau, *Information Warfare: Chaos on the Electronic Superhighway* (New York: Thunder's Mouth Press, 1994), 13.

11. Richard Power, *Current and Future Danger: A CSI Primer on Computer Crime and Information Warfare*. (San Francisco: Computer Security Institute, 1995).

12. *Ibid.*

13. "The Pentagon's New Nightmare," C-3.

14. *Cornerstones of Information Warfare*, 3. This definition is similar to one proposed by the Office of the Assistant Secretary of Defense for C<sup>3</sup>I.

15. The Law of Armed Conflict also applies to certain conflicts internal to a nation-state, but that is beyond the scope of this paper.

16. Lt Col William J. Fenrick, "The Rule of Proportionality and Protocol I in Conventional Warfare," *Military Law Review* 98 (1982): 91. Colonel Fenrick was a legal officer with the Canadian Forces.

17. Jean S. Pictet, ed., *Commentary, Geneva Convention Relative to the Protection of Civilian Persons in Time of War*, vol. 4 (Geneva: International Committee of the Red Cross, 1958), 20.

18. The legal ambiguities raised by cyberspace are not unique to discussions of information warfare. Computer crimes have raised some of the same issues. To what extent can Muslim countries enforce their criminal sanctions against the importation of pictures of scantily clad women when Internet sites around the world offer such pictures to anyone with a modem or other means of accessing the Internet? Or take the example of offering unauthorized gambling nationwide. One Internet site in the Turks and Caicos islands of the West Indies is already doing so, despite the objections of the US Department of Justice. So far the Justice Department has been unable to prevent the gambling site from continuing its operations.

19. The Air Force Judge Advocate School, *The Military Commander and the Law* (Maxwell AFB, Ala.: Judge Advocate School, Center for Professional Development, September 1994), 580.

20. Section I, par. 14, *Instructions for the Government of the Armies of the United States*, prepared by Francis Lieber and promulgated by President Abraham Lincoln in 1863 as General Orders 100. Reprinted in *The Laws of Armed Conflict: A Collection of Conventions, Resolutions, and Other Documents*, ed. Dietrich Schindler and Jiri Toman [Rockville, Md.: Sijthoff and Noordhoff, 1981], 3-8.

21. Col Owen E. Jensen, "Information Warfare: Principles of Third-Wave War," *Airpower Journal* 8, no.1 (Winter 1994): 37.

22. *Ibid.*, 37-38.

23. *Cornerstones of Information Warfare*, 3, note 1.

24. Science Applications International Corporation, "Information Warfare: Legal, Regulatory, Policy and Organizational Considerations for Assurance," research report for the chief, Information Warfare Division (J6K), Command, Control, Communications and Computer Systems Directorate, Joint Staff, The Pentagon, Washington, D.C., 4 July 1995. The fact that a country's military uses civilian communications for a large portion of its message traffic increases the justification for claiming such a target is a military target.

25. *The Military Commander and the Law*, 580.

26. Field Manual (FM) 27-10, *The Law of Land Warfare*, 18 July 1956, Article 34.

27. Some may claim the convention did not "add" these weapons to the list of forbidden weapons, but reduced to writing that which, over time, had already come to be recognized by many countries around the world.

28. Protocol I to the Geneva Convention of 1981, Article 36. Indeed, a new "means or method" of warfare requires a similar determination under the article.

29. Executive Order 12333, "United States Intelligence Activities," 4 December 1981, *Codification of Presidential Proclamations and Executive Orders, January 20, 1961-January 20, 1985* (Washington, D.C.: Government Printing Office, 1986), 582-83.

30. Firewalls are computers that serve as protective front ends to a network. All traffic that seeks access to the network must pass through the firewall computer, which is designed to ferret out intruders. Root access is that access level that allows the user to execute the widest range of commands. Such access is normally only afforded to the system operator. Hackers who obtain such access can wreak havoc on the system.

31. Computer Misuse Act, 1990, section 1(1).

32. *Ibid.*, section 4(2).

33. *Ibid.*, section 5(2).

34. *The Military Commander and the Law*, 581.

35. The Hague Regulations of 1907, Article 24.

36. Red Cross, Red Crescent, Red Lion and Sun, or Red Star of David (Article 38, 1949 Geneva Convention I, and Article 18, 1977 Geneva Protocol I to the 1949 Geneva Conventions. The Red Lion and Sun is largely obsolete since on 4 September 1980 Iran indicated its intent to use the Red Crescent henceforth).

37. Red circle with triple red spheres in the circle on a white background (Roerich Pact of 1935) or royal blue square and triangle on a white shield (1954 Hague Convention, Article 14, and the Hague Regulations, Article 20) or rectangular panel divided diagonally into two triangular portions, the upper black and the lower white (1907 Hague Convention IX, Article 5).

38. Blue triangle on orange background (1977 Geneva Protocol I to the 1949 Geneva Conventions, Article 66).

39. "PW" or "PG" on a square flag (1977 Geneva Protocol I to the 1949 Geneva Conventions, Article 23).

40. "IC" on a square flag (1977 Geneva Protocol I to the 1949 Geneva Conventions, Article 83).

41. Three bright orange circles of equal size on the same axis (1977 Geneva Protocol I to the 1949 Geneva Conventions, Article 56[7]).

42. A white flag is recognized as a symbol of surrender under Article 32, 1907 Hague Regulations.

43. Air Force Pamphlet 110-34, *The Military Commander and the Law of Armed Conflict*, 25 July 1980.

44. Convention Respecting the Rights and Duties of Neutral Powers and Persons in Case of War on Land, The Hague, 18 October 1907.

45. *Ibid.*

46. *Ibid.*



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## Way Points

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*There is nothing so powerful as truth—and often nothing so strange.*

—Daniel Webster

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# NEW TECHNOLOGIES AND WAR-FIGHTING CAPABILITIES \*

**F**UTURISTS HERALD the impact of new technologies on war-fighting capabilities and identify airpower as the main beneficiary of these technologies. However, the progress of new technologies in sensors; command, control, communications, and intelligence (C<sup>3</sup>I); and standoff weapons actually seems to threaten the supremacy of airpower, at least in the conventional sense of manned aircraft (and even remotely piloted vehicles [RPV]). Why?

Extremely powerful sensors (from joint surveillance target attack radar system [JSTARS] to future ones that will smell or taste targets) and worldwide coverage by satellites, coupled with highly accurate delivery systems capable of being launched from great range, would eliminate the need for aircraft to fly to targets and launch munitions. Officers sitting in a bunker could see all possible targets by means of their worldwide satellite system; decide which ones to hit; and order small, dispersed, cruise missile launchers, artillery, or whatever to hit them.

I have no background in operations research, but it seems to me that this system should be cheaper than maintaining air bases and launching and recovering planes, and so forth. Surely, it must be cheaper to launch one-way vehicles that have only enough fuel to get to their destination than to send planes, expensive pilots, and all the fuel and systems needed to get them there and back.

DAVID SCHORR  
*Electronic mail*

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\*EDITOR'S NOTE: *This commentary originated as an on-line discussion among the three authors on Air Chronicles, Airpower Journal's Internet companion. Are you missing out on what's being discussed on-line? Check out Air Chronicles at <http://www.cdsar.af.mil/air-chronicles.html>. It's Airpower Journal and a lot more.*

**T**HE SUPREMACY OF AIRPOWER as we know it today is the product of technological capability being effectively subordinated to national objectives. As technology continues to provide alternative solutions to existing and developing political challenges, the nature of airpower application will certainly change. However, given the enduring reality of land, sea, and air (aerospace), this change will likely be one of form rather than substance.

The vision of officers sitting in a bunker, identifying targets, and dispatching weapon systems fails to adequately factor in the political dimension of war. Although the technologies to execute such a scenario will appear, they too will be subordinated to national objectives determined by our political leaders.

In a larger sense, the supremacy of airpower is broader than its ability to inflict destruction. Airlift, rescue, relief operations, surveillance, and special operations—to name a few—combine to create the air supremacy of today. In the foreseeable future, whether it arrives as a mundane adaptation of its present incarnation or in the remarkable form predicted by futurists, airpower supremacy will embody an orchestration of these diverse and interdependent missions.

As to the cost-effectiveness argument put forth by Mr Schorr, the situation could prove to be just as he suspects. But the history of new technologies seems to be one of paying the piper—of incremental gains being secured by geometrically increasing costs. Indeed, not too many years ago, reformers—in partial response to these rising costs—argued that we should “dumb down” our technology in order to field larger fleets of less sophisticated airframes.

Although I disagree with Mr Schorr’s premise, it is rather tame when compared to the audacity of Douhet and Mitchell, who ultimately disproved the criticisms of individuals far more astute than I.

COL T. K. KEARNEY  
*Maxwell AFB, Alabama*

**I** THINK IT IS FAIR TO SAY that much of the current rash of prophecy about technology overstates the case very strongly. It is much reminiscent of statements in the early 1960s by Duncan Sandys, who decided there was no future for fighter aircraft and little for bombers in the United Kingdom (UK). Missiles were supposed to do everything. We have all seen what that did to the UK’s offensive air capability in subsequent years.

Excluding a yet-to-be-seen breakthrough in true machine intelligence, all of these “warfare by remote control” schemes rely on the generous use of data-link technology to connect “controllers” with remotely wielded

weapons, whether unmanned aerial vehicles (UAV) or missiles or pilotless fighters. This reliance produces a fundamental vulnerability because an adversary can jam or engage the data link with high-power microwave or electromagnetic pulse (EMP) weapons. The ease with which an enemy can cut the "umbilical"—even with contemporary technology—leads me to be very skeptical about the whole "remote control" warfare paradigm.

Even if we see "true machine intelligence" in years to come, other issues will arise, such as teaching real, tactical thinking to autonomous systems and properly disseminating lessons learned throughout a theater of operations, so that every autonomous system can be programmed. Because humans carry a vast amount of contextual knowledge in their heads, they can filter rubbish and deception very easily. This may not be true of machine intelligence—certainly not the variety we see today. If we attempt to build autonomous, intelligent weapons today, their useful intelligence will be wholly determined by the tactical thinking of the programmers who build them. Computer scientists have a very old saying: "GIGO" (garbage in, garbage out).

There is no substitute at this time for a tactically devious human mind in a modern airplane. Flexibility and adaptability are the reasons that manned aircraft will continue to play an important role in the future. Until we can build machine intelligence that wholly emulates the thinking of a pilot, truly effective autonomous vehicles are wishful thinking.

To assume that all opponents are so stupid that they cannot jam our global positioning system (GPS), satellite and airborne radar, and radio data links is to leave us wide open to being routed by an opponent who is not so stupid. I would not like to be the operator on a super AWACS at 35,000 feet, flying the defensive RPV combat air patrol (CAP), when the bad guys take down the data links and I am sitting out there with no means of defending myself. I'm not that brave!

I see the new technology making a big difference in making weapons more effective and sensors more potent, thus swinging the loss-rate equation further in favor of the Western alliance. This will allow the retention of a substantial war-fighting capability, even with limited budgets that will constrain force sizes.

I consider the following items to be of the greatest importance in the next three decades, regardless of what many of my colleagues in the technical community may be saying:

1. Every tactical jet should be stealthy; we should develop stealth technology to the point where we can combine high aerodynamic performance with low observability. (This may be hard to do, but it is worth the effort.)

2. We should produce more potent, passive sensors for tactical aircraft and other platforms, to deny opponents the means of detecting, jamming, or engaging those platforms.

3. We should develop more intelligence in cheap, mass-produced,

standoff weapons, to deny the opponent the opportunity to close to detection-and-engagement range.

4. We should create better tools for gathering and interpreting raw sensor information (on the platform, if possible); we could thus avoid the use of data links, which could betray our position and intent, and would be subject to enemy jamming or disabling.

5. We should proceed with developments in directed-energy weapons, particularly microwave-beam weapons capable of disabling inbound missiles and aircraft.

The current debate on remote-controlled weapons is very interesting because there is a concurrent debate under way in the electronic warfare (EW) community, which is very alarmed at the vulnerabilities of existing data-link and GPS-technology bases. I would like to see more EW people involved in the wider debate.

Carlo Kopp  
Melbourne, Australia

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

—Gen Dwight D. Eisenhower

**Ricochets and Replies**  
*Continued from page 3*

ing long-term power projection for crises for other than actual hostilities in which the US might be involved. Under most circumstances, a carrier battle group provides all of these.

The Navy has responded to far more crises than the Air Force simply because it can get to them, steaming at 30 knots, and stay. When a crisis does occur, the deployed Navy moves forward at 30 knots. At the same time, the Air Force is busy trying to decide what to do. Did I hear site survey? And the Navy steams forward at 30 knots. Meanwhile, the Air Force continues to seek basing rights or overflight permission and also, more than likely, approval from the Department of State. And the Navy steams forward at 30 knots. By the time the Air Force has authorization to do what it needs to do, if it ever gets it, the Navy has been on station working the crisis or has already gone home. At guess what? 30 knots.

The author also says that "operational experience indicates that one big-deck carrier can generate strike sorties for three to six days before standing down for one or two." I spent a year on an aircraft carrier during the Vietnam War and can tell you that we stayed up to 55 days on the line conducting operations 12 hours a day and did not stand down more than twice except to transit from day to night operations or vice versa during any of those periods. I need to note, too, that during that seven-month Westpac deployment, which also included visits to Hong

Kong and Japan and three to the Philippines, the carrier's aircrews flew more than 50,000 sorties without a single loss of life due to operations. With two aircraft carriers, the Navy can provide round-the-clock operations for days on end, and can operate virtually indefinitely with three.

I know it offends some Air Force people when I say that any military service that starts and ends its war day from a VOQ room does not have a very good clue about presence or power projection. That is tongue in cheek, of course, but I say that because many of my fellow officers do not fully understand nor do they adequately appreciate the Navy's role and look at the Navy air mission and the funds expended on it with a little envy or, worse, feel that these funds could be best spent on Air Force programs. Moreover, many have a tendency to gloss over, minimize, or ignore the problems so clearly illustrated by Mr Siegel until they are faced with the reality of a crisis situation. As Mr Siegel's examples indicate, that is often too late.

The Air Force has to acknowledge that the Navy is always in a moving, emphasis on *moving*, deployment mode—not forward deployed, ready to deploy, or practicing to deploy. The US Navy is the world's premiere sea power and we need to ensure that the capability provided by the carrier battle group remains robust. Navy and Air Force roles are complementary, not competitive. It doesn't help the Navy's cause, nor ours, to ignore the evidence and fire needless shots across their bow.

Col S. J. Gudmundson, USAF  
 Edwards AFB, California

*Experience keeps a dear school, but fools will  
 learn in no other.*

—Poor Richard (aka Ben Franklin)

*"There is no book so bad," said the bachelor,  
"but something good may be found in it."*

—Miguel de Cervantes

**Fight or Flight: An Inspiring History of Courage under Fire—True Battlefield Stories of Extraordinary Acts at the Moment of Truth** by Geoffrey Regan. Avon Books, 1350 Avenue of the Americas, New York 10019, 1996, 277 pages, \$12.50.

In *Fight or Flight*, Geoffrey Regan examines the concept of courage in combat. He looks at the psychological aspects of why certain people crumple under the pressure of combat while others, despite injuries, withering enemy fire, or insurmountable odds, step up and often do the impossible. Perhaps most telling, however, are the case studies of people actually in combat, from medieval times up until the Battle of Huertgen Forest in 1944. These riveting, compelling studies allow us to enter regiments, battalions, and armies to try to understand what soldiers faced during their trial by fire and how they coped with the situation and performed their duties.

The author's thesis is that all people, not just some, eventually break under combat stress. He identifies four types of individuals who have always existed in combat: those who do not feel fear; those who feel it but don't show it; those who feel it and show it but continue fighting; and those who feel fear, succumb to terror, shirk their responsibilities, and flee. Rather than offering a formula for predicting when soldiers will break, *Fight or Flight* explores factors that cause this behavior, as well as the ones that hold people in place, thus preventing wild and chaotic—not to mention embarrassing—mass retreats.

In his attempts to quantify courage and fear as manifestations of combat prowess, Regan discusses certain endearing qualities that lead to success in combat. These include a soldier's fighting spirit, cause, morale, health, food, leadership, medical treatment, training, and loyalty. Regan shows us how the presence or absence of these variables often determines the outcome of a battle.

One distinctive quality of this book is that the author, perhaps with a bit too much enthusiasm, disputes long-standing ideas about soldiers in

combat. He deflates the image of "superior" Confederate soldiers by showing the incredibly high rate of desertion within the Confederate army and by revealing the limited fighting spirit of Southern soldiers, compared to their Northern counterparts. Pointing to thorough routs like Missionary Ridge in Chattanooga in 1863, Regan notes key factors that tended to limit "Johnny Reb's" fighting spirit in the later stages of the Civil War. He also explores fear's paralyzing effects on American combat soldiers at Kasserine Pass in Tunisia in 1942 as well as on the Spanish army in Morocco in 1921, when fear and undisciplined behavior resulted in the Spanish losing 19,000 soldiers in just a few days to only 3,000 Moroccan tribesmen.

In other cases, fear did not dominate the participants: Texans at the Alamo, the US marines at Tarawa, and the British at Fontenoy in 1745. The author also takes a close look at the 20th Maine's charge down Little Round Top against the 15th Alabama during the battle of Gettysburg, where courage and supreme self-sacrifice led to heroic acts of bravery and victory.

*Fight or Flight* is readable, well organized, and extremely accessible. It would have been helpful, however, had the author included maps of each of the battles cited so that readers could have a complete picture of the events that took place. The book, by all accounts, is an excellent addition to the field of military history. With an increasing number of military books dealing with technology, information war, precision guided munitions, and the like, it is refreshing to find a book that emphasizes the one element found in all combat—people. Weapons, strategy, and tactics may change, but as long as people occupy the central position in combat, we need to know about factors that can cause a weaker opponent to overwhelm a vastly superior force.

Maj Robert Tate, USAF  
Maxwell AFB, Alabama

**The Battle for History: Refighting World War II** by John Keegan. Vintage Books, 201 E. 50th St., New York 10022, 1996, 128 pages, \$10.00 (paperback).

This short and interesting book is yet another work by the esteemed and (in recent years) prolific military commentator and historian, John Keegan.

Although he authored a somewhat uneven overall history of World War II, in *The Battle for History* Keegan has produced a useful, expanded review essay that briefly notes the value of many standard (and a few obscure) works dealing with the war.

Originally given in Toronto as the 1995 Barbara Frum Historical Lecture, *The Battle for History* is divided thematically into two sections. The first is actually chapter 1—an overview of the war's major interpretive controversies. These include everything from the origins of the war, Roosevelt's and Stalin's knowledge of the surprise attacks against their respective countries, the importance of strategic bombing and partisan resistance in defeating the Axis, to the decision to drop atomic bombs on Japan. Keegan is not out to settle these controversies, but he does express opinions on the merits of various interpretations. In such a short work, there is little room for analysis and supporting evidence, so the opinions can seem brutally stark. For example, Keegan flatly states that the strategic air campaign waged against Germany "did not work," although such bombing "unquestionably . . . brought about the defeat of Japan."

The book's second section comprises five chapters that review overall histories of the war, biographies, campaigns, planning (including intelligence) and logistics, and occupation and resistance. Keegan considers only books available in English, and his analysis is markedly weighted towards the European portion of the war. He believes that a truly objective and inclusive history of the war has yet to be written and probably will not appear until the next century. He praises the official American histories and hopes that the opening of former Soviet sources will lead to more works in that area. As befits the author of *The Face of Battle*, Keegan takes time in the biography chapter to note those memoirs and remembrances that, to his way of thinking, best capture the war experience at the individual and small-unit levels.

Early in the book, Keegan provides his justification for the books that appear in *The Battle for History*: works that are essential to understanding the war and those whose style, sensibility, and approach illuminate our understanding about some aspect of the conflict. A reader who concentrates only on why some works were selected or others omitted will miss this book's strengths: the cogent summation of some key interpretive issues and the identification of works useful in understanding the war. With brevity and an engaging style, one of the world's eminent military historians presents here an interesting and thought-provoking

book about one of the twentieth century's seminal military events.

Maj Budd Jones, USAF, Retired  
Concord, North Carolina

**Pacific Defense: Arms, Energy, and America's Future in Asia** by Kent E. Calder. William Morrow and Company, Inc., 1350 Avenue of the Americas, New York 10019, 1996, 253 pages, \$25.00.

Asia is a mystery to most Americans. We look at its success but fail to comprehend the intensity of the people, the magnitude of their accomplishments, and the extent of their impact on the United States. Because of geography, the United States is a Pacific power and therefore needs an awareness of the developing trends and conflicts that Kent E. Calder sees in East Asia. His most recent book, *Pacific Defense*, studies two basic "aspects" of US defense in the Pacific. The first is "protection against direct national security challenges." The second is the disruptive influence produced by the growing requirement to feed East Asia's economic engine while competing for finite energy resources, with its potential impact on the first aspect.

*Pacific Defense* is an excellent synopsis of the major issues that are currently confronting the United States and East Asia. The author concentrates on the "Northeast Asian Arc of Crisis," which extends from "the Taiwan Strait, across North China and Korea to the Russian Far East," with Japan as its focus. Flash points exist along this arc, including the Taiwan Straits and Korea. As Asia's economies grow, so does the demand for a greater share of the world's energy resources. East Asia relies primarily on oil imports for its primary energy source—even the countries with domestic oil production. Anticipating a future energy crisis, Asia is looking to nuclear power as an alternative energy source, despite its problems. Calder contends that the need for energy—as well as its control—is the primary reason for China's claims in the South China Sea, resulting in the heated development of force-projection capabilities and the growth of an Asian arms race. Energy demands could provide the spark for a war in the region, fueled by the animosity that has existed, in some cases, for centuries. Within this framework is a Japan that is reevaluating its national security policy, including its alliance with the United States. Finally, the United States must help Asia develop solutions to these problems

in a manner that is mutually beneficial, through a cohesive, multilateral US foreign policy toward Asia.

Kent Calder, who is the director of the program on US-Japan relations at the Woodrow Wilson School of Public and International Affairs, Princeton University, draws from a variety of excellent and reliable sources for study of the region. Overall, the book is well written, although, on occasion, the author rapidly skips from topic to topic—an idiosyncrasy that requires the reader to pay close attention. Each chapter could stand alone because the writing is redundant in places, yet the author finds a way to weave everything into a cohesive book. Calder makes many valid points without falling into the trap of “Asian values” or other erroneous concepts about a monolithic Asia so frequently alluded to in other books about Asia. *Pacific Defense* is an excellent resource and an interesting framework for the study of modern East Asia.

Maj Raymond Laffoon, USAF  
Dyess AFB, Texas

**The Chaco War—Bolivia and Paraguay, 1932–1935**  
by Bruce Farcau. Praeger Publishers, 88 Post Road West, Westport, Connecticut 06881-5007, 1996, 272 pages, \$59.95.

*The Chaco War* is about the lessons of warfare (air, biological, frontal-assault, crew-served weapon, armored, combined-arms, etc.) that many military forces should have learned before they ventured into World War II. It is the first complete English-language account of one of the bloodiest conflicts ever fought in South America. Nearly 100,000 men died during the course of the three-year war, fought during the height of the worldwide depression, between two of the world's poorest nations—Bolivia and Paraguay.

The cause of the war was the unsettled question of sovereignty over the Chaco Boreal, an uninviting, sparsely populated wilderness of scrubland, dense forests, venomous snakes, and forbidding swamps. When the war began, Bolivia had the advantage of a population three times greater than Paraguay's but was severely disadvantaged by the general apathy of its army and people, who had no appetite for war. Paraguay, however, had the support of its citizens, able leadership, and logistics lines of communications one-fifth the length of Bolivia's. Unfortunately, both armies greatly suffered for having siege and attrition mentalities straight out of the nineteenth century.

Conducting a senseless war of attrition, engaging in mindless slaughter, and rotating commanders

quickly for sake of promotion and getting their “combat ticket” proved the undoing of the Bolivian armed forces. After three debilitating years, Paraguay gradually gained enough ground and declared victory. But the real winner was Argentina, which had supported Paraguay to protect its foreign investment in oil exploration, cattle, and ranching.

Farcau, a US foreign service officer for 20 years, dedicated the book to his father-in-law, whose personal experience and suffering in the Chaco War inspired Farcau's research. Although we do not know which nation his father-in-law fought for, the stories Farcau heard may have been the author's only primary source materials. Other sources include translations of Bolivian and Paraguayan histories, but no other personal interviews. (Of course, since the war concluded over 60 years ago, all of the participants may be dead by now.)

Some of the more interesting chapters of the book address the use of fighter aircraft to strafe and bomb troop formations and supply columns. The Bolivians had airpower assets and made good use of them in the opening days of the war. However, as the war moved toward a stalemate, airpower came to be used only for reconnaissance and message drops to commanders. Supplies and ammunition were also dropped to besieged defenders on occasion but without benefit of parachutes, which usually damaged the ammunition, rendering it useless. The Bolivian air force could have used airpower to conduct a strategic bombing campaign but chose not to. When that air force did conduct a strategic bombing campaign against Puerto Casado, an important resupply and troop-holding area, the government of Argentina, a regional power, threatened Bolivia with retaliation if any Argentine citizen living there was killed. Bolivia could not afford to provoke Argentina's wrath, so strategic bombing ceased.

So the Bolivian air force engaged in reconnaissance work, vital in a trackless, perfectly flat land covered with four-meter-high brush. Evidently, using airplanes as navigation aids for troop formations impressed the German attachés and observers, since it found its way into Rommel's desert war in less than a decade.

The issue of biological warfare surfaced during the Chaco War. Bolivian troops were inoculated against cholera before going to war, while the Paraguayans apparently were not. During one retreat by the Bolivian army, the ranking medical corps officer, Dr Albelardo Ibanez Benavente, received approval to put live cholera cultures into

wells in the path of the advancing Paraguayan army. Although the experiment failed, the Bolivians fully admitted to it with both a sense of pride and bit of frustration, insofar as the experiment did not produce the desired results.

Unheeded lessons from World War I included the distribution of heavy machine guns to battalions and divisions. For example, using one heavy machine gun per battalion, an obviously forgotten lesson from the slaughter of World War I, was relearned during the Chaco War. As always, teaching the lessons of logistics came at enormous cost. Truck transport to resupply fast-moving columns of troops and artillery was Bolivia's Achilles' heel. To solve the problem, the Bolivians implemented a convoy system similar to what the American "Red Ball Express" became during World War II.

Should an airman buy this book? Probably not. Should a political-military officer and/or an attaché doing duty in Latin America or a military historian specializing in the region buy it? Probably yes. Understanding the roots of conflict between nations is important, and the Chaco War is just as fresh in the minds of Bolivians and Paraguayans today as are America's wars in the minds of Americans. The book makes a very small contribution to airpower studies by relating the use and misuse of fledgling air forces and by reinforcing the importance of studying logistics and terrain. One criticism of the book is its poor editing: at least one misspelled word appears on every third or fourth page. Further, the book includes only one map to show three years' worth of battles and maneuvers—and it is so small and poorly coded that it is absolutely worthless. *The Chaco War* requires vegetational, topographical, and geographical maps so the reader can understand the terrain/location considered so important to these two poorly equipped armies that they fought to the death to control it. Then the \$60.00 price would be easier to justify.

Lt Col D. G. Bradford, USAF  
Maxwell AFB, Alabama

**The Eagle in the Desert: Looking Back on U.S. Involvement in the Persian Gulf War** edited by William Head and Earl H. Tilford, Jr. Praeger Publishers, 88 Post Road West, Westport, Connecticut 06881, 1996, 350 pages, \$69.50 cloth, \$24.95 paper.

The theme of *Eagle in the Desert* is that there is no theme. Quoting from the publisher's promo-

tional material is bad form, I know, but according to it, "Some authors conclude that in retrospect many analysts have become convinced that despite its military successes the United States garnered little of worth from the Gulf War. Others believe a great deal was achieved, and some have withheld final judgment." But that is to be expected of the output of academic conferences. And it is the eternal lament of the editors of anthologies in a futile search for a unifying theme and a meaning.

The coeditors are apparently well qualified for the work—this tome is significantly cleaner than others coming from the same publishing house—and their special backgrounds are reflected in the stable of authors they have assembled for the current work. William Head is an Air Force Materiel Command historian working at Warner Robins AFB, Georgia. His PhD is from Florida State University, and his principal book is *America's China Sojourn* (1983). He has gained some renown as a leader among the historians of the Vietnam War. So has the coeditor, Earl Tilford, now a director of research at the Army War College in Pennsylvania. An Air Force retiree, he began his military career as an intelligence officer in Southeast Asia in 1970 and finished as the last editor of *Air University Review*. Fourteen other people contributed to the work, a disproportionate number of whom are official historians or folks who had long careers in the federal government—plus more than the usual number of people who have specialized in the history of the Vietnam War. Though there is some representation from the ground and sea services, the work is heavily weighted toward the analysis of airpower.

The work contains several interesting essays, but one can easily pity the poor public relations folks at Praeger. One example is a good work by Col David Deptula, now the Operations Group commander of a fighter wing at Eglin AFB, Florida, but formerly one of the principal planners of Operation Desert Storm's air campaign. His well-written essay on parallel warfare lauds the potential of the new technology (properly accompanied by the appropriate changes in doctrine, organization, and planning) to economically solve many of America's security problems in a way that will promote security, peace, and prosperity. Yet in the introduction to the section containing Deptula's essay, Tilford remarks, "As was the case in Vietnam, in the Gulf War the United States and its Allies had the technological advantage over the enemy. The much more sanguine outcome of the Gulf War notwithstanding, technology does not win

wars. Wars are won by the side which develops a strategy appropriate to the war at hand." There is generally a disagreement between Vietnam specialists like Tilford, Caroline Ziemke, and Larry Cable on the one hand, who tend to see the war as a failure because it did not achieve the undeclared goal of unseating Saddam Hussein, and Deptula and several of the official historians (who are not particularly interested in Vietnam) on the other, who are prone to view it as a success because it did achieve its declared goals.

Deptula's section of the book is on the air war and contains works by Daniel Kuehl and Mark Mandeles. There are similar, though perhaps lesser, sections on politics, logistics and transportation, ground war, naval war (mostly about air war), and a final part with essays by Michael T. Corgan and Caroline F. Ziemke—both of whom examine the Gulf War, Corgan through Clausewitzian lenses and Ziemke through Vietnam War glasses. Similarly, we find Norman Friedman presenting the case for the Navy and others looking at the world through green telescopes. Here we have another case of Thomas Jefferson's famous group of blind men sent out to examine an elephant and returning with wildly differing descriptions—all of them true, and all of them wrong.

William Head's competent introduction concludes by noting that "ultimately, no matter what the topic or the viewpoint, this book is not designed to be the final word on the Persian Gulf War, but a means to continue the search for meaning from the conflict and to place it, as close as humanly possible, in its proper historical perspective." To that I say amen and assert that *Eagle in the Desert* may be suitable fodder for academics specializing in air war or the Middle East. But for the average reader of *Airpower Journal*—the professional officer with only limited reading time—Rick Atkinson's *Crusade: The Untold Story of the Persian Gulf War*, Michael R. Gordon and Bernard E. Trainor's *The Generals' War*, or especially Thomas A. Keaney and Eliot A. Cohen's *Revolution in Warfare: Air Power in the Persian Gulf* would be better choices.

Dr David R. Mets  
Maxwell AFB, Alabama

**The Complete Art of War, Including Military Methods** by Sun Tzu and Sun Pin, translated by Ralph D. Sawyer. Westview Press, Inc., 5500 Central Avenue, Boulder, Colorado 80301-2877, 1996, 304 pages, \$25.00.

Stop what you are doing. Buy *The Complete Art of War*. Read it from cover to cover (it takes

about four hours). Make a lot of notes. Every year, break it out and reread it—one of the keystone works of strategists. Two features make this edition tower above all others: Ralph Sawyer's commentary and Sun Pin's *Military Methods*.

Sun Tzu's *Art of War* dates from around 500 B.C. China had been in an almost constant state of war for about 800 years. Sun Tzu distilled 800 years of experience in warfare, systematized observations, and stated his lessons learned in such a way that the ruling elite could apply his principles and remain victorious. His writings reflect Chinese thought at the time. Since then, his writings have been the single most influential work on Chinese martial thought right up to today. Some isolated parts of his writings are hard to understand some 2,500 years later, but most of his writings are as clear today as they were then.

What differentiates this version from all others is Ralph Sawyer's excellent commentary following each chapter. Sawyer clears up any confusion that may exist about what Sun Tzu is saying. He also analyzes what Sun Tzu said and applies the wisdom to various activities in contemporary life. Sun Tzu speaks in broad generalities, while Sun Pin is much more specific and concrete than his grandfather.

Sun Pin's *Military Methods* is much longer than the *Art of War* and much more detailed, with specific and concrete lessons. Unfortunately, these features limit some applicability to various situations. Sun Pin's work was only recently (20-30 years ago) discovered and had to be pieced together from many fragmented bamboo strips. Sun Tzu and Sun Pin clearly stress several themes.

The ones that stand out most clearly include the following: (1) warfare is the greatest (most critical) affair of the state; (2) the easiest and best way to prevent a war or defeat an enemy is to have accurate intelligence, analyze the intelligence, plan to counter any threat, and deny the enemy the ability to do the same against friendly forces; (3) the commander of troops controls the state's destiny and must be chosen with care; and (4) the troops who will apply combat power must be selected, trained, and controlled in a certain way. Sun Tzu and Sun Pin also explain how to develop or sustain the fighting spirit.

For the military professional, all of this means that the Chinese view warfare as the most important thing they do; thus, they will make every effort to be prepared for war. We must not only match but also exceed their efforts. Our doctrine is laid out very clearly. We must read theirs to understand Chinese martial thought.

When one combines *The Art of War, Military Methods*, and the commentary of a seasoned sinologist who is also a warrior, one gets *The Complete Art of War*. Read it now.

Capt Roger F. Cavazos, USA  
Fort Benning, Georgia

**Zhukov at the Oder: The Decisive Battle for Berlin** by Tony Le Tissier. Praeger Publishers, 88 Post Road West, Westport, Connecticut 06881, 1996, 308 pages, \$59.95.

The great German offensive in the west—the Battle of the Bulge—had failed, and Hitler's hopes of splitting the shaky wartime Anglo-American-Russian alliance had come to nothing. Much had been wasted by the Germans in their offensive of December 1944, and when the Russians launched a major offensive in the east, it seemed that the final collapse of the Third Reich and the capture of Berlin was at hand. With German command and leadership in a shambles and with the militarily ignorant SS *Reichsführer* in command of key portions of the army, the Russians felt confident that the last battle was near.

On 31 January 1945, the forces of Marshal Georgi K. Zhukov reached the Oder River, and Stalin fully expected that by early February Soviet troops would be across the frozen river on the way to Berlin. But for two months, hard and bitter fighting would occur, with the Russian timetable undone. Zhukov's usual operations now fell short of the mark, and for two months the Germans and Russians were locked in deadly combat. What was not apparent on the battlefield were the nuances of Russian politics under Joseph Stalin, who feared any rival. Le Tissier convincingly argues that many of the problems in securing the necessary bridgeheads and in bringing the full might of the Red Army to bear originated in Moscow with Stalin.

Tony Le Tissier served for 22 years in the British army, retiring in 1977. Upon his retirement, he took a job with the British military authority in Berlin and was the last British governor of Spandau prison. Le Tissier is one of the first historians to have access to sources of information about Soviet forces and former commanders—one of the great assets of this book. Thus, we have the picture of military command and operations in a Russia dominated by Stalin and by ideology. In Le Tissier's words, the world in which Zhukov and his contemporaries operated "was a world of rigid con-

formity and rigid discipline." The severity of the system becomes clear in Le Tissier's work.

His presentation is clear and coherent. Although he deals with technical military operations, the reader is not overwhelmed with technical jargon or stilted language. The book has 29 maps, which add to the presentation. One is able to follow a complex operation with little or no difficulty. The six-page bibliography, however, is only adequate for the material presented. The illustrations were selected with care and enhance the text; as one expects from Praeger, the illustrations are clear.

*Zhukov at the Oder* is a serious contribution to the ever-expanding body of knowledge about World War II. It is a well-written book that will be of interest to the military historian and should be in every collection of military history.

James J. Cooke  
Oxford, Mississippi

**Reference Guide to United States Military History: 1945 to the Present** by Charles Reginald Shrader, general editor. Facts on File, Inc., 460 Park Avenue South, New York 10016, 1995, 328 pages.

*Reference Guide*, the fifth and final volume in Facts on File's series on the US military, represents the work of several contributors. The book is divided into three major parts: "The Organization of American Armed Forces and Their History," "Biographies," and "Battles and Events." Part 1 makes up half the volume, containing seven chapters. In addition to describing the different services, this part breaks up the period from 1945 to the present according to major events and world changes.

Although the scope of the *Reference Guide* is quite broad, most readers will use it to find specifics about individual military services, people, or events. Even though the *Reference Guide* contains much good information, I was disappointed in it for several reasons. For example, despite its publication date of 1995, the book covers none of the reorganization measures implemented since the early 1990s. Tactical Air Command and Military Airlift Command are still listed as major commands, while neither Air Combat Command nor Air Mobility Command is addressed or even mentioned as near-term possibilities.

Further, Air Force missions as described do not correspond fully to any of the accounts presented in the last three editions of Air Force Manual

(AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*. For example, the *Reference Guide* refers to the mission of strategic attack as *strategic bombardment*, a term used only in its historical sense in volume 2 of the 1992 edition of AFM 1-1. Other listed "missions" such as area air defense, ground attack, and air superiority are not missions at all. Perhaps they are closely related to actual USAF roles and missions, but such descriptors are inappropriate and confusing when used as part of a brief overview of the Air Force.

The *Reference Guide* also seems biased in its coverage of the Air Force and its leaders. The Army and maritime services each have twice as much text devoted to them as does the Air Force. The Gulf War's five-week air campaign is covered in only one-and-a-half pages; one-third of that total is devoted to efforts to stop Scud missiles. And most of that discussion is about the alleged success of the Patriot antimissile missile. Tellingly, the following account of the four-day ground phase of operations is much more in-depth, filling seven pages.

Further, the section of biographies is heavily weighted towards Army personnel and includes a fair number of Navy and Marine Corps bios. Of the 132 bios, only 22 are about Air Force personnel, and only five of the 17 Air Force general officers included in that number made their principal contributions after World War II. The most recent general officer in terms of service is George S. Brown, who retired in 1978. None of the Air Force leaders responsible for pushing stealth technology are included nor are those who formulated the air strategy for the Gulf War. Also conspicuous by his absence is Gen Merrill A. McPeak, architect of the Air Force of the 1990s. Yet, the book includes 20-30 bios of individuals from sister services whose accomplishments, though significant, do not have the far-reaching impact of such Air Force leaders as David Jones, Larry Welch, and John Warden, who were omitted.

Ultimately, the acid test of any reference work is its accuracy. Here, the *Reference Guide* falls short in some areas. In addition to the inaccuracies about the Air Force, noted above, the accounts of the Gulf War seem to be based on the first round of publications from 1991 and 1992—witness the praise heaped on the Patriot air defense missile. By 1993, reports were questioning the Patriot's overall success rate as well as the effectiveness of coalition air strikes. Perhaps the *Reference Guide's* publishing deadline did not permit inclusion of these findings. I am more troubled, however, by the book's account of the Gulf of Tonkin incident:

that North Vietnamese gunboats interfered with the destroyer USS *Maddox* on 2 and 4 August 1965 and that the last night's action served as the impetus for the dramatic increase in US involvement in Southeast Asia. Yet, the action on 4 August has been surrounded by controversy since the late 1970s, when new information revealed that there may have been no North Vietnamese activity at all that evening, despite the *Maddox's* report. The *Reference Guide* doesn't even mention this revised data, most recently confirmed in former secretary of defense Robert McNamara's *In Retrospect*.

I cannot recommend the *Reference Guide* because it provides what can only be described as a parochial, Army view of the Air Force and its leadership and contributions since 1945. Ultimately, this bias calls into question the book's overall objectivity and credibility. In an era of jointness, the *Reference Guide* serves as a roadblock to increased interservice cooperation rather than as a road map of where the services have been. The contributors should immediately undertake a revision of this guide to fix these problems.

Lt Col David Howard, USAF  
Maxwell AFB, Alabama

**Summons of the Trumpet: U.S.-Vietnam in Perspective** by Dave R. Palmer. Presidio Press, 505B San Marin Drive, Suite 300, Novato, California 94945-1340, 1978, 273 pages, \$14.95.

If you read only one book on the Vietnam War, read Lt Gen Dave R. Palmer's *Summons of the Trumpet*. General Palmer believes we must understand the first Vietnam if we are to prevent any future Vietnams. He significantly contributes to understanding that war by providing a broad background and history on American involvement in Southeast Asia. Palmer explains why we went to Vietnam, provides a narrative of what we accomplished during our stay there, and details why we left. Most importantly, he illustrates how national policy becomes military strategy. He further illustrates his point that national policy and military strategy must factor in the tactical considerations or end in ruin by incorporating battles or campaigns, which constituted the most common type of fighting during different phases of the war.

Palmer is a highly qualified historian, having taught history at West Point and having served in Vietnam as an advisor to both the Vietnamese Military Academy and Vietnamese armored units.

The validity of his research and analysis increases with the passing of time—testimony to his ability as a researcher. His achievement is even more impressive, considering the fact that he wrote his book so soon after the end of the war. Further, his writing is very clear, efficient, and, most importantly, readable and exciting. One of the few complaints I have about his work was the lack of documentation—no notes or list of interviewees. But this is a minor inconvenience, at worst.

I recommend *Summons of the Trumpet* to anyone who wants to learn more about Vietnam. Quite simply, it is the best book on our involvement in that country.

Capt Roger F. Cavazos, USA  
Fort Benning, Georgia

**Dark Sun: The Making of the Hydrogen Bomb** by Richard Rhodes. Simon and Schuster, Rockefeller Center, 1230 Avenue of the Americas, New York 10020, 1995, 731 pages, \$32.50.

Richard Rhodes won a Pulitzer prize for *The Making of the Atomic Bomb*, to which *Dark Sun* is a sequel. In this work, the author narrates the development of the hydrogen bomb, in both the United States and, through the "transfer of technology," in the Union of Soviet Socialist Republics. But this is also a detective story of the highest order and most profound importance. Rhodes revisits the development of the atomic bombs of World War II and examines how the Russians built a spy system to transfer that knowledge from the US to a fledgling team of Soviet nuclear scientists, who were already at work before the first stolen information arrived from the United States. He has worked in the archives of Russia, interviewed many of their principals who yet survive, and talked with Westerners who served in counterintelligence and counterespionage efforts throughout World War II.

Rhodes carries his tale of scientific inquiry and intrigue into the cold war years and tells of the efforts to produce a "super" bomb. There is the dedication and, according to Rhodes, the connivance of Edward Teller. There is the brilliant work of Klaus Fuchs, the spy, and John von Neumann, the mathematician, who conceived of the "Monte Carlo" phenomenon as an analytical tool to help overcome the enormous calculation problems. He writes about the development of the first modern computer as a step towards the design of the "Super" and about the roles of many American and foreign scientists in the design of that com-

puter, all of which helped us become the world's foremost nuclear power.

Rhodes reveals the effectiveness of Julius and Ethel Rosenberg, and the spy ring of which they were a part, in transferring nuclear technology to the Soviets. The book lays out how they were apprehended, who was involved, and how convincing was the evidence. He has an appendix that covers the J. Robert Oppenheimer "spy case" as a secondary story to the Rosenberg ring, which shows that persecution by legal investigation is not new. Much of this appears to be Rhodes's own new work in pulling the whole story together for the first time. This is a most compelling piece of work, and every military officer with access to classified material should read carefully how the Soviets worked to put the whole picture together. It is still frightening to realize how stupid we were about it all.

The reader who lacks substantial knowledge of the hard sciences may find this thriller a bit difficult to read. The author has made himself an expert on both nuclear physics and other scientific aspects of the development of the Super. The explanations of the implosion device are fascinating reading for people with a scientific turn of mind, and the differences between fission and fusion device operations and effects may be well known to weaponeers, but they are certainly a revelation to readers without weapons knowledge.

Although Rhodes's thesis is rather concealed, only because he never lays it out clearly, the title should have been *How the Russians Stole the Bomb*. This book is a superb tale of scientific development and American brilliance in the building of the international design team and the resulting bomb. But most of all, it is a fascinating tale of suspense and intrigue, and of our being thoroughly fooled by the Russians. *Dark Sun* is a must read for the professional officer who handles classified material.

Prof James A. Mowbray  
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**No Bended Knee: The Battle for Guadalcanal: The Memoir of Gen. Merrill B. Twining USMC (Ret)** edited by Neil Carey. Presidio Press, 505B San Marin Drive, Suite 300, Novato, California 94945-1340, 1996, 206 pages, \$22.00.

For anyone who has ever had to deal with United States Marine Corps personnel, doctrine, or joint operations, the exasperation factor is high. The Marines are, without a doubt, a most

difficult organization to deal with on military issues that infringe on their hard-fought-for turf. After reading Merrill Twining's account of the Guadalcanal campaign, one realizes the Marines have been subjected to a myriad of experiences that left them "high and dry" or, in the case of Guadalcanal, "low and wet."

*No Bended Knee* is a first-person account of an important time in military history. It also unravels one more reason why marines are reluctant, if not recalcitrant, in letting go of their transports, aircraft, and artillery and depending on other services for support. Twining was the 1st Marine Division's D-3 (operations officer) during the seizure and defense of Guadalcanal. During this momentous battle—which we now realize changed the course of the war in the Pacific ("Guadalcanal is not the name of an island. It is the name of the graveyard of the Japanese Army")—most of the division's records were destroyed by order of Gen A. A. Vandegrift when it appeared that the Imperial Japanese Army was about to overrun them. Twining reluctantly complied with Vandegrift's order out of his high regard and complete loyalty to a superb leader. Later, in the hospital, Vandegrift asked Twining to rewrite the operational reports he could remember. Most subsequent accounts of the Guadalcanal campaign used these reconstructed reports. However, these "after" after-action reports contained a number of shortcomings, which many people used to justify their actions.

Twining gives his firsthand report about the incredible decision of Vice Adm Jack Fletcher to pull the Navy away from Guadalcanal, leaving marines to fend for themselves on half rations, little ammunition, and no combat service support. The marines persevered from August to December 1942 until relieved by fresh, but green, troops. Twining's book sets the record straight on several issues, expanding and clarifying battle plans and their subsequent execution. The timing is fortuitous. *No Bended Knee* was published in January 1996, and Twining died in May at the age of 92. He uses his own notes and incredibly sharp memory to recount one of the first true joint operations of World War II. We also learn a few more interesting bits of information about his brothers.

Ned (Maj Edward B. Twining) and Nate (Maj Gen Nathan F. Twining) also served during the Guadalcanal and Solomon Island campaigns. Nate was commander, Air Forces Solomon, a rotating joint command with tactical control over all services and Allied aviation assets, a position that made General Twining one of the first true joint

force air component commanders (JFACC). Ned served as an Air Corps combat intelligence officer and knew the area well.

Additionally, the reader will find out about other concepts Twining considered during his service in the Marine Corps: Marine Air/Ground Task Forces, the conduct of amphibious operations, the need to understand joint and combined theater logistics, tropical medicine requirements, and the importance of performing J-3/D-3 operations staff duty when most marines—notably, Lt Col Chesty Puller—preferred line duty. Twining also championed helicopters as an essential part of the vertical envelopment of beachheads.

In the preface, Twining mentions how important it is for a staff officer to be able to convert plans and decisions of the commander into ordered and responsive battle actions. For people in the profession of arms, Twining's words about staff duty are important since some individuals still eschew it. Twining was also a good commander, as other historical references prove, but his forte was being a superb operations staff officer—a model for any modern "3." His involvement and complete understanding (at any given time, he could be the D-1, D-2, or D-4) of the Guadalcanal planning—the first decisive land battle of the Pacific war—are important contributions to the study of total warfare.

By reading and studying *No Bended Knee*, the military professional can gain an appreciation for war at the strategic, operational, and tactical levels. Twining writes as he served his corps—boldly and straightforwardly, with impeccable detail and superb understanding of things strategic. In light of service involvement in all things "joint," the memoirs of the Guadalcanal campaign—with its associated naval and Cactus air force battles—should be required reading for the Armed Forces Staff College's joint accreditation courses.

Lt Col D. G. Bradford, USAF  
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**In Pharaoh's Army: Memories of the Last War**  
by Tobias Wolff. Vintage Books, 201 E. 50th St., New York 10022, 1994, 221 pages, \$12.00.

If you think Vietnam can be exciting only when you're flying at 400 mph and treetop level, you should read Tobias Wolff's *In Pharaoh's Army*. This is a tour of Vietnam at five feet eight inches off the ground and at 3 mph. Specifically, *In Pharaoh's Army* is about Tobias Wolff's memories

of Vietnam. Yet, you will feel what he feels, see what he sees, and think what he thinks. You will read this book, and it will seem that you are holding a personal conversation with Wolff. You will commiserate with him, experience minor triumphs and major travails, plainly see hypocrisy in other people, and perhaps realize some of your own hypocrisies. The book contains a little bit of history but almost no strategic, operational, or tactical analysis. This is a literary work in a Hemingwayesque vein. You will not gain great strategic insight, but you will gain a tremendous amount of knowledge about human nature. Since all wars are centered on people, you will gain a better grasp of how to incorporate the human factor when waging war. If you're looking for an enlightening personal account of one man's action in Vietnam, written in a readable literary style, choose *In Pharaoh's Army*.

Capt Roger F. Cavazos, USA  
Fort Benning, Georgia

**The Soviet Union and the Vietnam War** by Ilya V. Gaiduk. Ivan R. Dee, Inc., 1332 North Halstead Street, Chicago, Illinois 60622, 1996, 250 pages, \$28.95.

This book is an essential text for students of either the Vietnam War or Soviet studies—participants in the former or practitioners of the latter. As its title clearly suggests, *The Soviet Union and the Vietnam War* seeks to examine the role the Soviet Union played in that conflict. It does not purport to tell the whole story, but it is a landmark book in that it begins to fill in this major void, represented to date by speculation on the part of Western observers.

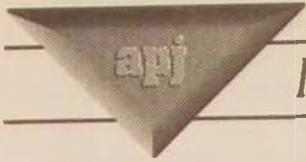
Allowed access to the Storage Center for Contemporary Documentation (TKhSD) in Moscow for a short period before authorities decided it was a potential political Pandora's box, Russian researcher Gaiduk weaves an impressively objective portrayal of official Soviet policy with materials from credible Western archives and authors to tell his story. The book details US and Democratic Republic of Vietnam (DRV) policy, political strategy, and initiatives. The People's Republic of China (PRC), a major factor from the Soviet position, receives much less detailed coverage, and

the Republic of Vietnam barely manages to show for the event—although many would argue that this represented reality. The book is meant to be a diplomatic history, and it is; yet, unlike many works of this ilk, it is neither dry nor confined to diplomatic exchanges.

This book is not a post-cold-war apologia for Soviet policy. The Soviet Union had three clear objectives regarding the conflict: to maintain the advantages of peaceful cooperation with the US; to support national liberation movements and their role in the eventual final victory of communism; and to reduce the influence of the PRC in the world communist movement. Gaiduk does an excellent job of explaining this as well as how the DRV used its leverage regarding the internal contradictions of such a policy against Moscow. Yet, if there is a major shortcoming in the book, it lies in the fact that Gaiduk is too quick to come down on the side of Moscow's search for a negotiated settlement to the war. I do not fault him on evidence; rather, I praise him for detailing it. Yet his analysis pays little mention to the benefits to Moscow of ostensibly "pressing" for negotiations while watching the protracted conflict sap the strength of its major international foe. And, in fact, Gaiduk's sources support such a postulation, given the continued refusal of the USSR to act as a direct broker. For his part, however, Gaiduk would argue with conviction that Washington's repeated use of bombing just after proposing an initiative for reducing the hostilities undermined Moscow's credibility. Likewise, Gaiduk's experience in Soviet society appears to have colored his perception of the ability of the US military to sway administration policy, although he is right on the mark when it comes to discussing the filtering of information to policymakers.

*The Soviet Union and the Vietnam War* is definitely a worthwhile purchase. The work has been extensively researched, as witnessed by its 36 pages of endnotes. It details the lengths to which the US went to keep the Soviet Union advised of the former's moves regarding Vietnam, the importance of the China card to the US, and Soviet policy throughout the period. This book is must reading.

Gregory Varhall  
Kaneohe, Hawaii



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## Mission Debrief

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*The Editor*

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**Lt Col Terry L. New** (USAFA; MS, US Army General Command and Staff College) is assistant chief of staff, Exercise Division, Sixth Allied Tactical Air Force, in Izmir, Turkey. Previous assignments include commander, S12th FS, Ramstein AB, Germany; and instructor, F-16 FWS, Nellis AFB, Nevada. He also served on the Air Staff. Colonel New is a graduate of the Air War College and in 1991 published an article in *Air Force Times* on airpower as a decisive combat arm.

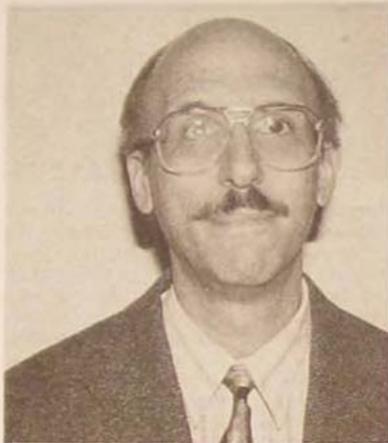


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**Richard Szafranski** (BA, Florida State University; MA, Central Michigan University) retired from the Air Force as a colonel in 1996 to join the strategic planning and advising firm Toffler Associates, created by Alvin and Heidi Toffler. He was the first holder of the Chair for National Military Strategy at the Air War College, Maxwell AFB, Alabama. Colonel Szafranski's duties included staff positions in the head-

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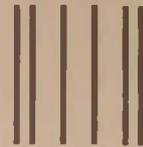
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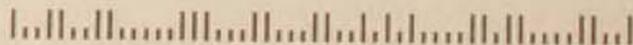


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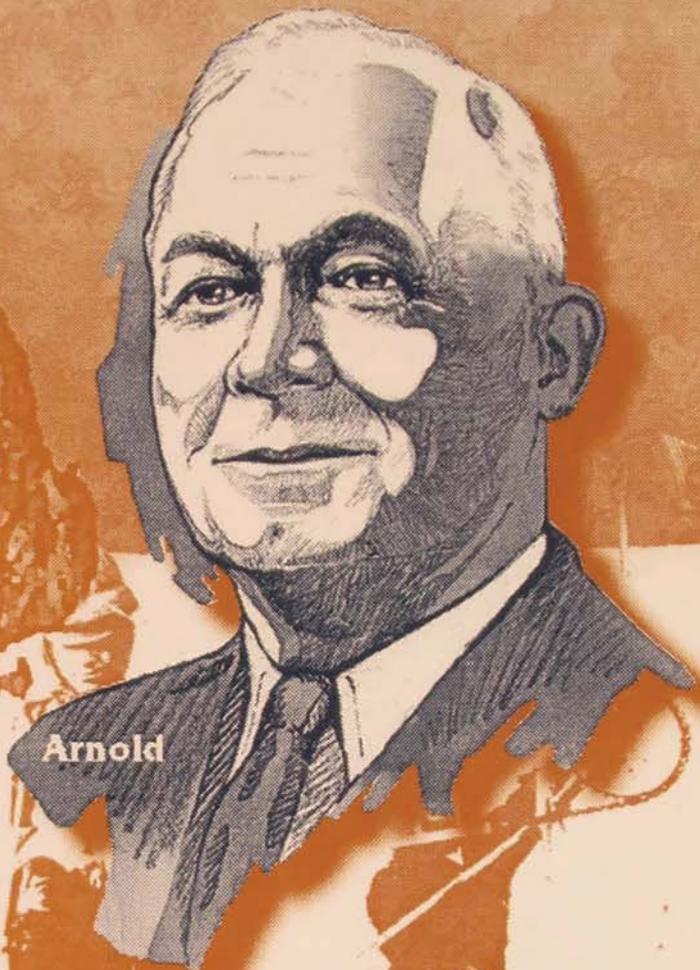
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