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EDITORIAL

In This APJ. . .

INTEGRITY, service, excellence in all we do—these ideals are at the very heart and soul of our military profession. In “The Profession of Arms,” Gen Ronald R. Fogleman petitions his fellow airmen to earnestly place service before self in all they do.

Clausewitz cited public opinion as a center of gravity in war fighting. In today’s instant news and instant information world, communication and public opinion are principles of both war and peace. The Air Force must show its continued relevance to the American people. Brig Gen Ronald T. Sconyers tells us why public affairs is such an invaluable weapon in “Revolutionary Air Force Public Affairs: The Vision.”

Our national military airlift system is at the very heart of “global reach, global power.” In his article titled “The Airlift System: A Primer,” Lt Col Robert C. Owen offers us a macrolevel view of how this complex system works and lays the foundation for future studies of the airlift system. Seventy years of experience have created a synergistic body of organizations, equipment, policy, and doctrine that comprises the current system. Did the recent transfer of C-130s to Air Combat Command reverse over a half century of airlift lessons learned? Lt Col Chris J. Krisinger tackles this and other tough questions in “Towards a Seamless Mobility System: The C-130 and Air Force Reorganization.”

The Luftwaffe was organized, equipped, and successfully employed to gain air superiority in short offensive campaigns over Europe. As the air war over Europe became a protracted struggle on all fronts, the Germans were forced onto the strategic defensive and eventually failed in their quest for air superiority. In “The Luftwaffe and the Battle for Air Superiority: Blueprint or Warning,” Maj William F. Andrews contends that

this failure serves as a distant warning from the past.

The 50th anniversary of the atomic bombing of Japan has generated much comment, analysis, and debate. It is indeed somewhat fashionable today to look back and conclude that the bombings were not necessary. Did Truman make the right decision? Authors Herman S. Wolk and Richard P. Hallion comment on the rationale behind Truman’s decision in “FDR and Truman: Continuity and Context in the A-Bomb Decision.”

From World War II to Desert Storm, Americans have used airpower to set the pace for other operations and to strike directly at enemy centers of gravity when conditions preclude all other options. In Desert Storm, the entire world saw the results of a mature air force applied in a cohesive campaign. In “Airpower as a Second Front,” Lt Col Mark A. Gunzinger proposes that future campaign planners carefully consider using airpower, supported by land and sea operations, as a primary front to directly achieve theater objectives.

In recognition of the 50th anniversary of the end of World War II, we present “World War II Anniversary: Selected Readings.” We’ve included many historical and analytical readings that we hope will contribute significantly to your professional knowledge and will encourage you to read more about your profession.

Finally, this is the last edition of the APJ in its current size. Starting with the next issue (Winter 1995), we’ll have 32 more pages of articles and book reviews for your reading pleasure.

We hope you enjoy reading *your* professional journal. Let us know what you think.

JMP

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 Spencer=James%ARJ%CADRE@Chicago.AFWC.AF.MIL. We reserve the right to edit the material for overall length.

MORE OUT OF JOINT

Maj Scott A. Fedorchak's article ("Air Operations Must Be Joint," Spring 1995) was interesting, but he overlooked or did not address some key points to support his conclusions. I would like to offer my perspective on joint air operations.

All areas of operation (AO) have a joint force commander (JFC), land component commander (LCC), and air component commander (ACC). The Joint Chiefs of Staff assigned the Ninth Air Force commander the role of joint force air component commander (JFACC) in the Southwest Asia AO long before Operation Desert Shield. The Ninth Air Force commander already had a skeleton staff in place to react to whatever contingencies might have arisen.

This staff routinely conducted battle-staff exercises based on current intelligence reports and scenarios to update an existing operations plan. The last full-scale exercise for Southwest Asia was conducted in June 1990. All of the problems addressed in Major Fedorchak's article surfaced and were hotly debated. I was personally involved in discussions about the unwillingness of the Navy and Marine Corps to subject their aviation assets to centralized control. Eventually, differences were resolved, and a plan was hammered out. Unfortunately, many of the Navy and Marine Corps representatives who participated in the battle-staff exercise of June 1990 did not deploy in the same capacity (if at all) to Desert Shield. The "spirit of jointness" did not arrive intact during the first weeks of August 1990. Each component command was engrossed in rapid preparation to meet the Iraqi military threat.

Why did the Marine Corps—but not naval aviation units—have the communications capability to receive the air tasking order (ATO)? As a military force, the United States plans, staffs, and equips for contingencies all over the world. The Air Force was named JFACC for the Southwest Asia AO, so USAF communications equipment became the means for transmittal of the ATO. Marine Corps and Army communications gear is compatible with that of the Air Force. This Navy/Air Force communications problem had been identified several times before in exercising Southwest Asia scenarios. The priority placed on resolving this joint-force problem was low, and it caught up with us. As much as we hate to admit it, our nation cannot fund our military to equip and staff for every possible contingency. Well-trained officers and NCOs make do with what they have to get the job done. Today, due to lessons learned, we place more emphasis on joint communications and interoperability among the US military services and our allies.

A major role of the JFACC system not addressed in the article is insuring that objectives of air, land, and naval forces do not conflict with each other. The airspace control order (ACO)—part of the ATO—provides recommended ways in and out of target locations. The ACO alerts aircrews to land and sea activities that can affect their mission. This deconfliction can be done

CORRECTION

In "Contemporary Civil-Military Relations: Is the Republic in Danger?" (Summer 1995), Capt Edward B. Westermann incorrectly states that Gen Colin Powell was "head of the National Security Agency (NSA)" (page 79). In fact, General Powell served as assistant to the president for national security affairs—a position more commonly referred to as national security advisor.

continued on page 75

THE PROFESSION OF ARMS

GEN RONALD R. FOGLEMAN
Chief of Staff, United States Air Force



RECENTLY, Secretary of the Air Force Sheila Widnall and I articulated what we see as the core values held by our Air Force. These ideals are at the heart and soul of our military profession: integrity first, service before self, and excellence in all we do.

Such values are closely intertwined since integrity provides the bedrock for our military endeavors and is fortified by service to country. This in turn fuels the drive for excellence.

In light of the demands placed upon our people to support US security interests around the globe, I want to expand on the concept of "service before self." As members of the joint team, we airmen are part of a unique profession that is founded on the premise of service before self. We are *not* engaged in just another job; we are practitioners of the profession of arms. We are entrusted with the security of our nation, the protection of its citizens, and the preservation of its way of life. In this capacity, we serve as guardians of America's future. By its very nature, this responsibility requires us to place the needs of our service and our country before personal concerns.

Our military profession is sharply distinguished from others by what Gen Sir John Hackett has termed the "unlimited liability clause." Upon entering the Air Force, we accept a sacred trust from the American people.

We swear to support and defend the Constitution of the United States against all ene-

mies, foreign and domestic. We take this obligation freely without any reservations. We thereby commit our lives in defense of America and her citizens should that become necessary.

No other profession expects its members to lay down their lives for their friends, families, or freedoms. But our profession readily expects its members to willingly risk their lives in performing their professional duties. By voluntarily serving in the military profession, we accept unique responsibilities. In today's world, service to country requires not only a high degree of skill but a willingness to make personal sacrifices.

We work long hours to provide the most combat capability possible for the taxpayer dollar. We go TDY or PCS to harsh locations to meet the needs of the nation. We are on call 24 hours a day, seven days a week. Should a contingency arise that requires our immediate deployment to far corners of the globe, we go without complaint.

Inherent in all this is the individual's willingness to subordinate personal interests for the good of one's unit, one's service, and one's nation. We can ill afford individuals who become "sunshine soldiers" or get focused on careerism. Instead, we need professionals who strive to be the best at their current job and who realize they attain individual advancement through the success of their unit or work center.

Careerism can be most damaging in the case of leaders. If subordinates perceive leaders as self-consumed with career concerns, then they will be unwilling to forgo personal goals for the good of the unit and the Air Force.

This situation is only aggravated by attempts to serve "through a position," or to do a quick "touch and go" in a key job simply to fill out a resumé. Ultimately, the mission will suffer with potentially devastating consequences.

We recently took action to address similar concerns with the Officer Voluntary Assignment System. Numerous critical jobs went unfilled because they were not perceived as attractive for career advancement. That was bad for our Air Force and for the nation.

Consequently, we revamped the system to embody the fundamental premise of "service before self." The new Officer Assignment System puts the needs of the Air Force above individual desires. Officers still have the opportunity to volunteer for a variety of jobs, but ultimately, the Air Force mission takes precedence. This approach to officer assignments will help maintain service as the touchstone of our profession.

So what's the payoff for placing service before self? It isn't solely the paycheck or the benefits that keep us going. In my 32 years of service, I've met many men and women who embody this concept of service before self. They remain with the Air Force because of the intangibles—the satisfaction gained from doing something significant with their lives; the pride in being part of a unique organization that lives by high standards; and the sense of accomplishment gained from defending our nation and its democratic way of life.

In times past, others have made tremendous sacrifices to join this unique profession that places service before self. Lt Gen Benjamin O. Davis, Jr., suffered through nearly

four years of brutal silencing at West Point because of cadet prejudice against African-Americans. But he persevered and earned his commission.

Upon entering active duty, he confronted many forms of bigotry but would not be denied the chance to serve his country. He aggressively pursued the opportunity to fly and led the initial cadre of Tuskegee Airmen through flight training in 1941. Next, he commanded the first all-black US fighter squadron in combat during World War II, helping to disprove myths about blacks' inability to fly and fight.

Subsequently, General Davis led the first all-black fighter group to great distinction in Europe. His 332d Fighter Group never lost a single bomber on 200 escort missions. Moreover, it earned a Distinguished Unit Citation for a 1,600-mile escort mission to Berlin that resulted in the downing of three Me-262 jets in March 1945.

Ultimately, General Davis enjoyed a long and distinguished military career in which he played a pivotal role in the successful integration of African-Americans into our Air Force. We can learn much from his extraordinary perseverance and willingness to subordinate personal concerns to serving his country, even under the toughest of circumstances.

If you would be successful in our profession in the United States Air Force, then take your lead from those who have gone before. Make unflinching honesty and integrity the hallmarks of your performance. Aggressively pursue excellence in all that you do. And place service before self. □

THE LUFTWAFFE AND THE BATTLE FOR AIR SUPERIORITY

BLUEPRINT OR WARNING?

MAJ WILLIAM F. ANDREWS, USAF



SHORTLY AFTER the conclusion of World War I, German military leaders made a decision to base their military strategy on a brief, highly mobile, fast-paced, theater-level offensive. The Luftwaffe was built around this concept of operations. We can measure its effectiveness in how well it performed its most important task: the gaining of air superiority.¹ The Luftwaffe was organized, equipped, and successfully employed to gain air superiority in short-offensive campaigns over continental Europe. This impressive offensive air strategy featured all-out independent operations against opposing air forces as the means to achieve air superiority. Many air forces have since attempted to emulate the Luftwaffe's



VON SEECKT

early victories: impressive successes include Israel's defeat of the Egyptian air force in 1967 and the coalition's defeat of the Iraqi air force in 1991. German success, however, was context-dependent. The Luftwaffe was prepared to win air superiority within the framework of a short-offensive war. The air war over Europe became a protracted struggle on all fronts, and the Luftwaffe was forced onto the strategic defensive. Despite dramatic German adjustments, the Luftwaffe ultimately failed in its quest for air superiority. This failure may serve as a distant warning; the Germans devised a brilliant strategy that was forced into a context in which it could not succeed.

Luftwaffe leaders sought victory within the short-war framework because German lessons of World War I included the understanding that Germany could not afford to wage a protracted war of attrition. Germany had been overwhelmed by the Allies' materiel and economic superiority. Gen Hans von Seeckt, Army commander from 1920 to



1926, realized that fast mobile offensives would be necessary to avoid the kind of prolonged struggle Germany could not win.² This philosophy had an impact on how the Luftwaffe approached air superiority.

To the German airmen, it was widely accepted that defeat of the enemy air force was the best means to attain this all-important goal of air superiority.

The Luftwaffe identified air superiority as its most important task. This belief was founded on German World War I experiences, embraced by senior German military leaders, and established in military regulations. In World War I, the Kaiser's aviators fought and lost a costly battle for air superiority over France and Belgium. Experience revealed that air superiority was desirable because it enabled one's observation and ground attack aircraft to operate freely while denying the same to the enemy.³ In 1929 General von Seeckt wrote that future war would begin with a clash of air fleets and that the air objective must be the "enemy air force, and only after its suppression can the offensive be directed against other targets."⁴ The requirement for air superiority was reflected in interwar regulations. The 1934 army operational doctrine manual, *Truppenführung* (Troop Leadership), stated that "in order to successfully carry out major ground operations, one should seek to establish air superiority over the enemy at the decisive point."⁵ That Luftwaffe leaders embraced the need to gain air superiority is also evident in their prewar writings. The first Luftwaffe chief of staff, Gen Walther Wever, listed the need "to combat the enemy air force" among the Luftwaffe's priority tasks.⁶ Prior to the Polish campaign, Gen Hans Jeschonnek, a later chief of staff, wrote that

the most proper and essential task is the battle against the enemy air force, and it must be executed vigorously and at all costs. The second task, the support of the army, in the first days of the war cannot claim the same level of importance. . . . What may be achieved in the first two days by using one's own air force against an opposing army does not compare with the damage an enemy air force may inflict if it remains battleworthy.⁷

To the German airmen, it was widely accepted that defeat of the enemy air force was the best means to attain this all-important goal of air superiority.⁸

German air doctrine emphasized concentration and offensive action. These characteristics are in evidence in the Luftwaffe's approach to air superiority. From the opening minutes of a campaign, German air units focused the bulk of their efforts on the destruction of the enemy air force. Luftwaffe Regulation 16, *Luftkriegsführung* (Conduct of Aerial War), directed that "the enemy air force is to be fought from the beginning of the war. . . . An offensive execution of the battle in the enemy's territory is indispensable. The aerial battle will gain the initiative over the enemy."⁹ Offensive action by bomber units was intended to destroy enemy air units on the ground, simultaneously disrupting sortie generation and command and control. Fighter units would then hunt down units that were able to get airborne.¹⁰ Defense was not emphasized. In order to avoid diluting the air offensive, defense was left to flak units. This offensive counterair (OCA) effort was concentrated in time to neutralize the opponent's air force as quickly as possible.

The Luftwaffe was effectively organized and equipped to execute these short operational air offensives to destroy opposing air forces. German air force units were organized into autonomous air fleets (*Luftflotten*) that were well geared for OCA operations. Each *Luftflotte* was capable of conducting autonomous operations against an enemy air force, combining a mixture of mutually supporting combat wings, flak, signals, and

support units. More significantly, the *Luftflotten* were commanded by airmen, free from the army chain of command. This independence enabled the Luftwaffe to minimize diversions in support of secondary goals and to concentrate on first defeating the opposing air force.

Technology well supported the Luftwaffe's operational air offensive. Its aircraft were well suited for OCA missions—preferably destroying air units on the ground. German bombers (Do17s, He111s, Ju87s, Ju88s) were good weapons for conducting airfield attacks; their range and payload were adequate to reach air bases most likely to hold the bulk of the enemy air force. Light air-base defenses prevalent at the beginning of the war permitted very low-altitude attacks, enhancing medium bomber accuracy and surprise.¹¹ Twin-engined fighters (Bf110s) were intended to escort the bombers, warding off fighter attacks until the enemy air force was vanquished. Single-engined fighters (Bf109s, and later the Fw190s) were intended to combat enemy units in the air, preferably over enemy territory. Fighter ranges were adequate to carry the fight to most continental adversaries, but would prove incapable of reaching elements of the more distant English and Soviet air forces.

The equipment that a military organization chooses must support its doctrine but may exclude (doctrinally) unforeseen or undesirable tasks. In the Luftwaffe's case, its equipment enabled it to fight the short-offensive OCA campaign but limited its ability to engage in other forms of air war. Equipped for a short-offensive war, the Luftwaffe was suited for attacking continental air forces *in the field*. It was not, however, well suited for attacks on distant sources of enemy airpower—training bases and aircraft factories located deep in the rear. German bombers lacked the range, payload, and defensive firepower to reach distant targets in England, the USSR, and southwest France. The Bf110's eventual failure as an escort and the short range of the Bf109 only aggravated



JESCHONNEK

this operational shortcoming. These limitations are significant because they dictated that Germany's airpower could only be sent against air forces in the field, rather than potentially profitable attacks on adversaries' sources of airpower. A prolonged air war between comparable adversaries carries the very real risk of becoming an exhausting war of attrition. Attritional air war relies as much on raw materials, industrial strength, and crew training as it does on doctrine and strategy.

German emphasis on the offensive use of airpower resulted in underdeveloped air defense capability. To the Luftwaffe, defensive air operations represented a failure of the offensive because "pure defense denies the essential character of the air force."¹² Although Luftwaffe doctrine called for the unification of flak, fighters, and a command and control (C²) network under regional de-

fensive commanders, this did not become a reality until 1943, after the first large-scale Allied bomber raid on Cologne.¹³ Even after local unification, however, the regional organizations were never subordinated to an overarching defense command, resulting in unnecessary competition for resources and poor coordination.¹⁴ Prewar Luftwaffe doctrine was pessimistic about defensive fighter effectiveness, illuminating the difficulty of intercepting high-speed aircraft and noting the possibility that interceptions might have to be conducted on the opponents return leg.¹⁵ This "defensive skepticism" may have retarded the development and integration of critical defensive technologies such as radar and fighter control systems. However, powerful defensive capabilities were eventually born of necessity when Germany was forced from its preferred short-offensive strategy.

Germany successfully applied its offensive air doctrine in the first two years of the war against Poland, Scandinavia, the Low Countries, France, and the Balkans. Concentrated attacks on enemy airfields eliminated effective air resistance within days. During the battle for France, the Luftwaffe command declared air superiority on the fifth day of the campaign and air supremacy six days later.¹⁶ Surprise attacks on main operating bases destroyed large numbers of aircraft. Enemy air units that had dispersed escaped the initial onslaught but operated at reduced efficiency, making them more vulnerable to the offensive action of German fighters.¹⁷

One facet of German air success that is easily overlooked is the contribution of German ground forces to the defeat of enemy air forces. OCA campaigns were greatly aided by offensive success on the ground. Simultaneous air and ground offensives placed enemy air commanders on the horns of a dilemma; they were forced to choose between using their air assets to counter German ground advances or waging all-out counterair campaigns. Concentration on the ground battle could lead to a quick defeat in the air, while a concentration on the air war

seemed impractical and pointless when German spearheads were succeeding on the ground. German emphasis on an offensive counterair strategy seemed well-placed as Luftwaffe units remained effective while enemy air forces were smashed trying to stop the onrush of panzers.

Even with the Luftwaffe's focus on air superiority, its victories were not without cost. Luftwaffe losses were high during each of its offensive campaigns. For example, 36 percent of the Luftwaffe's total strength was damaged or destroyed during the short (two-month) but intense battle for France.¹⁸ This was probably deemed acceptable considering the fact that the French, Dutch, Belgian, and British air forces on the continent were defeated, and France and the Low Countries were overrun. The high loss rate, however, would prove unsustainable in a prolonged air war.

German offensive counterair campaigns failed against England and the Soviet Union when they became protracted struggles. In the summer of 1940, the Luftwaffe attempted to defeat the Royal Air Force (RAF) in a short-offensive campaign against Fighter Command. The operational air goal was to gain air superiority over southeastern England.¹⁹ After an unsuccessful attempt to battle the RAF over the Channel, the Luftwaffe waged a three-week OCA campaign against RAF bases (and to a limited extent, RAF production) in late August. This campaign was making some progress when the Germans changed their attacks to London in an effort to draw RAF fighters into a climactic air battle. Three weeks of day attacks on London failed to defeat Fighter Command, at which point the Luftwaffe abandoned its battle for air superiority over England with a shift to night terror bombing.

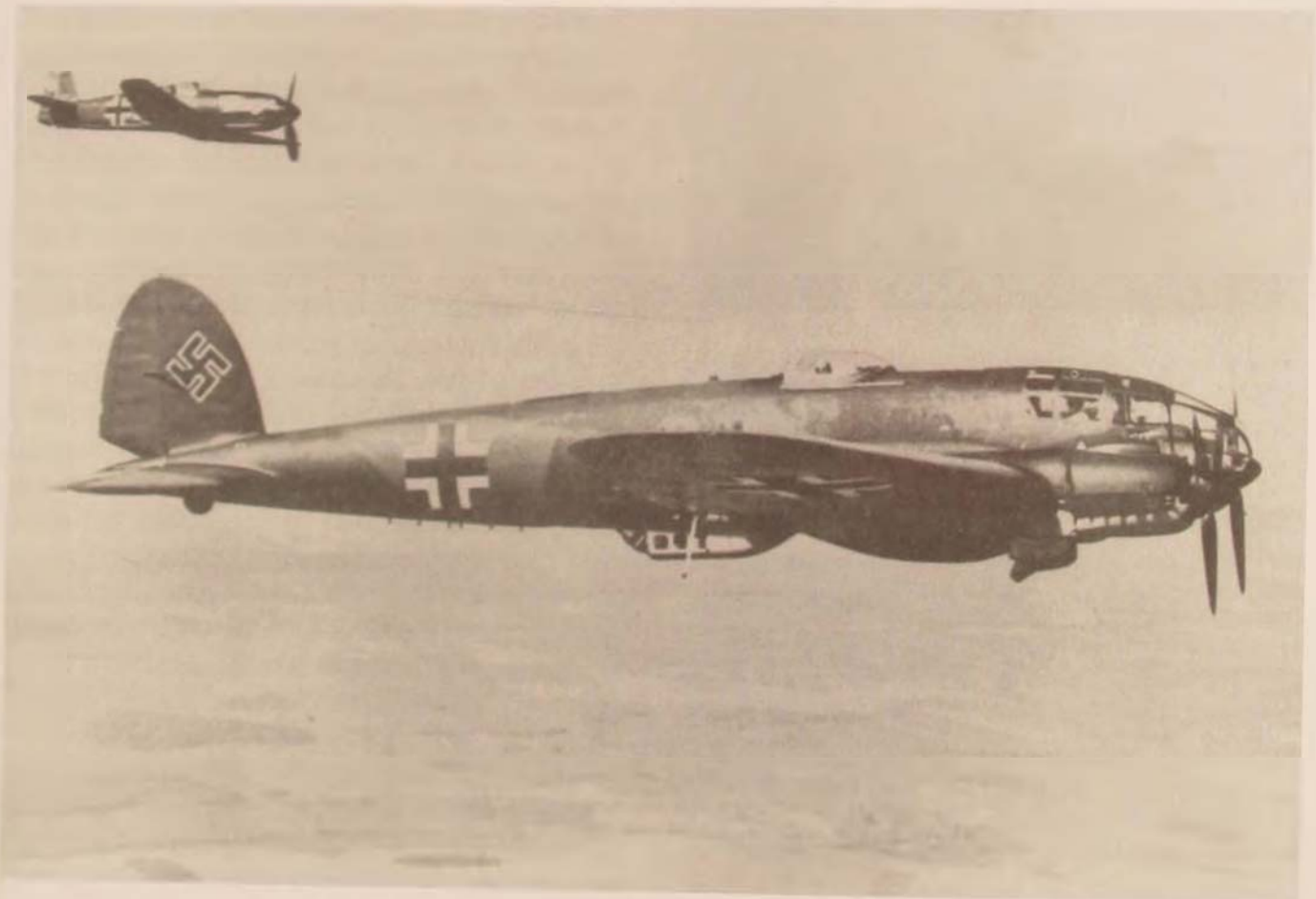
The Germans were unable to attain a swift decision in the air for several reasons. The RAF was the Luftwaffe's first adversary armed with an effective defensive air strategy. Fighter Command had a defensive counterair (DCA) doctrine and was effec-

tively trained and equipped for defensive operations. The British were able to successfully wage the defensive air battle without diversion. The absence of a ground campaign meant that the RAF could concentrate on beating back the Luftwaffe. German operational mistakes also contributed to the failure. German intelligence, failing to identify the vulnerabilities of the RAF's defensive C² network, overlooked this critical center of gravity. Intelligence also failed to correctly assess the effectiveness of the attacks on Fighter Command's sector airfields, and this had resulted in an ill-fated and premature shift to the blitz of London. Lastly, German will and capability to sustain air losses was found lacking as the campaign extended over many costly weeks. As a result,

the Germans were unable to defeat the RAF, and the air war in the west slid into a lengthy stalemate.

The offensive air war against Russia enjoyed initial successes as the OCA effort rapidly gained air superiority over the western Soviet Union. The Red Air Force was virtually annihilated in a series of powerful attacks against Soviet airfields. Conditions were favorable for the Luftwaffe's OCA "knock-out blow." Soviet airfields were incomplete, increasing the vulnerability of Red aircraft on the ground. Soviet units that made it into the air were quickly swept aside as inferior Red Air Force equipment, training, and organizations were exposed. German armored units overran Soviet bases, dislocating or annihilating Red air units. Air

German bombers like the Heinkel He III were good weapons for conducting airfield attacks because their range and payload were adequate to reach air bases that were likely to hold the bulk of the enemy air force.



superiority was quickly achieved and the Luftwaffe was able to shift its efforts to interdiction and close air support. During the period of unquestioned German air superiority, however, the Wehrmacht was unable to bring about a decision in the war. The sources of Soviet airpower were shifted out of range (east of the Urals) and the Red Air Force began a slow recovery. During the Battle of Moscow, the Soviets were able to bring previously uncommitted Siberian air and ground units to bear as the Luftwaffe was severely hampered by the winter conditions. After Moscow, the Red Air Force grew steadily as the Luftwaffe withered. The immensity of the Eastern Front swallowed the small Luftwaffe. Unable to cover vast sections of the front, air units had to be concentrated at critical points. Concentration was crucial in the battles for local air superiority, but it provided no guarantees of success. In the skies west of Stalingrad, the Red Air Force and winter weather foiled the German attempts to resupply the Sixth Army. After this costly battle, the dramatic decline in Luftwaffe strength caused attempts to gain air superiority to be very limited in area and duration. Sharp battles for air superiority developed over the Kursk and Kuban areas in

German emphasis on the offensive use of airpower resulted in underdeveloped air defense capability.

1943 as the Red Air Force slowly gained the upper hand. As the German air force in the east proved incapable of destroying the resurgent Soviet air force, it slowly lost its independent mission and shifted its emphasis to direct army support.²⁰ The Eastern Front became a constant drain on the Luftwaffe, weakening it for the fatal blow to be administered in the west.

In 1921 General von Seeckt directed that the "opponent is to be pushed onto the defensive, and his power and aggressiveness broken by the destruction of numerous aircraft."²¹ The German failure to gain air superiority over the British Isles allowed the Allies to achieve this same goal against the Luftwaffe. Allied air superiority over England provided a sanctuary for an Allied bomber buildup. The Allies were able to launch the Combined Bomber Offensive, which had to be answered by the Luftwaffe. Having already abandoned the offensive in the west, and heavily committed in the east, the Luftwaffe was forced into a DCA battle. This defensive struggle gradually exhausted the German air force as hopes for air superiority on the periphery were sacrificed to sustain the costly battles over the Reich.

The prolonged defensive air war forced changes to Luftwaffe organization, equipment, and employment. Although the Germans were able to make a dramatic shift from an offensive air strategy to a defensive one, they were ultimately overwhelmed in the air by Allied production in a battle of attrition. Without a substantial defensive doctrine, the German DCA efforts drifted into an attempt to impose prohibitive losses on the Allied bomber force. The preferred German strategy of annihilation was impractical, however, since OCA was precluded by Allied air superiority over England and offensive action by Allied bombers was optional. Luftwaffe generals clung to the hope that if enough fighters could be massed against a bomber formation, it could be scattered and decimated, presumably resulting in a suspension of the air offensive.²²

Defensive air organizations evolved steadily from 1941 to 1944 in response to operational requirements. Defense of the Reich was initially entrusted to a single *Fliegerkorps*, but eventually grew to two *Luftflotten* controlling five fighter divisions. The fighter divisions controlled air communications and control regiments, aircraft warning regiments, fighter groups, and flak regi-

ments.²³ This defensive organization expanded and was refined as the threat posed by the Allied air offensive grew.

Defensive counterair requirements spawned numerous technical changes. The Luftwaffe produced and integrated air surveillance radars, airborne intercept radar, flak fire-control radars, and automated fighter control systems.²⁴ Armor and armament grew, sacrificing range and maneuverability (attributes desirable for offensive fighters) to counter Allied bombers.²⁵ German fighter armament expanded to include bomber-killing aerial bombs, rockets, and heavy (30-mm) cannon. Aircraft production reflected the shift to the defensive as bomber production was sacrificed for the sake of increased defensive fighter production. As the Luftwaffe lost its offensive capability, former bomber and transport pilots were converted to fighters for the defensive battle.

To the Luftwaffe's credit, defensive operations achieved some successes through 1943. Although German fighters were unable to turn back the bomber raids, they quickly forced the RAF's Bomber Command into less effective night operations and inflicted prohibitive losses on unescorted bombers of the American Eighth Air Force. Daylight operations over Germany were suspended after the second Schweinfurt raid. This German success was, however, only a pyrrhic victory. By Schweinfurt, the Luftwaffe had lost hundreds of valuable planes and irreplaceable pilots. Although Luftwaffe leaders had displayed considerable doctrinal and operational flexibility in the shift to the defensive, the air war had become an attritional struggle the Luftwaffe could not win. When the Americans resumed the offensive in 1944, the unexpected appearance of long-range escort fighters tipped the exchange rate in the air clearly in their favor.

The Combined Bomber Offensive wrested the initiative from the Luftwaffe. Defensive fighter operations were reactive in nature and incapable of forcing a favorable outcome for the Luftwaffe. Marvelous techno-



Airfield attacks were an important element of the German OCA efforts. German bombs fall on an English airfield, summer 1940.

logical improvements such as jets, rocket fighters, and surface-to-air missiles that might have negated Allied long-range fighters came too late to be of consequence. Allied numbers drove the Luftwaffe from the skies. Amidst a quickly failing defensive campaign, the Luftwaffe held onto its deep-rooted offensive preference. The waning German bomber and fighter forces each performed swan songs in OCA efforts. The last meaningful achievement of the Luftwaffe

manned bomber force was the June 1944 raid on the Ukrainian city of Poltava. Night bombers caught the American shuttle bombing force on the ground, damaging or destroying 69 B-17s.²⁶ In the west, the last major fighter operation took place on 1 January 1945 when the Luftwaffe's entire operational fighter force was committed to Operation *Bodenplatte* (Ground Plate), a raid against Allied airfields in the Low Countries and France.²⁷ *Bodenplatte* highlights the emasculation of the Luftwaffe. The operation was executed by single-engined fighters (the bomber force was nearly nonexistent), by inexperienced pilots in a mission holding little possibility of success. Trained and equipped for air-to-air, the German pilots suffered approximately 30 percent losses in this single mission.²⁸ Although both these operations destroyed Allied aircraft on the ground, they amounted to little more than pinpricks considering the numbers of aircraft the Luftwaffe still faced.

In analyzing Luftwaffe performance in World War II, many have found it easy to criticize Luftwaffe leadership. A generation of American and British strategic bombing advocates have taken German air leaders to task for failing to build four-engined heavy bombers, yet these two great insular nations (which were able to devote far more resources to their bomber fleets) were unable to produce enough heavy bombers to yield meaningful results before 1944. Furthermore, American heavy bombers were unable to operate freely over Germany until effective long-range escort fighters were widely available. A criticism with more merit was that the Luftwaffe High Command, particularly Chief of Staff Hans Jeschonnek, was shortsighted. German training practices tended to support this position; in particular, Jeschonnek's commitment of Luftwaffe training units in contingencies was quite damaging considering the fact that training assets are crucial in lengthy wars of attrition.²⁹ The Luftwaffe was slow to recognize that it was in an attritional air war and to

implement the measures needed to wage one successfully. There is a strong possibility that Hermann Göring and Jeschonnek were guilty of overconfidence in their short-offensive air war strategy.³⁰ The Luftwaffe High Command failed to seriously prepare for the possibility that their preferred strategy could fail.³¹ Nevertheless, the Luftwaffe made remarkable adjustments in the shift from offensive to defensive air operations, and it is a credit to the German Air Staff and operational commanders that the Luftwaffe remained a factor for so long against such staggering opposition.

After 1941, the Luftwaffe faced a situation it could not win. The question this suggests for contemporary strategists is, How does one keep from stumbling into a strategic box canyon? The Luftwaffe experience suggests that we must recognize that there are limitations to a nation's preferred military strategies. Simply stated, there are battles and adversaries one will be armed and trained to fight, and there will be fights that one must avoid militarily. Unfortunately, military officers are not able to pick the wars they are ordered to fight. Facing such a situation, the general and his staff must be aware that the endeavor they are contemplating may not conform to preconceived doctrine, and their forces may not be optimally trained, organized, or equipped for the situation. Furthermore, the commander must realize that he can enter a conflict under favorable conditions, but he may not be able to dictate the nature of a war once begun. When this happens, he must first recognize the fact that the war is no longer of the nature desired. He must then adjust his strategy to the situation as it exists. Hopefully, the commander and his staff have thought out alternate possibilities and made preparations for them. The Luftwaffe's experience, however, warns us of the very real possibility that adjustments may only be able to affect situations at the margins and that no amount of doctrinal or operational flexibility can save a hopeless situation. After 1941,

the only solution to the Germans' problems was political, not military. This leads us back to the start: the general may have to tell the politician that there are limits to

what can be done militarily. The alternative is to try to make the best of a descent into an abyss. □

Notes

1. For the purposes of this article, air superiority is considered to be the ability to pursue one's goals in the air without prohibitive interference from the enemy. In the World War II context, this interference stemmed from the offensive and defensive action of opposing air forces.

2. Von Seeckt's position was soundly based on a comprehensive postwar analysis conducted by the German staff. James Corum, *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform* (Lawrence, Kans.: University Press of Kansas, 1992), 37, 66.

3. The benefits of air superiority were evident to the German air staff. This study called for the fighter force to "shoot down as many enemy aircraft as possible in order to provide our own aerial forces with freedom of movement, to protect our own aerial observation, to hinder enemy observation and protect our troops, installations and cities from aerial attack." Truppenamt (Luft), *Studie einer Offiziers über die Fliegerwaffe und ihre Verwendung* (circa 1925).

4. Hans von Seeckt, *Gedanken eines Soldaten* (Berlin: Verlag für Kulturpolitik, 1929), 93-95.

5. German Army Regulation 300, *Truppenführung* (1934), par. 759.

6. Richard Muller, *The German Air War in Russia* (Baltimore: Nautical and Aviation Publishing, 1992), 7.

7. *Ibid.*, 36.

8. Gen Wolfram von Richthofen was a notable exception. He questioned early air superiority efforts if they had to come at the expense of ground support during the attack on Poland. Cajus Bekker, *Luftwaffe War Diaries* (New York: Ballantine Books, 1966), 16.

9. Luftwaffe Regulation 16, *Luftkriegsführung* (1935), pars. 103-4.

10. "Surprise attacks by our forces at the start of the war can catch the enemy forces at their peacetime bases. Even if they take rapid evasive measures, the enemy leadership may experience crippling damage." *Ibid.*

11. John F. Kreis, *Air Warfare and Air Base Air Defense* (Washington, D.C.: Air Force Office of History, 1988), 91.

12. Truppenamt (Luft), *Richtlinien für die Führung des Operativen Luftkrieges*, May 1926, par. 40.

13. General der Flieger Joseph Kammhuber, "Problems in the Conduct of a Day and Night Defensive Air War," USAF Historical Study no. 179 (Maxwell AFB, Ala.: USAF Historical Division, 1 October 1953), 123.

14. Generalleutnant Adolf Galland, "Defeat of the Luftwaffe: Fundamental Causes," *Air University Quarterly Review* 6, no. 1 (Spring 1953): 30.

15. *Luftkriegsführung*, pars. 265, 275.

16. General der Flieger Wilhelm Speidel, "The GAF in France and the Low Countries, 1939-1940," USAF Historical Study no. 152 (Maxwell AFB, Ala.: USAF Historical Division, 1958), pt. 3, vol. 2a, pars. 248 and 263. With air superiority achieved over the entire Western Front, the Luftwaffe was able

to dedicate nearly all of its efforts to army support after 14 May 1940. Speidel was chief of staff, *Luftflotte 2*, during the campaign. See Karl F. Hilebrand, *Die Generale der Deutschen Luftwaffe, 1935-1945*, vol. 3 (Osnabrück: Biblio Verlag, 1992), 320-22.

17. Dispersal reduced the generation and sustainability of sorties and hampered command and control.

18. Williamson Murray, *Strategy for Defeat: The Luftwaffe, 1933-1945* (Maxwell AFB, Ala.: Air University Press, 1983), 40.

19. Strategic goals were less clear-cut, but the first step of any plan required air superiority.

20. Muller estimates that 60 to 80 percent of the Luftwaffe's effort went to direct army support in 1942-43. Muller, 103.

21. German Army Regulation 487, *Führung und Gefecht der Verbundenen Waffen* (1923), pt. 2, par. 77.

22. Adolf Galland, *The First and the Last: The Rise and Fall of the German Fighter Forces, 1938-1945*, trans. Mervyn Savill (New York: Bantam Books, 1978), 199.

23. Stephen McFarland and Wesley Newton, *To Command the Sky: The Battle for Air Superiority over Germany, 1942-1944* (Washington, D.C.: Smithsonian Press, 1991), 51.

24. Kammhuber describes automated Luftwaffe systems including the Y- *Gerät* (a transponder) and *Uhu 2* (a ground-to-air data link) in his air defense analysis. Kammhuber, 194, 199.

25. General Galland asserted that Bf109s "defaced in this way were as good as useless for fighter combat." Galland, 152.

26. Muller, 213.

27. *Bodenplatte* was launched after the Luftwaffe failed to achieve local air superiority (with fighter patrols) over their ground forces advancing through the Ardennes.

28. Danny S. Parker, *To Win the Winter Sky: Air War over the Ardennes, 1944-1945* (Conshohocken, Pa.: Combined Books, 1994) 448.

29. Richard Suchenwirth identifies Jeschonnek's neglect of the training program and "ruthless raids" on training resources as a major factor in the defeat of the Luftwaffe. Richard Suchenwirth, "Historical Turning Points in the German Air Force War Effort," USAF Historical Study no. 189 (Maxwell AFB, Ala.: USAF Historical Division, 1959), 20-28.

30. For example, in February 1940, Göring ordered further aircraft development halted "based on his optimistic assumption that the war would be a short one as Hitler had promised." Richard Suchenwirth, *Command and Leadership in the German Air Force*, USAF Historical Study no. 174 (Maxwell AFB, Ala.: USAF Historical Division, 1969), 158.

31. Kammhuber warned in his postwar writings, "It is better to prepare for the least favorable turn of events, even though it may not occur, than to be caught unprepared." Kammhuber, 3.



THE AIRLIFT SYSTEM

A PRIMER

LT COL ROBERT C. OWEN, USAF

THE NATIONAL military airlift system of the United States and its associated policy-making processes are enormously complex. The components of the system include airlift forces and support units from all the military services and hundreds of aircraft and thousands of employees from numerous commercial air carriers. The formulation of airlift policy includes cooperative and adversarial interactions among these military and civilian components and other organizations such as Congress, the Department of Defense (DOD), the Department of Transportation, commercial aircraft manufacturers, the Airline Transport Association, and many other



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players. The balkanized complexity of airlift policy-making is evident in current efforts to keep moving forward such major airlift programs as the C-17 and proposals to bring an existing, probably civil-type “nondevelopmental airlift aircraft” (NDAA) into Air Mobility Command (AMC). Each of these efforts involves confrontation and cooperation among numerous institutions and individuals, each with a distinct perspective on the military, political, economic, and technological parameters involved. Given the multibillion-dollar costs of such programs, it is not surprising that this welter of perspectives can render the airlift policy process complex and intense—even bitter.

In dealing with these complex issues, most airlift policymakers and planners understand that they are dealing with a system

of interconnected and interdependent parts. But the stakes and intensity of the policy process can obscure their systemic perspective and thereby allow decision makers to consider proposals or take actions that offer substantial advantages to one element of the airlift system, while simultaneously undermining its overall efficiency and effectiveness. The airlift policy and planning communities, therefore, need to refresh their understanding of the national military airlift system *as a system*, lest in their efforts to improve its individual components they become guilty of robbing Peter *twice*, to pay Paul only once.

This primer offers a macrolevel vision of how the airlift system works. Its purpose is to describe key concepts and component interrelationships of the US national military

airlift system to provide a baseline for assessing the systemic advantages and disadvantages of making changes to the missions or composition of those components. The core concepts and interconnections of the airlift system—mission, the focus of airlift policy, component roles, and organization—are reasonably easy to describe. Secondary issues, such as the determination of appropriate airlift technologies and the interplay of institutional self-interests in the policy process, are

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more complex. Consequently, determining the net benefits of any effort to improve the effectiveness of a specific airlift component is challenging but not impossible, so long as the overall connections and synergism of the airlift system are kept in mind. To the end of seeing how the interrelationships of the airlift system influence assessments of viable policy, this discussion touches on some current airlift policy issues in the course of discussing the system's foundational tenets. These issues include the role of the Civil Reserve Air Fleet (CRAF), the acquisition of commercial aircraft for the military component of the airlift system, and organizational centralization.

The Air Mobility System

The present US military airlift system is the product of at least six decades of doctrinal, operational, organizational, and technological development. Even in the early 1920s, a few individuals were thinking and sporadically writing about the military po-

tential of air transportation. By the early 1930s, the appearance of two-engine, all-metal transport aircraft such as the Boeing 247 and Douglas DC-2 prompted a sustained discussion among senior Army Air Corps leaders about the technological, operational, and organizational options of military airlift. World War II established the importance of airlift to all military services, and it encouraged a number of major US commercial carriers to expand their overseas operations and acquire long-range transport aircraft identical or at least similar to those operated by the military. For airlift policy, the first three postwar decades featured sustained efforts by a greatly expanded host of military and civilian individuals and institutions to quantify and provide forces to serve the airlift requirements of the services, to divide airlift responsibilities among the military and civilian organizations available to move them, and to properly organize military airlift forces in ways that optimized the advantages of centralized management and decentralized operational command. By the mid-1970s, these efforts had produced a close-coupled system of airlift thought and structure that remains in place today, though refined in detail and expanded in capability to move combat forces between and within combat theaters.¹ Thus, one should impose change on this system or its individual components only with clear reference to its dearly derived general wisdom.

The basic mission of US military airlift forces is straightforward: to move by air—in the words of a Military Airlift Command (MAC) slogan—"Anything-Anywhere-Anytime." To guide planning for the size and composition of national airlift forces, military planners since the mid-1940s usually have expressed baseline airlift requirements in terms of the number of Army divisions or Air Force squadrons to be moved over given distances in a given time. Gen Henry H. ("Hap") Arnold, commander of the Army Air Forces in 1945, proposed that the post-World War II military establishment include airlift

forces sufficient to move an Army corps anywhere in the world in 72 hours.² In more realistic terms, given the capabilities of air transport aircraft at the time, the US Army entered the 1950s with a stated requirement for enough aircraft to lift the tactical elements of an airborne corps in an intratheater airborne operation and to move a single division by air anywhere in the world.³ By 1956 the Army's requirement for "strategic" airlift had grown to include the movement of the combat elements of two infantry divisions weighing 11,000 tons each anywhere in the world in 28 days.⁴ The Air Force, meanwhile, focused the force structure and training of its major, long-range airlift command—Military Air Transport Service (MATS)—on deploying Strategic Air Command (SAC) medium-bomber units to overseas bases in the event of nuclear war. MAC, which superseded MATS in 1966 as the US military's principal operator of global airlift forces, concentrated on reinforcing the North Atlantic Treaty Organization (NATO) in the event of war—a requirement that once called for the movement of 259,000 tons of personnel and materiel, including seven divisions and 23 tactical fighter wings, from the United States to Europe in 10 days.⁵ Thus, the fundamental definition and structure of the military airlift mission has remained constant for 50 years, though the actual "baseline" lift requirements established to guide force-structure planning have grown steadily.

Determining the scale and composition of baseline airlift planning requirements has persistently challenged airlift policymakers and planners. The acute sensitivity of airlift operational planning to factors such as time, distance, infrastructure, and load configurations hampers the development of confident and broadly accepted estimates of the appropriate size and configuration of the airlift fleet. Even minor changes to any one of these factors in a planning scenario can drastically alter the daily capacity and routing of an airlift movement and can thus alter the

characteristics and size of the aircraft fleet, support structure, and even the crew needed to support that movement.

The increasing complexity of national military strategies also complicates airlift planning. In the 1950s, MATS planners sized and equipped the long-range airlift fleet to match the distinctly quantifiable mobility requirements of SAC, in the certain knowledge that national strategy would recognize no higher-priority movement requirement in the event of nuclear war.⁶ With similar certitude, MAC planners in the 1970s and 1980s focused on NATO reinforcement. But in the multipolar confusion of the post-cold-war world, planners in AMC, which superseded MAC in 1991, face competing requirements and high day-to-day operating levels that render strategic priorities difficult to predict and baseline airlift requirements difficult to calculate. AMC's "user list" has also increased, as command aircraft continue to support humanitarian missions, foreign military forces engaged in peacekeeping operations, and a host of other users.

The steady growth and increasing complexity of the airlift requirement infuses airlift planning with three noteworthy tensions. First, airlift planners face an expensive version of the "closet syndrome." That is, no matter how much airlift capacity they create, there is always demand for more. Although overall US long-range airlift capacity has grown more than twentyfold since the early 1950s, the relative gap between airlift requirements and capabilities seems hardly to have narrowed.

To a great extent, the steady growth in the US military's demand for airlift stems from the increasing importance of airlift to successive national military strategies. The role of MATS in support of the strategy of massive retaliation in the 1950s, for example, was to move SAC at the outbreak of a nuclear war. In 1960 this mission called for 384 sorties—a number roughly corresponding to MATS's strength in heavy cargo and cargo-convertible aircraft.⁷ Under the strategy of

flexible response in the 1960s, MATS's planning responsibilities included much larger and more complex requirements to move Air Force tactical units and Army ground forces in response to a variety of planning scenarios.

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Another cause of the airlift gap has been the growing inclination of each service to rely on air mobility and logistics. Since the early 1950s, the Air Force has expected to deploy its personnel and units by air, while the Army has steadily increased its dependence on air deployment since the early 1960s. Further, in contrast to the neatly calculable needs of SAC, Army airlift requirements vary greatly with changing constraints of force structure, time, and location. No wonder that Gen Curtis E. LeMay, Air Force chief of staff, complained to Congress in 1963 that the inclusion of limited war and counterinsurgency wars as airlift planning factors had created an airlift deficit, primarily because "Army airlift requirements continue to grow."⁸

The magnitude and complexity of the airlift requirement also challenge planners in their efforts to determine proper characteristics and mix of transport aircraft in the airlift fleet. Within a given airlift requirement, the characteristics of individual loads, distances flown, nature of destination airfields, and times available to complete or "close" specific movements usually vary greatly. Aircraft loads in support of a joint task force deployment might include troops, aircraft munitions, rations, bulk liquids, medical supplies, satellite downlink stations, armored fighting vehicles, artillery pieces,

tents, computers, and a host of other things. Some of these loads might be destined for developed, international-class airfields, while others might be dropped or unloaded at "terminals" ranging from rough clearings to small regional airfields with relatively short runways and limited taxi and parking space. No single aircraft type can efficiently carry all these loads, over all routes, into all possible terminals. An efficient airlift fleet, therefore, must be composed of several types of aircraft.

Airlift planners have recognized the need for airlift fleets of mixed aircraft types at least since the outbreak of World War II. As a group, however, they have always found daunting the problem of determining what types of aircraft and how many of each should be included in the airlift fleet. Generally, the Air Force airlift fleet after the Korean War included a mix of small, short-range "assault transports" such as the Fairchild C-123; medium-sized "tactical transports" such as the Lockheed C-130; and larger, long-range "strategic transports" such as the Douglas C-124, Lockheed C-5 and C-141, and aircraft drawn from civilian airlines. Assault transports disappeared from the Air Force inventory by the mid-1980s, their role of forward logistics and short-range airborne and airlanded assault largely taken over by the US Army's fleet of battle-field airlift helicopters. Also, tanker-transports are now a large part of the long-range fleet, a further example of the complicated problem of force structuring faced by airlift planners.

The high costs of building and maintaining a large, multitype airlift fleet present airlift planners with the additional frustration of knowing that they have little hope of actually acquiring a fleet large and diversified enough to move all possible requirements with maximum efficiency. For a start, no airlift-planning baseline has ever stood or is likely to stand the tests of changing national strategies and growing user requirements long enough to allow the major operating

commands—MATS, MAC, Tactical Air Command (TAC), and now AMC and Air Combat Command (ACC)—to tailor the airlift fleet to match it. Moreover, since the late 1950s, the high-end airlift-planning baselines always exceeded Congress's ability or even its willingness to purchase an appropriate fleet of aircraft. Expensive transport aircraft compete for budget money with other "big-ticket" programs, such as fighters, bombers, tanks, missiles, and ships. Historically, these combat systems have had a high priority and, as a result, the military has funded major air transport programs only when the existing airlift fleet is decrepit or when a major shift in national security policy, such as the adoption of flexible response in the early 1960s, demanded improved airlift forces.⁹ Even in those cases, the capabilities of the airlift fleet never equaled the air transportation demands anticipated in "worst-case" war plans or other expressions of the baseline planning requirement.

These three tensions—high demand, fleet structure, and budget—impose a pragmatic focus on the process of formulating airlift policy, although this slant is not always clearly understood or articulated by all participants. Realistically, airlift planners and decision makers are unlikely to advocate successfully the acquisition of a fleet adequate to satisfy the ever growing tonnage, cargo configuration, and time constraints of all war plans or other baseline requirements. The focus of airlift policy, therefore, is not to build an airlift fleet that can meet a specific requirement but to acquire the largest and most generally capable airlift force with the funds available. This is not to say that airlift planners should not or do not calculate ideal airlift fleets needed to satisfy likely worst-case requirements, such as massive force deployments to regional conflicts. Such calculations are essential to making and evaluating plans for the size and composition of the airlift fleet. But when airlift policymakers actually advocate specific aircraft development and acquisition programs, they

typically reduce—and likely will be obliged to continue to reduce—their estimates of requirements and force structure to fit budgetary and political realities. In other words, effective airlift policy-making involves asking for what one can get instead of what one actually needs.

Numerous illustrations show how this tension between real requirements and politically viable requirements has affected the process of creating airlift policy. For example, John Shea—a senior airlift planner who served nearly 40 years in MATS and MAC—recalled that in the mid-1960s he and his staff determined the initial size of the C-5A fleet off-the-cuff, settling on a six-squadron force more for reasons of supportability than for meeting specific operational requirements. He scarcely considered actual or potential requirements since he believed that, whatever they turned out to be on paper, those requirements would call for a C-5 fleet larger than the Air Force or Congress would be willing to buy.¹⁰ Similarly, the 66 million ton-miles-per-day (MTM/D) airlift capacity target of the Congressionally Mandated Mobility Study (CMMS) of 1981, which guided MAC long-range airlift planning for a decade, represented "only about half" of what Shea considered the real requirement. MAC and DOD accepted the 66 MTM/D figure, Shea reports, because it was "a reasonable and attainable" number, in terms of the forces required to meet it.¹¹ The drafters of the CMMS implicitly acknowledged Shea's assessment by proposing an airlift capacity enhancement that fell short of all the regional-conflict planning requirements used in their analysis. The 1992 mobility requirements study by the Joint Chiefs of Staff (JCS) more explicitly expressed the tension between "real" requirements and costs:

This mobility requirement is based on accepting no more than moderate risk to the attainment of US objectives. The moderate-risk capability might not be adequate to support these objectives in some worst case scenarios. The forces recommended by the Commanders of unified commands normally are based on a

low-risk requirement and can require significantly more mobility assets than are on hand or programmed. In addition, the moderate-risk capability cannot handle a second, concurrent major regional contingency beginning sequentially. . . . However, the moderate-risk requirement yields a strategically prudent force that is fiscally responsible.¹²

Further, the inability of existing and programmed mobility forces to support simultaneous major regional contingencies (MRC) clearly influenced the recent shift in US national strategy to a commitment to fight "near-simultaneous" MRCs. Whatever the desirability of deploying war-winning forces to two major conflicts at the same time, national airlift (not to mention sea-lift) capabilities simply will not support such a strategy.

Effective airlift policy-making involves asking for what one can get instead of what one actually needs.

Recognizing that good airlift policy-making is based on pragmatic realism rather than idealistic absolutism is helpful. Most importantly, recognizing that acquisition programs for US airlift forces must reflect fiscal and political realities—at least as much as they reflect stated mobility and other logistical requirements—permits policymakers to own up to the strategic limitations imposed by those realities. Acknowledgment of the "delta" between requirements and reality—at least in classified channels—will, in turn, reduce the likelihood of military planners and political leaders committing to strategies and policies that existing or planned airlift forces simply cannot support. Lastly, understanding that effective airlift policy maximizes capacity for the funds available is a requisite to understanding the tenets of airlift policy.

Tenets of Airlift Policy

By the late 1930s, when the Army Air Corps began establishing permanent airlift units, American military and civilian planners had worked out a policy approach to the problem of providing as much suitable airlift capability as possible, within the constraints imposed by the three tensions of growing requirements, expensive aircraft, and low budget priorities. In that early period, there was no comprehensive, written airlift doctrine. But in scattered writings and early policy actions, these planners implicitly revealed an approach to reconciling their conflicting goals of acquiring enough airlift forces to meet requirements without breaking the bank. Their approach was based on four tenets that remain at the heart of airlift policy, their position secured by a growing body of experience and doctrine.¹³

The central tenet of airlift policy is that *the commercial airline fleet is the heart of the national airlift fleet*. To the extent possible, commercial aircraft should move military cargo and personnel. Even in the late 1930s, airlift thinkers found the logic of this tenet compelling. Above all else, they knew that military airlift requirements far exceeded the capabilities of any airlift force that the Army and the Navy combined would likely buy. Their only choice was to consider civilian airlines a vital adjunct of the military fleet. By the time CRAF was established in 1951, airlift leaders realized that commercial carriers were *by far* the least expensive source of active airlift support for day-to-day operations and of reserve airlift capacity for wartime mobilization. Indeed, to provide for mobilization airlift beyond its day-to-day operating requirements, the Air Force in the mid-1950s only needed to install radio racks and sextant ports in four-engine commercial airliners to make them ready for transoceanic operations. The costs of these modifications were trivial compared to the costs of maintaining whole aircraft in the military fleet for the same purpose.¹⁴ In the mid-1980s, MAC planners estimated that reserve

airlift capacity was about six to eight times less costly to maintain in CRAF than in the military fleet; further, a 1990 study by the Rand Corporation assessed those costs as "a fraction" of those incurred in maintaining the same reserve capacity in the active military fleet.¹⁵

The wisdom of relying first on the commercial fleet for routine and wartime reserve-airlift capacity is well established in national-policy documents. In 1955 the watershed Hoover Commission report on government operations declared that the acquisition of military transport aircraft to carry peacetime and wartime loads that could be carried in commercial airliners was tantamount to "military socialism"—that is, improper government competition with private industry.¹⁶ Utilization of the commercial fleet as the first recourse for military airlift in peace and war was also at the heart of the first presidential policy statement on the subject in 1960.¹⁷ In his national airlift policy directive of 1987, President Ronald Reagan reiterated the coequal usefulness of the military and civilian components of the national military airlift fleet and the policy of utilizing commercial carriers to the maximum extent possible in both peace and war.¹⁸ The logic of this reliance is simple: the commercial fleet is always available, largely without cost to the government unless the latter contracts for its services in peace or mobilizes it for war. Military planners would be remiss if they did not tap the fleet's capabilities to the maximum extent practical before spending public funds on military aircraft.

Given the availability and minimal cost of the commercial fleet, the Hoover Commission implicitly questioned the need for more than a residual military component of the long-range airlift fleet.¹⁹ At the time, the primary mission of MATS was to move SAC support teams to overseas bases on the outbreak of a nuclear war. The personnel and equipment of those teams—composed mainly of small vehicles, parts bins, and engines—fitted

into the four-engine Douglas C-54s, C-118s, and C-124s that comprised the bulk of the MATS fleet. Since these aircraft were virtual copies of—or, in the case of the C-124, shared the same design with—commercial airliners in service at the time, the Hoover Commission's question had substance, particularly in the eyes of a budget-conscious Congress and administration.²⁰ Operating airline-type aircraft and carrying loads that commercial carriers had declared their readiness to handle, MATS simply looked like the government's private airline.

The ability of the airlines to supplant MATS declined after the late 1950s, when Army long-range or intertheater air mobility requirements became a major airlift-planning factor. The Army's requirements increased the airlift-planning baseline by at least an order of magnitude over SAC's established needs, and they presented technological and doctrinal barriers to movement by commercial carriers. Many Army cargo loads simply did not fit or could not be loaded easily into aircraft designed for commercial operations. Commercial airliners are designed primarily to produce maximum profit on developed route systems terminating at modern airfields designed for their use. Consequently, the fuselage of a typical long-range commercial aircraft is long and narrow to maximize seating and cruising speeds. Its wings typically are mounted through the lower fuselage to improve aerodynamics and to save weight by allowing the wing support structure to carry simultaneously the weight of the aircraft, its engines, and its landing gear. One consequence of this low wing design is that it places the payload deck of the typical commercial aircraft 10 or more feet above the ground. In concert, these features make the typical commercial aircraft a profitable carrier of passengers and package cargo. But they also sharply limit the size and weight of military vehicles and materiel that a commercial design can carry, as well as its ability to operate

at high capacity on the rough airfields typically found in forward battle zones.

Policy also limits the availability and utility of commercial aircraft for military airlift operations. As one important limitation, the commander in chief (CINC) of US Transportation Command can mobilize only the first "stage" or segment of CRAF on his own authority. This part represents about 10 percent of the available fleet. Mobilizations of the second and third stages of CRAF require tacit approval by the secretary of defense or the president under national security emergencies of increasing gravity. Moreover, American military airlift policymakers have been reluctant to use civilian airline crews in situations fraught with more than minimal risk of enemy attack or other operational hazards. From habit of mind and the contractual provisions of the CRAF program, policymakers generally have assumed that airlines will not accept even moderate risks to their aircraft and that civilian crews are less obligated and less likely than military crews to risk the dangers of active areas of combat. A Rand study of CRAF operations during the Gulf War gave credence to these

concerns, reporting that "morale suffered [and] volunteerism fell in some [CRAF] companies" in the face of Scud missile attacks on Riyadh and Dhahran, Saudi Arabia. Asserting the importance of providing CRAF crews with adequate chemical-defense clothing and training, the Rand study pointed out that "because crews fly voluntarily, any real unease over personal safety could significantly impact crew availability."²¹ In graphic terms, therefore, the theoretical upper limits of the commercial air transport industry to support military airlift requirements are demarcated by either a technological or policy "cut line," whichever is more restrictive (fig. 1).

Though notional, figure 1 suggests that policy establishes the most restrictive cut line on the US government's ability to utilize commercial aircraft for military airlift. That this situation is currently the case is implicit in proposals to equip some portion of AMC's fleet with NDAAAs. If these proposals do lead eventually to the acquisition of minimally modified commercial-type aircraft for the military fleet, then clearly the military is being equipped to carry an incre-

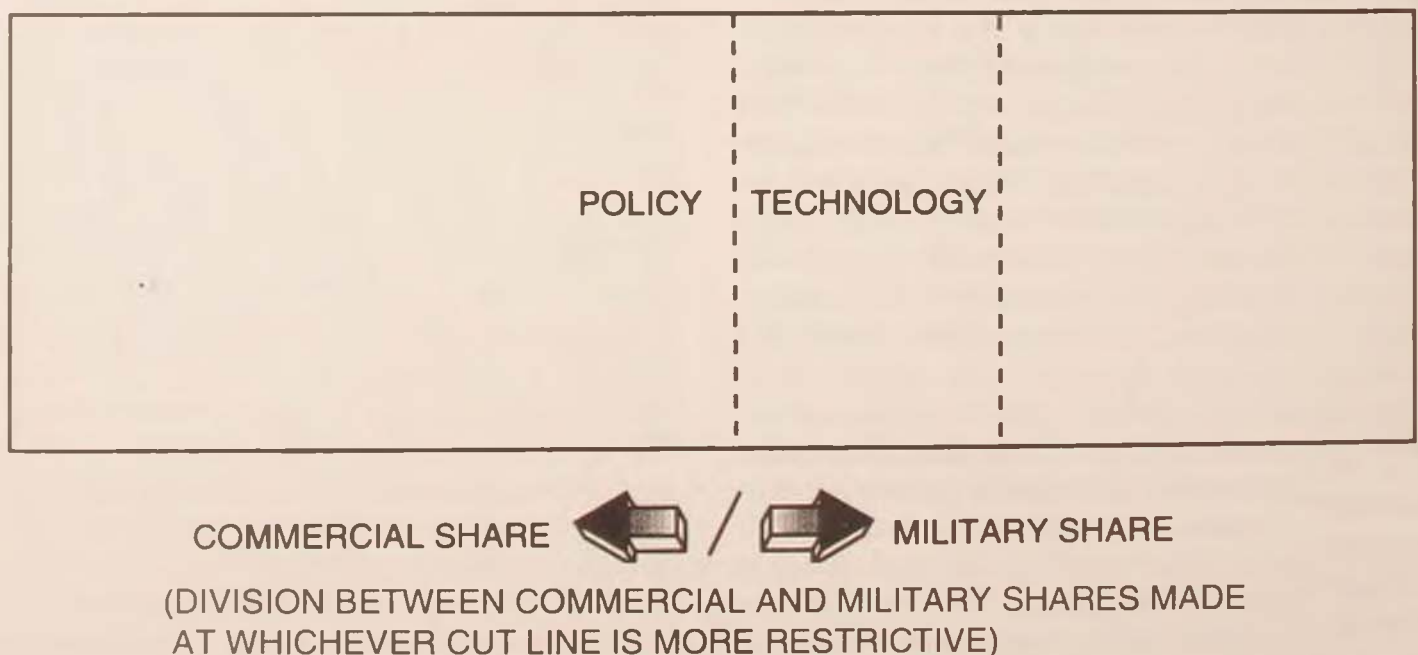


Figure 1. Notional Requirement and Commercial Cut Lines

ment of the overall airlift requirement that is "CRAF compatible." Such a violation of the spirit and logic of national policy to maximize use of the commercial fleet can make sense only in the context of a lack of confidence in the timely availability of enough appropriate airlift from CRAF. Such a lack of confidence is justified, of course, by the formal and informal limitations on CRAF mobilization. Technology cannot be the limiting factor, since materiel that will fit into a commercial-type aircraft with the AMC patch over its door will fit into a similar aircraft with a CRAF airline's logo on its tail, particularly if that aircraft was modified to NDAA standards.

Unfortunately, if the effort is to minimize the costs of the airlift program, knowing that utilization of CRAF is more restricted by policy than by technology does not open a clear path to solving the problem. Most importantly, the restrictions of CRAF mobilization are entrenched deeply in national policy and experience. Even before World War II, some military thinkers proposed militarizing the civil airlift reserve so that airline aircraft, personnel, and equipment could be mobilized directly under government control. Senior military and government leaders, including President Franklin Roosevelt, rejected this option during and after the war as unfair to the airlines and inefficient in comparison to contracting for commercial airlift service when needed.²² Accordingly, CRAF was established in 1951 on the basis of voluntary contractual relationships between the government and participating airline companies.²³ Voluntary contracts remain the foundation of CRAF, though—in net effect—such arrangements limit the government's ability to send civilian crews and aircraft into danger.

Similarly, efforts to increase commercial industry's technological ability to carry military loads have met little success. Since the late 1940s, for example, Congress and the military failed in several attempts to finance or encourage the development of civil-mili-

tary transport aircraft of equal attractiveness to commercial carriers and airlift planners. The conflicting design parameters of commercial economy and forward military operations doomed all such efforts.²⁴ Beginning in the mid-1970s, MAC used financial incentives to encourage CRAF carriers to install additional cargo features in their new jumbo jets. This initially promising program fizzled out in the early 1980s, though not before prompting several CRAF carriers to buy a total of 21 cargo-enhanced Boeing 747s and two Douglas DC-10s.

In combination, the cost-effectiveness of the commercial fleet and its inability to carry all military loads in all circumstances lead to the second tenet of airlift policy: *The role of the military component of the airlift fleet is to do what commercial transport aircraft or civilian aircrews cannot or will not do.* Given the high costs to the government of acquiring, maintaining, and using military airlift forces, any acquisition of such forces to do things that relatively less expensive commercial carriers could do would be fiscally irresponsible. Accordingly, by the late 1950s, Air Force leaders recognized that military airlift forces were justified only when they were needed to support "requirements which because of their nature or the nature of the mission to be supported must move in military operated aircraft."²⁵ Called "hard-core" missions in the late 1950s, the national airlift policy of 1987 described these missions as "requirements [which] must move in military airlift manned and operated by military crews because of special military considerations, security, or because of limiting physical characteristics such as size, density, or dangerous properties."²⁶ Logically, such missions would include (1) critical missions in the early phase of an emergency, (2) classified or diplomatically sensitive missions, (3) tactical combat missions such as airdrops and flights into airfields in forward combat zones, (4) operations into airfields not suitable or areas too dangerous for civilian crews and aircraft,

and (5) missions to carry loads that were too big or heavy for standard airliners to carry. Since such missions are features of most major war plans, they assure the existence of the military component of the national airlift fleet, though in a size and composition based on supplementing the commercial carriers—not on preempting their role in the airlift mission.

The supplemental role of the military component of the airlift fleet underpins the third tenet of airlift policy: *The military component should be equipped with aircraft specifically designed for its role.* As rough cousins of the commercial component, the military component's aircraft should be capable of moving more troops and materiel into forward terminals, such as parachute drop zones and airfields, than could their commercial equivalents in a given period of time. Consequently, military transports come with payload decks that are relatively shorter, wider, and stronger than those in commercial transports of equivalent weight and engine power. Typically, military transports also have large cargo doors at the rear and, in some cases, at the front of their payload decks, which are usually situated at truck-bed height to further accelerate cargo operations at austere locations. Such low decks require that most modern military transports have high-wing designs. Moreover, such aircraft usually are equipped with high-flotation landing gear mounted directly on or under their fuselages for strength and enhanced ground maneuverability during operations at less-developed airfields. Taken together, these cargo and structural features enhance the ability of military transports to move a lot of "stuff" into rugged places quickly, even as their incumbent weight and aerodynamic penalties render military transports generally unprofitable in commercial operations. Thus, as frequent failures to produce civil-military transport aircraft attest, the technological requirements of the two types of operations call for distinctly different families of aircraft.

In addition to technological considerations, economic and political reasons exist for equipping the military component of the national airlift fleet only with specialized aircraft. Economically, there is little justification for equipping the military with aircraft types that commercial carriers can make available to the military under contract at less cost. Moreover, any substitution of commercial aircraft for specialized aircraft in the military component's fleet ultimately undermines the military's ability to carry loads to places where commercial carriers cannot go. In other words, equipping the military fleet with airliners undermines its unique flexibility—its reason for existing. Thus, equipping even a portion of the current military component with commercial aircraft eventually will place it in the unenviable political position of MATS in the 1950s (i.e., it will come under criticism for looking and operating like a government-owned competitor with the commercial airline industry). As was the case in the 1950s, such a perception of the military component will likely lead to strong pressure to resume its proper role of operating forward of the commercial component's doctrinal and technological cut lines. Therefore, military planners contemplating expedient purchases of commercial designs to rectify the military component's near-term shortfalls in capability should first contemplate the long-term economic and political implications of such actions.

The fourth tenet of airlift policy is that *airlift operations represent a continuum that should be under the operational and administrative direction of a single command.* This tenet was not always obvious to senior policymakers or even to airlift practitioners. At the beginning of World War II, the military established numerous airlift organizations and placed them under the direct operational control of the specific organizations and commands using their logistic services. Almost immediately, however, some airlift thinkers recognized that these arrangements created duplications of effort, particularly in

long-range operations, and that they undermined the overall flexibility and effectiveness of the national airlift effort. In 1948 Secretary of Defense James E. Forrestal took the first step toward reducing airlift duplication by consolidating the Army's Air Transport Command and most of the Navy's Naval Air Transport Service into MATS.²⁷ A DOD directive of 1956 assigned virtually all remaining Air Force and Navy long-range air transports to MATS, which then became DOD's single manager for airlift.²⁸ The operational experiences of the Vietnam War and the Israeli airlift of 1973 convinced many senior US military leaders that the remaining organizational separation of Air Force theater and long-range airlift forces was an expensive anachronism in light of their overlapping operations, aircraft fleets, and capabilities for mutual augmentation. Accordingly, Secretary of Defense James R. Schlesinger placed virtually all Air Force transport aircraft under MAC in 1974.²⁹

Airlift consolidation greatly improved the economy and operational flexibility of the national airlift system. First, consolidation brought most of the Air Force's responsibilities as a military service to organize, train, and equip airlift forces under the authority of a single steward—the four-star commander of MAC. Among his important duties, the MAC commander was empowered to consolidate and service the requirements of all airlift users, develop plans for new aircraft and force structure, and ensure that the overall airlift program was funded cohesively and adequately. Coincident with consolidation, the secretary of defense also directed that MAC become a DOD specified command for airlift, giving the MAC commander—now a CINC—combatant authority over all Air Force airlift forces and power to apportion available intertheater airlift capacity among all users authorized by the JCS.³⁰ Within overseas theaters, however, airlift command arrangements remained divided. Under the terms of consolidation, MAC-as-

(COMALF) directed airlift units and operations in the theaters—but in accordance with the priorities and guidance of the theater CINCs. In practice, local CINCs retained what was then called operational command (i.e., ownership) of theater-assigned airlift forces and exercised their collateral operational control over those forces through their COMALFs. In other words, COMALFs worked for the commander of MAC, but—in directing the operations of theater-assigned airlift forces—their job was to satisfy the operational requirements of their CINCs.³¹ This dual-hat arrangement simultaneously preserved the operational continuity of airlift operations on a global basis and the unity of operational command authority within the theaters. It was a system that worked well right through the Gulf War.

Following the successful demonstration of consolidated airlift in the Gulf War, the Air Force redivided airlift forces in mid-1992. As part of a general reorganization, Headquarters United States Air Force transferred its service responsibilities to organize, train, and equip C-130 forces based in the US to the newly formed ACC. The Air Force further transferred service responsibilities for long-range airlift forces from MAC to AMC. In a somewhat cosmetic change, the Air Force returned direct operational command of overseas C-130 forces to appropriate theater air commanders. This action rendered the COMALF arrangement obsolete though, in truth, it had little practical effect on the responsiveness of assigned theater airlift forces to local requirements.

The jury is still out on whether refractionating airlift forces—a decision that flies in the face of at least four decades of hard-earned airlift wisdom—will improve the economy and effectiveness of US military airlift forces. The transfer of command authority over theater forces to local commanders seems to have gone fairly well, possibly because it changed little of substance in the way those forces are operated and their lift capacity is apportioned. In contrast,

the division of airlift responsibilities between ACC and AMC seems to have gone less well. The problems of organizing, training, and equipping airlift forces are complex, involving *comprehensive* planning and sustained advocacy of many programs if the overall airlift system is to work well in war. If airlift is an operational continuum of interconnected, mutually supporting, "multi-customer" parts—and it is—then the division of these service functions is artificial and prone to produce unnecessary redundancies between the planning, acquisition, and training programs of the two commands. To what extent these redundancies have actually appeared is not clear in the open record, but, certainly, now is the time for a detailed examination of the usefulness and efficiency of continuing this new division of airlift responsibilities.

The purpose of this primer has not been to predetermine the conclusions of such studies of airlift organization or other issues.

Rather, it has sought to lay out a theoretical backdrop for such studies and for any proposal to change components of the national military airlift system. Seventy years of experience and the assiduous thought of dedicated people created the interconnected and synergistic body of organizations, equipment, policy, and doctrines that comprise the current airlift system—a system unique in its ability to sustain national strategy by moving military forces and materiel over global and regional distances by air. Differences between past and future national security environments may suggest small changes to the airlift system's components but—thus far anyway—not to its tenets or to the relationships between those components. Airlift policies that ignore or violate the "grand logic" of the national military airlift system thus jeopardize its ultimate capacity and utility. □

Notes

1. The best available general history of US airlift remains Charles E. Miller's *Airlift Doctrine* (Maxwell AFB, Ala.: Research Studies Institute, 1988). For a more focused look at the workings of the post-World War II airlift policy process, see Robert C. Owen, "Creating Global Airlift in the United States Air Force 1945-1977: The Relationship of Power, Doctrine and Policy" (PhD diss., Duke University, 1992).

2. Gen Henry H. Arnold, commander, Army Air Forces, to Lt Gen H. L. George, commander, Air Transport Command, letter, 5 December 1945.

3. Frederick C. Thayer summarized Army airlift requirements through the 1950s in his seminal *Air Transport Policy and National Security: A Political, Economic and Military Analysis* (Chapel Hill, N.C.: University of North Carolina Press, 1965), 136-42.

4. Senate Committee on Armed Services, *Study of Airpower: Hearings before the Subcommittee on the Air Force*, 84th Cong., 2d sess., April 1956, 833-49.

5. Department of Defense, "Congressionally-Mandated Mobility Study: Executive Summary" (Washington, D.C.: Department of Defense, 7 April 1981), 7.

6. In 1956 Adm Arthur W. Radford, chairman of the JCS, reported to Congress that, even in the aftermath of a general nuclear exchange and after all SAC movement requirements were met, he still anticipated no need to move large Army forces by air. See House Committee on Appropriations, Subcommittee on Department of Defense Appropriations, *Strategic Mobility*, 85th Cong., 1st sess., March 1957, 2062-70.

7. For the first time in public hearings, Lt Gen William H.

Tunner, commander of MATS, pegged the SAC deployment requirement at 384 sorties. House Committee on Armed Services, *Hearings on National Military Airlift*, 86th Cong., 2d sess., March-April 1960, 4164. At that time, the MATS fleet included 123 C-118s and 299 C-124s, along with numbers of C-97 and C-121 aircraft, which were mainly operated in passenger configurations. *Anything, Anywhere, Anytime: An Illustrated History of the Military Airlift Command, 1941-1991* (Scott AFB, Ill.: MAC Office of History, May 1991), 280.

8. House Committee on Armed Services, Special Subcommittee on National Military Airlift, *Hearings before the Special Subcommittee on National Military Airlift*, 88th Cong., 1st sess., 1963, 6059-60.

9. Cases in point include the airlift buildups following the Korean War and the shift in national strategy from new look/massive retaliation to flexible response. In the latter case—and in the present cases of the C-17 and NDAA programs—expansion of the fleet was also driven by the impending obsolescence of large portions of the existing airlift fleet.

10. John Shea, interview with author, 8 August 1990. Shea joined Air Transport Command in 1943 as a statistical control officer and left MAC in 1981 as the assistant deputy chief of staff for plans.

11. *Ibid.*

12. Department of Defense, "Mobility Requirements Study," vol. 1, "Executive Summary" (Washington, D.C.: Department of Defense, 1992), ES-4 and -5.

13. To the author's knowledge, no comprehensive treatment

of US military airlift policy prior to World War II exists. The best sources dealing with specific parts of the issue are Miller; Theodore J. Crackel, "History of the Civil Reserve Air Fleet," draft; and a number of archival materials kept at the US Air Force Historical Research Agency, Maxwell AFB, Ala.

14. *Semi-Annual Report of the Secretary of the Air Force* (Washington, D.C.: Government Printing Office, 1 January 1954), 262.

15. Mary Chenoweth, *The Civil Reserve Fleet: An Example of the Use of Commercial Assets to Expand Military Capabilities during Contingencies*, RAND Note 2838-AF (Santa Monica, Calif.: RAND, June 1990), 3. The MAC estimates were rule-of-thumb numbers heard numerous times by the author while serving as a MAC aircrewman and staff officer in the field.

16. House Commission on Organization of the Executive Branch of the Government, Subcommittee on Transportation, *Report on Transportation*, 83d Cong., 1st sess., March 1955, 295.

17. See "Conclusions" and "Presidentially-Approved Courses of Action" in *The Role of Military Air Transport Service in Peace and War* (Washington, D.C.: Department of Defense, Assistant Secretary of Defense [Supply and Logistics], February 1960), 2-7.

18. President of the United States, *National Security Decision Directive Number 280: National Airlift Policy*, 24 June 1987, guidelines 3 and 4, 1-2.

19. *Report on Transportation*, 274, 295.

20. The C-54 was derived from the Douglas DC-4, and the C-118 from the DC-6, while the C-124 and commercial DC-7 designs shared common wings, landing gear, engines, and other components, both having been derived from a late World War II design that the Air Force bought as the C-74.

21. Mary E. Chenoweth, *The Civil Reserve Air Fleet and Operation Desert Shield/Desert Storm: Issues for the Future*, Rand Report MR-298-AF (Santa Monica, Calif.: Rand Corporation, 1993), 48-50.

22. Reginald M. Cleveland, *Air Transport at War* (New York: Harper and Bros., 1956), 1.

23. "Statement of the Secretary of the Air Force, the Honorable Thomas K. Finletter," in "Report to the Airline Presidents on Civil Aviation Mobilization," 26 March 1952; see also "Department of Defense Plan for the Civil Reserve Fleet," 20 March 1952, in History, Military Air Transport Service, July-December 1952, supplemental document T-6, 6-7.

24. A joint civil-military transport aircraft has obvious attractions, but, so far, it has been impossible to develop. Examples of aircraft originally intended to fly as civil-military transports include the Douglas C-74, the Lockheed C-141 and C-5, and the Boeing 747. The C-5, which emphasized military cargo features, and the 747, which emphasized commercially desirable features, competed in the Air Force's CX-4 design contest in the early 1960s. The C-5 won the Air Force contract, and the 747 went on to become one of the most successful civilian aircraft in history. Like the C-74 and C-141 designs, the military features of the C-5 rendered it unsuited to commercial operations, and no commercial versions were ever produced—even for cargo operators.

25. *The Role of Military Air Transport Service*, 2.

26. *National Security Decision Directive*, 1.

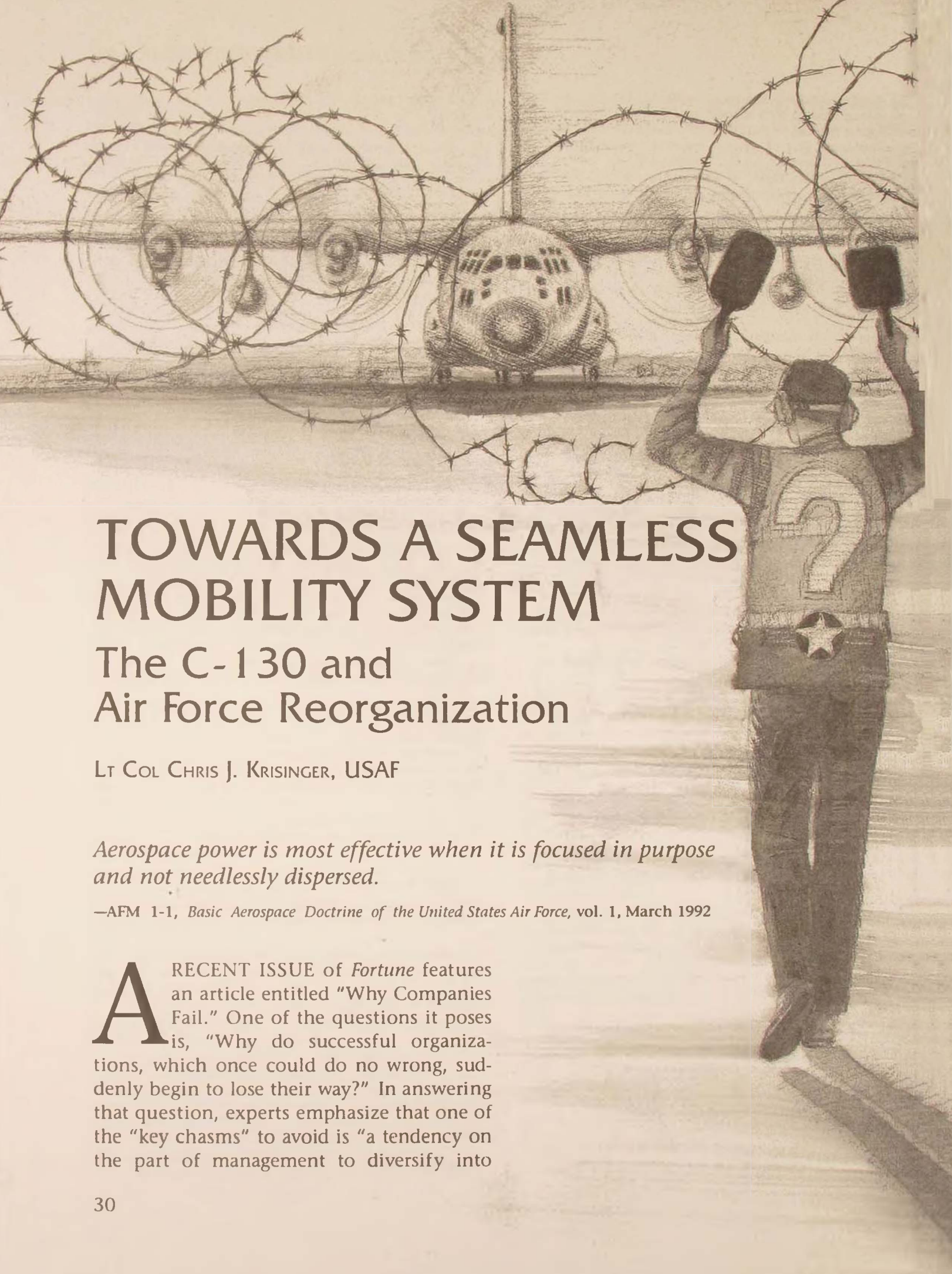
27. Richard I. Wolf, *The United States Air Force Basic Documents on Roles and Missions* (Washington, D.C.: Office of Air Force History, 1987), 173-78.

28. *Ibid.*, 305-14.

29. Owen, 392-429.

30. Wolf, 391.

31. For initial descriptions of these arrangements, see Headquarters USAF, "Conceptual Plan for Consolidation of Airlift Resources," 7 February 1975, and "Agreement between Headquarters US Air Forces Europe and Headquarters Military Airlift Command for the Operational Command, Control and Management of EUCOM Theater Airlift," 25 October 1975. These and similar documents for other theaters are included as supporting documents in official MAC histories of the period.



TOWARDS A SEAMLESS MOBILITY SYSTEM

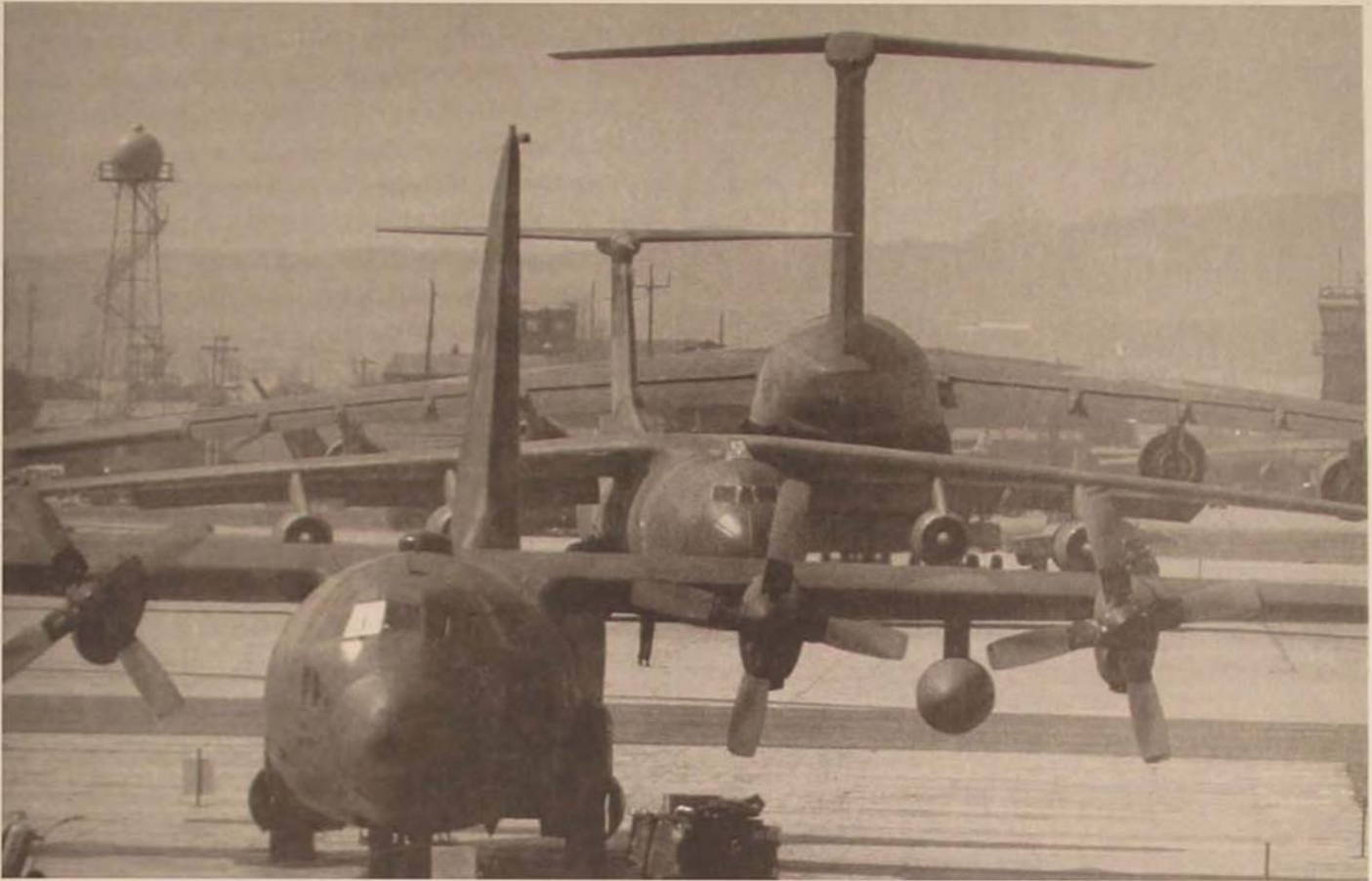
The C-130 and Air Force Reorganization

LT COL CHRIS J. KRISINGER, USAF

*Aerospace power is most effective when it is focused in purpose
and not needlessly dispersed.*

—AFM 1-1, *Basic Aerospace Doctrine of the United States Air Force*, vol. 1, March 1992

A RECENT ISSUE of *Fortune* features an article entitled “Why Companies Fail.” One of the questions it poses is, “Why do successful organizations, which once could do no wrong, suddenly begin to lose their way?” In answering that question, experts emphasize that one of the “key chasms” to avoid is “a tendency on the part of management to diversify into



According to a time-tested doctrinal principle, airlift is a system consisting of many diverse yet interlocking components that must work well together for the whole to function effectively. Further, it is a seamless system, comprising a continuum of overlapping tasks and responsibilities best performed by a single organization that devotes its energies to thinking about and acting on how best to use airlift forces.

fields far from the organization's essential core."¹ While there is no danger of our "company" failing, recent Air Force restructuring included at least one major decision that strays from this sound advice. The transfer in 1993 of C-130s from Air Mobility Command (AMC) to Air Combat Command (ACC) and the unified commanders is both a loss of a core business for AMC and a diversion into a field far from the "organization's essential core." Instead, the business plan for the Air Force reorganization should have left the C-130s close to the "organization's essential core" (i.e., AMC's airlift mission) and adjusted an already proven product to the changing environment. It's time to re-think this issue.

The core restructuring of the post-cold-war Air Force followed a simple binary logic: did forces belong to the "global reach" or "global power" portion of the Air Force vision statement? Forces previously associated with conducting violent aerial warfare were generally considered part of global power and placed in ACC, while airlift and tanker forces that contributed to the maturing mobility strategy of global reach were assigned to AMC. Most major weapon systems were easily and naturally classified and placed. But one weapon system—the C-130—was not.

Although part of Military Airlift Command (MAC) for 18 years and AMC for nearly a year and a half, C-130 aircraft and advocacy for those aircraft transferred to

ACC on 1 October 1993. In preliminary re-organizational steps, C-130s became part of an initiative by the chief of staff of the Air Force (CSAF) in February 1991 to form composite air wings; thus, theater-based C-130s overseas returned to the control of theater air force component commanders (AFCC) by June 1992.

The idea to transfer C-130s germinated even before the Persian Gulf War as part of a broader interest in command relationships involving air assets in the war-fighting theaters and the blurred distinction between strategic and tactical missions.² Gen Merrill A. McPeak, then commander in chief (CINC) of Pacific Air Forces, advocated the movement of certain air assets to their respective theater AFCCs in order to consolidate air assets under a single commander. He reasoned that, over the years, the Air Force's organizational structure had moved away from simplicity in command structures and from general reliance on a single controlling authority in theater operations. As the new CSAF presiding over the massive Air Force reorganization, he included C-130s in the new "composite wings" and secured the transfer of theater C-130s to the AFCCs. Finally, General McPeak directed the transition of C-130 aircraft, advocacy, and weapon-system management from AMC to ACC, the air component of United States Atlantic Command (USACOM), based in the continental United States (CONUS).

Such proposals regarding C-130s were un-compelling to many people in the Department of Defense (DOD), including senior airlift leaders who defended the concept of the single airlift manager and cited such issues as economy and responsiveness of the airlift system. MAC was accused of dragging its heels on reorganization issues and of fighting the age-old battle of determining whether or not the theater commander should own the C-130s.³ In his exit interview, Gen Hansford T. Johnson, former CINCMAC and first commander of AMC, expressed concern over the transfer by saying

that "the dispersal of those forces will greatly complicate the AMC and USTRANSCOM [United States Transportation Command] effort and significantly decrease the overall airlift . . . capabilities of our nation. . . . I disagree totally on how we've broken up . . . the airlift. We've set ourselves up to have a catastrophic problem at some point."⁴

Preliminary discussions among senior Air Force leaders involved in the reorganization suggested that some airlift would be owned and operated by the theaters. In any case, early proposals clearly indicated that advocacy for equipment modernization and training of all airlift forces, both theater and strategic, would carry over to AMC.⁵

The Joint Staff scrutinized the proposed transfer, viewing it as both an expansion of the mission and resources of USACOM and a disruption of the existing common-user airlift system.⁶ The Joint Staff further questioned the precedence of new arrangements over user concerns of supported CINCs who would no longer have a single "belly button" to press when they ordered airlift support. This point made the transfer a clear target for congressional criticism, as was the case with the consolidation and transfer of C-130s from Tactical Air Command (TAC) in 1974. Nevertheless, in a sequence of events concentrating more on the balancing of forces in the new Air Force organizational scheme than the effectiveness of the airlift system, the Air Force overturned the program decision memorandum (PDM) of July 1974 that directed the consolidation of all airlift forces under a single manager.⁷

Framing the Issue

Previously accepted airlift doctrine and operations fundamentally changed with the transfer of C-130s from AMC to ACC, to the unified theater commands, and—on a smaller scale—to the composite wings. Resembling the pre-airlift-consolidation period of 1974

that also favored the C-130 as a theater asset, the transfer rested on changed Air Force views of three central issues: (1) the question of whether airlift is regarded as a seamless system or an apportioned resource, (2) the apparent conflict between the concept of a single airlift manager and the desire for unified command in overseas theaters, and (3) the question of who should be *the voice* for the C-130.

Assuming that the C-130 is a theater asset implies that airlift is a resource to be allocated and parceled out and discounts the single-manager and common-user concepts so central to the consolidation argument. This view further conflicts with a time-tested doctrinal principle that airlift is a system consisting of many diverse yet interlocked components that must work well together if the whole is to function effectively. In other words, airlift should be a seamless system, comprising a "continuum of overlapping tasks and responsibilities"⁸ best performed by a single organization that devotes its energies to thinking about and acting on how best to use airlift forces. Also implicit in the transfer is the notion that the single-manager and consolidated-airlift concepts are deficient and that previous intratheater airlift support fell short of theater CINCs' expectations and requirements. Lastly, the transfer of advocacy seems to favor ACC's being a voice for a particular aircraft (the C-130) and location (the theater) rather than for a broad mission categorization (airlift).

In sharp contrast, proponents of consolidated, single-manager airlift argue that the transfer of C-130s away from AMC's global airlift system is not in the best interest of the airlift and mobility capabilities of the United States and its allies and does not bode well for the long-term viability of the C-130. Substantial past, present, and future evidence convincingly supports a return of the C-130 to the airlift and defense transportation community, where it resided for so long. Now that global and theater airlift are again fragmented, the airlift and mobility

communities can only improvise to maintain the advantages of efficiency and mutual support gained through consolidation. A corollary to the belief in the consolidated, single-manager airlift system explains how that system never faltered in its unified theater support. Specifically, airlift forces operated in accordance with the guidance and priorities of the theater commanders and provided a realistic, responsive solution to supervise intratheater and intertheater airlift simultaneously within a unified command's area of responsibility (AOR).

Historical and Doctrinal Rationale

Consolidation of strategic and theater airlift within a single, global airlift system was the by-product of an evolutionary process that recognized and improved earlier technological and doctrinal shortcomings. The system was conceived during World War II, when the implications of aviation technology became clear. Even though part of the rationale for the current Air Force restructuring is the primacy of a theater commander's requirements—a belief from World War II—postwar airlift thinkers reached different conclusions.⁹ L. W. Pogue, chairman of the Civil Aeronautics Agency, postulated in 1942 that "within the air transport arena, the speed and mobility of transport airplanes had reduced the entire world to one theater of operation."¹⁰

Key Army Air Corps leaders were sensitive to the dichotomy between theater and global operations and requirements. Maj Gen Harold L. George, commander of Air Transport Command (ATC), acknowledged that "no tradition in the Army has more universal respect than the tradition which concludes that in [his or her] sphere of responsibility the theater commander shall have basic and, some times, over-riding authority. [However,] the generations which contributed most to the establishment of

this tradition were those equipped with infantry, cavalry, and artillery as their principal weapons." George ventured that the airplane's coming of age "has broadened the ordinary theater of warfare, has changed very basically our previous conceptions of warfare methods, and must have some effect upon the organizational method of conducting wars." Further, he observed that

this is the first war in which we have engaged where the "world" defines the theater. . . . Any reasonable analysis of the requirements of [World War II] must readily recognize the necessity for a "many theater" system of air transportation, flexible enough to be mobile and with direction centralized enough to recognize the comparable requirements of many theaters. To permit any theater commander to exercise final judgment upon the employment of all aircraft within [their] theater, irrespective of the requirements of other theaters, is but an endeavor to conduct on a "local" basis a war which has refused to become local.¹¹

In the years following World War II, airlift pioneer Gen William H. Tunner unsuccessfully lobbied the Air Force to unify all air transport organizations and to end the historical distinction between tactical and strategic air transport.¹² Little progress was made until the early 1960s, when ideas developed that were as much conceptual as technological. Previously, constraints on airlift entailed combinations of at least nine factors: speed, range/payload trade-off, flexibility of employment, cubic capacity, load ability, self-sufficiency, terminal base requirements, fuel dependency, and direct operating costs.¹³ With a fleet of multipurpose C-130, C-141, and—eventually—C-5 aircraft available to overcome those technical limitations, thinkers and planners were no longer limited by aircraft capability and could turn their attention to determining how those aircraft could be employed. When the nation's military strategy changed from massive retaliation to flexible response, the speed and responsiveness of air transport took on new importance. The basic function of a mod-



Airlift pioneer Gen William H. Tunner unsuccessfully lobbied the Air Force to unify all air transport organizations and to end the historical distinction between tactical and strategic air transport. Little progress was made until the early 1960s, when ideas developed that were as much conceptual as technological.

ern airlift force would be to help prevent any type of war, if possible, and to help secure a swift conclusion, should deterrence fail. Gen Howell M. Estes, Jr., commander of Military Air Transport Service (MATS), wrote

in 1969 of this "airlift without precedent" in his forward-looking article "Modern Combat Airlift": "The role of modern combat airlift, then, is to airlift combat forces and all their battle equipment, in the size and mix required—with the greatest speed—to any point in the world, no matter how remote or primitive, where a threat arises or is likely to erupt."¹⁴

In 1964, TAC and MATS were tasked to prepare new doctrinal manuals for troop-carrier and airlift aviation. A doctrine-development committee in MATS suggested that the timing was right to end the distinction between tactical and strategic airlift: "With the present and future capacity of MATS to perform all phases of the airlift mission, the concept of airlift need no longer be fragmented, but can now become an entity."¹⁵ In a letter to the Air Force that proposed a single-airlift manual, General Estes agreed that a multipurpose airlift force ended the distinction between the two-manual approach of assault (tactical) and strategic airlift: "Airlift is an instrument of national and military power in its own right, as well as an essential supporting element to strategic and tactical combat forces. . . . It is my opinion that the full functional capability of airlift must be addressed as an entity in order to exploit the flexibility of airlift forces. Such capability cannot in any way be considered divisible."¹⁶ A claim can be made that by the mid-to-late 1960s, airlift moved into a modern era characterized by movement towards an all-jet fleet with intercontinental capability and an ability to respond without qualification to total airlift requirements.

Two events in the modern era spurred airlift consolidation policy: Operation Nickel Grass, the US airlift to Israel during the Mideast War of 1973, and the airlift experience of the Vietnam War, evaluated by the Project Corona Harvest report on airlift in 1973. The C-130 played a major role in both events.

One must consider Operation Nickel Grass the prototype of the present "global

reach" doctrine of power projection, whereby mobility forces offer the national command authorities (NCA) an ability to respond quickly and decisively with a wide range of options to regional crises, anywhere in the world. Nickel Grass demonstrated the ability to project and resupply the substantial forces of modern warfare with an all-jet transport fleet over intercontinental distances.¹⁷

Although deliveries of war materiel to Israel were made exclusively by C-141 and C-5 aircraft, the airlift network constructed for the CONUS-to-Israel transfer included an important role for the C-130. Initially, command relationships and control of C-130s were areas of concern that complicated the anticipated operations because MAC did not have access to the C-130 fleet to move small but critical loads (e.g., materiel-handling equipment, additional aircrews, and airlift control element [ALCE] teams). When the Soviet response to the Mideast War caused the United States to order a heightened military alert, all C-130s were withdrawn from MAC's control because these aircraft were either theater assets under the control of theater CINCs or CONUS-based assets under TAC. MAC was forced to use C-141s to move these small (some only 2,000 pounds) but necessary loads for en route support. These command relationships delayed the use of C-130s until 15 October, when 12 aircraft per day were dedicated to MAC's use, even though initial planning for Nickel Grass began on 6 October.¹⁸ This experience in airlift management, combined with similar findings from the Vietnam War, formed powerful arguments for airlift consolidation.

During the Vietnam War, the Air Force systematically gathered information on air operations to assist in the writing of future doctrine. From 1965 to 1968, a team of officers from the Tactical Airlift Center participated in this effort—Project Corona Harvest—and completed a lengthy study of various aspects of wartime airlift operations. That team's unanimous recommendation



Airlift is the mission. A theater is merely the location where it is accomplished. The C-130, pictured here in formation with a C-141, is but "one tool in the toolbox" used for that mission.

was that "steps be taken to achieve a single airlift command as soon as possible."¹⁹ Their 1973 report concluded that operating two airlift systems (tactical and strategic) led to "extensive parallelism in their basic airlift functions which detracted from efficiency and tended to complicate the mission." Since mission statements of tactical and strategic airlift overlapped, they were vague about responsibilities and areas of command and control (C²). Moreover, both airlift forces were equipped and trained to perform in a similar manner and thus "engaged in the air movement of personnel and material over long and short distances employing the same tactics and techniques in discharging these duties." The report recommended that a "true single manager concept of operation

would provide a more responsive, flexible, effective, and economical airlift force with considerable savings in manpower and equipment." A consolidated force would also standardize a system of operations for all airlift, no matter the location. Clearly, distinguishing two airlift forces by aircraft type proved false. For example, not only had C-130s augmented the strategic mission, but C-141s and newly operational C-5s had flown directly into the combat zone.²⁰

Shortly after Nickel Grass and the release of the final Corona Harvest report, Secretary of Defense James R. Schlesinger directed the Department of Defense (DOD) to merge all tactical airlift forces into one force and consolidate all airlift forces under a single manager. New airlift policy was issued as a

program decision memorandum on 29 July 1974 and amended on 22 August 1974. Air Force general George Brown, chairman of the Joint Chiefs of Staff (JCS), elaborated that "while the present (duplicative) command arrangements have worked well in peacetime . . . [the airlift system] will face increased demands in wartime when we can expect competition not only among unified and specified commanders for worldwide resources, but also among conflicting demands *within* a theater" (emphasis added).²¹ The Air Force was told on 29 August 1974 of DOD's decision to centralize almost all airlift (excluding the Navy's) in MAC, which specifically directed that all tactical C-130s and associated support in TAC and the overseas commands be transferred in place to MAC. A joint statement by the CSAF and secretary of the Air Force explained the meaning of the changes and provided a vision of the consolidated airlift force:

As we have modernized our aircraft over the years, we have realized that the line between tactical and strategic airlift has blurred appreciably. For example, our C-130s have a strategic capability and can be used in this role (as, indeed, they have in the past). Similarly, our C-5s and our C-141s have a tactical capability. . . . The result will be one command responsible for both strategic and tactical airlift roles and for management of resources between them.²²

Post-Vietnam fiscal realities added further credibility to the Corona Harvest report. As is the case today, the US was downsizing a large military establishment. To win public backing, Gen David C. Jones, CSAF, provided the rationale for consolidation during a press conference on 13 December 1974. Along with reductions in personnel and aircraft, he stated that "the Air Force had turned toward a single management concept of operating its [airlift] forces," with assurances that consolidation would provide an "economical airlift force with considerable savings in manpower and equipment."²³ Thereafter, airlift consolidation became a part of the re-

duction plan favored by the American public.

Benefits of a flexible, consolidated airlift system became evident in operations in Grenada (Urgent Fury) and Panama (Just Cause). In both actions, aircraft in the core MAC fleet (C-5s, C-141s, and C-130s) were used interchangeably. For the initial assaults, C-130s departed the CONUS as a strategic resource with national objectives at stake. Later in the operations, they reverted to their more traditional mission of theater resupply. Among their taskings, C-5 and C-141 aircraft flew theater logistical-support sorties. All the while, MAC airlift was under that command's C² mechanisms but remained adequately responsive to the theater commander's requirements.

There is one airlift mission—"the delivery of what is needed, where it is needed, and when it is needed."

Most recently, the massive wartime airlifts of Operations Desert Shield and Desert Storm validated the single-manager concept and again showed the merit of such a system. MAC worked through USTRANSCOM directly with United States Central Command (USCENTCOM) and its AFCC to bring additional theater airlift forces from a variety of locations (CONUS, Pacific, and Europe) to the Persian Gulf. As a total airlift package, the response took the form of aircraft, aerial port, maintenance, logistics, and cargo handlers—the full range of combatant CINC support. Crews, planners, and C² systems were standardized, with no anomalies in strategic and theater aircraft employment, command relationships, or planning.

The best example of this integrated airlift effort between strategic and theater forces was the establishment of express airlift systems that used dedicated C-141s, which flew time-sensitive cargo daily from the CONUS

to the Gulf.²⁴ Arrangements were made for intratheater lift schedules to mesh with the arrival of the express flights so that onward routing of critical items was not delayed in-theater. The system worked as a functional equivalent of commercial overnight delivery systems, with centralized control provided by the MAC C² system. This integration of movement from the CONUS to the far points of the Gulf theater was effectively and efficiently accomplished only through a *system with a single manager*.

***Airlift forces are a finite,
national resource.***

Difficulties arose during Desert Shield/Desert Storm mainly when control of airlift forces was decentralized. For example, when MAC changed operational control (CHOP) of approximately 144 C-130s to USCENTCOM for intratheater airlift requirements, the logistical supply channels of US Air Forces, Central Command (CENTAF) were supposed to assume responsibility for supplying the C-130s. Because of delays, however, units resorted to requesting spare parts from their home stations. In response to theater needs, MAC developed and monitored a "watch list" of mission-essential items to ensure effective C-130 theater operations; it also dispatched high-priority mission support kits to Rhein-Main AB, Germany; Dhahran and Riyadh, Saudi Arabia; and Kuwait City.²⁵

A second example of the complications caused by decentralized airlift control was the theater-to-theater transfer of forces and materiel. Desert Storm revealed that high-intensity airlift operations can exceed the ability of a single theater's staff to handle such large airlift flows. Specifically, in January 1991 at the height of the Gulf War buildup, US Air Forces Europe (USAFE) re-

quested that MAC "schedule all intratheater airlift (both strategic and tactical missions) to take full advantage of both NATO [North Atlantic Treaty Organization] airlift and EUCOM [European Command] possessed C-130 aircraft for expeditious movement of DESERT STORM . . . requirements" because of the task saturation of its theater headquarters and capabilities.²⁶

Experience in a wide variety of wars and contingencies molded US airlift and mobility capability and doctrine in the modern era of jet transports and intercontinental flights. Adaptation of a consolidated, single-manager airlift system was part of the evolutionary process and served the country well for almost 19 years. Operations Desert Shield and Desert Storm are the most recent successful "stress tests" of the consolidated, single-manager system. Clearly, the historical record does not support the current transfer. Furthermore, conditions have not changed so radically, even in a restructured post-cold-war military, as to offer compelling reasons for abandoning the consolidated airlift system. Chronicled experience offers several timeless doctrinal principles concerning the way airlift works best.²⁷

- Airlift works best as a "seamless" system to accomplish the mission. It is a continuum of overlapping tasks and capabilities. Aircraft are but one part of a *system* that includes—among other elements—logistics, C², and transportation functions.

- There is one airlift mission—"the delivery of what is needed, where it is needed, and when it is needed,"²⁸ quite possibly in combat. Airlift is the mission. A theater is merely the location where it is accomplished. The C-130 is but "one tool in the toolbox" used for that mission.

- Airlift forces are a finite, *national* resource. The airlift system is designed to provide the NCA a rapid, effective, efficient, yet flexible system to respond globally as well as regionally to support the needs of theater commanders individually and concurrently.

Issues for Today

Just as global power frames ACC's offering to US airpower, so does global reach express AMC's contribution. These two segments of the broader Air Force mission imply different purposes, contributions, and concerns for AMC and ACC.

Organize, Train, and Equip for the Mission

These two Air Force major commands (MAJCOM) must organize, train, and equip forces for the unified commands. As a component of USTRANSCOM and as part of the Air Force, AMC has the mission of providing operationally ready mobility forces and expertise as required.²⁹ AMC thus acts as the *principal* voice and expert for the airlift mission. Similarly, ACC speaks as the chief voice for air warfare, focusing first and foremost on its combat mission of fighting with bombs, missiles, and guns. The distinctive contribution of each MAJCOM should be made over broad, core mission categorizations—not by individual weapon systems or theater orientation. Having ACC act as advocate for the C-130, based on aircraft type and nomenclature as a theater asset, creates a false distinction that overrides ACC's and AMC's reason for existence. As General Turner once said in very similar circumstances, transfer of an airlift mission from AMC to ACC is "the paradox of men trained for one unique military specialty administering equipment designed for another, functionally and philosophically different."³⁰ The C-130 is a transport, and airlift is its mission.

Airlift and mobility forces are also keenly sensitive to the assertion that peacetime and wartime military organizational arrangements are necessarily interdependent and must balance extensive peacetime transportation requirements with corresponding combat capabilities. AMC fulfills its charter of organizing, training, and equipping airlift forces underneath an umbrella of providing DOD with significant transportation ser-

vices. Today's fragmented airlift system—in which airlift and mobility capability is further dispersed among the theaters, composite wings, and ACC—unnecessarily complicates this substantial enterprise.

The Mission

As mentioned earlier, there is a single airlift mission—the delivery of what is needed, where it is needed, and when it is needed. That mission may have to be accomplished in combat and under adverse conditions. All points of organization, doctrine, and resources must be addressed with regard to that mission. Yet, AMC itself, along with USTRANSCOM, now considers its own missions complete when troops and materiel arrive in-theater and are handed off to a separate theater logistics system. This is a watershed break—though not yet fully comprehended as such—from the seamless, consolidated, single-manager airlift system that delivered troops and materiel from "fort to foxhole."

From a war-fighting perspective, the pre-transfer organization of airlift forces provided the total flexibility needed by the NCA to apportion and reapportion forces quickly enough to meet evolving contingencies, regardless of location. Ironically, an early argument against consolidation was that tactical units would lose their tactical orientation and thus be less responsive to theater commanders.³¹ Instead, over the 19 years of consolidation, strategic airlift benefited from the tactical side (and vice versa), and the two combined to form a complete system more responsive to theater and strategic needs than either one was before.

The real operational advantages of that complete system lie in standardized doctrine, training, tactics, C², and procedures for all parts of airlift. Such integration of all theater and intertheater forces in MAC and USTRANSCOM eliminated the delays and disconnects in planning, tasking, and controlling airlift for operations that one experi-

enced in a theater-unique airlift organization. A consolidated, single-manager airlift system enables unified CINCs to have the immediate and responsive support that allows them to take quick advantage of opportunities for synergism between different airlift capabilities. In short, it allows them to transport personnel and materiel to any location, under any condition.

Command Relationships and C²

Historically, the idea of consolidated airlift under a single manager such as MATS, MAC, or AMC had the potential to disrupt unified command in overseas theaters. After 1947 the Air Force supported the notion of unified theater command, whereby the AFCC exercised operational control (OPCON) over all air assets in the theater, including bomber, tactical, and airlift support. To employ theater-assigned aircraft as a unified force, the AFCC needed OPCON over those aircraft. But the single manager for airlift (MATS and MAC) also desired OPCON over all airlift resources to ensure efficient global and joint use. Airlift planners considered airlift a national resource, as was strategic airpower, and wanted a command structure similar to Strategic Air Command's. The latter included specified command status and retention of OPCON over its forces, while the AFCC retained tactical control and local direction for certain tasks.³²

The establishment of a theater airlift manager (TAM) structure to supervise theater and strategic airlift employment concurrently within a theater proved a viable solution and was ultimately accepted and applied worldwide. In an overseas theater, the area CINC employed the assigned theater airlift forces through the AFCC's TAM. Under the AFCC, the TAM performed the tasks of planning, organizing, coordinating, directing, and controlling all theater-assigned airlift. More importantly, theater commanders gained access via the TAM to all of the airlift system's re-

sources. As airlift's theater representative, the TAM would then accomplish the task with the most effective and efficient mix of airlift resources available. If the JCS assigned additional airlift to the AFCC during a contingency, the single manager would direct those forces to the theater commander. Should the geographic area prove too large for the AFCC to control operations effectively, additional airlift control centers could be established. Visibility over all resources, direct communications to airlift's numbered air forces, and the general flexibility of a single manager would work for better overall service, while full coordination with the theater's tactical air control system would be maintained. These arrangements matured and developed over the years but remained constant in their purpose of enabling theater AFCCs to focus attention on the prosecution of their primary task—the air campaign.

Prior to the transfer, theater-based C-130s were assigned under operational authority of the theater CINCs (i.e., combatant command [COCOM]) and theater AFCCs (i.e., OPCON); however, CINCMAC exercised service authority to organize, train, and equip the forces. In this case, two different MAJCOMs exercised authority over theater C-130s (i.e., MAC and USAFE in Europe). CONUS-based C-130s were assigned under the operational authority of USCINCTRANS (COCOM) and CINCMAC (OPCON); CINCMAC also exercised service authority in the CONUS.³³ But in both cases, the service authority to organize, train, and equip resided in MAC, an organization primarily concerned with airlift issues and a conduit to fully integrate C-130s into the airlift system.

To make the whole airlift system responsive to theater requirements, the commander of airlift forces (COMALF)—an airlifter working within the TAM concept for the theater AFCC and MAC—integrated airlift forces to support all theater and intertheater airlift needs for the theater CINC. This dual-hat arrangement enabled the CINC to control assigned theater airlift forces and also

influenced USCINCTRANS control and integration of intertheater airlift. These arrangements for consolidation and theater-airlift management paid off. During Operation Just Cause, theater airlift forces (C-130s) were used in strategic roles, and intertheater forces (C-141s) functioned in tactical roles. Because of the MAC C² system, integration was already a fact, and mission crossovers did not have to be coordinated among different forces and commands or sorted out during execution. Likewise, Operation Desert Shield began with a fully integrated airlift structure; the problems with C² and slowness that plagued Operation Nickel Grass did not recur.

Remarkably, despite the transfer to ACC and the theaters, strong substantive ties to AMC and USTRANSCOM remain in place today. That fact, in and of itself, challenges the logic of the 1993 transfer. Presently, the tanker airlift control center (TACC), an AMC organization at Scott AFB, Illinois, serves as the overall executive agent for airlift, continues to be the central point of contact, and provides support for all assets in the system.³⁴ The TACC provides support for all airlift C-130 missions, including coordinating mission details with the tasked unit, exercising tactical control of missions in progress, and managing maintenance recoveries of "broken" aircraft away from the home station. Its mission support planning office (MSPO) coordinates necessary mission support. Meanwhile, ACC formed the airlift operations center (ALOC), a duplicative organization for C-130s, to serve as the contact for sourcing ACC-owned or -gained C-130s, airlift system elements, and support personnel and equipment for AMC- or theater-directed missions. Concern for an "apparent lack of true command and control integration for the C-130" is evident in one C-130 field commander's comments in a quarterly report to ACC headquarters:

The integration of C-130s into these [geographic] theaters by ACC continues, but all the command and control problems have

not been totally "debugged." We still find ourselves dependent on the AMC logistics readiness center for responsive reply to our deployed [aircraft] needs and we normally have to dispatch our own maintenance repair teams from home station to keep stateside missions flowing.³⁵

Presently, evolving command relationships between AMC, ACC, USACOM, and USTRANSCOM are even more convoluted in providing airlift support to the war fighters. Supplying theater CINCs with stateside C-130s involves either ACC's answering USTRANSCOM's request for "pieces" to provide C-130 augmentation forces to support a CINC or supplying USACOM with force packages of C-130s for stand-alone use.³⁶ The recently completed movement of forces to Haiti during Operation Restore Democracy was yet a further variation of this "pieces versus packages" arrangement. Operationally, even though a USACOM force package of C-130s was used for the planned air assault, the TACC remained tightly involved (though unintentionally) and watched as the "initial flight of paratrooper-laden C-130s was recalled and then replaced by a continuous air and sea bridge to Haiti."³⁷ If AMC or USTRANSCOM had possessed those forces and provided full-service, out-sourced transportation capability to the theater, at least one additional layer would have been removed from the sourcing, supporting, and monitoring activities, and much cleaner and clearer lines of C² responsibility would have been established.

The Airlift System

One of the assumptions of the ACC concept of operations (CONOPS) for the C-130 transfer was that the "entire airlift system must continue to be responsive to user's needs." The CONOPS further states that "interoperability within the national airlift system, Army, Navy, Marine, and allied countries is mandatory and essential for successful mission accomplishment."³⁸ Yet, major compo-

nents of the airlift system's continuum of tasks and responsibilities were fractured in some way by the transfer. One good example of a "break" in the airlift system is the division of combat control assets. Combat control forces play a key role in the airlift system for both intertheater and intratheater operations, particularly during the critical, initial stages of tactical or austere-location operations. Those forces have a greater affinity for C-130 operations rather than AMC global-reach operations because of the C-130's remote-location and airdrop capabilities; indeed, about 80 percent of their taskings are linked to C-130 operations of all types.³⁹ Yet, the agreed division of combat control resources available to AMC and ACC in the transfer was that each command got half. In addition, AMC was originally programmed to remain the functional manager for all combat control assets, despite the imbalance of workload; only recently was advocacy shifted to United States Special Operations Command (USSOCOM). Other airlift system functions were affected by similar arbitrary decisions.

Another example with like implications is the division of airlift control squadrons (ALCS) and airlift control flights (ALCF).⁴⁰ An ALCS forms the cadre for deployed tanker airlift control elements (TALCE) and is augmented by communications, maintenance, and aerial port assets. TALCEs deploy to establish control, coordinate, and report airlift/tanker operations at a base where normal airlift and tanker control facilities are not established or require both planned and no-notice augmentation. The reorganization stipulated that ACC-assigned ALCS forces would focus on specific theater expertise yet would be tasked to maintain strategic interoperability and do so with only limited resident tanker expertise. ACC forces are expected to be able to operate with AMC forces in the field (as they most assuredly will do), yet their ability to operate in both intratheater and intertheater arenas is hamstrung.

Again, AMC retained overall functional management for this airlift specialty.

Additional examples of this fragmentation show that, despite the acknowledgment of natural ties and the mutual support of airlift system resources, assets and responsibility for those assets have been artificially and arbitrarily divided. For instance, aerial port assets are divided along functional lines, with air terminal activities going to AMC and ACC receiving aerial delivery activities. AMC continues to be the functional manager for all aerial port activities, and the TACC manages the validation, sourcing, and tasking of peacetime and contingency requirements for aerial port and aerial delivery requirements. Yet, when requested by the theater commander and when used specifically for theater airlift requirements, these forces may CHOP to the supported theater. Moreover, ACC-designated forces are again tasked to "maintain strategic interoperability" with AMC forces.⁴¹

The logistics, aeromedical evacuation, and theater airlift liaison officer (TALO) programs are similarly affected. As a result, the synergy and efficiency of these assets—which existed because of the efforts of a single manager who directed seamless mobility operations—are now dissipated.

Issues for Tomorrow

Where would a consolidated airlift system fit in the airlift and mobility system of the future? One possible role bears similarity to airlift's role in Operation Nickel Grass. Although the C-130 might not transfer materiel over long distances from onload points to destination, it could easily be a key player in moving smaller but critical loads to establish the "aluminum bridge," thus freeing intercontinental, long-range assets for AMC's employment. In addition, the C-130 could be a key aircraft in deploying mobility assets brought back to the CONUS as a result of cutting back our forces overseas. The C-130

would be the weapon system of choice "to go out and lay down our en route structure and have it ready to use no matter where we are tasked to go"⁴² during periods when the tempo of military operations increases. During such times, specified intratheater mobility organizations and resources are used to expand the fixed infrastructure or establish AMC presence and infrastructure where none exists. This role suits the C-130's capability to move high-priority loads such as materials handling equipment (MHE), combat control teams, and ALCE teams; further, it takes advantage of the aircraft's ability to operate in austere conditions.

Technology available before the end of the century will further blur distinctions between what are now considered capabilities of global reach mobility forces and the theater airlift mission of today's C-130 force. Existing airlift forces already perform various airlift missions that overlap intertheater, intratheater, and combat-delivery modes (the historic rationale for consolidation already understood this relationship). These interchangeable roles will almost certainly continue to evolve. We can also anticipate theater airlift without theater beddown, whereby an aircraft such as the C-17 rotates to the theater to perform theater augmentation. Another option is multiple-mission use of intertheater aircraft, whereby an aircraft flies an intertheater mission, stays in the theater to perform missions, and then flies back to the CONUS on another intertheater mission.

Future C-130s or derivative aircraft will have range, speed, payload, and operating capabilities that will provide increased mobility options to theater commanders and the NCA. If they are air-refuelable—a capability which would give them virtually unlimited range—choices expand even further. Any aircraft flying a long-distance, direct-delivery⁴³ mission to the theater—AMC or otherwise—will need a seamless system with focused C² in order to move smoothly from

peace to war and execute a theater CINC's priorities.

We can also expect reengineering of the Defense Transportation System (DTS).⁴⁴ Many common-user customers of airlift and other parties, such as Congress, will continue to understand the military necessity of certain unique types of aircraft, but tolerance for overhead, layering, and duplication will be at an all-time low. Because traditional roles and missions will remain, the airlift system will have to remain flexibly responsive. The strategic airlift fleet (C-141s, C-5s, and C-17s) is already used for theater and tactical roles, and—under certain circumstances—the C-130 can fly strategic missions. A single airlift system remains the best option, particularly in times of fiscal restraint.

One reengineering idea that will continue to attract attention, thought, and resources in the airlift and mobility communities is total asset visibility (TAV). Simply defined, TAV offers full accountability for transported passengers and materiel from shipment point to final destination. Presently, however, TAV is not fully developed to provide supported and supporting commanders with key information from origin to final destination in-theater.

To correct this deficiency, we need a handoff whereby "an efficient and timely transfer of cargo, passengers . . . and information between strategic and theater elements is key to responsive force projection."⁴⁵ From the user's perspective, this exchange must be *seamless*; that is, the responsible procedures, systems, and organizations must be transparent to the ultimate customer and must result in a fort-to-foxhole delivery system. But the reengineering proposed by USTRANSCOM stops short of making it the single organization responsible for delivery to the foxhole. Instead, USTRANSCOM component commands are to operate theater port processes up to and including the point where cargo and passengers delivered via strategic lift meet the supported CINC's con-

trolled resources (trucks and aircraft).⁴⁶ In order to make this handoff to the theater as seamless as possible, to make TAV workable, and to keep the aircraft under the theater CINC, peacetime "organize, train, and equip" functions and aircraft advocacy should be with the organization that can fully integrate them into a standardized, interoperable transportation system. Right now, that organization is Air Mobility Command.

Final Thoughts

A whole array of ideas that support the value of a consolidated airlift system has not been explored. This article only touches on major themes and provides some evidence and examples of the worth of a consolidated system. It is intended to stimulate more discussion of issues not fully debated when the C-130 transfer occurred. Additionally, histories and memoirs can reveal if other factors shaped the transfer during the Air Force reorganization.

History has demonstrated the viability of the consolidated, single-manager airlift system. MAC's and AMC's advocacy for C-130s allowed those aircraft to integrate fully into the airlift system and helped generate a synergism among all airlift forces that built a seamless, globally responsive airlift system. Further, the concept of the theater airlift

manager allowed theater commanders to use their theater airlift forces as they saw fit and to integrate the entire spectrum of mobility and airlift support for their theater. The seamless, single-manager airlift system increased US combat capability by providing an integrated, worldwide airlift system with the full range of support capability and the necessary flexibility to meet tactical situations in any environment. The present format, however, is an invitation for future operational failure at a key juncture.

As dollars for defense become scarcer, we will have fewer chances to buy capability and performance. . . . Airlift will have to depend on the wise employment of existing forces and resources.

Finally, as dollars for defense become scarcer, we will have fewer chances to buy capability and performance. Increasingly, airlift will have to depend on the wise employment of existing forces and resources. The time-tested, consolidated, single-manager, seamless airlift system is the best choice for obtaining maximum performance, effectiveness, and efficiency from this nation's airlift forces. □

Notes

1. Kenneth Labich, "Why Companies Fail," *Fortune*, 14 November 1994, 52-53.

2. Gen Merrill A. McPeak, "For the Composite Wing," *Airpower Journal* 4, no. 3 (Fall 1990): 5. In this landmark article on the composite wing, General McPeak openly discusses his concern about command relationships within a theater. For insight into the early dialogue of key Air Force leaders on various constructs for the Air Force reorganization, see Gen John M. Loh, commander, Tactical Air Command, Langley AFB, Virginia, interviews with Grant M. Hales, 3 and 24 October 1991. For information about the philosophical construct of the reorganization, see *Air Force Restructure* (Washington, D.C.: Department of the Air Force, September 1991).

3. History, Air Mobility Command (Provisional), 15 January-31 May 1992, 8-9 (Secret); and History, Military Airlift Command, January-December 1990, 390. (Secret) Information extracted from both histories is unclassified. For MAC's view on reorganization from outside the command, see the Loh interviews.

4. Dr James K. Matthews and Dr Jay H. Smith, "General Hansford T. Johnson, An Oral History" (Scott AFB, Ill.: Office of History, United States Transportation Command, December 1992).

5. Loh interview, 3 October 1991.

6. Edward G. Longacre, "Reorganization of Air Combat

Command: 1 June 1992-31 December 1993" (Langley AFB, Va.: Office of History, Air Combat Command, September 1994), 29.

7. Point paper, JCS/J-8, "Transfer of CONUS C-130s to Air Combat Command," 13 May 1993. For pertinent extracts regarding the airlift consolidation PDM of 1974, see Richard I. Wolf, *The United States Air Force: Basic Documents on Roles and Missions* (Washington, D.C.: Office of Air Force History, 1987), 389, 391.

8. Lt Col Charles E. Miller, *Airlift Doctrine* (Maxwell AFB, Ala.: Air University Press, March 1988), 430.

9. "The second reason for changing the combatant commands is that many of our commands operate in theaters, not by function. The paramount consideration is the theater commander's requirements, not an arbitrary functional division of labor. This theater approach is precisely the way we organized in World War II. Thus, the MAJCOM reorganization is another example of a return to basics." *Air Force Restructure*, 6-7.

10. L. W. Pogue, chairman, Civil Aeronautics Agency, memorandum to agency personnel, subject: War Aviation Transport Services, 15 June 1942.

11. Maj Gen H. L. George, commander, Air Transport Command, to commanding general, Army Air Forces, letter, subject: Relationship between the Theaters and the Military Air Transportation Agency, 15 March 1944.

12. Robert Frank Futtrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force*, vol. 2, 1961-1984 (Maxwell AFB, Ala.: Air University Press, December 1989), 626.

13. Miller, 345.

14. Quoted in *ibid.*, 346.

15. Futtrell, 626.

16. *Ibid.*

17. See Capt Chris J. Krisinger, "Operation Nickel Grass: Airlift in Support of National Policy," *Airpower Journal* 3, no. 1 (Spring 1989): 16-28.

18. Lt Col Robert Trimble, "Interview with General Paul K. Carlton," *Airlift*, Winter 1984, 17. General Carlton was CINCMAC during the Nickel Grass airlift to Israel.

19. Ray L. Bowers, *Tactical Airlift* (Washington, D.C.: Office of Air Force History, 1983), 650.

20. Jeffery S. Underwood, "Military Airlift Comes of Age: Consolidation of Strategic and Tactical Airlift Forces under the Military Airlift Command, 1974-1977" (Scott AFB, Ill.: Office of History, Military Airlift Command, January 1990), 7. Underwood provides an extensive discussion of the Corona Harvest report and the entire history of issues leading to airlift consolidation.

21. "Proposed Transfer of C-130s from AMC to ACC" (Scott AFB, Ill.: Military Airlift Command, ca. 1991), 2.

22. *Ibid.*, 645.

23. Quoted in Underwood, 10.

24. James A. Winnefeld, *A League of Airmen: U.S. Air Power in the Gulf War* (Santa Monica, Calif.: Rand Project Air Force, 1994), 228-29.

25. Betty R. Kennedy, *Air Mobility En Route Structure: The Historical Perspective, 1941-1991* (Scott AFB, Ill.: Office of History, Air Mobility Command, September 1993), 30. See Kennedy for more extensive discussion of C-130 operations and other problems of airlift integration in the Persian Gulf theater.

26. Point paper, HQ MAC/XPP, "Airlift Relationship if Theaters Own C-130s," 23 January 1991.

27. For more discussion of the historical and doctrinal legacy presently influencing airlift, see Miller, 421-35.

28. *Ibid.*, 429.

29. Air Mobility Command, *Air Mobility: Foundation for Global Reach* (Scott AFB, Ill.: Headquarters Air Mobility

Command, March 1993), 3. Although AMC's global reach pronouncements stress an intertheater, strategic mobility theme, the author more traditionally associates air mobility with the broad spectrum of issues known as the "airlift system."

30. Lt Gen William H. Tunner, *Over the Hump* (Washington, D.C.: Office of Air Force History, 1964), 322.

31. Miller, 430.

32. Underwood, 26.

33. Point paper, HQ AMC/XPD, "Active Airlift C-130 Organizational Alignment Issues," 14 May 1993.

34. Message, 041815Z OCT 93, HQ ACC/DOL to the field, 4 October 1993; and briefing slides, Col John J. Murphy, HQ ACC/DOL, to the Airlift Tanker Association Convention, Seattle, Wash., subject: How Goes It: The C-130 One Year after the Transfer, October 1994.

35. Commander, 314th Operations Group, to commander, 314th Airlift Wing, letter, subject: Inputs for Quarterly Letter to ACC/CC, 31 March 1994.

36. This "pieces versus packages" arrangement is the result of an agreement put together by the USACOM operations directorate (J-3) and the USTRANSCOM strategic plans and policy directorate (J-5) on 12 May 1994, whereby ACC would provide USTRANSCOM C-130 augmentation forces (pieces) in support of a CINC who already has C-130s for an ongoing/continuing operation such as the airdrops in Bosnia. In turn, ACC would supply USACOM with force packages of C-130s to deploy in support of a CINC's new operational mission/requirement, stand-alone operation, or discreet mission such as the recently completed food distribution in Somalia.

37. James Kitfield, "The Move to Haiti (Operation Hold Democracy)," *Government Executive*, November 1994, 91.

38. Air Combat Command, "Concept of Operations for C-130 Assets (CONOPS)" (Langley AFB, Va.: HQ ACC/XPJ, 21 December 1993), 6. (Unclassified)

39. Col John Murphy, HQ ACC/DOL, telephone conversation with author, 14 November 1994.

40. Air Combat Command, "Concept of Operations for C-130 Assets (CONOPS)," C-1.

41. *Ibid.*, C-2.

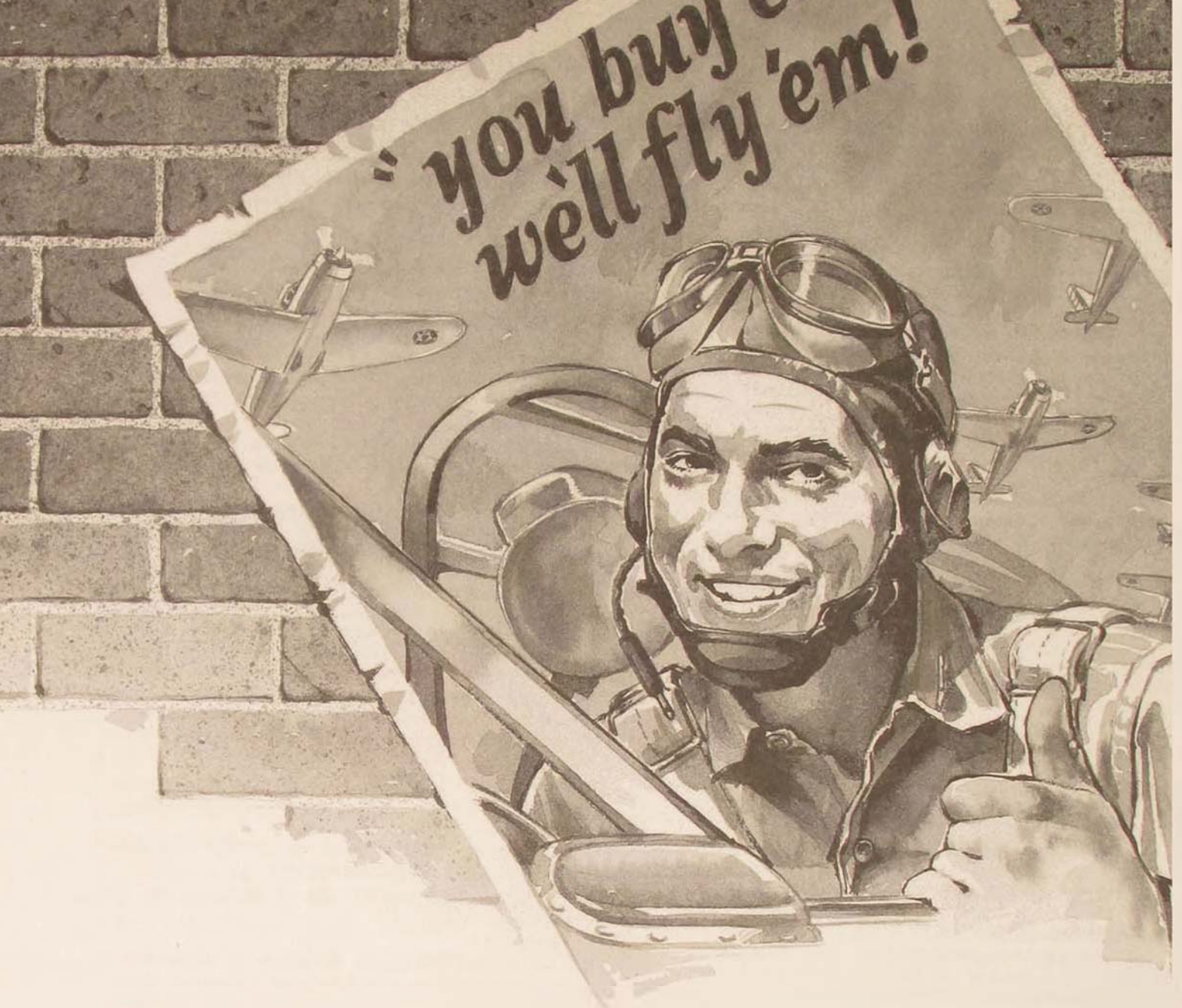
42. Air Mobility Command, *In Support of Global Reach* (Scott AFB, Ill.: Headquarters Air Mobility Command, August 1994), 2-3.

43. The *direct delivery* concept "addresses the most basic airlift requirement: timely delivery of combat forces to a point as close as possible to the battle." Miller, 404. Such an approach moves cargo and troops from a point of embarkation, quite possibly outside the theater, directly to a forward-operating location today served by intratheater airlift forces or surface transportation and bypasses a more conventional, intermediate off-load point. The term is widely used in connection with operations of the new C-17 aircraft.

44. For a futuristic view of defense transportation, see USTRANSCOM Initiatives Team, "Reengineering the Defense Transportation System: The Ought to Be Defense Transportation System for the Year 2010" (Scott AFB, Ill.: USTRANSCOM, January 1994).

45. USTRANSCOM Initiatives Team, "Seamless Handoff," draft of chap. 4 to USTRANSCOM DTS 2010 action plan (Scott AFB, Ill.: USTRANSCOM, January 1994), 4-1.

46. USTRANSCOM Initiatives Team, "Reengineering the Defense Transportation System," 15. This particular section, "Defense Transportation System Relationship to Theater Operations," lays out concepts for the appropriate points where handoffs occur in the theater.



REVOLUTIONARY AIR FORCE PUBLIC AFFAIRS

THE VISION

BRIG GEN RONALD T. SCONYERS, USAF

PUBLIC AFFAIRS (PA) is an invaluable weapon in the Air Force arsenal of "firepower," a weapon that manages for commanders the military imperative for tomorrow's Air Force. Only as a result of informed internal and external public

support can the Air Force effectively wage war or manage the peace! This is not a new concept. Carl von Clausewitz cited public opinion as a center of gravity in war fighting. Abraham Lincoln said, "Public opinion is everything. With it, nothing can fail.

Without it, nothing can succeed." In today's world of instant information, aggressive internal and external communication strategies and considered public opinion are *principles* of both war and peace. Through solid public affairs research, planning, execution, and evaluation, the Air Force must create and foster a compelling image of its mission, so compelling that confidence in the institution is unwavering even during singular events that may momentarily tarnish the corporate image.

The value of such communication efforts is growing exponentially. As the Air Force has reshaped to accommodate global and fiscal changes, the need to communicate what we do and why we do it is more critical than ever. As the core of Americans with a basic knowledge of the military shrinks, we must refine and target our communications to an external public that is largely without a basic understanding of how, or even why, the Air Force functions, and one must do so to an internal audience whose communication appetite is greater than ever.

A revolutionary public affairs culture will create an organization that broadens the PA perspective and facilitates the development and use of new approaches to the management of communications to sustain the vision of Air Force public affairs. Through internal information and community and media relations, public affairs creates and executes tactical and strategic plans that enhance the Air Force mission through proactively delivered information that builds informed internal and external public support for the Air Force. The future will therefore involve a broader agenda as PA is empowered to embrace alongside commanders the leadership role as the arbiters of change, of improvement, and of knowledge.

The PA Focus

Increasingly, Americans want to know why military forces are relevant to them.

The military has achieved the goal it fought for over a half century to attain—winning the cold war. Now that the cold war is a memory, the Air Force must show its continued relevance to the American people. Americans want and deserve to know who we are, what we stand for today, and what sets us apart. Public affairs must, with new sophistication and understanding, move the Air Force's messages and vision forward. Debate rages about what should be the "right" size of the military, the "right" missions it should have, and the "right" type, quantities, and costs of its weapons. PA tactics and strategies must help guide the debate, communicating the purpose and character of the Air Force. We must be ready and willing to tell the Air Force story at every opportunity, or someone else will do it for us—but not as well and not with our message.

The Air Force must have a clear, focused image of who we are, where we're headed, and the unique capabilities we provide. It is just as important that we communicate that image consistently. This is not the time to let the messages fall where they may. Without specific goals and objectives, this communication effort will not succeed by accident.

The public affairs professional and Air Force senior leadership must bring a new boldness and imagination to communication. Whether through the press, to the Air Force family, or to local communities, the efforts must be relevant and timely. The emphasis must be on creativity, on innovation, on looking at new ways to communicate the character of the Air Force. Commanders and public affairs professionals need to look on the horizon, anticipate change, analyze the impact, and make that information known throughout the organization.

The vision must be to create a synergy between PA professionals and leadership to develop an atmosphere of communicative excellence, of greatness. Air Force leaders must identify and abandon outdated rules and fundamental assumptions that once de-

financed PA operations. These leaders cannot look at public affairs the same way today that they did yesterday. The Air Force must go back to the beginning and invent a better way, concentrating on what its future policies should be and adapting goals and strategies to produce the desired results in the face of rapidly changing environments.

While the use of existing capabilities such as bands, Air Force art, aerial demonstration teams, and other assets continue to be of high value, we must continually evaluate how we use all these tools to ensure that tradition and old paradigms have not overshadowed

what best meets the communication needs of today's Air Force. We must also reassess the myriad of other communication agencies within the Air Force such as Combat Camera, photo labs, graphics, and all audio and visual information assets that are designed to communicate through specific media to ensure that *all* communication capabilities are managed in a way that ensures singleness of purpose.

In a chaotic and communications-rich world, the goal of all communication strategies must be that of creating knowledge—not just imparting data or facts, but presenting information in a way that is so compelling and interesting that people can understand it and make use of it. Competition for the public's attention is intense, and the attention span is often short. Public affairs programs must be focused in order to capture the public's imagination and to inform it

Dealing with the media has always been important. When tragic news does occur, it must be dealt with immediately and openly. Here, Air Force personnel communicate with local and national media after an aircraft accident.



about complex issues quickly, and yet do so in an understandable way.

The worldwide information explosion requires public affairs to look at communicating in new ways. *Comprehensive* does not always mean *Comprehensible*. Public affairs programs undertaken without specific communications objectives are counterproductive. They add to the communication overload and divert valuable energy and resources away from communications that directly support missions. The job of public affairs is not to intimidate with information but to *entice*.

The Air Force must also redefine how public affairs will fight the next war and how it is to support operations other than war, such as peacekeeping and humanitarian efforts. Contingency planning will be critical to ensure effective communications. The rising tide of PA's realistic training in Air Force and joint operations alongside the media is now evident. The media will be better informed, the public will be better informed, and Air Force people will learn to communicate more effectively through continuous interaction.

PA counsel is most effective when it is preemptive—that is, when it is preventative, not remedial, in influencing and enhancing the planning and decision-making process. Public affairs programs should not be counted on to mitigate the consequences of poor judgment or bad decisions. But when bad, embarrassing, or tragic news does occur, it must be dealt with immediately and openly. Bad news never gets better with time. Open and honest communication will make bad news old news quickly. If bad news is protected or withheld, a one-day story will likely become an extended story—with attendant side stories about the organization's unwillingness to be forthcoming to the American public. One practitioner said that an effective public relations program "is like a guardrail on a cliff, not the ambulance at the bottom."¹ Public affairs can keep the organization from veering off the precipice. Public affairs practitioners and senior leaders

must use effective tools to foster a "guardrail" mentality—enhanced research and analysis; a willingness to make the tough calls; a sound image campaign; and clear, consistent, and honest communications. Public affairs must be an invaluable member of the team whose counsel is not just listened to, but is instinctively sought out.

Image Investments

Integrity, service above self, excellence in all we do, the team-within-a-team concept, leadership accountability, the refining of our core competencies—all these are factors that define the Air Force of today as an institution. They have a major influence on how we are perceived by our own Air Force family, the other services, elected officials, and

We must be ready and willing to tell the Air Force story at every opportunity, or someone else will do it for us—but not as well and not with our message.

all Air Force "stakeholders" (the general public). This culture reflects values and priorities and describes what is expected of everyone in the Air Force. It defines our image. There must be a commitment by the senior leadership to ensure that we actively communicate how this image matches reality.

The value of image cannot be overstated. The Air Force must manage its image as a valuable asset—as valuable as its aircraft and as valuable as the people who create and maintain that image. Image will do several important things:

- Image will build public awareness and acceptance.
- Image will help buoy the organization in times of crisis.
- Image will attract and retain quality people.
- Image will create a cooperative environment in the community.

Direction and involvement must come from senior leaders. They understand the unit from all angles and can provide the drive and credibility to move the campaign forward. Commanders at all levels must advocate investment in the Air Force image.

***Public opinion is everything.
With it, nothing can fail. Without
it, nothing can succeed.***

—Abraham Lincoln

Other keys to the success of an image campaign is creativity and consistency. What will be noticed? What will be remembered? What will stand out? PA practitioners must put what Air Force professionals do, which sometimes is complicated and highly technical, into a memorable form that will capture an audience's imagination. This is not easy, but it will make all other efforts worthless if ignored. Public affairs must relay information in a manner that brings it to life. The Air Force must carry the same themes, the same messages, to its audiences.

We cannot fractionalize our efforts by focusing on the themes and messages of a specific major command or organization within the Air Force. We must focus on the broader implications, achieving communications synergy by speaking with one voice that tells how the Air Force meets the needs of America.

Consistency conveys credibility and a sense of purpose. It also creates a sense of

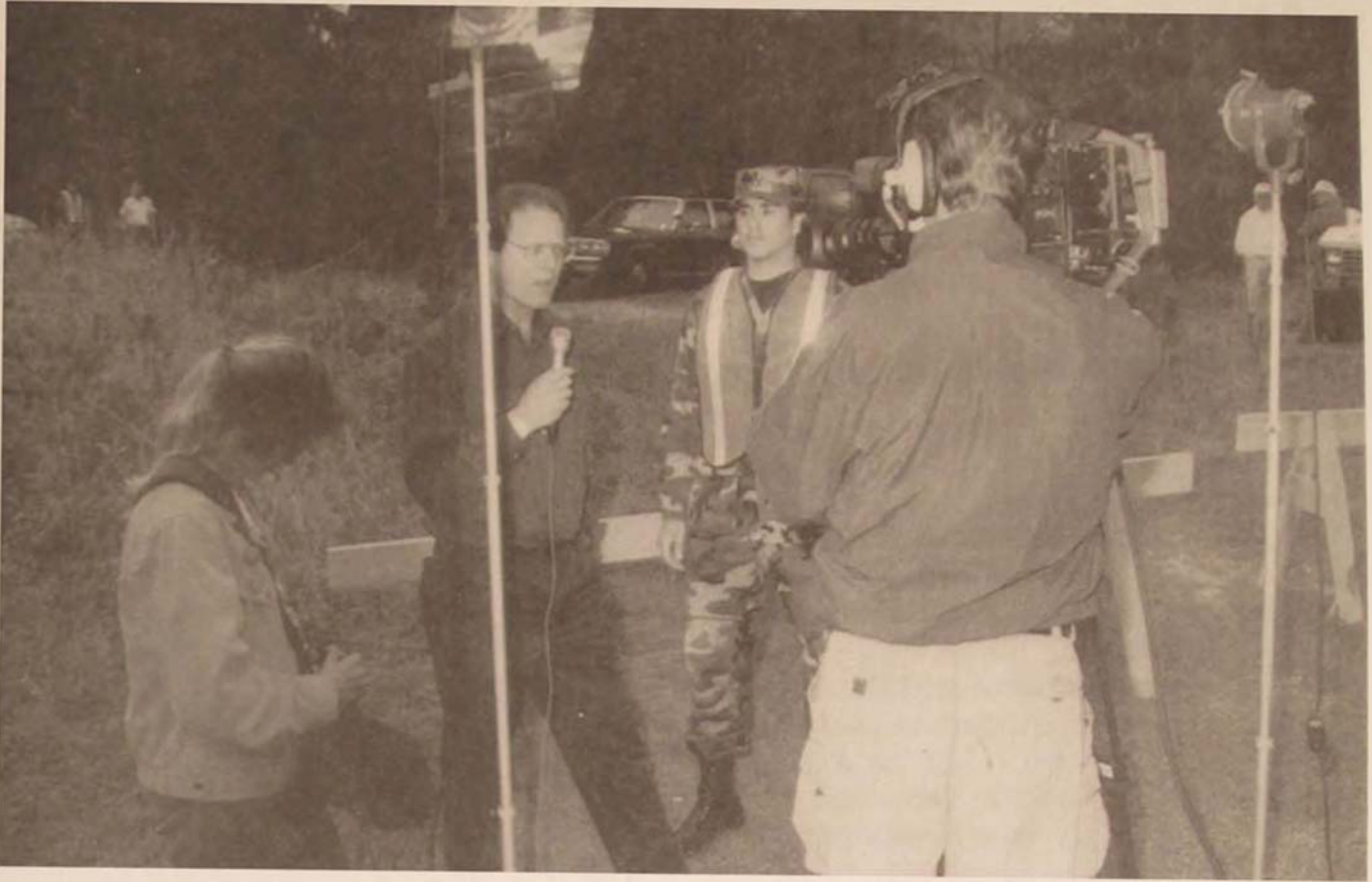
comfort with the audience, which will become suspicious or confused if the messages are schizophrenic and lack focus. The emphasis will be on total communication in anything written, said, or seen to enhance the Air Force image the old-fashioned way—by promoting our purpose, our people, our products, our performance, and our potential.² This is not a cosmetic exercise. It is essential to our institutional viability.

Our goal is to ensure that the Air Force continues to be admired as a military institution. We already have the characteristics that any *Fortune* 500 company would be proud of—a noble purpose; quality performance; a dedicated, committed, and professional workforce; the ability to do exactly what is asked of us by our nation; and the potential to do even more.³

The PA Professional

Public affairs practitioners draw on many strengths. Above all, the PA professional embodies ethical decision making. Established standards guide PA professionals to the morally correct course in decision making. This involves taking risks! Frequently, information is filtered so that only partial truths are known. Public affairs practitioners must cut through this filter to provide commanders the information needed to make enlightened decisions. The PA professional is a synergist, not a sycophant.

The PA professional is a "hybrid"—an insider when it comes to understanding how the unit operates but who can also look at the organization as an outsider when necessary. PA practitioners will gauge potential outcomes of impending decisions or events. If a crisis occurs, they will be beside the commander, offering solid counsel and sound communication strategies. They will have a bond of trust with both the Air Force



The public affairs professional—fully trained, mobile, and combat-ready—must be part of the lead element into every operation because it is an axiom that the media will likely be there already.

leadership and audiences inside and outside the Air Force.

The PA professional is a self-developer, someone who values independence and, if necessary, stands apart on the tough issues. He or she has a sound moral compass to alert commanders if the organization is off track and can assess what battles can and cannot be won with communication tactics. As a result, the PA professional will be on the "radar screen," a valued and trusted member of the team whose advice and counsel commanders intuitively seek.

PA professionals must anticipate when the counsel and actions of public affairs are re-

quired. They cannot wait for the glass to break and then be asked to put it back together. There must be PA leadership to cushion the fall and lessen its impact before the situation becomes a PA crisis.

The PA professional must have tactical and strategic plans with clear and definite objectives that have real meaning to audiences inside and outside the Air Force. Above all, the commander must buy into the messages of the organization and the communications process. Only the commander can truly give it life and encourage others to buy in. Only the senior leadership can provide the substance and meaning behind the message.

A fully trained, mobile, and combat-ready public affairs professional must be part of the lead element into every operation because it is an axiom that the media will likely be there already. Every PA team will be called

to meet the communication requirements of the future. As the career field diminishes in numbers, our operations tempo is accelerating, and the demand for information becomes more insatiable. The PA professional must be at the scene of the action to meet this demand—instantaneously.

Internal Information

There is a new emphasis on communicating with all the members of the team. It is a changed and changing Air Force today with different communications requirements. Today's workforce is diverse and multicultural. Whereas leadership was once authoritarian, it is currently moving toward shared responsibility. We have gone from formal to informal communications, from focused attention to a short attention span. The Air Force has created a team within a team that fosters trust, with bonds forged by commitment to a common cause. A sense of community held together by clearly defined and precisely communicated goals and visions will produce extraordinary results.

Public affairs must specialize in access to news and information. It must be responsive in serving as the information broker for the total Air Force community. Air Force people want their news and information from official sources first. Public affairs will look at ways to ensure the timely flow of news and information to the total Air Force community by building a *composite wing* of print, electronic, broadcast, and computer products, services, and programs. The incubator for this effort will be the public affairs field operating agency at Kelly Air Force Base, Texas—the Air Force News Agency (AFNEWS)—which will develop the information weapons by which we hit our target audiences.

Information is power. More important, information is empowering. Technology will take PA to new levels of empowerment. Technology and the freedom it permits in

transferring information will allow power to reside within individuals. As one study has put it, "An employee without the information cannot take responsibility. With information, he cannot avoid taking it."⁴

Public affairs cannot look at technology through the lens of existing processes but rather must ask the question, How can we use technology to allow us to do things that we are not already doing? PA must exploit the latest capabilities of technology to achieve entirely new goals, breaking old rules and creating new ways of working.

Technology has democratized communication. Everyone is, or soon will become, both a creator and distributor of information. Public affairs is no longer the sole owner of communication messages or conduits. It is the PA role to be, in a sense, the disseminator of knowledge and to encourage the building of knowledge. The Air Force must not surrender control of what our people learn about us to outside sources. Public affairs now has cutting-edge opportunities for value-added communications as alternatives that supplement the important communication tool of the base newspaper. Public affairs must target more accurately the message-delivery process to include more face-to-face communication.

How we promote ourselves to each other speaks volumes as to who we are as an organization. Clearly, the better our people are informed, the better they will perform.

External Information

It is vital that we develop an external communication strategy that is both long-term and deliberate. We have a mission that is right for the times, and we have people of uncommon skill and dedication who deserve to have their story told every day.

Dealing with the media has always been important, but it is time to think about communications differently. Antagonism toward

the press must be set aside. There are new realities, realities that point to our need to accept the press and to work with it or else perish. Communication voids do not last; they are filled by other voices if we fail to respond quickly and professionally. The Air Force must become more sophisticated when working with the media to develop a relationship of mutual respect that decreases the "cultural antagonism" that can harm communication between the Air Force and the press.

A consistent and timely message will be critical. The business of news has changed. The shallow, the sensational, wins almost every time. Spectacle is the norm, the message that is most desired. Sensationalist shows often drive the mainstream press toward a lowest-common-denominator approach to the news. A solid and memorable public affairs program can fill the void with imagination and skill. A sound media strategy will help guide PA professionals to recognize extraordinary opportunities that make the difference.

The message must be clear and understandable and must be told in innovative ways. Public affairs resources are limited, and there is little likelihood that they will be significantly increased. We must work smarter, better, faster, and bigger to get the most for our time and effort. AFNEWS must play an increasingly larger role in communicating with external audiences as well. In addition to its internal product development (as well as its combat information teams that deploy to hot spots to rapidly report information to the internal audience), AFNEWS must look to external audiences to be the force multiplier of its tremendous capability.

Whether in times of war or peace, our responses to the media must be timely. Many in the military steadfastly hold to the maxim that "their deadlines are not my deadlines." But their deadlines are often our deadlines if we want to tell the Air Force story. Providing beautifully staffed information that has been allowed to work through the system

does no one any good if it comes in after the deadline. Following through with dogged determination to provide the right information at the right time will enhance the professionalism of public affairs and will ensure a commitment to informing the public.

Public Affairs in War

Public affairs has become a primary weapon in modern warfare. Information contributed to the allied victory in the Gulf War, and the skillful use of information in the future may well have the capability of convincing our adversaries not to go to war in the first place. We must recognize that fact and incorporate it into our plans for the future. The Air Force's ability to show the pinpoint accuracy of many of our bombing efforts graphically illustrated our capabilities to the world. It was as much the smart words as it was the smart bombs that contributed to our actions. In future conflicts, the employment of effective communications with the media and the public will be on a par with employing weapons effectively. The control of air and space will be hollow unless we win public support as well. PA's future training and requirements will help ensure that we win that support.

Public affairs must be combat-ready, mobile, technologically prepared, and expertly trained to deal with communication issues in a multitude of scenarios from full combat in hostile climates to the relative comfort and safety of exercises on our home turf.

One lesson of the Gulf War is that the absolute explosion in the number of news media will not allow PA to work with them on a one-on-one basis. There were well over a thousand reporters clamoring for information during the Gulf War. Less than half that number covered the Vietnam War after the Tet offensive, with normally fewer than 100 in the field on any given day. And yet the number of PA practitioners is shrinking.

We must use our valuable public affairs resources more effectively.

In order to grow as an organization, we must move from fear to trust. We must be willing to give up a certain amount of control to gain understanding. Commanders and PA personnel must employ thoughtful planning and education and have confidence both in themselves and the organizations that they support. Worldwide activities from Zaire to Zepa show the necessity of being prepared to meet media requirements as we carry out our global missions.

Wartime PA must be practiced during exercises at all levels. Public affairs must be wartime ready, well versed in the use of its equipment, and comfortable with the skills needed to perform its wartime tasks. Commanders must recognize the importance of PA in a wartime scenario and must allow it to train like it will "fight." Since public support and commitment are vital, public affairs professionals must be allowed to practice their craft.

It will be critical for public affairs to understand joint operations in order to explain the unique capabilities that the Air Force brings to the table. Joint operations provide special challenges that the PA professionals in the Air Force must approach with sophistication. Worldwide commitments seldom involve a single service. Smaller, integrated, and rapidly mobile forces now dominate the landscape. It will also be critical for public affairs to speak with one voice and to provide consistent information. Its ability to quickly mobilize, to understand how Air Force operations fit into the picture, and to relay that information quickly and accurately to the public will be crucial to the Air Force's success in all operations. PA procedures must be rock-solid in dealing with the added challenge of a different chain of command and in working with PA professionals who may do the job a little differently. The bottom line is to tell the Air Force story and our professionalism and commitment to national objectives in a compelling, unique,

and timely way that captures the imagination of the American people.

Conclusion

Public affairs is not cosmetic. It is essential to the operation (and the very survival) of the Air Force. But we cannot perform public affairs today or tomorrow like we did yesterday. We need visionary, far-sighted communications leadership throughout the Air Force.

It is not necessary to fabricate a positive image of the Air Force. Our overarching vision as to who we are and what we do is true. The leadership, ably supported by the public affairs community, must integrate that image into all its communications. We must speak with one clear, coherent, and distinctive voice to our Air Force family as well as to all Air Force stakeholders.

The chief of staff made the following statement on Air Force public affairs policy:

Our institutional reputation depends upon our ability to create and foster a positive image of the Air Force—an image that reflects performance and values, noble values underpinned by unwavering integrity. This image must be so compelling that public confidence in our people, our weapons systems, our organization, and our ability to perform our missions is absolutely unquestionable. We must consider our corporate image as a priceless resource—as valuable as our people and aircraft. Our recruiting efforts are founded on our image as an important, high-technology, highly professional organization. Local community support is based on our image of being good neighbors, active in the community and good caretakers of the environment. Our support in Congress, within the Administration and among the American people depends on an institutional image of mission capability, integrity, and efficient use of the tax dollar. Among our own people, our institutional image must reflect our genuine concern for their welfare.

Public affairs professionals serve alongside the Air Force leadership as Air Force spokespersons and advisors at a time when the communications environment and the issues to be communicated are becoming

more complex than ever. With this vision of public affairs, the Air Force leadership will be able to meet the challenges of today's and tomorrow's communication demands. □

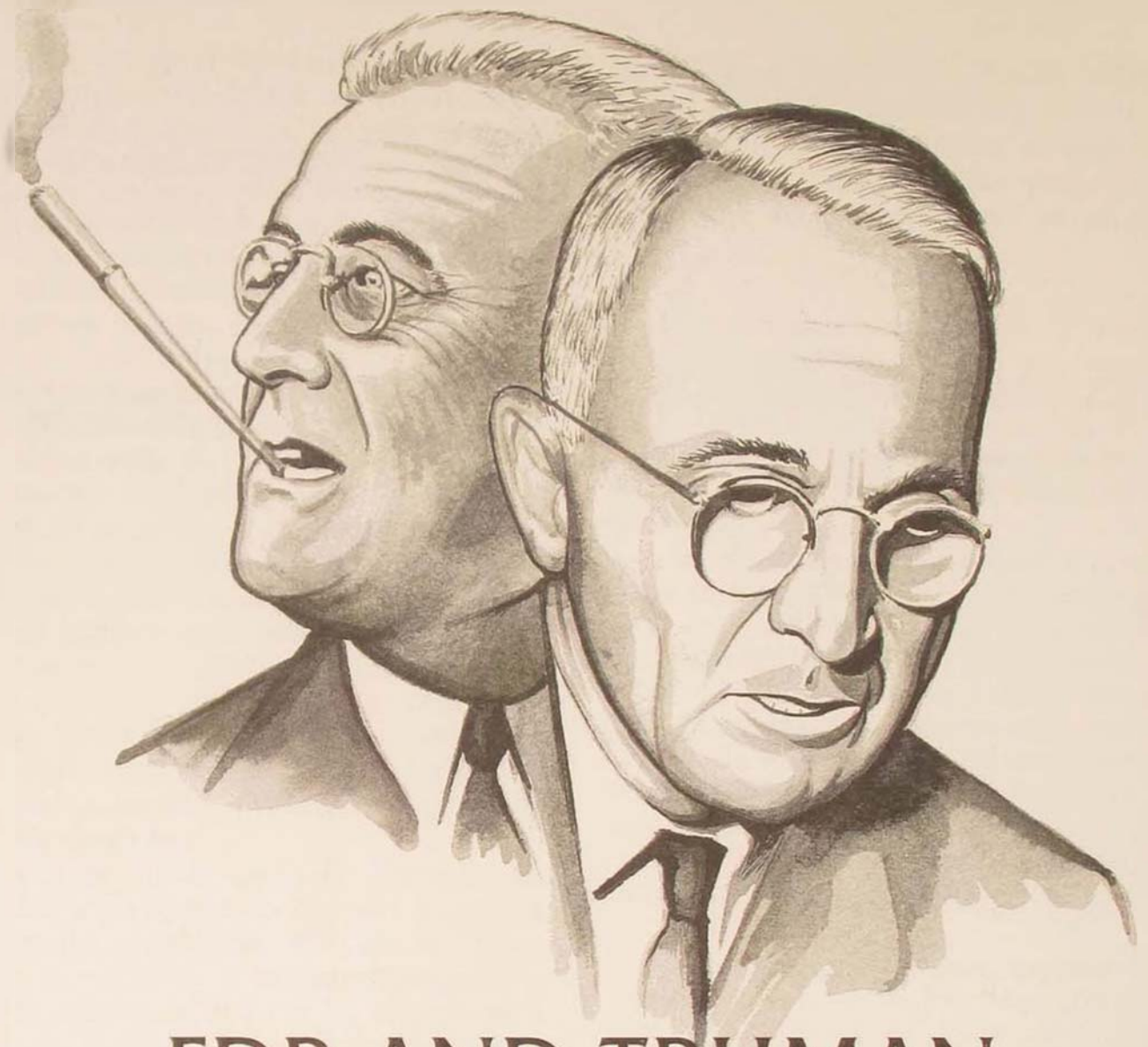
Notes

1. Marion Pinsdorf, *Communicating When Your Company is under Siege: Surviving Public Crisis* (Lexington, Mass.: Lexington Books, 1986), 37.

2. Allyson LaBrode, *Corporate Image: Communicating Visions and Values* (New York: The Conference Board, 1993), 10.

3. Ibid.

4. John Naisbitt and Patricia Aburdene, *Megatrends Two Thousand: Ten New Directions for the 1990s* (New York: Avon Books, 1991), 227.



FDR AND TRUMAN CONTINUITY AND CONTEXT IN THE A-BOMB DECISION

HERMAN S. WOLK AND RICHARD P. HALLION

THE 50TH anniversary of the American dropping of atomic bombs on the Japanese cities of Hiroshima and Nagasaki, which forced the surrender of Japan and the end of World War II, has occasioned much comment, introspection, and controversy. The discussion and acrimony surrounding the National Air and Space Museum's exhibit of the *Enola Gay*,

the B-29 that dropped the bomb on Hiroshima, heightened the controversy and intensified the spotlight on President Harry S. Truman's decision to employ the atomic bomb against Japan.

Context has often been neglected in the enormous outpouring of commentary on the rationale behind Truman's decision. The two crucial contexts surrounding the Tru-

man decision are the evolution of American strategic bombing policy and the situation in the Pacific war in the spring and summer of 1945 as seen by both Truman and the Japanese.

Perhaps the most important element to be remembered in the long evolution of strategic bombing policy is that strong continuity existed between the Roosevelt and Truman administrations. Long before the Japanese sneak attack on Pearl Harbor, President Franklin D. Roosevelt (FDR), outraged at the savagery of the Japanese Imperial Army's onslaught in China and at Nazi Germany's offensive in Europe, had requested that the US Army Air Corps, headed by Maj Gen Henry H. ("Hap") Arnold, begin preparations to build a massive American air force. Roosevelt, a former assistant secretary of the Navy, astutely determined that airpower would constitute a decisive element in any forthcoming conflict between the Western democracies and totalitarianism. Long harboring a sympathetic view towards the suffering of the Chinese people at the hands of the Japanese military, FDR thought that in the event of war with Japan, it would be most important that the United States have the capability to strike the Japanese home islands and urban areas with long-range, land-based bomber aircraft.

The key to FDR's strategy rested on the success of the Very Long Range Project—the development of the B-29. Although some Army Air Forces (AAF) leaders considered the B-29 a "three-billion-dollar gamble," General Arnold intensively pressed its development and production. This revolutionary aircraft, a great advance over the B-17 and B-24 long-range bombers, became Arnold's great obsession. With iron will, Arnold fired subordinates who failed to share his urgency, and he drove the big bomber through the developmental and production cycles.

General Arnold always viewed the B-29 as the only weapon with which the United States could "hope to exert pressure against Japan without long and costly preliminary

operations."¹ After America entered World War II against Germany and Japan, Arnold determined that the B-29 should be used against Japan: "If B-29's are first employed against targets other than against Japan, the surprise element will be lost, and the Japs will take the necessary actions to neutralize potential useable bases."²

President Roosevelt and Gen George C. Marshall, Army chief of staff, strongly sup-

Both FDR and Truman emphasized very clearly to Marshall and Arnold that everything should be done to end the war with Japan as quickly as possible, with the least loss of American and Allied lives.

ported the difficult development and production of the B-29 (grave problems arose, and in anything less than a global conflict, the production assembly lines would have been shut down); they also supported its employment against the Japanese home islands. Both FDR and Marshall were extraordinarily strong advocates of strategic bombing. They constantly put enormous pressure on Arnold to bomb Japan (thus, the genesis of the raid by Lt Col Jimmy Doolittle against Tokyo in early 1942). Roosevelt stated publicly that the Axis powers would be bombed heavily, and he became increasingly appalled over the atrocities and savagery—indeed, the holocaust—being committed by the Japanese Imperial Army in East Asia.³

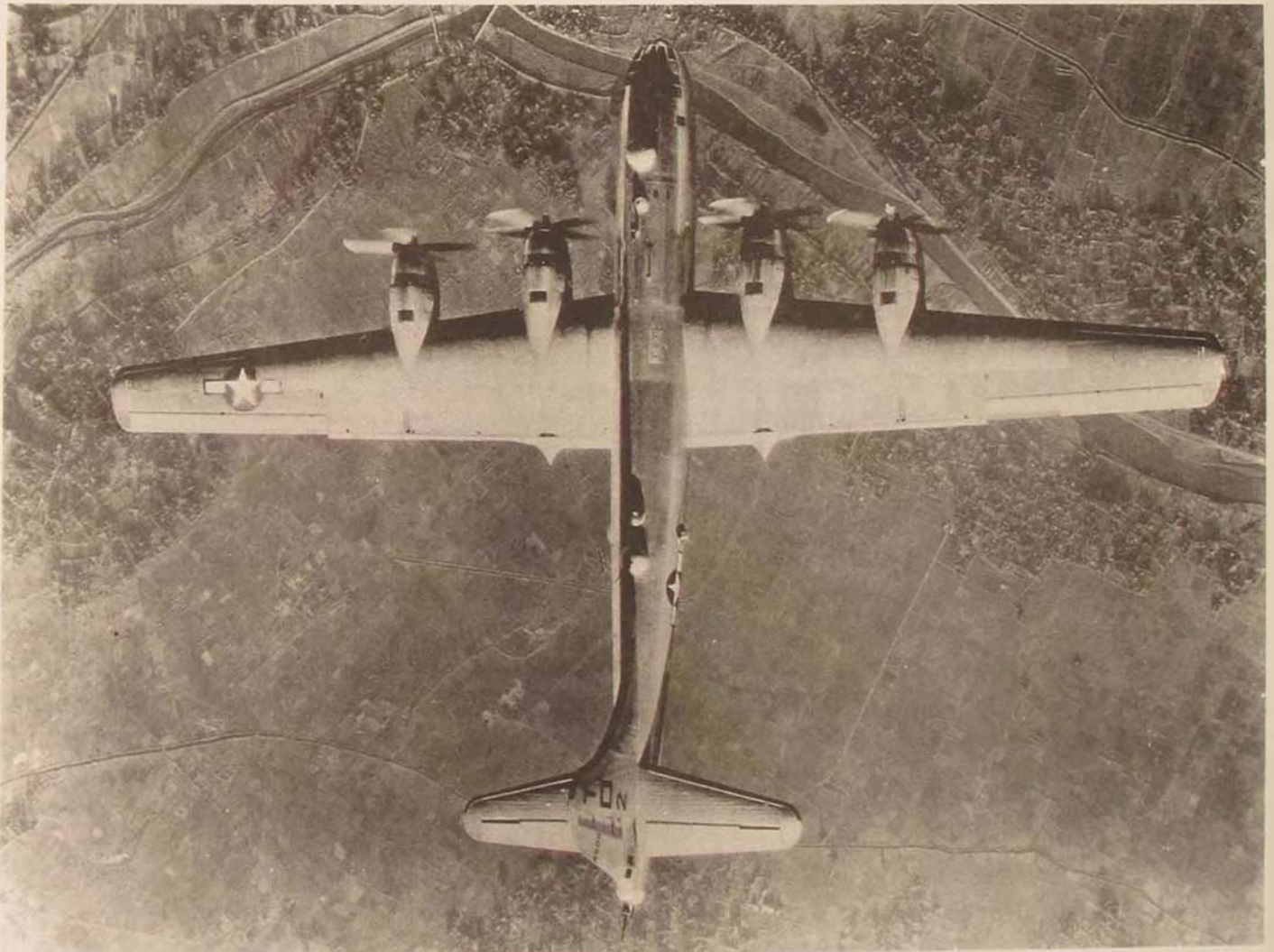
Arnold, who suffered several heart attacks during the war (he was constantly admonished by Marshall to slow down), reacted by tirelessly driving himself and the Air Staff. He believed that the war with Japan presented the AAF with the opportunity finally to prove that a modern nation such as Japan could be driven out of the war without necessitating an invasion.

In Maj Gen Curtis E. LeMay, Arnold found the man he wanted to lead the B-29 strategic campaign against Japan. In early 1945, the campaign had lagged from the Mariana Islands, and Arnold relieved Brig Gen Haywood ("Possum") Hansell in favor of LeMay. General Arnold insisted on results. LeMay was an outstanding bomber tactician; moreover, he was an operator and a hard driver. In the European strategic campaign, he had displayed outstanding leadership.

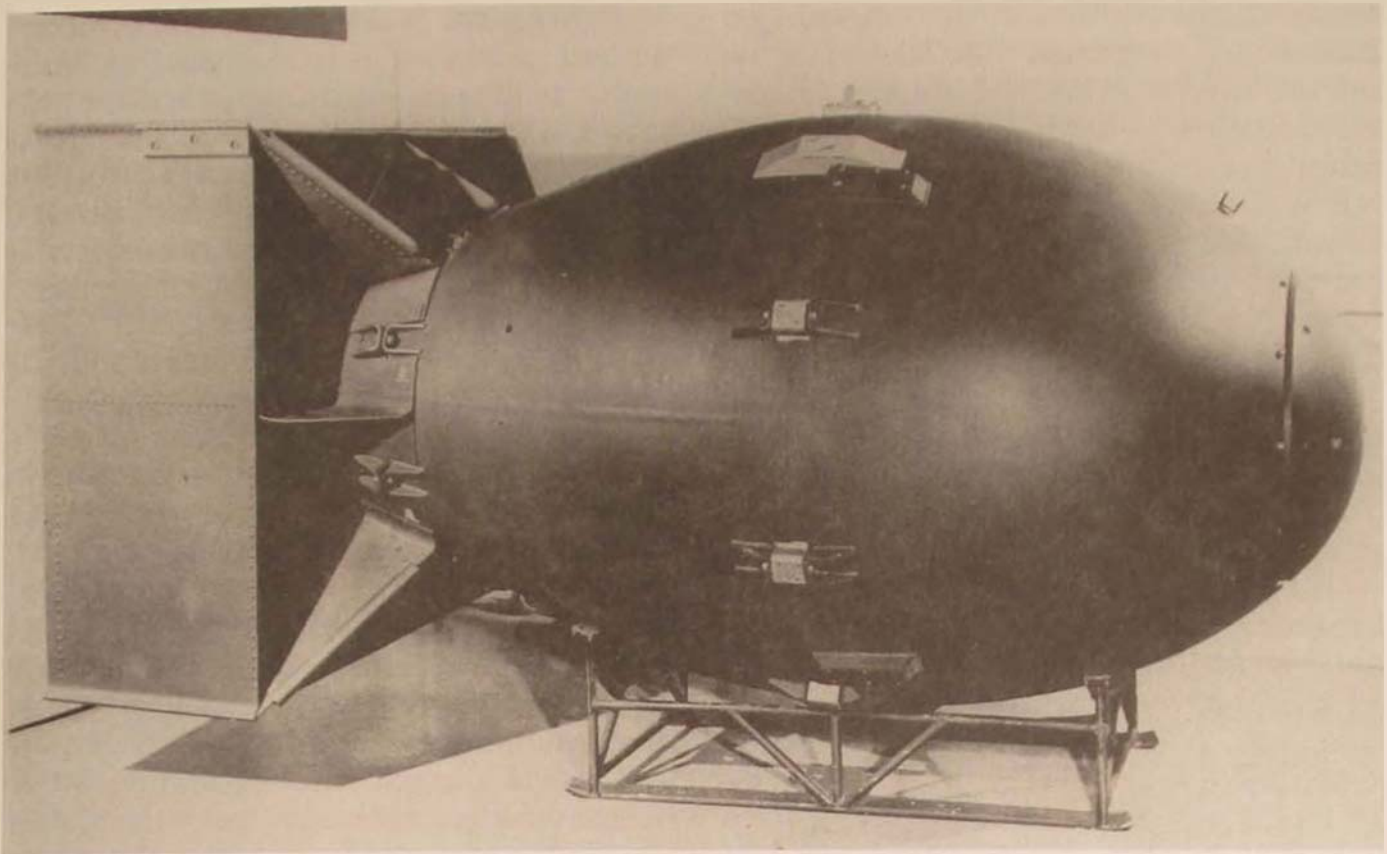
As is well known, LeMay in March 1945 switched from high-altitude, precision bombing to a low-level incendiary campaign that began on 9-10 March 1945 with the incendiary strike on Tokyo—the most destructive

bombing attack of World War II. It is important to emphasize that the incendiary attacks against Japanese cities in the spring of 1945 were supported and acclaimed by America's war leadership, starting with President Roosevelt and General Marshall. In late 1944 and early 1945, Roosevelt was increasingly occupied with the Pacific war, extraordinarily knowledgeable about its details and movement, and preoccupied about the potential cost in American lives should an invasion be necessary. He in fact implored Marshall to deliver a decisive blow.

As regards the question of why the AAF's operational bomb commanders in the Pacific had carte blanche in strategy and tactics, the



In November 1944, American warplanes began bombing the Japanese mainland from the Mariana Islands using high-altitude, precision-bombing techniques. Later, General LeMay switched to a low-level incendiary campaign. The B-29 above heads to its target as it crosses the Tama River, just west of Tokyo.



The Japanese war council did not begin to debate surrender until the second atomic bomb was dropped and the Soviet Union declared war on Japan. The second nuclear weapon—of the “Fat Man” type, pictured above—weighed about 10,000 pounds and had a yield equivalent to approximately 20,000 tons of high explosives.

clear answer is this: Both FDR and Truman emphasized very clearly to Marshall and Arnold that everything should be done to end the war with Japan as quickly as possible, with the least loss of American and Allied lives. This fact is the overwhelming, constant thread between Roosevelt and Truman, and it underlies President Truman’s decision making between June and August 1945. It cannot be overemphasized.

When Truman called his military chiefs to the White House on 18 June 1945, uppermost in his mind were the mounting American casualties in the Pacific island campaigns. Most revealing of Truman’s mind-set—and frequently neglected by historians—was Adm William Leahy’s memorandum of 14 June calling the Joint Chiefs of Staff (JCS) to this

meeting. Leahy informed the JCS that Truman wanted

an estimate of the time required and an estimate of the losses in killed and wounded that will result from an invasion of Japan proper.

He wants an estimate of the time and the losses that will result from an effort to defeat Japan by isolation, blockade, and bombardment by sea and air forces. . . .

It is his intention to make his decisions on the campaign with the purpose of economizing to the maximum extent possible in the loss of American lives.

Economy in the use of time and in money cost is comparatively unimportant.⁴

In the middle of June 1945, Okinawa was the one campaign that Truman had foremost

in his mind. It had been a staggeringly bloody campaign that killed or wounded about 49,000 Americans. The ferocity of the Japanese defenders and the stunningly successful Japanese use of kamikaze suicide planes gave Truman and the military leadership pause concerning potential American casualties in an invasion of Kyushu (Operation Olympic), which Truman approved on 18 June for 1 November 1945. Based on the American casualty rate of 35 percent for Okinawa—emphasized to Truman during the meeting of 18 June 1945—the US could suffer approximately 268,000 casualties in a Kyushu invasion, given the size of the invading forces.⁵

Also foreboding to Truman were the facts that some 6,000 to 8,000 kamikaze planes would be available to oppose a Kyushu landing and that the Japanese could count on more than 2 million troops to defend the home islands with great ferocity. Throughout World War II, the US Navy had 34 ships sunk, 368 damaged, 4,907 sailors killed, and 4,824 wounded from kamikaze attacks. For approximately every seven kamikazes encountered, the Navy had a ship sunk or damaged. The fact was that Japanese hard-liners in the military and the government were insisting on a fight to the finish, with the objective of forcing a negotiated peace that would modify or destroy the surrender policy of the Truman administration. They emphasized the losses that the Americans had suffered on Okinawa. The US Army's medical plan for Operation Olympic estimated that total battle and nonbattle casualties (not including dead) could be 394,859.

Also, the reading of Japan's diplomatic traffic by the United States through the so-called Magic intercepts indicated that retention of the emperor was not the only impediment to peace. The Magic traffic indicated that the Japanese were attempting to deal with the Soviet Union to enable them to keep their prewar empire. Moreover, the Imperial Army's high command was calling the tune. American intercepts of Japanese mili-

tary traffic, code-named Ultra, showed clearly that the Japanese army had no intention of surrendering. In fact, since the meeting of 18 June between Truman and the joint chiefs, Ultra pointed to a large buildup of Japanese troops on Kyushu. This situation lent credence to Truman's admonition to his military chiefs that he wanted to prevent "an Okinawa from one end of Japan to the other."⁶

The Japanese failed to accept the Potsdam declaration calling for unconditional surrender, and Truman ordered that the atomic bomb be dropped on Hiroshima on 6 August 1945. But Japan did not surrender. Not until a second bomb was dropped on Nagasaki and not until the Soviet Union declared war on Japan did the Japanese war council even begin to debate surrender. At a cabinet meeting on 9 August after word of the Nagasaki strike, Gen Korechika Anami, Japanese minister of war, remarked that "we must fight the war through to the end no matter how great the odds against us!" Senior leaders of the Japanese army and navy argued for a continuation of the war and sought to thwart Emperor Hirohito's efforts to surrender to the Allies. Subsequently, radical hard-liners triggered a brief palace coup that resulted in the death of soldiers loyal to the emperor and of rebellious officers who sought to prevent him from broadcasting a surrender to the Allies. Numerous senior Japanese officers and other officials—including Anami and Vice Adm Takajiro Onishi, father of the kamikaze force—committed hara-kiri (ritual suicide) rather than surrender. The emperor announced Japan's acceptance of surrender terms on 15 August (Tokyo time). Thereafter, he sent members of his family to key-military installations to ensure that militants would not continue the war.

Had the atomic bombs not been used, would Japan have surrendered prior to the invasion of Kyushu, scheduled for 1 November 1945? This answer, of course, cannot be determined. However, had the B-29 campaign continued for several more months,

more Japanese would have been killed than at Hiroshima and Nagasaki. Indeed, it is difficult to imagine any other means whereby Japan could have surrendered with casualties equivalent to or less than those experienced at Hiroshima and Nagasaki. Japan had been defeated but was not willing to surrender. The Japanese military and government were, in effect, holding their own people hostage.

Both Hiroshima and Nagasaki were, under the principles of international law, legitimate military targets for attack. Both had extensive armament factories, as well as war-related industries, and both contributed significantly to Japanese military transportation networks. Further, both had robust military establishments. Hiroshima, for example, was the headquarters of the Japanese Second Army—virtually destroyed in the atomic bombing of the city. Beyond this rationale, the decision to drop the atomic bomb on both of these targets did not constitute an act of aggression against a foe already reduced to impotence by Allied attack. Indeed, in August 1945, fighting still raged across Asia: an invasion of Malaya was planned for later in the year. In particular, hundreds of thousands of Allied prisoners were in mortal danger. By this time, 43 percent of the prisoners in Japanese hands (almost 400,000 captives) had died—a clear measure of the brutality of Japanese rule overall. (The toll of Japanese rule was approximately 20 million dead.) As recent scholarship has shown, clear evidence exists that, had the Allies invaded, the Japanese would have slaughtered these prisoners of war.⁷ Also worthy of note is the fact that Japan had under way a vigorous program to develop an atomic bomb.⁸

It is fashionable to look back from today's perspective and conclude that dropping the atomic bombs was not necessary. President Harry Truman did not possess this luxury. Although militarily defeated, Japan was not willing to surrender. Factions in the military and the government were calling for a fight to the finish, even inviting an invasion and

planning to inflict enormous casualties on the American forces. Truman had a responsibility to the military and to the people of the United States to bring the Pacific war to an end and to avoid the enormous casualties that an invasion would have cost.

Although revisionist historians like to claim that most American historians question Truman's decision, this statement is far

Had the atomic bombs not been used, would Japan have surrendered prior to the invasion of Kyushu, scheduled for 1 November 1945?

from the truth. Many historians believe—given the context of the time and Truman's options—that the president made the correct decision. Indeed, a survey conducted by the Organization of American Historians showed that of 854 American historians polled, only six thought that dropping the bomb was a “dark spot” in history.⁹

Clearly, had President Roosevelt lived, he would have undoubtedly made the same decision as did Truman. In the context of the time, both men, as commanders in chief, believed that the United States needed to employ strategic bombing against the Axis nations that were slaughtering millions and attempting to destroy democracy. Truman, like FDR before him, believed deeply that the United States should, whenever it was feasible, end the war and save American lives. □

Notes

1. Maj Gen H. H. Arnold, chief, Army Air Corps, memorandum to assistant secretary of war, subject: Four-Engine Bombers, 17 October 1940.

2. Gen H. H. Arnold, chief, Army Air Forces, memorandum

to Gen George C. Marshall, Army chief of staff, subject: Initial Employment of B-29 Airplanes, ca. May 1943.

3. For a consideration of the development and production of the B-29 and a discussion of President Roosevelt's desire to see Japan bombed, see Carl Berger, *B-29: The Superfortress* (New York: Ballantine Books, 1970).

4. Adm William Leahy, chief of staff to President Truman, memorandum to the Joint Chiefs of Staff, 14 June 1945. Quoted in Department of Defense, *The Entry of the Soviet Union into the War against Japan: Military Plans, 1941-1945* (Washington, D.C.: Department of Defense, 1955), 76.

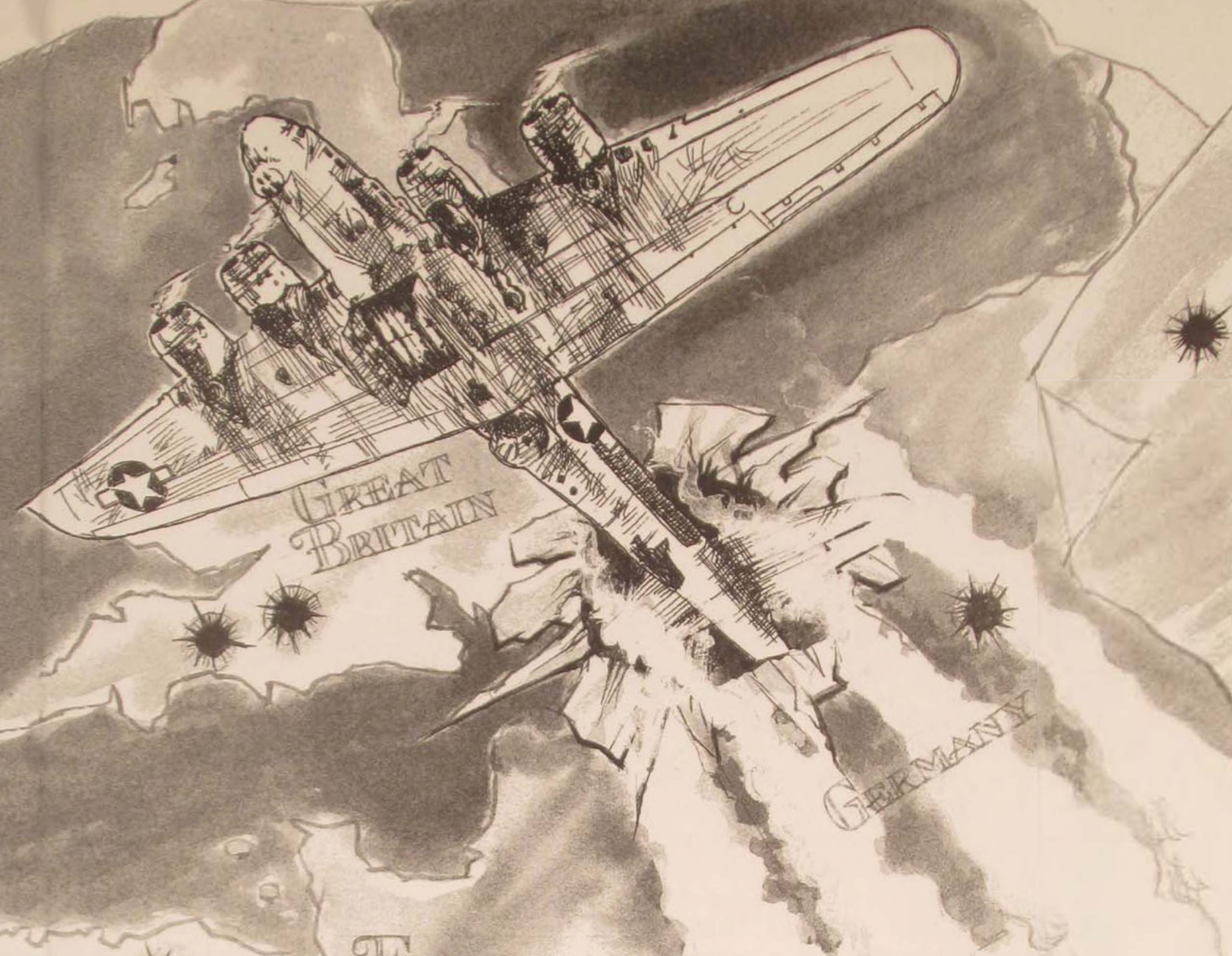
5. For a discussion of expected American casualties in Operations Olympic and Coronet (the invasion of Honshu, scheduled for March 1946), see *Entry of the Soviet Union*, 76-84.

6. *Ibid.*, 84.

7. See Thomas B. Allen and Norman Polmar, *Code-Name Downfall: The Secret Plan to Invade Japan and Why Truman Dropped the Bomb* (New York: Simon and Schuster, 1995); Stanley Weintraub, *The Last Great Victory: The End of World War II* (New York: Dutton, 1995); and Robert James Maddox, "The Biggest Decision: Why We Had to Drop the Atomic Bomb," *American Heritage* 46, no. 3 (May-June 1995): 71-77.

8. See Robert K. Wilcox, *Japan's Secret War* (New York: William Morrow and Co., 1985).

9. "What Do American Historians Think?" *The Journal of American History* 81, no. 3 (December 1994): 1212.



AIRPOWER AS A SECOND FRONT

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THROUGHOUT this century, nations have taken advantage of the speed, range, and flexibility of airpower to engage enemy forces on multiple fronts. Opening a second “air front” creates a synergistic effect with other operations, improving overall economy of force and increasing the probability of an outcome favorable to the United States and its allies. Of course, the concept of a second front is not

new. Classic objectives in land warfare include dividing enemy forces, diverting enemy resources, spoiling advances on other fronts, and reestablishing the initiative. Airpower gives theater commanders a greater ability to realize these objectives. Unconstrained by geography, airpower can strike all of an enemy’s war-fighting capabilities, almost simultaneously. An enemy determined to defend against attacks from the



The air front played a decisive role in the defeat of Germany. Here, a formation of B-17 Flying Fortresses makes its way toward enemy targets in Europe.

vertical dimension must spread his resources across many points of attack, not just two or three. Airpower can also reduce an enemy's capability and will to fight by directly striking his centers of gravity, even when opening a ground front is not feasible. Therefore, an air front can operate in conjunction with land and sea operations, or it can independently achieve a theater commander's intent. Its full potential in joint theater warfare is not the sum of individual missions such as counterair, air interdiction, close air support (CAS), and strategic air attack; rather, it is the product of all air and space missions. The integrated application of airpower in a cohesive air front can be a great

means—in terms of economy of force—of achieving theater objectives at a minimum cost in American lives and treasure.

World War I: The First Battle of Britain

The first use of airpower as a second front occurred during World War I. In 1915 Germany initiated a series of airship raids on London with the intent of creating terror, worker absenteeism, and public pressure on the British government to withdraw from the war. Although these attacks caused relatively little physical damage of military consequence, the psychological impact was

significant, as was Great Britain's subsequent diversion of critical air resources from the war in France.

By the end of 1916, 12 of the Royal Flying Corps's 108 fighter squadrons were deployed at 30 airfields to defend against German airship attacks.¹ Since hydrogen-filled airships proved vulnerable to British interceptors and antiaircraft fire, Germany switched the weight of its effort to Gotha and Giant fixed-wing bombers, starting early in 1917. The first Gotha attack on London on 13 June 1917 killed 162 people and wounded 432.² As a result of this single raid, factory absenteeism soared, productivity fell, and outraged citizens demanded protection from future attacks. To meet this threat, the British War Cabinet approved an increase in the Royal Flying Corps to 200 squadrons and recalled two additional fighter squadrons from France, despite the precarious air situation over the front.³ Field Marshal Sir Douglas Haig, commander in chief of British forces in France, telegraphed the cabinet that the "withdrawal of these two squadrons will certainly delay favorable decision in the air and render our victory more difficult and certainly more costly."⁴

Although German air attacks fell short of their ultimate objective, they demonstrated the potential of opening an air front directly over an enemy's homeland. The bombing campaign made a lasting impression on the British and is cited frequently as a primary reason for the establishment of the world's first independent air service—the Royal Air Force (RAF). The "first battle of Britain" also helped plant the seeds for a strategic bombing doctrine that would culminate in the opening of another air front 24 years later in the skies over Germany.

World War II: Airpower as a Second Front in Europe

Less than a month after Germany invaded the Soviet Union in 1941, Joseph Stalin in-

formed Winston Churchill that "the military position of the Soviet Union, as well as that of Great Britain, would be significantly improved if the Allies opened fronts against Hitler in the West and in the North."⁵ Unable to open a second ground front in Europe in 1942, the United States and Britain initiated a heavy bomber offensive—an air front—against Axis combat forces, military installations, and military industries. Following the Casablanca Conference on 21 January 1943, President Franklin D. Roosevelt and Prime Minister Churchill announced the objectives of their Combined Bomber Offensive in Europe as "the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their capacity for armed resistance is fatally weakened."⁶

The air front played a decisive role in the defeat of Germany. Allied air attacks forced Germany to dedicate vast amounts of manpower and resources to continental air defense, reducing the Germans' ability to fully support land operations. By 1944 over 800,000 Germans were committed to air defense, including the crews of about 54,000 antiaircraft guns;⁷ furthermore, a million Germans were engaged in repairing damage caused by air strikes.⁸ In fact, Germany dedicated more forces to air defense than it deployed to counter the Allied campaign in Italy.

The air war also caused a significant shift in Germany's resource priorities. In 1944 *more than half* of Germany's industrial base was working to satisfy the Luftwaffe's needs. Albert Speer, architect of the German war economy, estimated that 30 percent of artillery, 20 percent of heavy ammunition, and over 50 percent of electronics production were dedicated to air defense, depriving frontline ground forces of critical antitank munitions and communications equipment.⁹ Production of antitank guns was halved in favor of building more antiaircraft guns.

The bombing campaign also forced German aircraft manufacturers to focus almost

exclusively on producing fighters. At the beginning of the war, the Luftwaffe operated about the same number of bombers and fighters. By 1945 the mix had shifted to more than 26,000 fighters and fewer than 3,000 operational bombers.¹⁰ A frustrated Speer later indicated that the air defense ef-

The air front was a primary reason for Japan's capitulating without the need for a costly invasion of the home islands.

fort was wasteful, since it forced the Germans to spread resources across their country, while the Allies could concentrate their attacks when and where they chose to overwhelm German defenses. If Germany had been able to apply these resources to reinforce its coastal defenses in France or to build thousands of tanks that could have been used during the Battle of the Bulge, the cost in terms of American lives alone would have been tremendous.

World War II: Airpower as a Second Front in the Pacific

In the Pacific, the air front was a primary reason for Japan's capitulating without the need for a costly invasion of the home islands. According to Maj Gen Haywood S. Hansell, a key architect of the Pacific air war strategy, our objectives closely mirrored those established for the European bombing campaign: "to defeat the enemy air force and so weaken the Japanese capability and will to fight as to cause capitulation or permit occupation against disorganized resistance; failing this, to make an invasion

feasible at minimum cost."¹¹ Japan was uniquely vulnerable to air attacks. The home islands were absolutely dependent on extended supply lines for the raw materials that Japan needed to maintain its economy and to fuel its war industries. Troops deployed to outer perimeter islands were dependent on shipping for resupply and could not easily concentrate to counter Allied assaults. Geography also made it difficult for the Japanese to mass their air forces rapidly.

The Allied strategy for the Pacific focused on two complementary air-land-sea thrusts that would cut Japanese supply lines and bring American air forces within range of the home islands. Adm Chester W. Nimitz commanded the Central Pacific campaign, which moved through the Marshalls, the Marianas, Iwo Jima, and Okinawa, while the Southwest Pacific campaign under Gen Douglas MacArthur progressed across the northern coast of New Guinea and up through the Philippines. The US long-range bombing campaign against Japan began early in 1943 when the decision was made to base B-29s in China to attack targets in Manchuria and Kyushu. At the time, no other bases were available that would put B-29s in range of Japanese "inner zone" industries. President Roosevelt also believed that B-29 strikes on Japan from bases in China would have a tremendous impact on the morale of our Chinese allies.¹² From their inception, B-29 operations in China were limited by logistics, since nearly everything needed to generate a sortie required air transport from Allied bases in India. Due to low sortie rates and the upcoming availability of Pacific bases in range of Japan, the US Army Air Forces discontinued strikes out of China in favor of consolidating B-29 operations under XXI Bomber Command in the Pacific. Staging out of Saipan, XXI Bomber Command flew its first B-29 strike against Japan on 24 November 1944.

From November 1944 until the end of the war, B-29s stationed on Saipan, Guam, and Tinian dropped over 146,000 tons of muni-

tions on home island targets.¹³ According to the postwar *United States Strategic Bombing Surveys (USSBS)*, air attacks on the Japanese home islands destroyed 470,000 barrels of petroleum products, 221,000 tons of foodstuffs, and 2 billion yards of textiles. Damage to Japan's industries caused by bombing and the subsequent dispersal of manufacturing facilities reduced oil production capacity by 83 percent, aircraft engine production by 75 percent, airframe production by 60 percent, and army/navy ordnance production by about 30 percent. For the last month of the war, electric power and coal consumption were about half of the peak volume recorded in 1944. Production hours lost due to absenteeism, worker illness, air-raid alerts, and "enforced idleness" increased to 40 percent by July 1945.¹⁴ The *USSBS* also credits mines, most of which were dropped by B-29s, for sinking over 800,000 tons of Japanese shipping during the war. During June and July 1945, about half of the ships lost in Japan's harbors and waterways struck mines dropped by B-29s.¹⁵

The *USSBS* also determined that the psychological impact of the air attacks on the Japanese population was significant. According to postwar surveys, by June 1944 only 2 percent of the Japanese population felt that defeat was inevitable. One year later, this had increased to 46 percent; just before Japan surrendered, 68 percent of the population believed the war was lost. The *USSBS* indicates that over half of the Japanese who accepted defeat before the surrender cited air attacks as the principal cause.¹⁶ Adm Asami Nayano, chief of the naval staff and supreme naval advisor to the emperor, concluded, "If I were to give you one factor as the leading one that led to your victory, I would give you the [US] Air Force." Prince Fumimaro Konoye, premier of Japan, concurred, declaring, "The determination to make peace was the prolonged bombing by the B-29s."¹⁷

The Allied invasion of the home islands would have resulted in hundreds of thousands of Allied casualties. Although casualty

estimates vary, noted historian Peter Maslowski cites a Joint War Plans Committee document of 15 June 1945 titled "Details of the Campaign against Japan" as one of the more authoritative sources: 40,000 Allied dead, 150,000 wounded, and 3,500 missing in action for the invasion of Kyushu and landings on the Tokyo plain.¹⁸ Hundreds of thousands of Japanese soldiers and civilians also would have been killed or wounded. The invasion of Japan, had it taken place, would have been one of the bloodiest battles in the history of human conflict. Clearly, the air front in the Pacific, as in Europe, proved its value as an economical means of helping to win a decisive victory and save American lives.

Korean Conflict

On 25 June 1950, North Korean forces—consisting of seven infantry divisions, a tank brigade, and support units—attacked South Korea. American forces were not prepared for the onslaught; in fact, not a single US combat troop was stationed in South Korea at the time of attack. While our ground forces prepared to deploy to Korea, forward-deployed US Air Force fighters opened the air front by flying protective cover for retreating South Korean forces on the second day of the war. By day three, Air Force fighters were flying the first CAS sorties, followed by the first interdiction missions on 28 June. Nine days into the conflict, the first Navy combat sorties of the war were flown by fighters staging off the carrier *Valley Forge*.¹⁹

From the opening stages of the Korean conflict until the Inchon landing on 15 September 1950, Allied air attacks on enemy lines of communications, support infrastructure, and combat forces effectively disrupted the North Korean offensive. By early September 1950, low morale was pervasive among communist forces operating in South Korea; surveys of former prisoners of war



Bombed, rocketed, and strafed by Far East Air Forces fighters and bombers, a locomotive lies destroyed in North Korea's Wonsan Railroad Locomotive Works yard. Bombing attacks and follow-up missions put this vital rail repair center out of operation.

(POW) indicate that the shortage of food and fear of air attacks were the principal causes.²⁰ Between 25 June and 15 July 1950, an average division in the North Korean People's Army (NKPA) received 18 tons of food, 12 tons of petroleum products, and 166 tons of ordnance. Air attacks had reduced this to two and one-half tons of food, two tons of petroleum products, and 17 tons of ordnance from 16 August to 20 September 1950—a reduction of 89 percent.²¹

Allied air forces proved essential to defeating communist surges as friendly forces withdrew and then held at the Pusan perimeter. During the critical period of 27 June through the end of September, Air

Force fighters and bombers flew a total of 27,651 combat sorties, mostly from bases in Japan.²² Even B-29s were occasionally tasked to fly CAS sorties to spoil North Korean attacks. Although friendly losses on the ground were significant, they would have been far greater and the outcome questionable had it not been for airpower. The people who were there had little reason to doubt that the air front had been critical to the defense of the Pusan perimeter. In fact, Gen Walton H. Walker, commander of the US Eighth Army, later concluded, "If it had not been for the air support that we received from the Fifth Air Force we would not have been able to stay in Korea."²³

Vietnam Conflict

Our third major conflict in the Pacific theater in 25 years also demonstrated the potential of an air front to compel change in an enemy's policy. In the fall of 1972, our main strategic objectives for the Vietnam conflict were to achieve a cease-fire, extract American forces, and complete the process of enabling South Vietnam to defend itself. In late October 1972, North Vietnam withdrew from peace negotiations after South Vietnam's president Nguyen Van Thieu objected to a proposal for a cease-fire and subsequent American withdrawal that would have left communist forces in place in South Vietnam. Rumors that Congress intended to discontinue funding for the war in January 1973 may have contributed to North Vietnam's decision to withdraw from the talks. President Richard M. Nixon was faced with a dilemma: how to bring the North Vietnamese back to the table and reach an accord before Congress terminated funding for operations in South Vietnam.

After a month of negotiations failed to restart the talks, President Nixon ordered an all-out, concentrated air campaign against key targets in North Vietnam. Linebacker II commenced on 18 December 1972 with the intent of forcing North Vietnam's leadership to return to the peace talks. Over the 11 days of the campaign, B-52s flew 729 sorties and delivered more than 15,000 tons of bombs on 34 strategic targets in North Vietnam.²⁴ The effect was devastating. Electric power in the Hanoi region was cut by 75 percent; available fuel supplies decreased by 25 percent; and rail traffic through Hanoi was effectively disrupted. Without its rail system, North Vietnam could not provide a steady flow of materiel to its troops, who were still recovering from their summer offensive. In fact, North Vietnamese general Tran Van Tra reported that his forces in the south—already short of food, clothing, and ammunition before the bombing began—were incapable of continuing hostilities.²⁵ In addition, Linebacker II exhausted North

Vietnam's supply of surface-to-air missiles, leaving the North Vietnamese nearly defenseless against future attacks.

At the end of the "11-day war," President Nixon had achieved his goal: the North had returned to the peace talks. At the same time, the bombing campaign disrupted the North Vietnamese army's lifeline to the North, threatening its effectiveness and perhaps even its continued existence in South Vietnam as a cohesive force. Although airpower cannot take full credit for the subsequent peace agreement, it certainly played a primary role by compelling North Vietnam's leadership to drop its intransigence and to negotiate in earnest. President Nixon believed that Linebacker II was the reason the North Vietnamese returned to the negotiations. As he later stated in his memoirs, "The bombing had done its job; it had been successful."²⁶

Operations Desert Shield/Desert Storm

The stunning success of the Desert Storm air front demonstrated the value of the sequential and integrated use of airpower by a theater commander. The result of the 39-day air campaign was a 100-hour ground operation that liberated Kuwait with relatively few friendly casualties. Following the Iraqi invasion of Kuwait in August 1990, President George W. Bush declared that US objectives included the "immediate, complete, and unconditional withdrawal of all Iraqi forces from Kuwait; restoration of Kuwait's legitimate government; security and stability of Saudi Arabia and the Persian Gulf; [and] safety and protection of the lives of American citizens abroad."²⁷ As in Korea 40 years earlier, airpower was the first to deploy to defend a friend. Within 38 hours of receiving the order to deploy, Air Force F-15s were in Saudi Arabia, ready for combat. As US and allied forces continued to arrive in-theater over the next five months, air planners led

by Brig Gen Buster Glosson devised a comprehensive campaign to isolate and incapacitate the Iraqi command structure; win air superiority; destroy the enemy's nuclear, biological, and chemical capability; eliminate Iraq's offensive capability; and eject the Iraqi army from Kuwait.²⁸

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On 17 January 1991, Gen Charles A. ("Chuck") Horner, the joint force air component commander (JFACC), executed the first air strikes against Iraqi targets in Iraq and the Kuwaiti theater of operations (KTO). Campaign planners fully exploited the capabilities of a modern air force, including the F-117's ability to penetrate the toughest air defenses, the range and large payloads of B-52s, and the force-multiplying effect of precision munitions. Coalition attacks were focused on Iraqi centers of gravity, including command, control, and communications infrastructure; key military production facilities; transportation infrastructure; and fielded forces. The overall intent was to destroy Saddam's capability to wage war while minimizing coalition losses, Iraqi civilian casualties, and collateral damage.

Results were nothing short of spectacular. Air superiority was achieved in seven days; by 27 January 1991, Gen H. Norman Schwarzkopf, commander in chief (CINC) of US Central Command (USCENTCOM), declared that coalition air forces had established air supremacy, clearing the way for subsequent air and surface operations.²⁹ Air attacks effectively neutralized Saddam's intelligence-gathering apparatus, preventing him from detecting coalition forces massing

on the Iraqi border for the eventual "left-hook" ground assault. Airpower destroyed key strategic targets throughout Kuwait and Iraq, hindering Saddam's capability to effectively command and sustain his forces. Coalition air strikes also severely damaged Iraq's military production capacity; by the end of the war, "at least 30 percent of Iraq's conventional weapons production capability . . . was damaged or destroyed."³⁰

The success of the air campaign was one of the primary reasons for the rapid liberation of Kuwait and the subsequent capture of a large number of Iraq's offensive weapons. Before the ground war began on 24 February 1991, coalition airpower had attrited Iraqi forces to such an extent that they were unable to conduct a successful defense of Kuwait, much less wage Saddam's "mother of all battles."³¹ According to a postwar survey of the KTO by the Central Intelligence Agency (CIA), about 43 percent of the tanks and 32 percent of the armored personnel carriers in Saddam's heavy divisions failed to move to engage friendly forces or flee during the ground war, indicating that they were out of commission due to air strikes and/or poor maintenance or that they were simply abandoned by their crews.³² Col Viktor Patzalyuk, former Soviet attaché in Baghdad, later stated, "I had first-hand information from the front: out of 2,400 MBTs [main battle tanks], 1,865 were destroyed by Coalition air power. This does not include Iraqi tanks destroyed by U.S. Army aviation."³³ By G day, airpower had so demoralized Iraqi troops remaining in the KTO that many coalition units experienced only token resistance. This demoralization was especially evident in Iraqi frontline infantry divisions.

After studying Iraqi POW reports, Dr Stephen Hosmer, an analyst for RAND, wrote that "the Coalition air campaign subverted the Iraqi soldiers' will to fight."³⁴ POW reports indicate that an average of 50 percent of Iraq's frontline infantry troops that had deployed to the KTO deserted prior to G day.³⁵ A total of 86,000 Iraqi soldiers even-

tually surrendered to the coalition; many more fled for home or refused to return from leave before the ground war began.³⁶ As the Air Force's *Gulf War Air Power Survey* of 1993 concluded, numerous Iraqi POWs pointed to airpower as the reason for their defeat: "Soldiers recognized they were helpless. Their equipment steadily disappeared in explosions and smoke; trucks on which resupply depended disappeared fastest of all; but as day-to-day living conditions deteriorated, all feared that aircraft attacking their comrades would soon come after them."³⁷

The air front was also a primary reason for the low number of casualties sustained by coalition forces during the ground war, a result that contradicted prewar forecasts. During Desert Shield, USCENTCOM's surgeon general planned for a coalition casualty rate of 9 percent, equating to approximately 21,474 soldiers wounded or killed.³⁸ In June 1991, General Schwarzkopf stated that before Desert Storm began, he had estimated US casualties as great as 20,000 troops, about one-third of whom would be killed.³⁹ Actual losses during the 100-hour ground operation were far less than originally anticipated. A total of 147 US servicemen and women were killed in action during Desert Storm, including 28 fatalities from the Scud strike on the US barracks in Dhahran, Saudi Arabia, on 25 February.⁴⁰ Twenty-nine airmen died as a result of hostile actions during the air campaign. US ground forces suffered no casualties as the result of attacks by enemy fixed-wing air forces.⁴¹

In retrospect, the Iraqi forces that were attrited prior to the ground campaign, the incredible number of soldiers who surrendered or deserted their posts, the demoralized state of the troops who remained, the rapid liberation of Kuwait, and the low number of US casualties all point to the value of using a mature air instrument to achieve the maximum economy of force. However, the term *second front* does not adequately describe the Desert Storm air campaign. In the past, opening an air front was often the only

means of engaging an enemy before a ground invasion, as in Europe during World War II, or as an act of desperation to help stop an invading force, as in Korea. Neither condition applied to Desert Storm, where airpower was used more as a primary rather than a secondary front. General Schwarzkopf could have initiated Desert Storm with a classic combined-arms offensive. Instead, he chose to use an air front to accomplish a specific set of objectives *prior to* engaging in ground combat.

In effect, the Desert Storm air campaign was followed by a masterfully executed 100-hour ground operation that drove a greatly diminished and demoralized enemy out of Kuwait. Desert Storm vindicated the belief of many airmen that the integrated application of airpower, centrally controlled by an airman, could be a decisive instrument of national policy. Throughout this century, airpower theorists have advocated the decisive potential of airpower. Many of their predictions for earlier conflicts proved premature. But the development of stealth aircraft, information technologies, precision munitions, and a strategy that focused on simultaneous air attacks on all of an enemy's centers of gravity gave General Schwarzkopf an instrument that was ideally suited to achieving his strategic objectives. Air and space power came of age in the Gulf, and the "air option" has assumed a new meaning for our war-fighting CINCs. In the words of Air Vice-Marshal R. A. Mason of the RAF, "The Gulf War marked the apotheosis of twentieth-century air power."⁴²

Towards the Future

From World War II to Desert Storm, Americans have used airpower in second fronts to split enemy defenses, to decrease the enemy's ability and will to resist, and to save lives. Air fronts have been an effective means of setting the pace for other operations and striking directly at enemy centers

of gravity, even when conditions precluded all other options. Despite the evidence of history, airpower's accomplishments and potential remain a hotly debated topic. Facts, filtered through layers of service doctrine and training, can lead to widely different conclusions. For example, the authors of *Certain Victory*, an official US Army history of the Gulf War, wrote, "Indeed, in an age of unprecedented technological advances, land combat is now, more than ever, the strategic core of joint war fighting. . . . Desert Storm again demonstrated that determined enemies can only be defeated with certainty by decisive ground action. . . . *Maintaining an immediately deployable capability for decisive land combat to end a conventional conflict successfully is the single most enduring imperative of the Gulf War*" (emphasis in original).⁴³

What are the "imperatives" for future conflicts? Historical evidence shows that airpower can be an effective means of vertically enveloping the enemy to establish the conditions for victory. In Desert Storm, the entire world saw the results of a mature air

force applied in a cohesive campaign. In future conflicts, all service components—land, sea, and air—have the potential to be decisive, depending on the nature of the conflict, operating environment, and strategic objectives. Theories of joint warfare that postulate otherwise are actually antitheses of jointness. The key to achieving joint synergy is understanding the potential of each service component and assigning missions to maximize their contributions. Future campaign planners should carefully consider airpower's capability to establish the timing and tempo of follow-on operations and the option of using airpower in a *primary* front to achieve theater objectives directly, supported by land and sea operations.

The real imperative in war is to win a decisive victory while incurring the fewest possible friendly casualties. Blindly adhering to rigid, formulaic doctrines that fail to take full advantage of all the tools at a CINC's disposal may result in an outcome that is very costly—perhaps prohibitively so. □

Notes

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3. *Ibid.*, 66.
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6. Russell F. Weigley, *The American Way of War* (New York: Macmillan Publishing, 1973), 338.
7. Roger Beaumont, "The Bomber Offensive as a Second Front," *Journal of Contemporary History* 22 (January 1987): 15.
8. Richard G. Davis, *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Government Printing Office, 1993), 590.
9. *Ibid.*
10. Beaumont, 15.
11. Haywood S. Hansell, Jr., *The Strategic Air War against Germany and Japan* (Washington, D.C.: Office of Air Force History, 1986), 141. Major General Hansell was the first commander of XXI Bomber Command.
12. *Ibid.*, 142.
13. *The United States Strategic Bombing Surveys (European War) (Pacific War)* (30 September 1945, 1 July 1946; reprint, Maxwell AFB, Ala.: Air University Press, October 1987), 84. Another 800 tons were dropped by China-based B-29s between June 1944 and January 1945. Overall, B-29s delivered more than 91 percent of the total tonnage dropped on the home islands

during World War II. The Navy dropped 6,800 tons (4.2 percent), and Army aircraft other than B-29s delivered an additional 7,000 tons (4.3 percent).

14. *Ibid.*, 87-89.
15. *Ibid.*, 73.
16. *Ibid.*, 95.
17. Hansell, 257.
18. Peter Maslowski, "Truman, the Bomb, and the Numbers Game," *Military History Quarterly*, Spring 1995, 104.
19. The first Navy combat sorties were flown on 3 July. Two days later, the *Valley Forge* withdrew for 13 days of replenishment. USAF Assistant Chief of Staff for Studies and Analysis, *A Quantitative Comparison between Land-based and Carrier-based Air during the Early Days of the Korean War* (Washington, D.C.: Headquarters USAF, June 1972), 7.
20. Eduard Mark, *Aerial Interdiction* (Washington, D.C.: Government Printing Office, 1994), 282.
21. *Ibid.*, 281.
22. *United States Air Force Statistical Digest for Fiscal Year 1953* (Washington, D.C.: Headquarters United States Air Force, 1953), 20, table 9. The Air Force flew 76 percent of the total US combat sorties during this period. The Navy flew 7,741 sorties (21 percent), and the Marine Corps flew 1,037 sorties (3 percent).
23. Robert Frank Futrell, *The United States Air Force in Korea, 1950-1953* (Washington, D.C.: Office of Air Force History, 1983), 146.

24. Mark Clodfelter, *The Limits of Airpower* (New York: Free Press, 1989), 194.

25. Gabriel Kolko, *Anatomy of a War: Vietnam, the United States, and the Modern Historical Experience* (New York: Pantheon Books, 1985), 444-45. Gen Tran Van Tra commanded all communist forces in South Vietnam.

26. Richard Nixon, RN: *The Memoirs of Richard Nixon* (New York: Grosset and Dunlap, 1978), 748.

27. *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, D.C.: Department of Defense, April 1992), 30. (Unclassified edition)

28. Briefing, Lt Col Allan Howey, subject: The Air Campaign from Close to the Mirror, Washington, D.C., Headquarters USAF, Doctrine Division, 1992, 8. Lieutenant Colonel Howey was a member of Col John Warden's Checkmate team, which developed the initial air plan known as Instant Thunder, which evolved into the Desert Storm air campaign plan.

29. *Conduct of the Persian Gulf War*, 127. (Unclassified edition)

30. *Ibid.*, 159.

31. Based on a recent assessment by the United States Air Force National Air Intelligence Center, captured senior Iraqi commanders acknowledged that, because of the damage inflicted by the air campaign, they could not mount a successful defense of Kuwait.

32. Hank Malcolm, "Operation Desert Storm: A Snapshot of the Battlefield," research paper (Langley, Va.: Central Intelligence Agency, Directorate of Intelligence, 1993).

33. "Gulf War Highlighted Coalition Censoring," *Jane's Defence Weekly*, 19 February 1994, 24.

34. Stephen T. Hosmer, *Effects of the Coalition Air Campaign against Iraqi Ground Forces in the Gulf War*, RAND Report no. MR-305-AF (Santa Monica, Calif.: RAND, 1994), 137.

35. *Ibid.*, 103, 116.

36. *Conduct of the Persian Gulf War*, 578. (Unclassified

edition) In an effort to preserve the health and morale of his forces in the KTO, Saddam maintained a liberal leave policy until he ordered his forces to withdraw.

37. *Gulf War Air Power Survey*, vol. 2, part 1 (Washington, D.C.: Office of the Secretary of the Air Force, 1993), 325. (Unclassified edition)

38. These figures are from a prewar analysis of potential casualties in Desert Storm by the surgeon general of US Central Command. USCENCOM Adjutant General's files, Headquarters USCENCOM, MacDill AFB, Fla.

39. Molly Moore, "Schwarzkopf: War Intelligence Flawed," *The Washington Post*, 13 June 1991, A40.

40. Robert L. Goldrich and John C. Schaefer, *CRS Report for Congress: U.S. Military Operations, 1965-1994, Data on Casualties, Decorations, and Personnel Involved* (Washington, D.C.: Congressional Research Service, 27 June 1994), 36. The figure of 147 killed in action includes 35 casualties from friendly fire. There were an additional 152 nonhostile US fatalities during Desert Storm.

41. Of the 29 airmen killed as a result of enemy action, 20 were from the Air Force, three were from the Marine Corps, and six were from the Navy. Statistics on Air Force casualties were obtained from the Air Force Military Personnel Center/DPMCAC; Marine Corps casualties from the USMC Casualty Section; and Navy casualties from the USN Casualty Branch. The last US casualty caused by enemy fixed-wing air occurred in April 1953, during the Korean War.

42. R. A. Mason, "The Air War in the Gulf," *Survival*, May-June 1991, 225.

43. Brig Gen Robert H. Scales, Jr., *Certain Victory: The U.S. Army in the Gulf War* (Washington, D.C.: Office of the Chief of Staff of the United States Army, 1993), 358-60. General Scales was the director of the Army's Desert Storm special study group that wrote *Certain Victory*.



Summer 1995

IRA C. EAKER AWARD WINNER



Capt Edward B. Westermann, USAF

for his article

Contemporary Civil-Military Relations: Is the Republic in Danger?

Congratulations to Capt Edward B. Westermann on his selection as the Ira C. Eaker Award winner for the best eligible article from the Summer 1995 issue of the *Airpower Journal*. Captain Westermann receives a \$500 cash award for his contribution to the Air Force's professional dialogue. The award honors Gen Ira C. Eaker and is made possible through the support of the Arthur G. B. Metcalf Foundation of Winchester, Massachusetts.

If you would like to compete for the Ira C. Eaker Award, submit an article of feature length to the *Airpower Journal*, 401 Chennault Circle, Maxwell AFB AL 36112-6428. The award is for the best eligible article in each issue and is open to all US military personnel below the rank of colonel or equivalent and all US government civilian employees below GS-15 or equivalent.

Ricochets and Replies

continued from page 3

only at a single, centralized location and requires input from all joint-force members.

Education on how to conduct joint air operations already exists through the battle-staff course and the joint combat airspace command and control course conducted at the Air Ground Operations School at Hurlburt Field, Florida. One can gain practical experience in conducting joint air operations by attending a Blue Flag exercise at Hurlburt Field. Any Blue Flag exercise, regardless of the AO scenario, provides the opportunity to discuss each participating service's capabilities and tactics and then apply them jointly.

Different perspectives can lead to different conclusions. Yes, airpower operations must be joint. This can be done with more education about the unique capabilities that each service brings to the battlefield. Personnel with this experience should be assigned to the JFACC's staff and deploy in that capacity. A one-size-fits-all doctrine would be so broad in attempting to embrace capabilities of Army, Navy, Marine Corps, and Air Force assets on an equal basis that it would be a purely academic exercise.

The other option would be to create a doctrine that apportions each service's aviation assets to specific tasks. The downside of this approach is that each aviation service would no longer be able to justify training for any mission other than that spelled out in joint doctrine. Congress insists that we train for the way we fight and apports funding for that purpose. Each service would lose the flexibility to develop unique pilot and aircraft capabilities. Flexibility is the key to airpower.

Maj Alan C. Dorward, USAF
North Highlands Air National Guard Station, California

I recently read Maj Scott A. Fedorchak's "Air Operations Must Be Joint" in your Spring 1995 issue. I was pleased to see him address the matter of the importance of the joint force air component commander (JFACC), especially from a perspective other than the Air Force's. From August 1987 through September 1993, I was assigned to Ninth Air Force/US Air Forces, Central Command (USCENTAF). During that time, I worked extensively with the JFACC concept in plans, as well as USCENTAF and US Central Command (US-

CENTCOM) field training and computer exercises. I was also deeply involved in the air tasking order (ATO) planning and production process for both Operations Desert Storm and Southern Watch. Drawing on my experiences, I wish to address a few concepts and comments in Major Fedorchak's article.

In the section about the current JFACC system, Fedorchak states that "the distribution process takes place after the allocation process is completed." This is true. However, his next statement—"That is, the JFACC 'gives' CAS [close air support] sorties to the land component commander (LCC) who then distributes available sorties to subordinate Army and Marine Corps elements for use in their mission planning"—is not the JFACC concept that I worked with for so many years. In fact, one of the primary aspects was that the JFACC would support the LCC more effectively by distributing available air assets based on a joint/combined target list, rather than "giving" a certain number of sorties to each component. While it sounds simple, not all sorties are equally capable, so to support that philosophy, not only must one distribute sorties, but also one must specify type, unit, ordnance, refueling priorities (if required), and so forth. Additionally, if the actual need is greater or less than projected, reflowing those assets or redistributing those sorties becomes more difficult and time-consuming and has a detrimental effect on the battlefield.

Desert Storm demonstrated such inefficiencies clearly when "the MAGTF [Marine Air/Ground Task Force] commander withheld half of his organic, fixed-wing assets from JFACC control, saving them for his priority targets." In fact, most of those assets were indeed withheld and not flown; therefore, they provided no battlefield preparation at all. "Later in the air campaign when the JFACC had not allocated 'sufficient assets,' the MAGTF commander withdrew all of his fixed-wing aircraft from JFACC control to shape the battlefield in accordance with his intent." The reason he perceived insufficient assets was very simple. He had withheld aircraft but failed to use many of them. Reserves are important, but the number withheld by the MAGTF commander was more than just a reserve force. Had his total air forces been part of the JFACC forces, they would have been used. The result, I believe, would have been more effective achievement of the very goal he wanted. By withholding assets, the MAGTF commander became more directly responsible for his area, and fewer assets were, in fact, targeted

into his battlefield area. Again, this is not a failing of the JFACC concept but a failure of the components to operate beyond parochial boundaries. The MAGTF commander failed to follow the JFACC concept.

Major Fedorchak's description of the JFACC in Desert Storm gives one the impression that the USCENTAF staff imposed its will on all other components and that "the resultant turmoil had to be overcome through improvisation." Indeed, much improvisation was needed to establish communications links, and since this was the first combat use of the JFACC concept, each service did seem to try to press its own perspective on how to accomplish its goals. But this was neither new nor surprising. Ways of making the JFACC concept work had been addressed at many conferences and exercises before and after I arrived at USCENTAF. Many heated debates and differences of opinion were expressed during those times. Although Desert Storm did not represent a seamless transition from the operational concepts of the individual services and allied countries, the overall result was far closer to the true concept of JFACC than were previous attempts to operate under "coordinated" but separate philosophies.

One aspect of the JFACC that Major Fedorchak completely leaves out of his discussion is the Joint/Combined Targeting Board (JTB). In theory, the JTB consolidates target nominations from all components into a single, prioritized list. In the early days, the JTB was located at USCENTAF, with all components represented. Initially, the process was slow and sometimes resulted in several lists rather than one. Within a few weeks, the JTB became more efficient and was moved to USCENCOM and signed out under the deputy commander in chief (CINC). Regardless of location or efficiency, the JTB process was the mechanism for addressing the desires of all components and for competing for available assets to be used in the Kuwaiti theater of operations (KTO), consistent with CINC guidance.

When Major Fedorchak begins to speak of the "lack of air effort in support of ground operations in the overall theater campaign plan," I find several of his statements either false or at least terribly misleading. During Desert Storm, I was in charge of the KTO's night targeting cell—a group that assigned targets to specific assets. We used the list that JTB provided us and matched target priorities with available assets. Major Fedorchak states that "airpower struck only one-third of over 3,067 Army-nominated ground targets in prepara-

tion for ground operations." This may be true, because not all target nominations make it through the JTB to the targeteers. I do know that our night targeting cell serviced significantly more than one-third of the Army targets on the lists we received. If "senior JFACC staff planners diverted interdiction strikes nominated by the Army to strategic targets, an action that countered the CINC's intent for the overall campaign," this happened at a much higher level than our planning cell. There were many occasions, especially in the first few weeks of Desert Storm, during which a general officer present at the CINC's daily meetings gave me specific direction regarding CINC priorities. These differed from the component priorities on the target lists we received. I personally spoke with the Army, Navy, and Marine Corps representatives in our targeting cell about this apparent difference of priorities and recommended that they address these concerns, through their component commanders, to the CINC. Because I did not see any significant shift in targeting priorities, my conclusion is that the CINC and LCCs did not agree on priorities, especially in the early days. As we got closer to the ground war, the priorities became closer—and then essentially identical. I believe this also supports my conclusion that the JFACC system was not the problem in distributing and targeting sufficient assets for preparing the battlefield. Instead, the problem was a lack of common priorities between the CINC and the component commanders. Very simply, when there were differences, my targeting cell followed the CINC's guidance.

I'm sure that some "Air Force commanders and planners felt that diverting aircraft from the strategic effort prevented the air campaign from decisively defeating Iraq without the need for a ground war." However, having worked at USCEN-TAF for six years, I am also convinced that the number of people sharing this attitude is very small. One always hopes for the maximum effect, and to hope that an air campaign will induce a pullout is noble—but not necessarily expected. This, I believe, was the prevailing expectation of the people with whom I worked.

Obviously, Major Fedorchak put much research into this article, but a review of his documentation reveals many third-party sources. My involvement with the evolution of the JFACC process, especially in Desert Storm, doesn't necessarily make my viewpoint the right one. Never-

theless, I believe it's important to include some first-person perspective.

Lt Col John D. Sweeney, USAF
Lee's Summit, Missouri

I BEG TO DIFFER

The Summer 1995 issue contained an article on PME 2020 ("Professional Military Education in 2020"). The author and I have very different views of the role for PME, views that lead us to very different answers to the question posed in the title of one section: "What Should PME 2020 Look Like?" On page 32, the author recommends that

PME must teach the war fighter how to navigate the information highways. Information navigation (searching) skills will be critical to all who expect to navigate the rapidly increasing sea of information. PME 2020 problem-solving techniques will emphasize the skills required to narrow the search for critical information in the aircraft, ship, or tank.

I suggest that the role for PME is not the collection of information but rather its use.

Recently I had the good fortune to spend time with Col John Warden, then-commandant of Air Command and Staff College (ACSC). Colonel Warden and ACSC are at the leading edge in the use of technology in education. ACSC excels in the data provided its students both in scope and ease of use. I asked Colonel Warden what contribution this data made to the students' educational objectives. He replied that easing the acquisition of data gave the students more time for synthesis, analysis, and evaluation—the highest levels of learning. Under his leadership, ACSC students were not required to acquire or display searching skills. They are required to *use* the data at the highest levels of learning. Colonel Warden and ACSC have it just right.

PME that is focused as recommended in PME

2020 simply misses the point. We have long passed the point when decision makers could be masters of information sources. Decision makers receive data from many sources, and they have more data available than anyone could use. It is the responsibility of those who provide data to have the skills in their disciplines to meet the needs of those making decisions. This is one of the many reasons why all disciplines need to be included in PME. PME must then provide an environment in which the data collected can be used.

Lt Gen Raymond B. Furlong, USAF, Retired
Montgomery, Alabama

ON WESTERMANN

Capt Edward B. Westermann's article in the Summer 1995 issue ("Contemporary Civil-Military Relations: Is the Republic in Danger?") was interesting and enlightening. His brief historical review of the relationship between military and civilian leadership put our current circumstances into perspective.

I did find it a rather odd coincidence that Captain Westermann would criticize Gen Colin Powell's entry into the public discourse. How ironic that one finds fault with another and uses the same technique to go public with that criticism. The question of just how far a high-ranking officer can go to express his opinion will always be controversial. I doubt that there is an answer applicable to all. It will always depend upon the officer, his leaders (military and civilian), the issue, and the situation (military and political). It is like a minefield: Choose your path carefully, or the situation may blow up on you. Sometimes it is better to avoid it altogether.

MSgt James H. Clifford, USA
Andrews AFB, Maryland



World War II Anniversary Selected Readings

I am a part of all I have read.

—John Kieran

From Pearl Harbor to V-J Day: The American Armed Forces in World War II by D. Clayton James and Anne Sharp Wells. Ivan R. Dee, 1332 North Halstead Street, Chicago 60622-2637, 1995, 227 pages, \$24.95.

The Second World War was a true global conflict fought on an enormous scale. The war pitted 26 Allied nations against three Axis powers and their various satellites, encompassed at least a dozen major areas of operation around the world, and imposed staggering human and material costs: an estimated 55 million to 80 million military and civilian dead and financial expenditures that likely reached \$1,600 billion. The scholarship on this epochal event is immense, much of it contained in volumes of equally beefy proportions.

From Pearl Harbor to V-J Day represents a marked departure from the "big book" tradition in World War II literature. Billed as the first one-volume history of the American war, this 200-page study offers a compact but comprehensive and generally balanced account of America's experience in what the authors term "the worst and most horrible" of human conflicts. Incorporating elements of the "new military history" with more traditional approaches, D. Clayton James and Anne Sharp Wells recount virtually all of the major campaigns involving American forces and consider as well such diverse issues as economic mobilization, military medicine, the war's social consequences for women and children, and the global political ramifications of Allied victory.

The treatment accorded the foregoing and sundry other topics is perforce concise. But therein lies one of the book's chief virtues. Written by a team possessing a rich understanding of the subject, *From Pearl Harbor to V-J Day* distills and clarifies such recondite matters as the welter of joint and combined committees entrusted with Anglo-American war planning and the sometimes cumbersome command arrangements that governed the

actual employment of military force. Probably the most notorious example of the latter involved the artificial division of the Pacific theater into autonomous US Army and US Navy areas of responsibility, between which there not infrequently raged a war within a war. Whatever the baneful effects of interservice rivalry and inflated egos in high places, the authors argue that inherent Allied strengths—particularly in leadership, strategy, logistics, and intelligence—resulted in synergistic advantages that were all but overwhelming.

I mention two critical "notams" concerning this otherwise excellent, brief account. First, blue suiters (and others) should be advised that James and Wells pay only limited attention to air operations in the Second World War. To be sure, it is exceedingly difficult to attain uniformly balanced coverage of multiple topics in a compact history of any vast, complex event. But in the case of a study coauthored by the foremost biographer of Douglas MacArthur, a certain disquiet does arise when one notes that MacArthur's reconquest of the Philippines alone rates twice as much space as is afforded the entire history of airpower in the Second World War. A second criticism concerns the authors' inclination to bolster their narrative with quotations from anonymous "authorities." Since this book lacks endnotes, sources unidentified in the text cannot be identified at all; accordingly, the reader must take on faith the testimony of various unknown informants.

These few disappointing features aside, *From Pearl Harbor to V-J Day* is a fine example of scholarly concision and a useful addition to the literature on the Second World War.

Dr James Titus
Maxwell AFB, Alabama

Selling War: The British Propaganda Campaign against American "Neutrality" in World War II by Nicholas John Cull. Oxford University Press, 200 Madison Ave., New York 10016, 1994, 288 pages, \$23.95.

Alfred Hitchcock, Sun Tzu, Winston Churchill, David Niven, Col William Donovan, Joseph

Goebbels, and Charlie Chaplin—what could these seven men all have in common? Aside from the fact that they no longer walk this earth, they shared a common understanding of political reality that all too often escapes most of us. They knew that countries, like their politicians, their militaries, their people, and like themselves respond to information. Each of these men knew that the thoughts of the individual could be—no, should be—focused on achieving victory in a time of political crisis. Each of them was an acknowledged master of communication and each understood the value of information. All of them could rightly be called information warriors.

Selling War is in my opinion the most enlightening, informative, and important book that I have read in the last year. Perhaps its greatest service to military professionals is that it shatters the myth that information war is something new, unique, and a panacea for resolving military conflicts. Nicholas Cull skillfully unfolds and documents the information campaign that our ally waged from 1937 through 1941. Although Cull's work is faithful to the vernacular of the time and consistently refers to the British use of propaganda, the informed reader will quickly recognize that the campaign was designed to exploit the technological marvels of the time: radio and films. In the 1990s, the same campaign would permeate television and the Internet.

If forced to identify a single weakness of this work, I would say that it is too enjoyable. The reader is swept up into a story of intrigue and political doublespeak that captures the imagination and compels one to eagerly turn page after page. Such readability may not be easily countenanced by historians and strategists who like their studies to be dry and lifeless. But theirs will be the loss if they shy away from this seminal work. The rest of us will walk away with a much clearer understanding of what information war has been in the past and how we can use today's technology to surpass the British success in a bygone era.

Cull thoroughly documents his account using national archives, previously published works, film histories, and oral interviews with such well-known personages as Alistair Cooke, Walter Cronkite, Alger Hiss, Eric Sevareid, and George Ball. Few if any details of the "information" campaign are documented by a single source. Time and again, the reader is given a ringside seat as policy is being formulated and implemented. The result is a fascinating glimpse into the past that at times rivals the suspense of a Hitchcock thriller.

Perhaps the greatest value of Cull's work is that its message can be appreciated time and again. Once read, it will repeatedly come alive on weekend afternoons when we sit down to watch such classics as *The Adventures of Robin Hood*, *Casablanca*, *Dumbo*, *Foreign Correspondent*, *49th Parallel*, *Mrs. Miniver*, and *Sergeant York*. The story lines and character development in each of these films (and scores of others) were in part due to the conscious and deliberate efforts of the British Ministry of Information. And if you, like I, can trace your patriotic fervor back to the "war movies" that you watched as a kid, you will undoubtedly better appreciate the importance of information warfare in the past—and in the future.

Col T. K. Kearney, USAF
Maxwell AFB, Alabama

Carl A. Spaatz and the Air War in Europe by Richard G. Davis. Smithsonian Institution Press, 470 L'Enfant Plaza, Suite 7100, Washington, D.C. 20560, 1994, 808 pages.

Readers who pick up this hefty volume expecting a simple biography of an admittedly fascinating character will find themselves in for a surprise. Far more than just biography, *Carl A. Spaatz and the Air War in Europe* has undertaken the task of telling the story of Army Air Forces (AAF) operations in both the Mediterranean and European theaters from the perspective of Spaatz, a senior AAF officer. Originally a doctoral dissertation, the volume puts "Tooey" Spaatz into the context of his times; in doing so, the author has created a history of AAF aviation from its hatching to its advent—by the end of World War II—as a full-fledged bird of war.

Opening with a short look into both Spaatz's and the AAF's early years, Dr Davis then delves deeply into questions surrounding the failure of both the AAF and Royal Air Force (RAF) to provide effective air superiority, air support, and air interdiction to ground forces during early operations in Tunisia. This is one of the book's more fascinating sections. Entitled "Tempering the Blade," it enumerates the fits and false starts of both the AAF and RAF as they tried and failed to support ground operations in Tunisia after the invasion of North Africa in 1942. Here, Dr Davis does an admirable job of tracing and detailing the problems of how to use airpower in support of ground operations. He carefully probes the reasons for the early failure of Allied airpower to

counter the very effective Luftwaffe aerial operations against both British and American troops in Tunisia.

People have often argued that the AAF was "spoon-fed" a method of cooperating with ground forces by the vastly more experienced RAF. However, Dr Davis conclusively demonstrates that the problems in the Tunisian campaign did not arise because of the AAF's lack of any kind of doctrine for cooperating with ground forces, but because of a combination of difficulties that the RAF forces in Tunisia were no better at solving. Neither the RAF nor the AAF proved to have been much interested in the operations of their compatriots under the direction of Air Chief Marshal Arthur Tedder and Air Vice-Marshal Arthur Coningham in cooperation with the British Eighth Army. If they had, perhaps things in the Tunisian campaign might have been done differently.

This is but a small sample of what readers will find as they delve into this history. Other chapters examine Spaatz's role in air operations in the Sicilian and Italian invasions and the fascinating operations against the island of Pantelleria. Here, in June 1943, airpower showed that it was capable of forcing enemy ground forces to surrender their position. These fascinating episodes aside, the bulk of the book is devoted to Spaatz and the strategic bombing campaign against Germany. When General Spaatz assumed command of United States Strategic Air Forces in Europe on New Year's Day, 1944, he took over operational control of not only the strategic air forces in Europe, but also those in the Mediterranean. Finally, the strategic air arm was under the operational control of a single commander.

The story now becomes one of an assessment of the role of strategic bombing in the defeat of the Third Reich. The many controversies surrounding these operations are critically examined. For example, concerning the often repeated accusation that Spaatz had the opportunity to provide for drop tanks for the AAF's future fighter force, Davis clearly demonstrates that in the context of the times, it was not just Spaatz but the vast majority of people in the late 1930s who could see no reason for such an addition to fighter aircraft. Dr Davis concludes that "Spaatz drove home a strategic air offensive that had faltered from lack of resources. He more than any other person must bear the responsibility and consequences for the application of U.S. strategic air power to Germany." Although Spaatz and his insistence on the "oil plan" did not bring down the Third Reich, Dr Davis conclusively proves that

it did in fact shorten the war in Europe by many months.

This book is perhaps the finest history of AAF operations in the Mediterranean and European theaters available to date, as seen through the eyes of its ablest commander. Neither strategic bombing nor the often ignored operations by tactical air forces are slighted. However, if readers are expecting a detailed biography of Carl Spaatz, they will be disappointed—this was never Davis's purpose. As an examination of AAF operations against the Third Reich, *Carl A. Spaatz and the Air War in Europe* is outstanding. Anyone interested in how the AAF developed in the crucible of World War II under the sure-handed guidance of Carl A. Spaatz should certainly read this exceptionally valuable work.

Maj Michael J. Petersen, USAF
Maxwell AFB, Alabama

A Wing and a Prayer: The "Bloody 100th" Bomb Group of the U.S. Eighth Air Force in Action over Europe in World War II by Harry H. Crosby. HarperCollins Publishers, Inc., 10 East 53d Street, New York 10022, 1993, 336 pages, \$27.50.

It is a miracle this book was written at all. Harry H. Crosby, one of the few members of the "Bloody 100th" Bomb Group to survive the war without being shot down, tells a tale of luck, courage, skill, and adventure in the skies over Europe during World War II. *A Wing and a Prayer* is part of a recent trend toward personal "war story" histories such as *We Were Soldiers Once . . . and Young* by Lt Gen Harold Moore, USA, Retired, and *100 Missions North* by Brig Gen Ken Bell, USAF, Retired. It is far and away the most complete synthesis of everyday life and combat action in the genre.

Crosby, a young lieutenant and B-17 navigator in 1942, introduces his version of the "better lucky than good" philosophy of life while on a bombing mission to Trondheim, Norway. His first lead mission is as command navigator for the entire 100th Bomb Group—63 B-17s and over 600 aircrews. For the majority of the mission, Crosby is unsure of his actual location. He's lost and is correspondingly dubious about the raid's results. When the group jeep arrives at his billet to drive him to the debriefing, he is convinced that "the court martial was beginning" (page 25). Instead,

he learns that the target—Nazi submarine pens—was destroyed, only one airplane was crippled, and his entire crew has earned the Distinguished Flying Cross for the mission. This “success” was just the beginning of Crosby’s 30-plus-mission tour of duty in Europe. The true stories of men in combat are seldom found in popular histories. Crosby relates the brutal reality of failures in the air war, loss of comrades and commanders, poor decisions, loneliness, and physical hardships. He presents the importance of companionship, trust, leadership, and their effect on aircrew morale and performance. “Croz” shares his experiences in a down-to-earth, conversational style. His translation of “British-English” such as “Yah-ink” (a two-syllable word for an American) adds humor to the stew.

A Wing and a Prayer is more than a simple war story. Perhaps the work’s most significant aspect is Crosby’s perception of combat leadership. Almost by accident, Crosby describes two distinct styles of leadership that, on the surface, appear diametrically opposed but in reality are essential for unit success. On the one hand, Crosby praises the brash or “raunch” style of leadership characteristic of the “Two Buckys”—John Egan (418th Squadron commanding officer) and Gale Clevon (350th Squadron commanding officer)—which produced high morale throughout the group, even in the face of heavy losses. The dashing, undisciplined air of these superb pilots sustained the spirits of the 100th Bomb Group airmen through the roughest combat times. After both were shot down in October 1943, a new era for the group began. The other style of leadership—the strict combat training discipline of John Bennett and Tom Jeffrey—caused the group to evolve from a casual combat flying club into a highly successful weapon of destruction, with a better safety record to boot. Crosby’s love for the Two Buckys and his respect and admiration for Bennett and Jeffrey are an interesting case study in requirements for effective, successful combat leadership.

A Wing and a Prayer brings combat flying, as well as the realities of everyday life in an all-male military unit, into clear focus. No matter your military background—whether fighter squadron commander, maintenance troop, bomber/tanker navigator, or intelligence NCO, whether active duty or retired—*A Wing and a Prayer* puts you in the hot seat on the ground or in the air.

Maj Dik A. Daso, USAF
Columbia, South Carolina

The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform by James S. Corum. University Press of Kansas, 2501 West 15th St., Lawrence, Kansas 66049-3904, 1992, 274 pages, \$29.95.

Corum correctly points out that there are no comprehensive studies on the tactics of the Reichswehr as they developed in the early 1920s and proceeds to provide such a book. By so doing, however, he also provides a good look at a larger question: How do we in the military develop a doctrine and put it into practice? Without explicitly addressing the larger question, he in fact provides a model of how one nation did match, or balance, all (or most all) the elements of tactics and strategy (in the German sense) with training, equipment, leadership philosophies, and so forth.

By so doing, he provides present day America—like Germany in the 1920s presented with a “new world order”—with a challenge that goes beyond the journalistic “Pentagon issues of the day.” Two cases that Corum uses can illustrate the point, that of comprehensiveness of a military program and that of personal experience of a military leader.

On the first matter, what is so often seen in the current literature on doctrine (in the US sense) are such issues as, Do we match doctrine to equipment or equipment to doctrine? or, How shall we balance cost and numbers? Corum, by his careful analysis, shows how shallow and uni-dimensional this kind of thinking is by presenting us with an example of one of the great peacetime military leaders of Europe, Gen Hans von Seeckt. As leader of the Reichswehr from 1920-1926, General von Seeckt provided an impression on the German military that was to last through World War II. His contribution was not to just address the above issues, which he in fact did, but further, to ensure that the theory was *matched in practice*. This, far from being a minor point, is critical.

The lesson that von Seeckt holds for us in the 1990s is not that of the developer of blitzkrieg. Corum accurately points out that this type of war awaited further development but that the combined arms concept that was at the root of blitzkrieg was a key goal and achievement of von Seeckt, who saw the comprehensive nature of that which we call military art and science.

Using this language of “comprehensiveness” today might well summon up images of the great “jointness” debates in the US, but von Seeckt

went well beyond that type of analysis. Rather, his contribution was to offer an example of military reform from alpha to omega, the whole series of connected actions that constitute a meaningful reforming of a military. Thus, it is important to have a good doctrine, but just as important is the rather mundane question of how one actually implements the new thinking. As Corum points out, "Sound tactical theory aside, it was in training that the Reichswehr surpassed all its contemporary rivals, ensuring the battlefield efficiency and tactical success of the German Army in 1939-40" (page xvi). He shows in the text, chapter by chapter, how von Seeckt left his Berlin headquarters that had so well developed the new operational doctrines, went to the field and demanded again and again that the troops implement the new concepts of mobile warfare. We might add that among these new concepts was "air-land battle," the lessons about which the air sections of the Truppenamt learned from their World War I experience and then codified under von Seeckt's direction. Additionally, Corum emphasizes the fact that the best field training and the best doctrinal development is useless unless the link between the two, the middle-level officers, is of such competence that the doctrine can be executed. This competence did not come about due to traditional German efficiency (although it may have been aided by it). It was built brick by brick by von Seeckt, year by year, using many avenues of officer education and training, many of which he personally oversaw.

Today we must ask ourselves if we have such an officer corps. Our service schools have gone through the throes of addressing the questions of balance between "generalists versus specialists" or of teaching "operations versus strategy," but we have not since the Air Corps Tactical School days made an effort to produce middle-level officers such as Ernst Volckheim (in armor) and Helmut Wilberg (in air combat), who, as Corum describes, did not produce large-scale theory but did produce the link between theory and practice that von Seeckt's reformation demanded. Further, for every such thinker, Corum implies, there must be dozens of thinking military officers to bounce ideas off to see, day by day, how the new concepts must be put into practice. One would look in vain in the present US Air Force for an interest in such officers and the kind of truly original thought that they might provide.

Another current lesson that we might learn from this study is the role of personal experience. Corum makes a point of remarking on the impor-

tance of the individual in history—in this case, that of a man of vision like von Seeckt, who provided the coherent guidance that the Reichswehr needed in its early years. While recognizing this important point, we can perhaps look further at Corum's data to see that another point needs to be made that is of the utmost relevance today: the importance of the actual military experience of the particular leaders of a reform movement. In World War I, von Seeckt was assigned to the Third Army Corps in the initial drive through the Low Countries, but as the western front degraded into trench warfare, he was assigned to take part in the Eleventh Army's offensive in Galicia. There, after they had penetrated Russian lines, the Germans did not do as they would have in France—envelop the line. Rather, they executed a deep penetration that resulted in a rout of the Russian army. When von Seeckt later came to power, he came with a particular vision, not one that was abstract; it was one that he had observed on the ground in a world war. On the other hand, the contender with von Seeckt for the position of army commander was Gen Hans Reinhardt, who fought trench warfare in France and saw it as the French did, concluding that the era of mobile warfare was dead. The defense was now supreme. Corum mentions other examples such as the rise of air officers who fought the successful (yes, successful) tactical air war of World War I, as opposed to the bomber pilots (such as those who rose in the United Kingdom and later in the United States) who also influenced the future of their respective services. The result of these particular officers (the list would also include Erwin Rommel, Albert Kesselring, Ewald von Kleist, Erich von Manstein, and Gerd von Rundstedt) rising in the Reichswehr was the dominance of mobile warfare and the use of tactical airpower in coordination with ground armies.

The point is clear: The personal experience of the leader is critical in framing the questions and coloring the way he deals with the options available to him. Today in the US we can see the same thing—a set of leaders who were in their formative years during and after the Vietnam War and who have accepted the limitations of the "Vietnam Syndrome" (the refusal to use force unless success is guaranteed). This is a concept of military power that would have been foreign to the Germans of the interwar period, or to any competent military for that matter.

What experience will our next set of leaders bring to their offices? Will they develop the new doctrine in a comprehensive way as von Seeckt

did? A reading of Corum's study of General von Seeckt shows us that these questions may be of equal or greater importance to the future of our country than any specific doctrine that is developed.

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Wings of War: Fighting World War II in the Air by Jeffrey L. Ethell. Naval Institute Press, 118 Maryland Avenue, Annapolis, Maryland 21402-5035, 1994, 136 pages, \$39.95.

This book, one of the latest from prolific aviation writer Jeff Ethell, is an extremely interesting collection of color photographs and first-person accounts from the World War II era. Many of these accounts come from the providers of the photos themselves, greatly enhancing the overall appeal of the book.

Wings of War is divided into seven chapters: "The Zone of Interior," "China-Burma-India," "The Mediterranean," "The European Theater," "The Naval Air Force," "The Pacific Theater," and finally "The End of an Era." Each chapter contains a large assortment of color photos pertaining to each particular theater. The photo captions are detailed and accurate, with the data coming directly from the contributors of the photographs, who in most cases were there. Interviews and reminiscences comprise the text for the chapters. Readers familiar with World War II history will recognize some of the personalities in these accounts. Contributions from airmen such as Tommy Blackburn, Marion Carl, David McCambell, Max Leslie, Bernie Lay, Jr., Lefty Grove, and Don Lopez appear with accounts from many other lesser-known but no less heroic participants, military and civilian. This almost wholly American story is balanced somewhat by brief narratives from Axis aces Saburo Sakai of Japan and Erich Demuth of Germany.

The process of obtaining the photographs for *Wings of War* is a story in itself. The author states in his introduction that he (probably like most of us) thought for a long time that World War II was a "black-and-white" war. The vast majority of previously published works on World War II reinforce this; most have photos only in black and white. Color photos from any source were rare, and the same color photos tended to appear repeatedly in different works. However, while most photos were black and white, not everyone was content to use them. Apparently thousands of sol-

diers, sailors, and airmen recorded the war in Kodachrome, a fact Ethell discovered on a hunch while doing interviews for books. The simple question, Do you know of any color photos? started a collection that now exceeds 10,000 color photographs, with more arriving daily. He takes pains to point out that the photographic coverage is not uniform from theater to theater. Color film suffered from the heat of the Pacific region. Because the maritime environment was also harsh on the film, Army Air Corps units tend to get better representation in the photos. Due to Ethell's efforts, however, this inequity is not reflected in the book.

Wings of War is not the first book containing strictly color photos published by this author. Other works include his *Bomber Command*, *Fighter Command*, and *The Victory Era*. Some of the photos in *Wings of War* also appear in the latter book. In addition, Ethell has just released an all-color volume on the US Army in World War II.

In conclusion, *Wings of War* has far more to offer the reader than just a superb collection of photos. Although the photos are the centerpiece of the book, Ethell is to be congratulated for publishing them in this format, complete with detailed captions and appropriate narrative. I recommend *Wings of War* without reservation to anyone interested in World War II and aviation. The serious model builder will enjoy the work as a reference for color and markings. Also, more serious students of military history may find the photos with captions as well as the narratives useful.

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Stalking the U-Boat: USAAF Offensive Antisubmarine Operations in World War II by Maxwell P. Schoenfeld. Smithsonian Institution Press, 470 L'Enfant Plaza, Suite 7100, Washington, D.C. 20560, 1995, 231 pages, \$37.50.

Stalking the U-Boat aims at filling a gap in the literature of World War II. The Battle of the Atlantic was a naval campaign, and the preponderance of the literature is focused on the work of the British and American navies at overcoming perhaps the most serious menace to the ultimate victory of the Allies. But a little-known, though admittedly minor, dimension of the battle was the role of the Army Air Forces (AAF) in 1942 and 1943. One's first impression is that here we have just another war story; but it is more than that.

Maxwell P. Schoenfeld is a mature and well-read scholar. Born during the Great Depression in Pennsylvania, he had his PhD from Cornell before he was 30 and has been teaching in Wisconsin almost continuously since that time. His previous works include books on the British House of Lords and on Winston Churchill as a war minister. Clearly, he is erudite on military subjects and seems to have a grasp of both naval and air theory and doctrine.

Schoenfeld uses the short histories of two of the antisubmarine groups of the AAF Antisubmarine Command as his vehicle. But he sets their stories in the larger context of the Battle of the Atlantic in an authoritative way—and avoids claiming too much for them, which is a common fault in books like this. He limits his discussion to only two of the Command's groups—those equipped with B-24s and deployed to the far side of the Atlantic. The 480th Antisubmarine Group led the way, and the 479th followed shortly afterwards. The operations were conducted from a field in southwestern England and for a while from Port Lyautey in French Morocco.

Stalking the U-Boat does not dwell on the evolution of the theory and doctrine of antisubmarine warfare (ASW) or on the important role of electronic intelligence in that business. Yet, it does give enough of a summary of those things to understand the context in which the two groups were operating. As Schoenfeld describes it, the US Navy suffered mightily because it had neglected thinking about ASW, and we bled profusely in 1942 along our eastern shore because of that neglect. Then, the Navy went over to a firm commitment to the convoy system, which he describes as a defensive preference. The author ends his story in the latter part of 1943 when the AAF got out of the ASW role and thus omits the Navys partial return to offensive strategies with the creation of its hunter-killer groups of the last half of the war.

On the other hand, those AAF authorities who thought of the subject at all preferred an offensive outlook throughout. Their fundamental idea was that airpower could capitalize on its mobility and flexibility by creating organizations that could go anywhere in the world where a submarine threat was developing and seek the U-boats on the high seas to kill them—or at least force them to remain underwater so much as to radically reduce their time in the target areas.

Schoenfeld well captures the immaturity of aviation in those days and reminds us how far we have come. In so doing, he demonstrates the

trial-and-error methods of the period and at least indirectly brings out the heroism of the crews of the day. It is true that, for all the dangers, the attrition was not as great as in Eighth Air Force over Germany in 1943, but it was nonetheless greater than any we have seen since. For a time, Adm Karl Dönitz made a bad mistake and ordered his submarine crews transiting the Bay of Biscay en route to and from their target areas to fight it out with the B-24s while remaining on the surface. The submariners did that—at times alone and at other times in formations of several surfaced submarines. They inflicted substantial pain on the Liberator crews, but in the end it cost the Germans far more than it did the AAF and Royal Air Force (RAF).

As with the AAF, the submarine war was a backwater for Hermann Göring as well. When Dönitz finally dragged some air support out of the Luftwaffe for the boats transiting the Bay of Biscay, it led to some rousing air-to-air battles among multiengine aircraft, usually B-24s versus Ju-88s. Each side had its advantages, and the Americans did get some kills—but here the balance was probably with the Luftwaffe. Fortunately, the German air force was becoming more and more preoccupied with its problems in the east, in the Mediterranean, and over downtown Germany, a situation that limited the threat against Allied airmen over the Bay of Biscay.

But they had more to worry about than just combat. One hair-raising tale, for example, came from a crew that conducted a model attack at the outer end of a 12-hour trip and got one of the few confirmed submarine kills for the two groups—only to find the field thoroughly socked in when they got back to Africa. There were no electronic aids for precision approaches in those early days, and the crew had to bail out for a dismal ending to what might otherwise have been a glorious sortie.

Dr Schoenfeld has done his homework in admirable fashion. He has explored primary documentation to the extent that he gets the details right at the micro end of the story. He is well versed in the relevant doctrines and strategies at the other end and is thus able, competently and concisely, to build the context in which the story developed. The writing style is quite good, and the work is a pleasure to read. Admittedly, the operation was a backwater for both the AAF and the RAF—and even for the navies involved. The real decision for the latter was to be had in the central Atlantic. For all of that, though, *Stalking the U-Boat* does fill a gap in the literature and

thereby does a service for the readers of *Airpower Journal*.

For professional airmen, the book at hand is engaging and informative. I recommend that it be given a moderately high place on reading lists, for it will yield an incremental gain in professional knowledge on World War II and perhaps at the same time develop some insights on the problems likely to face air commanders deploying units to austere locations early in emergency conditions. Some insights would be as useful tomorrow as they were a half century ago.

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Silver Wings: A History of the USAF by Walter J. Boyne. Simon and Schuster, 1230 Avenue of the Americas, New York 10020, 1993, 336 pages, \$50.00.

In his foreword to Walter J. Boyne's history of the Air Force, Gen Jimmy Doolittle writes, "*Silver Wings* covers the amazing technical progress of the last eight decades, and presents insight into the great campaigns from Saint-Mihiel to the Persian Gulf. But more importantly, it also shows just how that progress was made possible by the devotion of thousands of unsung heroes, who did their jobs brilliantly without concern for recognition or reward. Anyone who served, or the family members of anyone who served, will find in this book reminders of that service, sometimes nostalgic, sometimes amusing, sometimes poignant, but always fascinating" (page 6).

Boyne begins by delving into the development of airplanes and astutely shows how many American military and political leaders were unattuned and resistant to planes and their potential. (Gen Billy Mitchell and Gen Benjamin Foulois were two notable exceptions.) Early on, the reader begins to pick up the poignancy of military-political clashes concerning aircraft development and procurement. Using these clashes, the author entices the reader to ponder what the Air Force might look like now, had these two arch rivals combined their ideas and concerns and sought further political support. He also points to the interservice rivalry that also impeded the impetus for growth of the Air Force.

Interspersed with his discussion about the birth of aviation, Boyne points out that many significant accomplishments seemed to focus on the aviator. Due to the media's concentration on these events, such as Lindbergh's crossing the At-

lantic, other true aviation breakthroughs went virtually unnoticed. He uses several examples to point out how important benchmarks and milestones can be overlooked because the media is focused elsewhere. In doing so, however, Boyne gives everyone due credit—not just the aviators. He also praises all the people behind the scenes who made these feats possible, thereby giving credit to everyone who contributed to aviation—including factory workers.

Another of the book's appealing features is its judicious use of statistics. Boyne is able to drive home many points by using just enough statistical data to give the reader a sense of the accomplishment or feat under discussion. For example, 502,000 tons of bombs won the war against Japan, but 6.2 million tons lost the war in Vietnam (page 223). It would have been easy for the author to overindulge in statistics the way many writers do, but he adroitly avoids the temptation.

Further, Boyne devotes almost equal attention to each period of aviation. Although many writers could have become lost writing about World War II, Boyne's account is concise and eloquent. He mentions many famous people and groups such as the Women's Airforce Service Pilots and the 99th Pursuit Squadron, incorporating them into the text in such a way that the book reads like a novel rather than a history book.

Silver Wings is a must read for anyone interested in aviation history and the development of the US Air Force. A quick read, the book is filled with facts and pictures about the birth and development of aviation and the Air Force. I've seldom read a book that captures a period of history as thoroughly and concisely as this one does. It is a pleasure to read a book that so eloquently and concisely encompasses the birth of powered flight to the B-2 bomber and that ponders the state of aviation in the twenty-first century.

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Okinawa: The Last Battle of World War Two by Robert Leckie. Viking Penguin, a division of Penguin Books USA, Inc., 375 Hudson Street, New York 10014, 1995, 220 pages, \$24.95.

Robert Leckie, a former marine and a solid historian with a number of works to his credit, has written a history of the Okinawa campaign. The thesis of this book is basically that the Okinawa "battle" was the decisive factor in breaking the Japanese warlords' hold upon the emperor. Had the battle

been won by Japan, Leckie argues, the war would have gone on even though Japan was clearly beaten even before the beginning of the Okinawa campaign. Unfortunately, the author does not place this argument before the reader until the very last paragraph. Hence, readers who are unaware of the argument early on may be lulled into an easy acceptance of the idea when they finally do come upon it at the end of the book. The book fails to make a creditable case for the author's thesis. Evidence to support the author's claim is not presented, chiefly because the facts don't support his assertion.

Leckie, a veteran of Pacific theater combat, is at his best in describing the life and combat experiences of American servicemen under fire on Okinawa. He is adept at bringing to life the experience of those soldiers and marines who lived through one of the toughest and longest campaigns of the war in the Central Pacific. His perspective, not unnaturally, is an American one, but he has gone to substantial lengths to develop several of the more prominent Japanese "players" in the Okinawa ordeal. These aspects of the book are clearly its strength.

Regrettably, *Okinawa* is riddled with errors of fact, ranging from giving incorrect ranks of admirals and generals, to placing wrong American units in the thick of things, and erroneously describing Japanese equipment. William F. Halsey was, for example, not a fleet admiral until December 1945, after the war; Chester W. Nimitz was not a fleet admiral until 15 December 1944; Douglas MacArthur, on the other hand, was never destined to hold the title—or rank—of general of the Army! Only John J. Pershing has ever been so honored by his country. The Eleventh Air Force was in Alaska, not the Central Pacific, and the Shiragiku was a single-engine Japanese navy trainer, not a twin-engine aircraft.

Leckie, in true Marine fashion, defends the Corps—and assails the Army and its leadership at every turn. Unfortunately, his criticism of the Army's going slowly and being unwilling to make frontal assaults regardless of cost—on the premise that the casualties will be the same whether the attackers go fast or slowly—is not substantiated by the data he presents. The two Marine divisions committed to action—the 1st and 6th—suffered more casualties than did the four Army divisions but got to the southern end of the island essentially no faster than did the latter. To Leckie's credit, he admits that the 96th Infantry Division did a very creditable job and that its men showed

great courage in the course of the slow and grinding operations to reduce southern Okinawa.

This book is simply not up to Leckie's usually impeccable standards of scholarship and objectivity. It is vindictive and nasty in too many places. It glosses over Marine errors while trying to place the Army in general—and the Army leaders in particular—in the worst possible light, even if it means not being altogether correct. The Navy does not get off lightly either, and Admiral Turner—not one of the Marine Corps's favorite people in the Central Pacific—takes a few shots. Perhaps the worst cut is in the attempt to interpret the Army's conduct of a slow and deliberate offensive as rooted in not giving a damn for the poor Navy, which was forced, as a result, to take kamikaze attack after kamikaze attack. The fact is that, although the Navy took a lot of hits and casualties from the suicide boys, the Army Air Forces, under a Marine commander, did a great job of helping the Navy stand off the attacks. The Navy itself was superlative in its efforts and staying power.

I recommend that readers not thoroughly familiar with the Okinawa campaign turn elsewhere for a more accurate, objective, and less contentious treatment of it. A good read on the air and submarine blockade of Japan and one on the impact of the two atomic bombs on the emperor and the peace party are a must before trying to assess the thesis of *Okinawa*.

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Cooperation under Fire: Anglo-German Restraint during World War II by Jeffrey W. Legro. Cornell University Press, Sage House, 512 East State Street, Ithaca, New York 14850, 1995, 255 pages, \$35.00.

Ordinarily, when one thinks about the conduct of World War II, the word *restraint* does not come to mind. Indeed, the collapse of the German army in Europe and the dramatic ending of the war in the Pacific hardly seem like events one would commonly think of as "curbed" or held in check by tight limits. Therefore, any book about World War II that includes *restraint* in the title demands clarification. For the record, *Cooperation under Fire* is not about Anglo-German restraint in the ordinary sense. Rather, it is about understanding international cooperation, and it asks the important question, Why do states cooperate?

The book also provides some interesting answers. But Legro has not written a history book. In fact, he is not really concerned with the conduct of the war at all. Instead, the book highlights the importance of preference formation in international relations. In that regard, it makes a real—albeit rarefied—contribution.

The ability of actors to work with or accommodate one another significantly affects human welfare in a number of areas, including economic growth, environmental preservation, and prevention of conflict. Not surprisingly, within the field of international relations, the study of cooperation has always been important. However, during the 1980s, with the publication of books such as *Cooperation under Anarchy* (1985), the study of cooperation became a cottage industry, as researchers tested very specific hypotheses in their attempts to discover and explain why states cooperate. Traditionally, analysts have studied cooperation in terms of strategic interaction rather than preference formation. Here, Legro sets out to clarify the role of—and give an explanation for—preferences in international cooperation. He develops an organizational-culture approach and tests its plausibility in the conduct of war—an issue area in which one does not expect such an approach to be influential.

Although most scholars of international politics agree that international cooperation does occur, little agreement exists on the types of issue areas in which one would expect to find examples of cooperation. For instance, although one might expect states to cooperate on “low” policy issues such as clean air, one would not expect them to do so on “high” issues such as security matters. Therefore, as Legro makes clear, choices on the use of force in war do represent a “hard test” for his argument.

Certainly, few wars have been as intense or encompassing as World War II. All of the major powers were engaged. No outside power could act as a referee to control the scale of fighting. The stakes did involve “unconditional surrender”; therefore, defeat would entail the political—if not the literal—extinction of the state. To avoid such an outcome, entire industrialized societies devoted themselves to war making. Even the cast of characters did not bode well for limitation. Hitler, often appearing to be psychotic, was clearly unable to respect any limitations on the use of force. Yet, a modicum of restraint seems to have existed between the antagonists—a phenomenon that makes the notion of cooperation all the more puzzling and peculiar.

As he carefully examines the nature of submarine warfare, strategic bombing, and chemical warfare, Legro outlines the relationship between restraint and the use of force. His explanation turns on his understanding of culture. Although space does not permit a discussion of this understanding, it is important to point out that culture is often described as the “maligned variable” in political analysis. In international politics, where battle lines are drawn between realists and institutionalists, arguments about culture might seem interesting, but they are generally regarded as incapable of explaining international behaviors. Nevertheless, in an area in which one would expect international pressures to dominate, Legro demonstrates how organizational culture was quite potent in determining and shaping important outcomes. In doing so, he calls into question conventional interpretations of the relationship between domestic development of state desires and the way international affairs affect or supersede that process. For that important reason, *Cooperation under Fire* is worthwhile reading.

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B-25 Mitchell: The Magnificent Medium by Norman L. Avery. Phalanx Publishing Co., Ltd., 1051 Marie Avenue, Saint Paul, Minnesota 55118, 1992, 200 pages, \$29.95.

Norm Avery has authored the definitive reference for facts, both historical and technical, about the B-25 “Mitchell” medium-attack bomber. The B-25 was produced in 12 variants and used by 19 countries during and after the Second World War. The bomber was, according to the author, the most versatile aircraft of the war. Although the design was initially planned for the role of medium-attack formation bombing, the B-25—with its 75-mm cannon—flew a variety of missions, from antishipping to ground attacks on fortified installations. The author, having worked as a draftsman and design engineer with North American Aviation on the B-25 and other aircraft programs, has written an extensive historical study that delves into the development, design, usage, and fate of one of North American Aviation’s most successful aircraft designs. His work relies on personal knowledge and technical expertise, research, and the use of Air Corps and North American Aviation historical photographs,

original North American Aviation technical drawings, and Air Corps technical-manual diagrams to chronicle the transition of the NA-40 bomber design from drafting board to legendary B-25 war machine.

B-25 Mitchell begins by examining bomber development in the interwar years and then traces the lineage of the B-25. During this period, North American Aviation was predominantly known for its line of successful training-aircraft designs and, due to the Great Depression, had excelled in sales of its aircraft to foreign militaries. Foreign military sales annually numbered more than US Army sales in the latter half of the 1930s. Most American aircraft companies were trying to save capital by using redesigned transports as entries for bomber competitions. Recycled designs were not what was needed because even new bomber designs were being rapidly surpassed by the pursuit aircraft of the day. The NA-40 design, from which the B-25 program developed, was submitted in competition for the Army Air Corps's 1938 attack-bomber competition. Though not accepted, it laid the groundwork and carried several design innovations that were later included in the NA-62, the prototype for the B-25.

The transition of the NA-40 bomber design from the drafting board to legendary B-25 war machine is told through a study of research, development, wartime service, and follow-on technical modifications. Avery's work details the employment of the B-25 in each theater's many varied missions. The two principal combat areas of the B-25 were in the Pacific island campaigns and in the Mediterranean. At the outset of the war, B-25s were the only long-range aircraft in the theater capable of striking Japanese-held territory.

As the history of the bomber unfolds, it is immediately apparent that the major strength of the design was its versatility, which was further enhanced by its ready adaptability to any aerial mission found in each theater of operations—from close air support to transport to strategic bombardment. These missions proved the B-25 the most adaptable aircraft of the war. Some of the variations were normal corrections to the initial design integration into the Air Corps mission. Others grew out of ground crew and aircrew modifications made in the battle area, adopted by the Air Corps, and incorporated into factory production. Avery devotes a section each to the varied armament configurations, both authorized and experimental, employed on the B-25s.

The extensive list of appendices offers a ready reference on all aspects of the use and fate of each

B-25 produced. Further, no story of the B-25 would be complete without an examination of its use in Gen Jimmy Doolittle's raid on Tokyo and in the operations of the Royal Netherlands air force in the Dutch East Indies (Indonesia). Avery's book is the best reference to date on the B-25 and serves as a fitting documentary on the historical as well as aeronautical achievements of this type of aircraft.

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Round the Clock: The Experience of the Allied Bomber Crews Who Flew by Day and by Night from England in the Second World War by Philip Kaplan and Jack Currie. Random House, 201 East Fiftieth Street, New York 10022, 1993, 234 pages, \$50.00.

In *Round the Clock*, Philip Kaplan and Jack Currie have constructed a pictorial panoply of bomber operations in Europe during World War II. The pictures and illustrations are superb, the personal stories poignant, but the historical analysis is weak and poorly supported.

Kaplan and Currie organized their book to follow a bombing mission from "getting up for a mission" to the actual raids themselves—first from an American perspective and then from a British one. Interspersed in this mission sequence are chapters describing base routines, the home front, the English countryside, and the machinery of war. Further, the authors include two "photo chapters"—one on leather flying jackets and another on unit patches. Although the text is limited, when it is coupled with the extensive photography and artwork (250 photographs alone), the result is a touching, nostalgic look at "crew dog" life in the bomber commands of Eighth Air Force and the Royal Air Force.

The book's weakness emanates from those chapters that discuss the rationale and results of the Combined Bomber Offensive in World War II. The argument is superficial and lacking in deductive or inductive logic. For example, Kaplan and Currie brush aside the protests to Sir Arthur T. ("Bomber") Harris's city bombing in just two paragraphs. The authors set aside the moral arguments with the gross simplification that the policy was authorized under the Pointblank directive. Their logic smacks of the "I was just following orders" defense. In short, Kaplan and

Currie present a poorly crafted apologia for the bombing offensives of World War II.

Round the Clock is a nostalgic, memory-lane review of the American and British bomber commands in World War II. The photographs and illustrations alone make this book a worthwhile addition to the coffee table of any World War II aficionado, and the chapters describing the flight crews, their missions, and lifestyles are well written and most entertaining.

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Clash of Wings: World War II in the Air by Walter J. Boyne. Simon and Schuster, Rockefeller Center, 1230 Avenue of the Americas, New York 10020, 1994, 416 pages, \$25.00.

Written in a style similar to that of the novels Walter J. Boyne is justifiably known for, *Clash of Wings* holds few—if any—surprises for a student of airpower history. A retired USAF pilot and former director of the Smithsonian Institution's National Air and Space Museum, Boyne brings to the world of airpower history a perspective gleaned from his experience. His book is a general overview of World War II's air campaigns. However, unlike many other authors, Boyne has tried to cover the entire air war without limiting himself to either the Pacific or European theater.

A narrative history in the grand tradition of Alistair Horne (*The Price of Glory: Verdun, 1916*) or Barbara Tuchman (*The Guns of August*), *Clash of Wings* will dismay the historian, for it has only a short list of selected readings and no citations. However, for the general public—and for people who may not be able to find R. J. Overy's *The Air War: 1939-1945* (Stein & Day, 1980)—Boyne's book is possibly the best one-volume study of the subject. All of the many facets of airpower's development in World War II are here—from the beginnings over Poland to the flash of atomic fire over Nagasaki.

Consisting of 11 chapters and two appendices, *Clash of Wings* contains analyses of the aircraft, weapons tactics, and leadership in each of the air campaigns in the war. The book's theme (it is too vague to be considered a true thesis) argues that true airpower was not demonstrated until more than 20 years after Giulio Douhet and Billy

Mitchell—and then only by the United States (and then only in the skies over Japan). Even though his book is a survey, Boyne does not skimp on details in three often-ignored—or at least minimized—campaigns: the Southwest Pacific, the Soviet Union, and North Africa. For example, *Clash of Wings* is one of the few general histories that gives full credit to Air Chief Marshal Arthur W. Tedder and Air Vice-Marshal Arthur Coningham—men who really made airpower work for the British in North Africa and whose expertise was ignored by their American allies in 1942. Gen George C. Kenney, another innovator who is often forgotten, receives his fair share of praise for his remarkable feats in creating an effective weapon out of Fifth Air Force and then going beyond air supremacy to effectively impose an aerial blockade over the Bismarck Sea in the Southwest Pacific.

Boyne uses a novel twist to look at the Combined Bomber Offensive over Europe, arguing that four cities—Hamburg, Schweinfurt, Berlin, and Dresden—and one airplane—the P-51 Mustang—symbolize the entire European air campaign after 1942. Thus, he analyzes this aspect of the air war by examining what occurred during Allied attacks on these cities and by pointing out the fact that until the P-51 appeared with drop tanks to extend its range, the Luftwaffe had won the air supremacy battle over Germany.

During his analysis of the British and American air campaign over Europe, the author presents his thesis for this aspect of the war. That is, airpower alone could have ended the war in Europe without an invasion of the Continent, but it was restrained from doing so because such a victory would have meant that the Red Army would have been camped on the English Channel. Although this argument is believable, the fact that Boyne presents no source citations to support his position relegates his thesis to the status of unsubstantiated opinion.

Clash of Wings is certainly a good starting point for anyone who is completely unfamiliar with the conduct of the air war during World War II. The author does a very good job of introducing most of the arguments for and against the use of airpower and must be commended for not ignoring the important campaigns in North Africa, the Soviet Union, and the Southwest Pacific. But for the scholar, the search will have to lead elsewhere.

Maj Michael J. Petersen, USAF
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The Development of RAF Strategic Bombing Doctrine, 1919–1939 by Scot Robertson. Praeger Publishers, 88 Post Road West, P.O. Box 5007, Westport, Connecticut 06881-5007, 1995, 224 pages, \$55.00.

Pity the poor Royal Air Force (RAF)! RAF bashing is becoming a worldwide cottage industry among soldiers, sailors, scholars, and various other authorities. If only it hadn't been for the RAF, then the Royal Navy would have had the carrier torpedo-bombers and fighters it needed to win—notwithstanding the fact that the Germans had no carriers and that the biplane *Swordfish* did better against the *Bismarck* and at Taranto, Italy, than the US Navy's *Devastator* did at Midway. If only the RAF had not been a bureaucracy in the 1920s, it would have had the doctrine, training, and technology to match its theory and would have blown Germany away in a day. If only the RAF had had more philosopher-soldiers and fewer practical aviators, it would not have needed Field Marshal Bernard Montgomery to come along after Dunkirk to teach it how to fight a tactical war and win in North Africa. The assumptions made at the beginning of a study like *Development* are everything: if the glass is half-full, it is one story; half-empty, and it is another.

Half-empty assumptions are conducive to trouble-free oral defenses of dissertations. Scot Robertson, a civil servant in the Department of National Defence of Canada, studied for his PhD at the University of New Brunswick. The book at hand is an adaptation of his dissertation. It has enough of the conventional scholarly apparatus to satisfy most folks. There are endless footnotes drawn from unpublished primary sources from archives in the United Kingdom, and the survey of the published British literature is comprehensive and satisfying. Robertson has correctly identified the best of the secondary sources and recommended them in the text. Clearly, a picky reviewer can always find something that "should" have been included in the footnotes or bibliography, but this research could never be called superficial. Further, Dr Robertson's writing style is clear and fairly easy to read.

In North America, the astute PhD candidate in military history knows the importance of including Clausewitz's name in the manuscript—and Robertson starts with the notion that he is embarking on a Clausewitzian approach to the evaluation of the work of the British Air Staff between the wars. He knows his Clausewitz well enough, and drawing a stark contrast between

theory and doctrine is essential to his critique. It does strike me, though, that it is a little much to expect the 1920s RAF officers in a profession and an institution so new (beleaguered as it was by the Navy and the Army) to be profound students of the great Prussian—and I am not sure that it matters as much as Robertson thinks.

Development asserts that the Air Staff treated the theory of strategic bombing as a religion but at the same time ignored its implications for doctrine, training, research and development, acquisition, and operational planning. When 1939 came, then, the RAF did not have the apparatus on hand to implement its theory. Too, the Air Staff (and Robertson seldom if ever uses the names of the errant decision makers) built too much of its edifice on a misinterpretation of the bombing experience of World War I and on a gross underestimate of the success of the defense of London in that war—the latter a debatable point indeed. The perfect is the enemy of the good enough; the Battles of Britain and El Alamein were won!

One of the annoying devices used by Robertson and many other scholars is to plod on and on through many pages explaining how ignorant the institution is in, say, underestimating the air defense and then in one sentence hedge in the form of a counterargument really more weighty than all the preceding pages. An example of the latter is suggesting that one should not expect the Air Staff to be superhumanly prophetic and then predicting the coming of radar—or complaining of using "air policing" as a bureaucratic device to defend against the onslaughts of the Army and Navy but leaving out the obvious point that the loss of the bureaucratic battle might well have entailed the loss of the Battle of Britain. Another example is a belated and superficial recognition that budgetary constraints as well as Air Staff ignorance inhibited the development and testing of both doctrine and equipment.

Development may be interesting to the few readers of *Airpower Journal* who are specialists in the history of the RAF. It is really unsuitable as a case study in peacetime planning for the practicing USAF officer because its initial assumption is so powerful that it inhibits the development of useful insights as to how one might do it better next time—for example, how one might anticipate radar or the coming of Adolph Hitler or how one might overcome the public reaction against World War I or the financial effects of the Great Depression. The half-empty assumption excludes the possibility that the RAF leaders may have

done as well as could be expected under the unique circumstances of those strange times. Robertson himself recommends several more useful sources such as John Terraine, Malcom Smith, Stephen Roskill, and R. J. Overy.

Dr David R. Mets
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Secret Mission to Melbourne by Sky Phillips.
Sunflower University Press, 1531 Yuma, Manhattan, Kansas 66502-4228, 1992, 296 pages, \$18.95.

In slightly fewer than 300 pages, Sky Phillips spins a fictional account of the close-hold Australian mission of Maj Gen Lewis Brereton. In a quest to provide adequate airfields for American aircraft to stage out of Australia, General Brereton and crew visit remote airfields, fly over exotic and dangerous terrain, and meet some extraordinary individuals. Unfortunately, the fast-paced action and intrigue of such a mission are buried among a travelogue description of Australia, a disjointed account of Amelia Earhart's travels through that country, the love affairs of a fictional flyer, and numerous other diversions of little significance to this important mission.

Touted by the publisher as a "blockbuster" tale of a "special diplomatic and strategic military mission," the story is told through the fictional character of pilot Jim Davis. But Davis does not do justice to the historical significance of this mission. His libidinous antics detract from the stated purpose of the work—to narrate a mission virtually unknown at the time and scarcely documented by historians since.

The book is supposed to be a historically accurate account of Brereton's mission. Perhaps the details are to be found somewhere in the work, but the reader will have a hard time piecing them together. In fact, I would not call *Secret Mission* historical at all since the bulk of the story is not closely tied to the mission itself. Unlike James Michener, whose works also use fictional characters but are coherent and easily followed, Phillips has trouble staying focused.

The book's value as a contribution to military history is questionable. The author does not appear to have the training or background in serious military historical writing. His main creden-

tials appear to be his father's career as an Army Air Corps pilot and his five years spent in the Philippines as a dependent. As a fictional work, *Secret Mission* also lacks a certain degree of focus. The story is not tied together from paragraph to paragraph, the mission is interrupted too often, and the language and "love thoughts" of Jim Davis detract from instead of add to the story. The reader will have a hard time following this work.

Although I was hoping for a book that would explain the salient points of this secret mission, all I found were the rambling images of a crew on its travels to different parts of Australia. Having flown over Australia numerous times in a B-52, I must say that the descriptions of this continent are accurate. Unfortunately, the reader can find the same information in any atlas or travel brochure without having to wade through almost 300 pages of digressions. *Secret Mission* is definitely not required reading for people interested in this early facet of World War II in the Pacific.

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The Last Kamikaze: The Story of Admiral Matome Ugaki by Edwin P. Hoyt. Praeger Publishers, 88 Post Road West, Westport, Connecticut 06881, 1993, 235 pages, \$22.95.

"This is the story of a man and a navy that shared a death wish—Vice Admiral Matome Ugaki and the Imperial Japanese Navy." With this sentence, author Edwin P. Hoyt quickly establishes the mood of *The Last Kamikaze*. Foreboding permeates this story of the Imperial Japanese Navy during the Second World War as seen through the eyes of Vice Admiral Ugaki, who is swept by the forces around him into the vortex of a futile war. Ugaki was the man behind the scenes, the able chief of staff to the very capable Adm Isoroku Yamamoto, commander in chief of the Combined Fleet. The thoughtful Ugaki is portrayed as a man caught between the world of the time-honored traditions of the Samurai that formed the military traditions of Japan prior to the Second World War and the reality of a very modern, capable, and overwhelming foe. A failure by Japan's militarist leadership to correctly assess the abilities of potential enemies forced all of Japan into a war against the United States, despite the objections of the senior leaders in the Imperial Japanese Navy. Hoyt shows us how Ugaki (and others)

committed themselves to fighting a war that they felt was unwinnable.

Matome Ugaki was born in Okayama on western Honshu. Hoyt briefly mentions that Ugaki's first ambition was to enter the army to someday become a general; however, he attended Eta Jima Naval Academy and began the difficult climb to vice admiral. My greatest criticism of Hoyt's work is that he never says much about the prewar Ugaki. We learn that his wife died prior to the war and that his children were all grown at the start of the war, but nothing is said of his parents, his education, or his experiences prior to becoming a flag officer. Unlike Hoyt's biography of Admiral Yamamoto, he has Ugaki simply appearing as a flag officer in 1937, leaving the reader with little understanding of the life that brought Ugaki to this point in time. Perhaps this is due to Hoyt's nearly total reliance on Ugaki's wartime diary, which was begun in 1940. Hoyt opens the mind of the wartime Ugaki by his use of this diary. With it, he shows that Ugaki had a preoccupation with poetry (he wrote poetry) and with death in battle or ritual suicide.

Through the eyes of Ugaki, Hoyt brings us the inner workings, the joys and frustrations experienced by members of Yamamoto's staff as they planned the attacks on Pearl Harbor and Midway, and planned strategy during the struggle at Guadalcanal. The reader sees Ugaki's fascination with the idea of ritual suicide by the commanders of fighting units for failure in military operations against the Allied forces during the time when US power became overwhelming. We also receive a "front row" seat at the death of Admiral Yamamoto when P-38s shot down his aircraft. Ugaki was the senior officer in the second aircraft because Yamamoto's policy was for he and his chief of staff to fly on separate aircraft in case of incidents like the one that occurred. Only the pilot and Ugaki survived the attack and the subsequent crash into the sea. Yamamoto was found in the nearby jungle, killed by the gunfire from the P-38s that downed his aircraft. Ugaki considered Yamamoto's death in battle to be appropriate for Japan's greatest admiral.

After Yamamoto's death, Ugaki became commander of Battleship Division One of the Combined Fleet. This command was composed of the battleships *Nagato*, *Yamato*, and his flagship *Musashi*. Much time was spent avoiding the US carriers and submarines until the Japanese Navy was ready to fight the "decisive battle," never admitting or realizing that it had already been fought at Midway. Japan intended that the Battle

of Leyte Gulf, near the Philippines, was to be that battle, but because of errors in judgment (cruising during daylight) and persistent attacks by US forces, this battle became the last futile gasp of the Imperial Japanese Navy. In the battle, the *Musashi* was sunk and every ship was damaged in some way. During this command, Ugaki became increasingly preoccupied with the use of suicide forces. Afterwards, he was appointed to command the Fifth Air Fleet, which was responsible for the defense of Kyushu and the islands to the south of Japan. Units under his command conducted Kamikaze attacks against US forces at Iwo Jima and later at Okinawa. Finally, he joined a suicide attack on the evening after Japan's surrender in defiance of the orders given by the emperor he served. He died without hitting his target, probably after his aircraft was destroyed by night fighters defending US forces.

Hoyt's biography of Ugaki is very easy to read. His selected bibliography includes some excellent references, but his footnotes are sketchy at best and show a limited use of the references he mentions in the bibliography. *The Last Kamikaze* is not an in-depth or heavy scholarly work, but it is light reading at its best for a book that brings the Pacific War alive.

Ugaki was the vital "sidekick" so frequently overlooked by newspapers, biographers, and historians. All too often the focus is on those who are out in front as the leaders, and rarely on the staffs and "worker bees" that make that greatness possible. Those who serve and support the great leaders are frequently overlooked unless they too emerge as "great men." Once the shadow of Yamamoto was gone, Ugaki emerged as a leader who could inspire his men to intentionally die for Japan as they carried the battle to their enemies. Ugaki never forgot his commitment to the men who died, following their example. Edwin Hoyt shows us the struggles encountered by Japan's naval leaders as they defended their nation against the overwhelming force that they had intentionally awakened. *The Last Kamikaze* opens our eyes to the cultural blindness and the false sense of superiority possessed by Japan's militaristic leadership that led Japan to war, and how they came to see the reality that it takes more than valor and bravery to defeat an enemy. Edwin Hoyt's biography permits the reader to observe this change through the eyes of one of Japan's very dedicated warriors, Vice Adm Matome Ugaki.

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Hitler's Japanese Confidant: General Oshima Hiroshi and Magic Intelligence, 1941-1945 by Carl Boyd. University Press of Kansas, 2501 West 15th, Lawrence, Kansas 66049-3904, 1993, 272 pages, \$25.00.

This book presents an informative and entertaining study of the collection and exploitation of signal intelligence during World War II. Using recently declassified documents formerly protected under the "Magic" security caveat, Boyd focuses on the US collection of Japanese diplomatic communications from General Oshima, the Japanese ambassador to wartime Germany.

Oshima proved to be a valuable source of information for US and British intelligence officers during the war. The book elaborates on his close relationship with Hitler and Joachim von Ribbentrop, the German foreign minister. This networking within the highest levels of German leadership allowed General Oshima unparalleled access to Hitler's intentions. Oshima dutifully and unwittingly relayed his observations via radio to Japan, thus providing US and British personnel a ringside seat to privileged diplomatic communications because the US had cracked Magic, the Japanese code.

Boyd traces Oshima's rapid rise from colonel/military attaché in 1936 to lieutenant general/ambassador to Germany in 1939. The Japanese general was well liked by Hitler and his inner circle because he supported Nazi/fascist aims during the interwar years. In fact, Oshima was Germany's most outspoken advocate in Japan.

The author provides a brief treatise on World War II signal intelligence operations and successes in exploiting Japanese communications. He is also very straightforward in addressing the importance of having sufficient quantity and quality of linguistic support to collect and exploit the volume of wartime signals.

Further, Boyd gives us several options for examining how intercepts of Oshima's communications affected decision making during the war. For example, the Allies were well informed of

Germany's attempts to invade the Soviet Union before the event actually happened. Additionally, Oshima's observation of German defenses along the Normandy beaches provided key information that was subsequently used for preinvasion planning. Moreover, his commentary on the state of Germany's internal affairs after repeated Allied bombing provided a perspective of war that Allied leaders found absolutely critical for realistic assessment of the merits of their strategic bombing campaign. Boyd carefully explains General Oshima's observations and speculations in terms of political and defense concerns.

The author highlights the US Army's success in collecting intercepts of Oshima's conversations with Tokyo. It is very apparent that the availability of skilled linguists and analysts was a critical limiting factor. This limitation directly influenced the Army's ability to meet the timeliness and relevance criteria of providing finished Magic intelligence to US and Allied decision makers.

Boyd's work offers a new perspective on the war in Europe, in light of the information available from the Magic intercepts to both President Roosevelt and Prime Minister Churchill. His description of the efforts that Allied commanders took to protect and sanitize these intercepts and to ensure the dissemination of intelligence to Allied leaders is most informative. Any scholar of World War II will want to review this work thoroughly for the new light it sheds on information about German intentions and actions that Allied commanders had at their disposal.

Boyd's work is an enjoyable treatise on the value of signals intelligence to campaign planning and combined operations. Hopefully, the continuing study of intelligence lessons of the past will provide the impetus for updating our joint and combined intelligence doctrine for the future. I encourage all military professionals, especially intelligence operations officers, to add this book to their reading list.

Maj Larry B. Rose, USAF
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Mission Debrief

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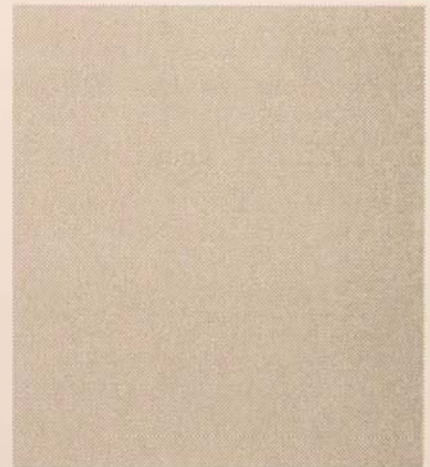
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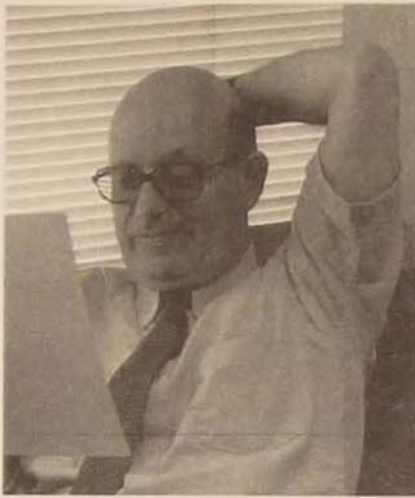


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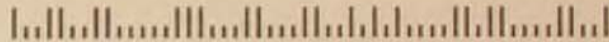


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