CREECH BLUE

Gen Bill Creech and the Reformation of the Tactical Air Forces, 1978–1984

Lt Col James C. Slife, USAF

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James C. Slife
Lieutenant Colonel, USAF

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Foreword

Last year, the USAF lost one of the most influential Airmen of the modern era. Gen Wilbur L. "Bill" Creech was a leader, a visionary, a warrior, and a mentor. Just as Gen Curtis E. LeMay shaped the Air Force of the Cold War through his development of Strategic Air Command in the 1950s, General Creech shaped the Air Force of today through his actions as the commander of Tactical Air Command (TAC) from 1978 until 1984. Under the leadership of General Creech, TAC—and the Tactical Air Forces (TAF) writ large—underwent a transformation that, in large measure, built the Air Force that has fought so brilliantly in campaigns from Operation Desert Storm to the present global war on terrorism.

I worked closely with General Creech over many years, and I saw how he shaped our Air Force in so many ways. In *Creech Blue,* Lt Col James C. Slife chronicles the influence General Creech had in the areas of equipment and tactics, training, organization, and leader development. His study is among the first to describe what, to historians in years to come, will surely be seen as the revolutionary developments of the late 1970s and early 1980s and General Creech's central role. While not a biography, *Creech Blue* is certainly biographical and captures the general's professional convictions in so many areas.

General Creech's career spanned three and a half decades, which attests to how his experiences prepared him to assume command of TAC at the pivotal time that he did. As a young fighter pilot in Korea, he worked closely with Army maneuver units on the ground and was involved in the first all-jet aerial dogfight. These experiences helped shape his thoughts on the role of technology in warfare. Afterwards, General Creech was an aerial-demonstration pilot and an instructor at the Air Force Fighter Weapons School. In these assignments, he learned the value of disciplined flying and the need for tactics appropriate to the enemy. As aide-de-camp to TAC commander Gen Walter "Cam" Sweeney, General Creech learned much about the value of relationships at the highest levels of our service while also experiencing firsthand the destructive nature of interservice squabbles. In Vietnam he reinforced his ideas on the value of

technology, particularly the need for an ability to fight at night. Twice a wing commander in Europe during the height of the Cold War, General Creech developed his strongly held convictions on how organization and leadership can set the stage for a unit's success. As commander of Air Force Systems Command Center and as assistant vice-chief of staff, he learned much about systems development and acquisition that would serve him well in the years to come. When General Creech assumed command of TAC in May 1978, there was no one more prepared to lead the TAF into a new era.

Creech Blue serves as a first corrective to much that has been published in the last decade as our service has become more intellectually and doctrinally aware. Colonel Slife addresses such controversial topics as the development of the Army's AirLand Battle doctrine and what it meant to Airmen. As the TAC commander during this period, General Creech was intimately involved in the development of AirLand Battle doctrine; contrary to popular opinion, he entered into these discussions with the Army with his eyes wide open. Another central issue of the time was the powerful movement within many government and media circles to "reform" the Defense Department. While others are given much credit for moving the debate forward, little has been written on why the Air Force was institutionally resistant to many of the reformers' proposals. Given his position at the time, General Creech was often the spokesman for the Air Force's programs and frequently found himself at odds with the reform movement. This study enlightens the Air Force on its strongly held convictions during that period and challenges the idea that by 1990, when Iraq invaded Kuwait, the Air Force had forgotten how to wage a "strategic" air campaign and was dangerously close to plunging into a costly and lengthy war of attrition had it not been for the vision of a small cadre of thinkers on the Air Staff. In exploring the doctrine and language of the decade leading up to Desert Storm, Colonel Slife reveals that the Air Force was not as shortsighted as many have argued.

General Creech was one of the most influential Airmen our service has ever produced, and *Creech Blue* begins to explain why. In examining General Creech's influence on our ideas, equipment, doctrine, and organization, the author has produced

a notable work that serves both to explain the context of that turbulent time in our Air Force's history and to reveal where tomorrow's Airmen may find answers to some of the difficult challenges facing them today. By rigorously enforcing standards of integrity and providing a model of excellence and service, General Creech inspired a large sector of the Air Force that had become disillusioned during the aftermath of Vietnam. I saw him personally mentor and teach a generation of Airmen. He knew that the most important job of a leader is to create future leaders. His legacy will live long after that generation of leaders passes the baton to the next generation. His story is an abiding model for Airmen everywhere.

JOHN P. JUMPER
General, USAF
Chief of Staff

About the Author

Lt Col James C. Slife, a senior pilot with 2,300 flight hours, primarily in the MH-53 helicopter, is director of operations, 20th Special Operations Squadron, Hurlburt Field, Florida. He earned a bachelor of science degree in aerospace engineering from Auburn University, Auburn, Alabama, in 1989. He also holds a master of arts degree in organizational management from George Washington University. After undergraduate pilot training (helicopter) in 1990 at Fort Rucker, Alabama, Colonel Slife remained at Fort Rucker as an instructor pilot. In late 1991 he transferred to Kirtland AFB, New Mexico, where he transitioned to the MH-53J Pave Low helicopter. In 1992 he was assigned to Hurlburt Field, Florida, and participated in operations in the Persian Gulf, the Balkans, and the Caribbean. Colonel Slife left Hurlburt Field as an instructor pilot and was assigned to the Air Staff, where he served in broadening assignments within the following offices: Air Force Director of Legislative Liaison and the Assistant Secretary of the Air Force for Manpower, Installations, Reserve Affairs, and the Environment. In 1997 he went to Royal Air Force Mildenhall, England, as an MH-53J/M pilot. As a squadron assistant director of operations and flight examiner, Colonel Slife participated in operations in the Balkans and Africa before completing Air Command and Staff College in 2001 and the School of Advanced Airpower Studies (now the School of Advanced Air and Space Studies) in 2002—both based at Maxwell AFB, Alabama. Colonel Slife and his wife, Gwendolyn, have four children: Sarah, John, Paul, and Rebecca.

Chapter 1

An Architect of Victory?

In the hours before the start of Operation Desert Storm on 16 January 1991, the Air Force chief of staff, Gen Merrill A. McPeak, wrote a letter to one of his old bosses.[1] In it, he said, "We are about to harvest the results of years of hard work and leadership by you and a handful of other great Airmen. We will do well. But we need to recognize that we are beholden to you, because you really built this magnificent Air Force we have today."[2] The Air Force did well, and McPeak was correct. In fact, after leading his air forces to such stunning success in Desert Storm, Lt Gen Charles A. "Chuck" Horner, the joint force air component commander (JFACC), echoed McPeak's sentiment: "General Bill Creech gave us the organization and training that made the success of our crusade possible. I can't thank him enough for that."[3] These are powerful endorsements from two men who thrived under Creech's leadership at the USAF's Tactical Air Command (TAC) from 1978 to 1984. It is not only Creech's subordinates who rate him highly. Gen David C. Jones, an officer with whom Creech was closely associated for over a decade, ranks Creech "with Curtis E. LeMay as one of the two most influential men in [Jones's] long Air Force experience."[4]

The comparison of Creech with LeMay is interesting. Creech and LeMay commanded Air Force major commands (MAJCOM) during times of great change and growth. They were largely responsible for modifying operational concepts and doctrines employed by the forces under their command and served as MAJCOM commanders for lengthy periods: more than eight years for LeMay and more than six for Creech. In LeMay's case, it was the Strategic Air Command (SAC) during its formative years, when nuclear weapons, bombers, and intercontinental ballistic missiles were the order of the day. In Creech's case, it was TAC during the post-Vietnam defense drawdown (and later buildup during the first term of the Reagan administration), when programs for fighter modernization, night-adverse weather capability, and precision munitions came to fruition.

Yet, also of note, LeMay and Creech were almost complete opposites in their views of organizations. Whereas LeMay was renowned for his centralized approach to management, Creech was just as renowned for his decentralized approach.[5] Each of the above factors—ideas, equipment, and organization—is clearly related, in some degree, to the legacies of these two air commanders. LeMay's legacy is clearly established. But beyond senior leaders such as Jones, McPeak, and Horner, who worked with and for him, Creech's legacy is less well known.

The relationships between ideas, equipment, and organization, especially with regard to air warfare, have been most clearly articulated by I. B. Holley Jr. in his 1953 work *Ideas and Weapons*.[6] Holley used the American experience in World War I to illustrate the interrelation of the three topics. Indeed, the history of air warfare is full of painful examples of how advances in any one of these three areas, without corresponding advances in the others, have reduced the effectiveness of the air weapon. The British experience with an organization without appropriate doctrine or weapons can be found in the World War I Independent Force, Royal Air Force.[7] For an example of weapons without an appropriate organization or doctrine, one need look no further than the early days of atomic bombs.[8] A doctrine without the appropriate weapons or organization can be seen in the 1930s' American concept of high-altitude, precision daylight bombing.[9] Proceeding on the assumption that Holley's construct has value beyond the World War I case, this study uses the "ideas-equipment-organization" framework to evaluate General Creech's influence on how the Air Force thinks about and conducts air warfare at the theater level.

Explicitly stated, the question this study seeks to answer is, What influence did Gen Wilbur L. "Bill" Creech have on the Air Force's thinking about and conduct of theater air warfare? This study will not validate General Jones's assessment of Creech as one of the two most influential men he encountered in his Air Force career. Nor is it intended to. However, this study should provide sufficient evidence and analysis for the reader to evaluate the validity of what Generals McPeak and Horner had to say about Creech circa 1991. Did Creech strike the right balance among ideas, equipment, and organization?

Did Creech really "build" the Air Force that performed so splendidly during Desert Storm?

The significance of this study lies in the lessons it holds for air leaders seeking to build and shape the Air Force of tomorrow. By examining one man's approach to the complicated business of air leadership, perhaps they will be able to determine where some of the pitfalls are—where they might increase or decrease their efforts—or simply find another way to think about what it is they are trying to accomplish. This study also has several assumptions and limitations of which the reader should be aware.

This study is very limited in terms of the time period studied and, although biographical, is not a biography. Only Creech's actions during his time as the TAC commander will be analyzed (except in the few cases where his work before 1978 directly affected his actions upon assuming command of TAC). No monograph-length study could do appropriate justice to a career that spanned more than 35 years of active military service.

Furthermore, concerning the equipment aspect, this study is not a history of procurement programs. A useful analogue in explaining this point might be military history. In studying military history, one is often prone to assign credit or blame to a single commander in the field, such as Gen George B. McClellan's defeat or Napoléon Bonaparte's victory. Although there are nearly always staffs, thinking opponents, subordinate commanders, and superiors that play (often substantial) roles, the credit, or the blame, usually goes to the commander. This study recognizes that "victory has a thousand fathers, but defeat is an orphan."[10] For the purposes of this study, Creech will generally be given the credit and blame for the results of bureaucratic battles that occurred during his watch as the TAC commander and in which he was involved. To name but a few, his staff, the Air Staff, Congress, the Department of Defense (DOD), Air Force Systems Command (AFSC), and the other tactical air forces (TAF) had important roles in such events as the production decision for the F-117A Nighthawk stealth fighter. However, to determine and assign relative weight of credit to the various agencies involved is beyond the scope of this study. This is especially true given the fact that within such a large organization as the DOD, various suborganizations and participants often have differing goals.

Creech himself was the first to acknowledge the roles played by the myriad of other players concerned with the programs in which he was a participant. While this study attempts to sort out all those players, only an extensive history of the manifest programs could do appropriate justice to the activities of so many. Although Creech's participation alone did not ensure the success of the programs in which he was a participant, it is highly unlikely that, given his position as the TAC commander, any major procurement program for the TAF could have survived without his support.

The classification level of the study is also a limiting factor because many of the programs in which Creech was involved are now widely known, and much of the primary source material available, especially in Creech's papers at the USAF Historical Research Agency, remains classified. This unclassified study either omits reference to any programs that remain classified or relies on unclassified secondary source material to make the relevant points. On balance, this is not a significant limitation; but it is one with which the reader should be familiar.

The central question suggests an inherent limitation. By confining this study to "theater air warfare," Creech's contributions, if any, to Air Force thinking about and execution of global thermonuclear war and guerilla warfare (and virtually any other type of air warfare beyond the theater wars envisioned in the Korean, Persian Gulf, and central European scenarios that so dominated the thinking of the time), are ignored. This is not meant to minimize Creech's impact in those areas. They simply lie beyond our scope.

Notes

Most of the notes for this chapter and the following chapters appear in shortened form. For full details, see the appropriate entries in the bibliography.

1. For the purposes of this study, when the terms *Gen* or *general* are used without further modification (such as *Maj Gen* or *major general*), they refer to officers of four-star rank.

2. Gen Merrill A. McPeak, chief of staff, to Gen W. L. Creech, letter, 16 January 1991, in Puryear, *American Generalship*, 226.

3. Quoted in Creech, *Five Pillars of TQM*, 123.

4. Boyne, *Beyond the Wild Blue*, 213. General Jones served as the commander in chief of United States Air Forces in Europe with General Creech

as a wing commander and key staff officer. As chief of staff of the Air Force, he selected General Creech to command the Electronic Systems Division of Systems Command, serve as the assistant vice chief of staff, and command TAC. General Jones went on to become chairman of the Joint Chiefs of Staff.

5. Worden, *Rise of the Fighter Generals*, 61; and Kitfield, *Prodigal Soldiers*, 176.
6. Holley, *Ideas and Weapons*, 175–76.
7. See Williams, *Biplanes and Bombsights*.
8. See Brodie, *Strategy in the Missile Age*.
9. MacIsaac, "Voices From the Central Blue," 624–47.
10. Attributed to John F. Kennedy.

Chapter 2

Making of Bill Creech

General Creech's experiences in the Air Force trace, to a large extent, the development of the TAFs from the Korean War through the mid-1980s. Yet an objective evaluation of Creech's contributions to theater air warfare without an appreciation of the forces and experiences that shaped Creech's development (as well as that of TAC) would be unproductive. To provide this context, this chapter examines relevant personal experiences and institutional developments under the broad categories of ideas, equipment, and organization.

Ideas and Doctrine

Air warfare seemed to be so much simpler in the early days. During the 1930s, before Air Force independence, all Army airpower was concentrated in the General Headquarters (GHQ) Air Force. The GHQ Air Force had three wings, each with pursuit, bombardment, and attack aircraft—with no organizational lines drawn between strategic and tactical aircraft or missions. Yet, during World War II, the strategic bombing mission, for a number of reasons, was separated organizationally and generally directed from high command levels. In the European theater, this direction came from the combined chiefs of staff with Air Chief Marshal Sir Charles Portal acting as executive agent. In the Pacific, Gen Henry H. "Hap" Arnold was the executive agent for B-29 operations against Japan. Among the most commonly accepted reasons for this separation was that the strategic bombardment mission represented the only independent mission performed by the Army Air Forces (AAF), all others being in support of land or naval operations. The efficacy of the strategic bombing mission represented the AAF's best hope to obtain postwar independence.[1] During the postwar discussions concerning the establishment of a separate Air Force, Gen Dwight D. Eisenhower, the Army chief of staff, and Gen Carl A. "Tooey" Spaatz, the prospective Air Force chief of

staff, agreed to an Air Force organizational construct that mirrored the organization they had used in the European theater with great success. In that theater, the US Strategic Air Forces, under Spaatz's command, reported directly to the combined chiefs of staff, while the air forces tasked to support the Army were under Eisenhower's command.[2] Against the desires of many air officers who wished to see a return to the prewar GHQ Air Force construct, Eisenhower and Spaatz agreed to establish the Air Force with, among others, a SAC responsible for the strategic bombing (read independent) mission and a TAC responsible for support of the land forces.[3] But unlike their World War II model, not only were the missions divided but so were the aircraft; the former was made up largely of long-range bombers while the latter consisted mainly of fighters.

Throughout the 1950s and 1960s, SAC became associated with deterrence and nuclear bombing; and TAC hurried to follow suit to avoid irrelevance. The national strategy of massive retaliation placed extraordinary emphasis on nuclear weaponry, and a significant portion of the fiscal resources of the time went to building forces capable of delivering nuclear weapons.[4] Meanwhile, leaders who had experienced the prewar GHQ Air Force as well as the various World War II organizations for airpower remained uneasy with the division of airpower into strategic and tactical commands. Gen George C. Kenney, the first commander of SAC, had been unhappy with the words *tactical* and *strategic*, insisting that all types of aircraft and organizations were capable of doing both types of missions.[5] In 1951, the chief of staff of the Air Force, Gen Hoyt S. Vandenberg, expressed dissatisfaction with the arrangement. "The terms *strategic* and *tactical* were anathema to him because they tended to split air power into artificial camps identified by aircraft nomenclature; weapons type; or weight or ordnance, range, and the number of crewmembers. Vandenberg knew that the true issue was the nature of the target—not the aircraft" (emphasis in original).[6] By the mid-1960s, there was a general consensus, expressed by the chief of staff, General LeMay, that the missions of tactical airpower were distinct and included counterair, interdiction, close air support (CAS), and tactical reconnaissance.[7]

The Vietnam War further confused these fundamental Air Force terms. In that war, SAC B-52s often conducted tactical-level CAS for ground forces in South Vietnam, while Seventh Air Force F-105 and F-4 tactical fighter-bombers conducted strategic bombing missions in North Vietnam.[8] The dividing line between what constituted strategic bombing (a traditionally SAC mission) and interdiction (a traditionally TAC mission) also became blurred. Writing after the Vietnam War, Gen William W. Momyer, Seventh Air Force commander from 1966 to 1968 and then TAC commander from 1968 to 1973, concluded that striking the "source of the war material" was one of the interdiction lessons from World War II.[9] Vietnam shaped Air Force thinking in other ways as well. Reflecting on this period in a 1995 speech, chief of staff Gen Ronald R. Fogleman suggested that

> the harsh realities of Korea and Vietnam showed us the limits of nuclear deterrence, and revitalized conventional airpower. Interestingly enough, with strategic airpower focused on deterrence, conventional capability in the form of tactical airpower became inextricably tied to air-land warfighting doctrine. The primary role of tactical airpower was support for the close battle—either directly in the form of close air support or indirectly in the form of interdiction. As a result, in the United States Air Force, we turned our doctrinal work over to Tactical Air Command and [the US Army Training and Doctrine Command].[10]

Clearly, by the mid-1970s, the distinction between strategic and tactical had become meaningless.

In the early 1960s, Creech served an apprenticeship under Gen Walter "Cam" Sweeney that, in several ways, framed Creech's thinking about TAC's relationship with the Army. TAC commander from 1961 until 1965, Sweeney was a SAC bomber pilot. He selected Creech to be his aide to benefit from Creech's fighter experiences. According to Creech, Sweeney "did a brilliant job of getting us back to our roots of supporting the Army because we had really drifted away from that."[11] Sweeney "developed the tactical air support system, put the forward air controllers out with the Army and got them jump [airborne] qualified and more. The improvements were across the board in the tactical forces."[12] Sweeney relied on Creech for much of the intellectual rigor that went into TAC's position on interservice matters. For example, Creech drafted the paper that eventually became

the Air Force position in response to the Howze Board, part of an Army effort to gain increased control over tactical aviation.[13]

In early 1962, Secretary of Defense Robert S. McNamara requested a study on the future of Army aviation. Under Lt Gen Hamilton H. Howze's presidency, the US Army Tactical Mobility Requirements Board examined battlefield mobility and proposed that the Army form air assault divisions with organic fixed- and rotary-wing air transport, reconnaissance, and CAS assets.[14] The air assault concept had significant support within the Office of the Secretary of Defense (OSD), and the Army began procuring CV-2 (later redesignated C-7) Caribou and OV-1 Mohawk aircraft to fulfill these roles. For the Air Force, the potential force structure implications—had the Defense Department accepted the Howze Board recommendations—were significant: the loss of all C-130s, one-half or more of the service's tactical reconnaissance aircraft, and up to 40 percent of the fighter force.[15] During the last meeting of a special 17-member board of general officers to craft the Air Force response, a consensus had emerged to respond with an "aviation for the aviators" proposal in which the Air Force would take over all Army aviation, including rotary wing.[16] Sweeney, as the chairman of that board, suggested the members hear from the younger generation before it finally approved that approach. At that point, he asked Creech, whom he had invited to sit in on the meeting, for an opinion. Creech believed it was shaping up into a confrontation where both sides were going for all or nothing. He further believed the stakes were too high for the Air Force to risk such a significant portion of its force structure in an all-or-nothing bid for all of Army aviation, especially with the OSD favorably disposed to the Army position.[17] Instead, he proposed a compromise in which the Air Force would continue to be the primary fixed-wing operator while the Army would continue to be the primary rotary-wing operator—but deprived of the fixed-wing missions envisioned in the Howze Board. That "younger generation" proposal was accepted; Creech drafted a white paper that Sweeney gave LeMay; and the Defense Department eventually endorsed the Air Force position on fixed- and rotary-wing roles and missions.[18] The Army later transferred its Caribou aircraft to the Air Force and ceased Mohawk production.[19] Yet, despite the

Howze Board's actions in the early 1960s and several other roles and missions controversies in the late 1960s, the Vietnam War served to bring the two services closer together.

In the immediate aftermath of the Vietnam War, Army–Air Force cooperation received a big boost from the service chiefs of staff. Gen Creighton W. Abrams and Gen George S. Brown had served together in Vietnam as the commanders of Military Assistance Command Vietnam (MACV) and Seventh Air Force, respectively. When they became their respective service chiefs of staff, Generals Abrams and Brown sought to continue the close working relationship enjoyed during their tenures in Vietnam. In October 1973, Brown and Abrams personally impressed their desires on Gen Robert J. Dixon, TAC's incoming commander, before he took command.[20] Shortly thereafter, Abrams sent a letter to Gen William E. DePuy, the first commander of the newly established Training and Doctrine Command (TRADOC), stressing his desire to "carry over this commonality of purpose which existed so clearly in Vietnam, as it has in other operational settings, into the entire fabric of relationships between the two Services."[21] With the support of their service chiefs, Dixon and DePuy met several weeks later and began what would come to be known as the "TAC-TRADOC dialogue."[22]

The TAC-TRADOC dialogue was productive from its inception. Generals Dixon and DePuy recognized a need to improve staff coordination between the two agencies and established the Air Land Forces Application (ALFA) agency.[23] ALFA, which was jointly manned, reported to the two headquarters and worked out procedural problems in Army–Air Force cooperation. As one example, ALFA established the Airspace Management Working Group to develop procedures for deconflicting the airspace over the battle area. When its work on this project was complete, ALFA produced an Army–Air Force manual on the topic in November 1976.[24] The new service chiefs, the Army's Gen Fred C. Weyand and the Air Force's Gen David C. Jones, met this effort enthusiastically with Jones commenting, "The entire effort is fine evidence of how interservice cooperation can result in a superior product."[25] The cooperation evidenced by TAC and TRADOC would continue to enjoy the support of their service chiefs for the next 15 years.

TRADOC, concomitantly with its cooperation with TAC, was developing an Army doctrine for operations that would refocus the Army on general war in central Europe. That doctrine would come to be known as the Active Defense and was influenced by many factors. Among them were the strategic defeat in Vietnam, the growing imbalance in military power between the Warsaw Pact and NATO in Europe, and the 1973 Yom Kippur War between Israel and the Arab states.[26] Perhaps most influential was the Yom Kippur War, in which both sides "sustained 50 percent material losses in less than two weeks of combat."[27] General DePuy and his analysts recognized in the Yom Kippur War a "new lethality" on the modern battlefield; and the 1976 version of Army Field Manual (FM) 100-5, *Operations*, reflected this with an emphasis on the defense. Applied to central Europe, the manual envisioned tactical maneuvers being used to shift forces in order to bring firepower to bear on the powerful armored thrusts of Warsaw Pact armored forces.[28]

The Army's Active Defense doctrine, while serving to refocus the Army on large-scale warfare, quickly came under fire from within the Army as well as externally. Within the Army, the doctrine was perceived as being defensively oriented to a fault.[29] Many within the Army criticized the doctrine for focusing on the first battle (and neglecting subsequent battles); relying on firepower while slighting maneuver; providing inadequate tactical reserves; and focusing on a massive Soviet breakthrough on a narrow front as the most likely enemy operational maneuver.[30] Perhaps more surprisingly, an increasingly influential group in Washington defense circles heavily criticized the doctrine. Generally known as the defense reformers, these reform-minded officers, analysts in the OSD, congressional staff members, and congressmen took issue with the direction of defense thinking and spending. In a well-reasoned critique of the Active Defense doctrine, Senator Gary Hart's (D-CO) legislative aide William S. Lind questioned four central aspects of the doctrine: "fight outnumbered and win," "win the first battle," "attrition or maneuver doctrine," and "tactics."[31] The reformers concluded that the new doctrine was particularly susceptible to intelligence, communication, and maneuver disruption.[32] While the Army was digesting these critiques of its new doctrine, DePuy retired and

was followed by Gen Donn A. Starry. Once Creech took command of TAC in 1978, he and Starry would take TAC-TRADOC cooperation to a new level.

A Vision of Air Warfare

While serving in Korea in late 1950 until mid 1951, Creech began to form ideas that foreshadowed his command tenure at TAC. In reflecting on his tour as an F-80 pilot in Korea, Creech said,

> Here we are up against what literally is a third world nation, a big one, the Chinese, and they have more sophisticated equipment than we do. That was what griped me. It wasn't that I wasn't in an F-86; it was that the MiGs were 250 miles an hour faster than I was, and here I was in the latest and best US equipment in the F-80C. There is a moral in that, and that is: stay technologically advanced or you are going to pay the price.[33]

Coupled with inferior equipment, Creech recognized poor tactics as a fundamental Air Force deficiency in Korea. In describing the difficulties encountered in Korea, Creech stated, "part of it was, our tactics weren't very good. We weren't smart enough to stay away from the antiaircraft artillery (AAA), and our airplanes were a lot slower and were a lot easier to hit. . . . We didn't have any stand off ordnance of any kind, so we got shot down a lot."[34] The desire to stay ahead of the adversary technologically and to employ superior tactics never left Creech and later formed some of the fundamental concepts of his tenure at TAC.

Another lasting impression from his experiences in Korea, and later Vietnam, was that the United States lacked the ability to conduct effective tactical air operations at night. When Creech was serving as Sweeney's aide, Sweeney provided Creech and all the TAC general officers a book on the Korean War and asked them to comment on the four principal lessons from the air war. Creech's response was to state categorically, "We can't fight at night, we can't fight at night, we can't fight at night, and we can't fight at night."[35] He had the same strong feelings that the United States needed a night capability after his tour as a deputy wing commander for operations in Vietnam. In his after-action report in 1970, Creech wrote, as his number-one lesson learned, "Tac-

tical night attack capability is absolutely essential."[36] Again, Creech's wartime experiences would shape his tenure at TAC.

In the years following his experiences in Vietnam, Creech's vision of air superiority moved further away from his experiences in the Korean War with its swirling dogfights and more towards Douhet's vision in which aircraft were destroyed on the ground rather than in the air. Recalling the early 1970s, Gen David C. Jones said, "One of the main problems Bill and I had was we had an air-to-air mafia. The best way to destroy an air force is on the ground."[37] The Douhetian vision of air superiority Jones and Creech shared was at sharp variance with the vision of prominent members of the defense reform movement, with whom Creech would clash in the coming years.

Equipment and Training

In the late 1960s, while Creech was attending National War College and subsequently assigned to the OSD, the Army and the Air Force became embroiled in a roles-and-missions dispute in which each service attempted to field a CAS platform. For the Army, the platform was the AH-56 Cheyenne, developed while the Air Force was developing the A-X that would later become the A-10. The two services had successfully resolved the Howze Board controversy earlier in the decade and had concluded the Johnson-McConnell Agreements of the mid-1960s. These agreements settled some of the roles-and-missions issues related to the Army's fixed-wing tactical transport requirements and the Air Force's rotary-wing employment. The two services again clashed over roles and missions beginning in 1966.[38] While the Army desired the Cheyenne, the Air Force asserted that it was fully capable of meeting the Army's CAS requirements. By the time the issue was settled in 1972, the Air Force had begun to procure the A-10, and the Army had canceled the Cheyenne program but not before the services engaged in an odd doctrinal exchange. In it, the Air Force suggested assigning the A-X aircraft directly to Army Corps direct-air-support centers with the Army replying that the inherent flexibility of tactical airpower suggested that the Air Force proposal would compromise the overall theater tactical-air mission.[39] Within the next several decades,

this argument would revert to its usual form, with the Army suggesting it needed increased control of tactical airpower, while the Air Force advocated centralized control of airpower. The A-10, however, did not represent the Air Force's only tactical-air program under way at that time.

In addition to the development of the A-10, the late 1960s also found the Air Force pursuing something it had long needed but never developed: a purposely built air superiority fighter.[40] The Air Force had long used either fighter-bombers or interceptors for the air superiority mission with generally no more than adequate results.[41] The design for the F-X, which later became the F-15, was driven primarily by two requirements: radar capability and maximum speed.[42] These requirements frustrated several early defense reformers, notably Maj John R. Boyd and OSD analyst Pierre Sprey. While Boyd and others had performed valuable work in refining the performance requirements of the F-15, Boyd felt that the radar and speed requirements made the aircraft too large and complex for the air superiority mission.[43] For his part, Sprey suggested an alternative design with a single engine, longer range, and greatly reduced complexity. Introduction of his F-XX design was poorly timed and served only to cause the Air Force to unify its position in favor of the F-15.[44]

The F-15 had many detractors who saw in it everything bad about American weaponry. Boyd and Sprey, among others, formed the nucleus of the defense reformers who intended to change the Air Force's fighter modernization programs. Sprey had concluded that there were four criteria for an air-superiority fighter. "In order of importance, they [were] (1) obtain the first sighting, (2) outnumber the enemy in the air, (3) outmaneuver the adversary to gain firing position, and (4) have the ability to achieve split second kills."[45] Sprey and others believed the F-15 was too large to achieve the first, third, and fourth criteria and too expensive to be bought in the numbers required to achieve the second criterion.[46] This debate, with the services on one side and the defense reformers on the other, would become a central argument for the next 15 years. According to one reform writer, the central question was, "Should American fighter design be driven by the eternally optimistic theory that sophisticated, that

is, more complex, technology will negate the effects of being outnumbered, or should we evolve our design requirements from combat-derived criteria and build greater numbers of less complex aircraft?"[47] Presumably, the combat-derived criteria came from World War II and Korea where air combat was often characterized by close-in, turning engagements. Of course, this was directly counter to Creech's vision of both the role of technology and the future of aerial combat. Large battles, figuratively over the Potomac rather than literally over the Yalu, loomed ahead.

As an answer to the problems they discovered in the F-15, the defense reformers succeeded in having two prototype lightweight fighters (LWF) built. Boyd and Sprey, with the help of Col Everest Riccioni, "set loose goals for an aircraft that could out-accelerate, out-turn, and out-endure any existing aircraft in the range of speeds actually seen in combat—about Mach .6 to Mach 1.6."[48] According to General Jones, the Air Force chief of staff at the time,

> the fighter advocates in [the Director of Defense Research and Engineering Office] wanted to procure a lightweight fighter rather than have full-scale production of the F-15. Secretary [of Defense James R.] Schlesinger knew that the lightweight fighter would never be procured if the Air Force would not support it. One Saturday morning the Secretary invited me down to his office to discuss this subject. He asked me what would it take to get the Air Force to support an F-16/F-17. I told him four more fighter wings in the force structure. He leaned over and shook my hand. . . . We accomplished our basic objective. And the F-16 turned out to be a much better aircraft than the air-to-air advocates wanted.[49]

With the support of Schlesinger and Jones, the winner of the LWF competition, the F-16, was slated for full-scale production. However, before the F-16 went into production, the Air Force's Configuration Control Committee, under the direction of Lt Gen Alton D. Slay, placed the plane into full-scale engineering development, in which the aircraft was equipped with a radar and given a multimission capability, much to the dismay of those who wished it to remain, in essence, an updated F-86 to be produced in great quantity.[50] By the time the Air Force was finished modifying the F-16 to meet its desires, Slay noted, "we got more than we paid for in having a multipurpose airplane."[51] While the Air Force may have gotten more than it

anticipated, the defense reformers got much less in terms of simplicity and quantity. Of course, fighter programs were not all the Air Force was developing and procuring during this period. Other important systems work was under way as well.

In the years before taking command of TAC, Creech served as commander of the Air Force Systems Command's Electronic Systems Division (ESD) and later became the assistant vice-chief of staff of the Air Force. In those capacities, he pursued developmental projects that would later bear fruit under his tenure at TAC. Following up on an experience he had while assigned as the deputy commander for operations of the US Air Forces in Europe (USAFE), Creech became intimately involved with the ongoing Pave Mover program while at ESD.[52] Essentially, this program sought to develop high-power synthetic aperture radar with ground moving-target-indicator capability for airborne use. Several years later, the system was fielded as the Joint Surveillance Target Attack Radar System (JSTARS) and became a key component of the battlefield Creech and Starry envisioned. Additionally, Creech and ESD began to develop an antijamming communications capability later fielded as Have Quick frequency-hopping radios.[53] While the assistant vice-chief, Creech began development of a communications-jamming system based on, among other things, the Israeli experience with Syrian communications jamming during the Yom Kippur War.[54]

By the end of the Vietnam War, precision-guided munitions (PGM) were beginning to demonstrate a capability long-needed in the TAF. Perhaps the best example of the successful mating of tactical aircraft and precision munitions during that period is the story of the Thanh Hoa and Paul Doumer bridges in North Vietnam. These two bridges, key transportation routes in North Vietnam, had been struck repeatedly during Rolling Thunder with marginal results and several aircraft lost in the effort. However, after a four-year bombing halt, in 1972 the bridges were struck again. This time, equipped with precision munitions—both laser-guided bombs (LGB) and electro-optically guided bombs (EOGB)—8th Tactical Fighter Wing (TFW) F-4s destroyed both bridges without loss.[55] The potential of PGMs was gradually dawning on the Air Force. Since its inception, the Air Force

had sought to refine bombing accuracy through modifications to the aircraft and the tactics used to deliver the munitions. Ever more sophisticated computing, gyrostabilized bombsights were employed with marginal gains in effectiveness.[56] Yet with the development of usable EOGBs and LGBs in the late sixties, the concept of controlling the munition in flight—which had undergone experimentation since World War II—finally came to fruition. In response to the successes in Vietnam in 1972, the Air Force began procuring LGB and EOGB kits in moderate numbers. By the end of September 1978, shortly after Creech assumed command of TAC, the Air Force had a worldwide inventory of more than 30,000 guidance kits.[57]

In addition to the guidance kits fitted to unguided bombs, the Air Force began to pursue a powered antiarmor PGM in the form of the AGM-65 Maverick missile. The initial version of the AGM-65 was electro-optically guided and achieved excellent results in conditions of good visibility.[58] The Israeli air force employed the Maverick with success in the Yom Kippur War in 1973 and destroyed 40 tanks with 49 firings in the Sinai Desert.[59] To improve the Maverick's capabilities in the poor visibility conditions that prevailed in Europe, the Air Force began development of an imaging infrared version of the Maverick.[60] This program would come to fruition during Creech's tenure at TAC, a few years later, and fit in well with his vision of warfare.

Finally, the Air Force began to express an interest in night and adverse-weather systems. Particularly of interest were systems with an ability to suppress enemy air defenses. In November 1973, the chief of staff asked for a study of existing programs that might hold promise for improving those capabilities. As a result of that study, 11 projects were amalgamated under the name Pave Strike and given special research-and-development management emphasis.[61] Among the programs identified were the infrared seeker for the Maverick, an electronic-jamming version of the F-111 (to be called the EF-111), the precision emitter locator strike system (PELSS), improved F-4E Wild Weasels, and a host of bomb and rocket guidance systems.[62] Although not all these programs bore fruit, they laid the groundwork for some of the concepts Creech later pursued at TAC.

In recognition of the need to improve the quality of the training that its tactical fighter pilots were receiving, the Air Force established a unit of "aggressors" at Nellis AFB, Nevada, in the early 1970s to simulate Soviet equipment and tactics. In October 1972, under the guidance of TAC commander Gen William W. Momyer, the Air Force established the 64th Fighter Weapons Squadron to fly the aggressor mission. Equipped with T-38s and, later, F-5Es that would closely emulate MiG-21 performance, the aggressors provided the adversary for Air Force crews in dissimilar air combat training.[63] The aggressors represented the beginnings of realistic combat training for the TAFs. One of the Pentagon action officers instrumental in establishing the aggressor program was Charles Horner, a major at that time.[64] He also would play a key role in establishing the Red Flag training program.

Building on the experience of the Fighter Weapons School and the aggressors at Nellis, the Air Force in 1975 began the first in a series of large-scale training exercises called Red Flag. Conceived in the late 1960s primarily by Capt Moody Suter while he was assigned to Nellis, Red Flag was envisioned as a large-scale exercise over the ranges of Nevada by employing live bombs and missiles while facing realistic enemy air and surface-to-air missile threats. Suter, by then a major, joined Horner in the Pentagon in 1972 and began to develop the idea.[65] Responding to training deficiencies made evident by the Vietnam War, Red Flag was intended to provide pilots with the equivalent of their first eight or 10 combat missions in a training environment. The first Red Flag exercise was conducted in December 1975 and served as the precursor to what later became an entire stable of "Flag exercises" under Creech's leadership at TAC.[66]

To complement the Red Flag training for pilots, TAC initiated in 1976 the Blue Flag series of exercises designed to train air commanders and their staffs in the intricacies of command and control of tactical air warfare. By the second exercise, the Blue Flag scenarios were dealing with the complicated air warfare problems of a Korean peninsula scenario.[67] According to General Dixon, TAC commander at the time, "Blue Flag's emphasis is directly on the air commander, his staff and the elements which support the decision-making and execution process. Individuals

are brought together, given a situation, resources, information gathering systems and a command and control system, and are asked to solve a problem."[68] The Blue Flag exercises, in conjunction with the combat-oriented flying training taking place at Nellis under the aegis of Red Flag, provided a solid foundation of realistic training from which to build.

Organization and Leadership

When Creech's squadron went to war in 1950, there were 16 pilots assigned to 24 aircraft with 16 crew chiefs.[69] The resulting inability to operate and maintain their assigned equipment made a lasting impression on Creech, who would later inherit many of the same problems when he assumed command of TAC. This situation was due, largely, to the Harry S. Truman administration's underfunding of the Department of Defense.[70] In the massive demobilization and defense reorganization that followed World War II (including the establishment of the Air Force), the services often kept units active despite having neither the personnel nor the equipment to staff and equip them fully. This practice foreshadowed the military contraction following the Vietnam War. On his first day in command at TAC, Creech, having experienced the "hollowing out" of the armed forces during Korea, took steps to minimize the impact of such policies on the force.

Upon returning from Korea, Creech was assigned to Luke AFB, Arizona, as a gunnery instructor. While there he got his start in aerial demonstration flying as the first replacement pilot for the Thunderbirds. Creech spent a year in the right-wing position and a year in the left-wing position before his reassignment to Germany.[71] In Germany, Creech was selected to be the commander and leader of the Skyblazers, USAFE's counterpart to the Thunderbirds, as they were transitioning to the F-100.[72] As leader of the Skyblazers for four years, Creech led his team to a safety record that included no major accidents or pilot losses during a period when the Thunderbirds suffered 11 accidents and lost five pilots, while flying an equivalent number of flying hours and air shows.[73] General Creech attributed his success as the leader of the Skyblazers to "organizing

small" and instilling pride and professionalism into each member of the team.[74] According to author James Kitfield, who has written several works that deal peripherally with Creech's career,

> even as he climbed up the command chain, Bill Creech's viewpoint remained essentially that of a Skyblazer. In his experience, good things were not accomplished by tens or even hundreds of thousands of people, but rather by teams of five or 10 people striving for a shared goal. That concept flew in the face of conventional wisdom in the late 1970s, and the military bureaucracy resisted it. Yet it drove everything Creech was about to do at TAC.[75]

While assigned as General Sweeney's aide and later when assigned to Secretary of Defense McNamara's staff, Creech was a firsthand witness to aircrew discipline and organizational centralization efforts, some of which he would internalize and take with him and some of which he would discard. On the positive side, Sweeney took over a command Creech described as cavalier and professionalized it. However, Creech felt that some of Sweeney's techniques were heavy-handed and created resentment.[76] Yet the positive results of Sweeney's actions could be seen in small details such as cross-country deployments. Creech noted that in 1958, when TAC was directed to deploy a fighter squadron to Lebanon, only two of 18 aircraft made it on schedule. In contrast, when Creech left TAC in 1965, it was "very rare that when we sent 24, 24 didn't arrive right on the dot and right on schedule."[77] Creech, from his vantage point within the Pentagon, also witnessed the McNamara revolution and the efforts to centralize functions. Reflecting on those days, Creech said, "The thrust was on saving money and people. . . . It overlooked the requirement to do a good job."[78] Creech had several opportunities in the following years to apply the leadership and organization lessons he had learned in these assignments.

For the first time since being a flight leader in Korea, Creech had an opportunity to lead in combat during the Vietnam War. There, he was the 37th TFW's deputy commander for operations and later the Seventh Air Force assistant director of operations. Creech strongly believed in the requirement for a leader to be credible in the unit mission and to lead it whatever the mission was; in a flying unit, that meant in the air. As a colonel and the

wing's operations deputy, Creech flew 177 F-100 combat missions in 158 days before being transferred to the Seventh Air Force headquarters.[79] During that time, he earned the respect of those serving under him. General Fogleman recalled being a captain in the Misty fast forward air control (FAC) detachment assigned to Creech's wing. Fogleman described one occasion in which, as the airborne FAC, he saw Creech call off a flight of his wing's aircraft attacking an extremely well defended cave in Laos with little success. Creech directed his inexperienced wingman to hold at a safe altitude and proceeded to fly a difficult and dangerous approach to the cave, where he dropped a can of napalm directly into its mouth. Evidently containing large amounts of supplies and ammunition, the cave erupted in a huge explosion. Fogleman described the event as "an impressive piece of flying."[80] In the following years, Creech would demand a similar level of mission involvement from his wing commanders.

Several years later, while serving as a wing commander, Creech would put into place concepts he had learned as a Skyblazer and which he would later use on a much larger scale at TAC: organizing on a small level, creating many teams, and instilling pride and professionalism in his subordinates. Creech commanded two wings successfully. The first, which was newly established, was based at an abandoned airfield in Zweibrücken, Germany. In just under a year, Creech's wing had passed a NATO inspection with the highest scores recorded in six years.[81] Reassigned to a troubled wing at Torrejon, Spain, that had failed its two previous readiness inspections, Creech and his wing passed the reinspection four months later with the highest scores on record in USAFE.[82] Creech credits his successes to building teams and leaders from the bottom of the organization to the top.[83] The general also instilled discipline in his units by involving subordinate commanders in the process. As the TAC commander talking to a group of his wing commanders, he described a technique he used at Torrejon:

> One of the problems, it seemed like only half of the people on the base saluted. Now, I wasn't going to chase everyone who didn't salute, so when I passed someone who didn't salute, I'd say, "Come on, get in the car." "Where are you from? What's your name?" Sometimes I'd get three or four in my car and take them back to my office. Then I'd have his squadron commander come and pick him up. And all I said to the

> squadron commander was, "He seems like an awfully fine young person, apparently he hasn't been to school for military discipline, so I'm sure you're going to take time to do that because I wouldn't like to see you up here too often." It started working.[84]

Despite the emphasis on realistic training, TAC's readiness to fight had fallen during the decade before Creech's assumption of command. In 1969 TAC fighters were flying an average 23 sorties and 32 hours per month. By the second quarter of fiscal year 1978 when Creech took command, the aircraft were flying an average of 11.5 sorties a month for 17 hours, a reduction of approximately 50 percent (or almost 8 percent annually).[85] This trend had a disturbing effect on the aircrews. Many pilots who needed a minimum of 15 hours per month of flying time simply to remain proficient were averaging fewer than 10, and the results showed. The TAC fighter-attack accident rate had risen from a low of 4.9 per 100,000 flying hours in 1971 to 7.6 per 100,000 flying hours in 1978.[86] Additionally, in describing the climate before Creech's command, one F-15 crew chief commented, "We were all aware that a human being was strapping into that jet, but there was a lot of sloppy work done to get it into the air . . . and if it missed its sortie, it was no big deal."[87] The pilots were not much more enthusiastic: "Used to be you could take an airplane off, but your radar wasn't working or your inertial navigation system didn't work. So, even when we did fly, the sorties were often low quality."[88] TAC was on what Creech would later describe as a "slippery slope."[89]

Despite having clear intentions of employing Creech in increasingly more responsible positions, General Jones, by then the chief of staff, had to intervene in Creech's career when he suffered a major heart attack while the commander of the ESD. At the time, such a medical incident called for retirement. Jones, intending to keep Creech on active duty, changed the Air Force policy regarding heart attacks.[90] When he sent Creech to TAC, Jones intended for Creech to "shake it up."[91] Concerning the centralized management approach well entrenched at TAC when he took over, Creech told Jones he "was going to rip up that old centralized way and start afresh. All [Jones] said in response was, 'Go to it.'"[92] Jones recalled, "We had a basic Air Force Regulation 66-1 that you would have centralized maintenance. I

made a very loose interpretation of that regulation. Even looser when I was chief and allowed, for example, Bill Creech to make major changes in the organization in TAC."[93] With the support of Jones, Creech had a virtually free hand in terms of organizational changes at TAC. He would use every bit of the broad authority he was granted in restructuring the command.

Notes

1. Meilinger, "The Problem with Our Air Power Doctrine," 26.
2. Some authors suggest that the establishment of TAC was the price that General Spaatz had to pay to secure General Eisenhower's support for an independent Air Force. According to Spaatz, this is patently false. When asked about this, he stated, "No. General Eisenhower and I thought along the same lines about this thing. . . . We thought it was the way that it should be organized." See Spaatz, oral history interview, 5.
3. Wolk, *Struggle for Air Force Independence*, 136–41.
4. Worden, *Rise of the Fighter Generals*, 108.
5. Ibid., 139.
6. Meilinger, "The Problem with Our Air Power Doctrine," 28.
7. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 186.
8. Drew, "Two Decades in the Air Power Wilderness," 9.
9. Momyer, *Air Power in Three Wars*, 167.
10. Fogleman, "Multinational Joint Doctrine," 5.
11. Creech, oral history interview, 72.
12. Berry, "TAC and TRADOC," 34.
13. Creech, oral history interview, 76–81.
14. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 180–81.
15. Gen W. L. Creech, interview by the author, 7 June 2002.
16. Creech, oral history interview, 76–81.
17. Creech, interview, 7 June 2002.
18. Creech, oral history interview, 76–81; idem, interview by the author, 19 May 2002; and idem, to the author, e-mail, 20 May 2002.
19. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 189, 313.
20. Ibid., 539.
21. Dixon, "TAC-TRADOC Dialogue," 46.
22. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 539.
23. Dixon, "TAC-TRADOC Dialogue," 47.
24. Chapman et al., *Prepare the Army for War*, 95.
25. Dixon, "TAC-TRADOC Dialogue," 48.
26. Chapman et al., *Prepare the Army for War*, 55.
27. Romjue, "AirLand Battle," 53.
28. Ibid.
29. Romjue, *From Active Defense to AirLand Battle*, 14.
30. Chapman et al., *Prepare the Army for War*, 58.

31. Lind, "Some Doctrinal Questions," 54.
32. London, *Military Doctrine and the American Character*, 23.
33. Creech, oral history interview, 27–28.
34. Ibid., 24.
35. Ibid., 31. See also Creech, background interview.
36. Creech, 86th Tactical Fighter Wing, memorandum.
37. Gen David C. Jones, interview by the author, 3 January 2002.
38. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 518.
39. Ibid., 519–20.
40. Neufeld, "F-15 Eagle," 6.
41. The F-86 is a notable exception. Originally designed as a fighter-bomber, the Sabre proved to be the most successful air-superiority fighter of the Korean War. Several design features of the F-86, such as the bubble canopy, were incorporated into the F-15.
42. Fallows, *National Defense*, 101.
43. Neufeld, "F-15 Eagle," 10; and Fallows, *National Defense*, 101.
44. Neufeld, "F-15 Eagle," 18.
45. Stevenson, *Pentagon Paradox*, 33.
46. Fallows, "Muscle-Bound Superpower," 66.
47. Stevenson, *Pentagon Paradox*, 5.
48. Fallows, "America's High-Tech Weaponry," 26.
49. Gen David C. Jones, to the author, e-mail, 23 May 2002.
50. Fallows, *National Defense*, 105.
51. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 503.
52. Gen W. L. Creech, interview by the author, 7 December 2001.
53. Creech, oral history interview, 191.
54. Gen W. L. Creech, interview by the author, 27 February 2002.
55. Corum et al., *Tale of Two Bridges*, 62–92.
56. Mets, *Nonnuclear Aircraft Armament*, 1–2.
57. Headquarters United States Air Force, *United States Air Force Statistical Digest, Fiscal Year 1978*, 100. Declassified.
58. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 559.
59. Ibid.
60. Ibid., 560.
61. Ibid., 489.
62. Ibid.
63. Lambeth, *Transformation of American Air Power*, 60–61.
64. Clancy, *Every Man a Tiger*, 127–28.
65. Ibid., 128–29.
66. Lambeth, *Transformation of American Air Power*, 62.
67. Day, "Blue Flag," 141.
68. Dixon, "Tactical Air Force Command and Control," 34.
69. Creech, background interview.
70. Creech, oral history interview, 23.
71. Ibid., 45.
72. Ibid., 46.

73. Ibid.
74. Creech, *Five Pillars of TQM*, 80.
75. Kitfield, "Superior Command," 20.
76. Creech, oral history interview, 71.
77. Ibid.
78. Ibid., 43.
79. Creech, background interview.
80. Gen Ronald R. Fogleman, interview by the author, 29 January 2002.
81. Creech, oral history interview, 166.
82. Ibid., 167.
83. Creech, *Five Pillars of TQM*, 86.
84. Creech (address, TAC wing commanders, 9 September 1983), 9–10.
85. Creech (address, Air University, 11–14 October 1983), 19.
86. Data provided by Air Force Safety Center.
87. Finegan, "Four-Star Management," 44.
88. Ibid.
89. Creech (address, Air University, 11–14 October 1983), 19.
90. Jones, interview, 3 January 2002.
91. Kitfield, *Prodigal Soldiers*, 175.
92. Puryear, *American Generalship*, 220.
93. Jones, oral history interview, 129.

Chapter 3

Thinking about Air Warfare

When Creech took command of TAC on 1 May 1978, he would, like all commanders, be constrained and restrained in large measure by the circumstances and context of his time. The Air Force was institutionally divided into what many considered to be artificial strategic and tactical camps. The Vietnam War left the Air Force institutionally ambiguous concerning the differences between strategic bombing and interdiction, as well as who performed which of these missions. But the post-Vietnam era also saw a renaissance in Army–Air Force cooperation. The Army, struggling to refocus towards a purpose of general warfare in a central European scenario, also was refining its doctrine, working more closely than ever before with the Air Force in general and TAC in the process. Creech, based on his own experiences, had his own vision of future warfare—a vision that included an emphasis on technology, night capability, and a view of air superiority that included more than just air-to-air combat. This vision, shaped by the complex context of his time, defined Creech's actions and priorities as the TAC commander.

The "Warfighter Conference"

Shortly after taking command of TAC, General Creech called his subordinate air division and wing commanders to Langley AFB, Virginia, for a conference that would, in retrospect, play a significant role in shaping the future of the Air Force. In a national magazine, Creech read an interview with a young captain who had just returned from a Red Flag exercise. When asked what he learned at Red Flag, the captain replied, "I learned you can't survive in combat."[1] Creech described his reaction: "I came up out of my seat! The problem wasn't that he thought that way; the problem was that he was exactly right in thinking that way. We were using tactics that weren't going to work."[2] Creech recognized that TAC had a "propensity

to put a 'realistic training' tag on *unrealistic* wartime strategy and tactics" and called a commander's conference, requiring his commanders to wear their flight suits and fly their own combat aircraft to Langley.[3] The conference covered many topics, but the central issue was what Creech has since described as "go low disease."[4] Gen Jack I. Gregory, then a TAC wing commander and later the Pacific Air Forces (PACAF) commander, recalled, "We covered multiple issues in the way we were training to go to war, but the key focus was clearly on low-level tactics. He articulated a refreshing new vision for employing from more effective sets of altitudes through the use of the full range of defense suppression assets . . . and he got full buy in from his commanders."[5]

Creech had long been skeptical of the low-level tactics then in use, and he was determined to change Air Force tactical thinking. As Soviet surface-to-air missile (SAM) systems became more prominent in Vietnam, American pilots began to fly under the radar coverage of the missile systems, only to find an increasingly deadly AAA threat at low altitudes. As Vietnam came to a close, it was apparent that the AAA threat was far more deadly with 1,433 of 1,543 aircraft being shot down from the ground, being lost to ground fire, and the remaining 110 being lost to SAMs.[6] Yet the low-level tactics continued, in part because the SAM threat was viewed as unbeatable. As the USAFE director of operations and intelligence in 1973, General Creech was privy to the very latest intelligence concerning modern Soviet SAMs, and he had heard firsthand accounts from Israeli pilots about the futility of attempting to underfly the SA-6.[7] His own experiences and thinking led him to the conclusion that to enable other air operations, air defenses had to be rolled back rather than avoided. Once the air defense threat was degraded, operations could adjust to higher, more survivable altitudes and take advantage of precision munitions. In this sense, air defense rollback became an integral part of Creech's vision of air superiority. In the "TACAIR Rejuvenated" briefing given circa 1983, Creech's slides articulated that "our basic concept of operations rests on the fact that we must penetrate enemy defenses. To do that, we will roll back those defenses using a combination of

disruptive defense suppression and selective destruction with both standoff and overflight weapons."[8]

In addition to the emphasis on tactics and equipment, the Warfighter Conference identified and addressed two problems with TAF training at Red Flag. First, each wing commander who brought a unit to a Red Flag exercise was permitted to design his training regimen. Former Air Force chief of staff Gen Larry D. Welch, a participant in the Warfighter Conference as the TAC operations deputy, recalled the result: "[Wing commanders were] placed in charge of participants' training experience with no formal benefit of others' experiences at Red Flag. . . . We saw the same mistakes over and over with each set of participants starting without much benefit of the lessons from prior experiences."[9] Second, the exercises did not allow for "kill removal," in which players, whether friendly or enemy, were removed from play after being shot down (in the case of aircraft) or destroyed (in the case of surface threats). The threat was always at its highest, and pilots were driven to fly every mission at the low altitudes where they were exposed to AAA fire and returned from missions only to learn they had been "killed" several times over, inevitably leading to the conclusion that even low-level tactics were not enough to ensure survival.[10]

In response, Creech insisted that not every mission at Red Flag be flown as if it were "the first mission on the first second on the first day of a war."[11] TAC added a command element rather than allowing each wing to direct its own training, and he directed that some Red Flag exercises be scripted so that they represented the first two weeks of a war instead of two weeks' worth of the first day of a war. The lessons from these exercises were incorporated into the standard Red Flags, which reinforced the overall strategy of rolling back the air defenses as a first order of business and then moving to more survivable altitudes.[12] Creech recalled, "We added a Blue Forces command element for each one, headed by rotating TAC air division commanders. We wanted free play and the defense rollback strategy thinking to infuse the exercise."[13]

Creech's description of the conference's conclusion highlighted four instructive results:

1. We're going to dramatically change our approach, simply because it's wrong. We're now going to make defense roll-back and taking the SAMs out our first order of business. No more trying to fly past SAM sites to get to other targets. That can't be done. Taking them out can be done, and it will be easy if we go about it right. We need to get up out of the weeds as soon as possible to avoid the AAA, a far more formidable threat.
2. We'll train at low altitude, sure, but we'll also emphasize training at high altitude with the munitions that work there.
3. We'll go on a full court press to develop and field the systems and munitions that fit our new tactics. Our fixation on low-altitude ingress, egress, and delivery and the systems and munitions that fit solely that approach is over.
4. We'll also launch a major effort to educate tactical people throughout the Air Force on this major shift and the reasoning that lies behind it.[14]

The ideas agreed to at the conference had a significant influence on the TAF's equipment initiatives and training priorities for years to come. The first three points are covered in subsequent chapters of this study, but the fourth point is also significant. Creech developed a briefing outlining the major shift under way and directed that the briefing be delivered to TAF crews around the world.[15]

Creech periodically updated major themes in the "Interdiction Briefing," which he used to disseminate the concepts of warfare that were guiding TAF equipage and training, including electronic combat, defense suppression, night combat, and precision and standoff weaponry. The briefing also reflected the parlance of the day concerning interdiction and strategic bombing. While termed *interdiction*, it hypothesized attacks on enemy leadership and command and control. Additionally, the briefing contained several illustrations of the range to potential enemy capitals and highlighted those capitals alongside railroads and airfields as interdiction targets. While guised in the tactical term *interdiction*, the briefing represented strategic awareness.

Reflecting the intellectual underpinnings agreed upon at the Warfighter Conference were several fundamental assumptions about where and how the TAF would be called upon to fight. The Central European scenario clearly loomed large in the

thinking of the time. But contrary to what many may now believe, the northern, central, and southern North Atlantic Treaty Organization regions did not represent the only scenario under examination. Equally important in the thinking of the time were Korean and Persian Gulf scenarios. In the 1984 version of the interdiction briefing, these three geographic areas were highlighted with respect to the depth of operations that would be required.[16]

Creech explicitly addressed operations in the Persian Gulf region in speeches and interviews throughout his tenure. Typical is a speech given to an Air Force Association convention in the fall of 1981 in which Creech addressed the problem of logistics, describing how "our largest potential adversary enjoys the geographic advantage of being seven times closer to West Germany, for example, and eight times closer to the Persian Gulf."[17] In 1981 Creech framed his congressional testimony around the Persian Gulf scenario, describing the need for long-range aircraft to operate both to and within that theater.[18] After recognizing the logistics challenges implicit in the Persian Gulf region, Creech and key members of the TAC staff made a historic trip in 1980.

In March and April 1980, Creech, Welch, and other deputies from the TAC staff visited several countries in Europe and the Middle East. Having established the Air Force component for the Rapid Deployment Joint Task Force (that later became US Central Command), Creech and the TAC staff recognized a need to establish the relationships and logistics infrastructure that would be essential if called upon to fight in the Persian Gulf region.[19] During their visit to Saudi Arabia, the TAC delegation received permission to preposition munitions and equipment for use in case of war.[20] Creech met privately with His Royal Highness Prince Sultan bin Abdul Aziz, the Saudi defense minister, on 24 March for one hour.[21] In their meeting, Creech outlined the need for both bare bases (runways, fuel access, and potable water) and overbuilt main operating bases (large enough for shared use) from which US forces could operate in the event the Saudi government requested US assistance.[22] The Saudis agreed to overbuild their infrastructure.

According to Welch, "the assumption was that if they would build it, we would come when needed. They did and we did."[23]

In addition to where the TAF would fight, the Warfighter Conference produced many implications for how the TAF would fight in the future. Foremost among them was the requirement to operate at night. In 1981 Creech cited three reasons why a night capability was important: "First, our principal adversary has a concept of continuous combat. He plans to fight at night. . . . Second . . . by fighting at night, we can greatly increase our sortie rates. . . . And third, this country has a decided technological edge and the technology is mature and workable and reliable enough to give us the capability to fight at night and it provides certain advantages if we can deliver lethal firepower at night."[24] The 1983 interdiction briefing contained charts showing the operating windows for day visual and day/night visual operations in several theaters; the impact of a night capability was startling. For example, in central Europe in January, poor weather and limited periods of daylight-restricted operations to about four and one-half hours per day on average, which equated to less than two sorties per day. Adding a night, under-the-weather capability increased the operating window to 14 hours per day—greater than four sorties per day.[25] General Horner, who later commanded coalition air forces during Operation Desert Storm, recalled Creech's stress regarding night operations: "I remember best his emphasis on our being able to fight at night. We didn't like night flying (at best an emergency procedure) and were not very good at it. . . . He acknowledged we had a long way to go, but he made us start anyway with what little capability we had. He worked hard to get LANTIRN [low-altitude navigation and targeting infrared for night] so we had a better capability . . . than [either] visual or radar."[26] Other equipment initiatives flowing from the Warfighter Conference accompanied the emphasis on night operations.

Among the most significant emphasis items were defense-suppression equipment to allow the defense-rollback strategy to succeed, as well as precision munitions and area-denial weapons to allow for attack from higher altitudes. The 1983 TACAIR-Rejuvenated briefing credited communications and radar jamming as a prominent part of the defense-suppression

mission as well as an emitter identification and location system to provide critical information to allow for effective attacks.[27] Creech also told an Army audience in 1981 that "firepower in and of itself is not enough. It must be lethal, it must be accurate, and we must continue to pursue our technological and qualitative edge in precision-guided munitions. . . . We must make new breakthroughs and advances with area weapons that are affordable, that will kill the enemy systems in multiples, including armor."[28] Thus, the Warfighter Conference paved the way for many of the training and equipment initiatives that Creech undertook in the six years following that event.

Extending the Battlefield and AirLand Battle

While TAC was redefining the way it intended to fight, the Army was experiencing much turbulence about its 1976 Active Defense doctrine, which was not well received either internally or externally. In addition to the criticism received at the hands of prominent defense reformers such as William Lind, the Active Defense doctrine came under fire from within the Army. As stated by two of TRADOC commander General Starry's principal architects for its replacement,

> Army commanders became convinced as a result of their field training and war games that they would be unable to defeat the Soviets using the doctrine of 1976. These commanders believed they could beat the leading Soviet echelons using the "active defense" but that the initial battles would render our units ineffective while leaving Soviet follow-on forces intact with complete freedom of action.[29]

Starry had been one of those commanders for whom the Active Defense was inadequate. Drawing on his own experiences as a corps commander in Europe, Starry sought to broaden the Army's thinking to include a greater appreciation for what became known as the "deep battle," a key concept in the evolution of Army doctrine.[30]

TRADOC began in 1977 to develop a new operational concept, known as the "extended battlefield," that, when published in 1982 as the replacement doctrine for Active Defense, came to be known as AirLand Battle. Starry succinctly described the

AirLand Battle as Active Defense plus deep attack of follow-on echelons.[31] The fundamental idea was to offset the Soviet numerical advantage in virtually any conceivable theater of war by delaying, disrupting, and destroying Soviet second and subsequent echelons before they came in contact with troops at the front. Starry identified three primary tools for doing so: interdiction—air, artillery, and special operating forces; offensive electronic warfare; and deception.[32] AirLand Battle doctrine also highlighted that command levels had a dual responsibility. Each had an "area of influence," in which the enemy was actively engaged, and an "area of interest," in which the enemy was seen and his intentions were determined. These areas varied by command level but were always measured in terms of time: the time required to close with and engage forces at the front. In the case of the corps, the area of influence extended as far out as 72 hours, which, depending on conditions, was nominally 150 kilometers (km). On the other hand, the corps area of interest extended as far as 96 hours or approximately 300 km.[33] Lacking organic artillery and a viable offensive electronic-warfare capability able to delay and disrupt forces at this depth, the emphasis on the deep battle made air interdiction a fundamental concern of Army commanders in ways it had not been previously. The Army quickly became concerned with an area of the battlefield usually seen as the domain of air forces.

At its most basic level, AirLand Battle doctrine represented a renewed Army appreciation for the operational level of war.[34] Accordingly, it moved the Army's thinking toward that of the Air Force, which had always maintained a necessarily broader, theaterwide focus. Creech emphasized the converging perspectives of the battlefield in a 1981 speech to the Association of the US Army. Following a speech by Starry, Creech said,

> We need to keep in mind as we shape our equipment, our concepts and our doctrine, the entire battlefield—extended battlefield—the second echelon that Gen Donn Starry talked about. . . . It is popular in some circles to think that the enemy is *a* moving tank at the [forward edge of the battle area]. Of course that's the enemy, but the enemy has a bigger and broader, and deeper face than that. We cannot allow him to arrive at the forward edge of the battle area unimpeded. And that suggests, in both the Army and the Air Force, weapons of interdiction of the second echelon.[35]

Far from discouraging Army forays into the Air Force's battlefield "territory," Creech recognized a need to field systems in both services that could interdict second-echelon forces. Among these were both surveillance and deep-attack systems: first to see the enemy and then to engage him.[36] As Starry acknowledged in March 1981, "For the present, many of the acquisition means and most of the attacking means will come from air forces. This is particularly true for corps interdiction requirements. Regardless of who owns them, these are the means we need to gain the best battlefield return."[37] Yet, despite Creech and Starry's obviously shared vision, the AirLand Battle concept became a controversial issue within the Air Force for years to come.

The concepts underpinning the AirLand Battle doctrine proved troublesome for many Airmen who saw it as an Army attempt to gain increased control over tactical airpower. Attacks against fielded forces not in contact with friendly forces came to be known as battlefield air interdiction (BAI) and became a subject of heated debate between the services.[38] A statement by Maj C. Lanier Deal, Jr. is representative of the Army perspective of BAI: "The ground commander must be able to plan and execute his direct support, offensive air support, in much the same fashion as he does now with his direct support artillery fires. He would plan CAS and BAI in his area of influence and tactical air reconnaissance in his area of interest."[39] The Air Force position was generally to reaffirm the traditional concept of centralized control and decentralized execution of airpower.[40] The Air Force noted that BAI missions, operating in a higher threat area than CAS, required force packaging that had to be done at the component level and was thus incompatible with Army control of BAI assets.[41] One Air Force doctrine writer of the time noted, "The extended battlefield requires the Army to look deep and to control assets out further in time than had been envisioned before. The Air Force controls assets in the area where the Army wants to control assets. Thus the conflict. . . . The Army's extended battlefield, with its corps orientation, appears incompatible with the Air Force concept of theater control of air assets."[42] This issue of corps versus theater orientation was a significant source of friction between the services.

Compounding the issue of corps control of air assets, the Army lacked a headquarters structure over the multiple corps in any given theater of operations. Without this structure, an Airman commanding theater air forces had no single ground commander equivalent with whom to coordinate and deconflict air requirements. In 1973 the field army had been eliminated from the operational chain of command and left the corps as the highest Army war-fighting echelon.[43] Among others, General Momyer decried this situation and joined in a call for the Army to reinstitute some echelon above corps to provide the Airman with a single voice for ground-component support requirements.[44]

Despite the significant obstacles, Creech and Starry (as well as Starry's successors during Creech's tenure at TAC) refused to get involved in interservice disputes about issues concerning BAI and ownership of assets. As Starry recalled, in working on the deep-attack problem, they had a requirement for surveillance systems that could identify the targets and weapons which could engage them.[45] Starry suggested that he and Creech never argued about system ownership or territorial jurisdiction because the systems that would have precipitated those arguments were still on the drawing board and, "until you knew the details of what those systems were going to do for you, it didn't make much sense to argue over the details."[46] Again, in a 1979 interview, Starry discussed attack helicopters and A-10s: "I suppose that somewhere in the system there are people who would like to make that a roles and missions argument. In my mind—and I think Gen Bill Creech will support this—our view is that we don't have enough of either system. So it makes no sense for us to argue about roles and missions."[47] Creech did indeed support Starry's view. Looking back in a broader context, Creech added that he and Starry knew that the personalities of the air and ground commanders involved and the context of a particular war would determine the details of fire support coordination line (FSCL) placement, control of BAI, and other contentious topics. Therefore, they saw no need to debate issues that were so dependent on a given situation.[48] Starry agreed with this assessment.[49]

Notwithstanding Air Force reservations, Creech vocally supported the AirLand Battle concept. In closing a 1983 tactical air conference, Creech suggested that the Air Force should welcome the Army's input into the interdiction process, yet he maintained that the Army's AirLand Battle doctrine should not change the fundamental principles of airpower: "BAI was a form of air interdiction; it implied a closer target, and the Army should have more interest and voice on BAI targets, but BAI should not be 'mixed up' with CAS. Handling AI targets was an Air Force responsibility."[50] To emphasize interservice cooperation, Creech traveled with Starry's successor at TRADOC, Gen Glenn K. Otis, to speak at their services' professional military education schools at Maxwell AFB, Alabama; Carlisle Barracks, Pennsylvania; and Fort Leavenworth, Kansas.[51] As Creech told an Army audience in 1981, "I have applauded your generals' initiative in the extended battlefield concept. Some blue-suiters find that threatening. I do not find it the least bit threatening and I strongly support it."[52] However, Creech was not blindly supportive of the Army's AirLand Battle doctrine simply for the sake of harmony.

General Creech believed there were good and sufficient reasons why pursuing the AirLand Battle concept and the close TAC-TRADOC dialogue were in the best interests of both the nation and the Air Force. The rapidly expanding Soviet threat in Europe and the Persian Gulf—coupled with the Israeli experiences in the Yom Kippur War—indicated that the United States would have to leverage every possible advantage, including joint war fighting, to fight successfully. Creech told an Air Force Association audience in 1981 that "I agree totally with my Army colleagues—we are in absolute agreement—that we, in our concepts and doctrine, must address the extended battlefield."[53] Creech believed that the Army was a potential advocate for Air Force systems rather than a potential competitor for resources:

> The AirLand Battle was conceived as a very broad battlefield, including the air supremacy battle, the deep battle, and against follow-on forces; that is, air superiority and interdiction became newly important to the Army along with their traditional focus on close air support. And Air Force capabilities to wage that high battle and deep battle were not only acknowledged, those missions and the Air Force assets needed to

> carry them out were now strongly endorsed in the new doctrine. They became a matter of the concerns of both services and for both to champion in the joint arena. . . . And that, in fact, happened. We got more support from the Army in those aspects than we ever had before.[54]

Convinced that the Army's new doctrine represented a positive step, Creech worked tirelessly within his service to support the concept of the extended battlefield.

Institutionally, however, the Air Force began to resist the concept of extending the battlefield as early as December 1979 when the Air Staff in Washington, DC, produced a position paper suggesting changes to the way BAI missions would be planned and executed.[55] The paper advocated an increased role for the air component commander in selecting targets and controlling missions. General Starry reacted by spending a morning with Creech, during which he made the case for the extended-battlefield concept, and left a briefing for Creech to study. Starry recalled that

> he studied it for some time, a couple of days apparently, and got the staff in and said, "Hey, guys, this is good stuff. This is a good idea and we need to support this." How they worked that out internally between the [TAC headquarters] staff guys at Langley [Air Force Base] and the Air Staff in Washington I have no idea. . . . I'll tell you what, we would not have an AirLand Battle had it not been for General Bill Creech. We would not have it because we were at a Mexican standoff with the Air Force guys.[56]

By April 1980, TAC and TRADOC had signed an agreement on BAI that, in turn, led to a broad agreement between the two organizations on offensive air support (OAS) by September of that year. The efforts of Creech and his staff led to a May 1981 Air Staff endorsement of the broad OAS agreement; by September, the Air Staff had declared that agreement to be official Air Force doctrine. The agreement recognized Air Force execution control of BAI missions while providing for corps identification and prioritization of BAI targets.[57]

Recalling that the Howze Board had created bitter acrimony between the services, Creech was well prepared to advocate a more cooperative tone within his own service:

> The Air Force has its own doctrinal warriors who play "Roland at the Pass" against any change in their traditional and largely parochial ways of thinking about airpower and its application; but we gave up little, and it was all in the right cause.

> We did agree that the joint commander, who usually is an Army general, could dictate when and where air power would be applied, but that was always the case anyway. We also agreed to give the Army ground commander a "stronger voice" and greater participation in the allocation of air, but not any kind of decision or allocation authority. And that was always a de facto fact of life as well.
>
> Those Air Force naysayers were overcome as well, but it was neither a brief fight nor an easy one. This was a fight I took on with relish, because it had a decidedly better flavor to it than our previous go around with the Army during the Howze Board grasp to take over the entire mission from the Air Force.[58]

Thus, in just under two years, Creech's efforts had turned what Starry termed a "Mexican standoff" between the services into a broad, mutually acceptable agreement that was declared to be official doctrine. This represented Creech's most successful effort to make the air elements of AirLand Battle accepted Air Force or joint doctrine.

Frustrations within the Air Force

While the Army undertook two major revisions of its operational doctrine between the end of the Vietnam War and Creech's retirement in 1984, Air Force basic doctrine stagnated and reached what many considered to be a new low in 1979.[59] Air Force Manual (AFM) 1-1, *Functions and Basic Doctrine of the United States Air Force*, 14 February 1979, contained pages of cartoon drawings to illustrate different aircraft and wandered into such areas as training and education as well as a history of air doctrine. Also, it mentioned little about airpower application. Although AFM 1-1 did not reflect the depth of thought revealed in the Army doctrine being developed at the time, the manual occasionally reflected an awareness of contemporary issues. For example, in discussing interdiction, it described BAI as a subset of interdiction requiring coordination between ground and air commander to "insure the most effective support of the combined arms team."[60] Even so, the prominent airpower historian Williamson Murray observed, "What strikes this reader is the emphasis throughout the manual on the role of the USAF in deterrence as opposed to its role as a combat force. . . . When a nation's military services become more concerned

with deterrence than with their capability to fight, their real ability to deter comes into question."[61] AFM 1-1 also failed to adequately take the experiences of the Vietnam War into account, blithely referring to that war as "an unpopular conflict that was not, and is not yet, clearly understood."[62] This apparent lack of understanding was evident in the continued opaqueness in the Air Force vision of interdiction and strategic bombing.

TAC Manual 2-1, *Tactical Air Operations*, published just two weeks before Creech took command in 1978, presented an interesting dichotomy in this respect. In one chapter the reader learned that "strategic systems (B-52, SR-71) may perform tactical missions," although the reverse was not explicitly acknowledged.[63] In the interdiction section, the reader learned that interdiction included attacks against "supply sources (oil refineries, factories, etc.)," target sets traditionally considered "strategic."[64] Meanwhile, defense-reform writers did not appear to make the distinction either. Frequent defense critic James Fallows equated deep interdiction with attacks on populations and their morale, using the World War II London blitz as an example—another target set traditionally considered the domain of "strategic bombing."[65] Defense reformer Charles E. Myers Jr. described deep-strike interdiction as "nonnuclear, air-to-ground attacks against the enemy facilities, factories, supply depots, and bridges that are remote from the immediate ground battle area. Such operations in World War II were classified as strategic bombing."[66] The confusion—about what constituted strategic bombing, interdiction, and the roles of tactical and strategic aircraft—was evident in the professional journals as well. In 1983 an Air Force officer assigned to TAC and TRADOC's coordination organization wrote that, in contradiction to his own MAJCOM's doctrinal manual, "TACAIR interdiction is tactical by nature. It is not directed against factories, production facilities, and so forth."[67]

Despite the Vietnam experience, in which tactical fighters were used for conventional strategic bombing and strategic bombers were used for tactical missions such as CAS, official Air Force basic doctrine remained locked in the post–World War II paradigm. While AFM 1-1 stubbornly clung to the concepts of strategic and tactical aircraft and mission, the

commander in chief of SAC, Gen Bennie L. Davis, published an article in March 1984 in which he called for renewed thought about the terms. He reminded the reader that "'strategic' and 'tactical' describe missions, not aircraft. Airpower assets should be employed in harmony, not separated artificially according to a set of narrow preconceptions"; he then went on to warn against allowing deterrence to "restrict our thinking about the optimum employment of all airpower assets in a conflict."[68] Yet despite Davis's admonition, the Air Force as an institution made no appreciable move towards thinking about airpower in terms other than *tactical* and *strategic*. These terms distilled range, weapon type, mission, and MAJCOM ownership into a confused pair of adjectives that would retard the service's thinking for years. Although Air Staff doctrine writers did not demonstrate a particularly clear vision of airpower in their own work, they generally opposed, to little avail, the close cooperation Creech tried to engender with the Army.

Despite the resistance of many Air Force doctrinaires, Creech essentially drove tactical-doctrine development through the adoption of joint agreements with TRADOC. Creech and Starry sponsored a series of joint studies and exercises in areas such as second-echelon interdiction (J-SEI), counterair/air defense (J-CAAD), countering attack helicopters (J-CATCH), and suppression of enemy air defense (J-SEAD).[69] These studies produced tactics manuals that essentially defined how tactical air forces and their Army counterparts would fight together. For example, the J-CATCH study, together with a series of tests called joint attack weapons system, in which joint CAS tactics were developed, produced a manual on joint air attack team (JAAT) tactics that described how Air Force fighter aircraft and Army attack helicopters would fight together.[70] After the hard-fought agreement on BAI allocation, another second-echelon attack study called J-SAK formed the basis for how the services would carry out the doctrinal concept described in the agreement.[71] SEADs, considered part of the Air Force's counterair mission, was also seen as a joint task and became the topic of a 1979 meeting between Creech, Starry, and their respective service chiefs as well as the Army vice-chief.[72] If the services working together could get the job done better than either

service working individually, it was explored as a joint concept. However, many of the initiatives never made it past TAC-TRADOC tactical manuals for the Air Force.

The fundamental problem in this respect appears to be that while TRADOC spoke authoritatively for the Army on doctrinal issues, TAC did not speak for the Air Force. TAC spoke definitively on doctrinal matters specifically for TAC and generally for the so-called TAFs, which consisted of TAC, PACAF, and USAFE.[73] Afterwards, Creech reflected, "We made a determined effort to capture the new AirLand Battle thinking in joint doctrine manuals. But that all later fell off the table—leaving the doctrine game to the Army. Who's to fault? Who knows? But it wasn't because we were insensitive to doctrinal follow-up. But the Air Force as an institution was."[74]

Departmental acknowledgment of TAC and TRADOC's work came in 1983 and 1984 with the Army and Air Force chiefs of staff signing a series of memorandums that, while not making any doctrinal changes, furthered the cooperative spirit between the services. Based on groundwork laid at TAC and TRADOC, the chiefs signed a "Memorandum of Understanding on Joint USA/USAF Efforts for Enhancement of Joint Employment of the AirLand Battle Doctrine" in April 1983. The chiefs outlined a need for the services to train and exercise together using the AirLand Battle construct.[75] In November 1983, another memorandum of understanding followed, this one concerning "Initiation of a Joint US Army–US Air Force Force Development Process" that tied service-equipment initiatives to the AirLand Battle.[76] Finally, in May 1984, they signed a "Memorandum of Agreement on US Army–US Air Force Joint Force Development Process" in which the chiefs articulated 31 initiatives for action by their services concerning broad areas of cooperation such as BAI, CAS, SEAD, and various equipment and hardware compatibility issues.[77] The net result was a "significant step toward the goal of developing the most efficient, affordable joint forces" and an estimated cost avoidance of $1 billion by 1988.[78] Despite his service's doctrinal resistance and confusion, these memorandums reflected the support Creech received from his chiefs, Gen David C. Jones, Gen Lew Allen Jr., and Gen Charles A. Gabriel, as he worked to cooperate more

closely with the Army during his tenure at TAC. Despite his success in working out tactical doctrinal details, Air Force basic doctrine remained generally unmoved by the TAC-TRADOC cooperation.

Analysis and Summary

Creech's influence on air doctrine depends on the level of doctrine under consideration. Air Force basic doctrine, which articulated airpower in the broadest possible terms in AFM 1-1, lacked a clear Creech imprint. While basic doctrine improved noticeably between 1979 and 1984, there is no evidence that General Creech chose to be involved in the process. Instead, he made his mark on the operational and tactical doctrine that represented how the Air Force would go to war.

At the operational level, Air Force written doctrine (published in AFM 2-1, *Tactical Air Operations Counter Air, Close Air Support, and Air Interdiction,* May 1969) stagnated between 1969 and 1998, when it was updated as Air Force Doctrine Document 2, *Organization and Employment of Aerospace Power*. In 1978 TAC had published its own Tactical Air Command Manual 2-1, *Aerospace Operational Doctrine: Tactical Air Operations*; but like the Air Force's basic doctrine, it described tactical airpower missions in broad terms. Consequently, the Air Force had no usable analogue to Army Field Manual (FM) 100-5, *Operations,* which described, in great detail, how the Army intended to fight at the tactical and operational levels of war. Lacking a usable Air Force equivalent to FM 100-5, General Creech shaped operational doctrine through the operational concepts flowing from the Warfighter Conference and the training and equipment priorities that followed. While it may be argued that doctrine is not doctrine until it is written and published, the Air Force (for whatever reason) either intentionally or unintentionally neglected its operational-level doctrine for nearly 30 years.[79] Consequently, what the Air Force bought and how the Air Force trained represented de facto operational doctrine. Creech's impact on operational doctrine can be evaluated only in this light.

Creech's most significant influence on Air Force written doctrine came at the tactical level. The many joint tests and studies that Creech and his TRADOC counterparts directed eventually produced useful joint manuals which shaped how individual crews would accomplish their tasks. Published under the aegis of TAC and TRADOC with the endorsement of the service chiefs; read by TAF Airmen; and reinforced with joint training and exercises, tactical-level air doctrine had a pervasive influence among Airmen. However, because tactical-level air doctrine was the most widely read, understood, and practiced form of doctrine, it came to occupy an inordinately prominent place in the thinking of the 1980s. Reflecting afterwards as the chief of staff, General Fogleman stated, "Throughout the latter period of the Cold War this tactical support mind-set was reinforced—appropriately for the situation—[in central Europe]. We placed our priority on stopping a numerically superior land force without having to cross the nuclear threshold. But we did this for so long, we forgot that it was only one expression of the contribution of airpower to joint warfare . . . not the expression of joint warfare."[80]

Cooperation between the Army and the Air Force in general and between TRADOC and TAC specifically was clearly well under way by the time Creech took command in May 1978. General Creech enjoyed the same support as his predecessor, General Dixon, for his actions in this regard. Creech's three chiefs of staff—Generals Jones, Allen, and Gabriel—all supported the TAC-TRADOC dialogue and were supportive of Creech's actions. The relationship clearly prospered during the tenure of General Creech in a way that it did not before or after. Starry is effusive in his praise. In closing an interview about the development of AirLand Battle, General Starry was asked whether he had any general comments. He replied that "the Army, the nation, the Armed Forces owe Bill Creech a great, great debt of gratitude. We would not have AirLand Battle had it not been for him. I could not have carried that off by myself."[81]

Recent analysis of Army doctrine has identified the 1982 FM 100-5, *Operations,* of which Creech was so supportive, as a high-water mark in Army doctrine development. In a 2001 article, Col David A. Fastabend, US Army, praised the manual's "overt, specific elucidation of an effective operational concept"

and suggested that Army doctrine manuals got progressively worse in this regard from 1982 to 1986 to 1993.[82] It was the 1982 operational concept that Creech supported so strongly. Although the question of whether or not AirLand Battle was good for the Air Force is still debated within the service, it seems clear that Creech was instrumental in carrying what was an amicable relationship to new heights. Creech actively steered the Air Force toward support of the new Army doctrine. The question is *why* Creech supported the Army so enthusiastically in its doctrinal developments.

There seem to be several possible and plausible explanations. General Dixon, writing just before he relinquished command of TAC, suggested that the origin of the close association was an attempt to avoid a form of bureaucratic and fiscal fratricide in the drawdown after Vietnam.[83] Also, there was the very real Soviet threat, for which the United States was perceived to be underequipped. Consequently, any synergies that could be gained through interservice cooperation (in areas such as SEAD) were positive steps. Organizationally, the Army's support for Air Force TAF modernization efforts was valuable as the TAF struggled for ascendancy within the service. Finally, some have suggested much more Machiavellian reasons. Given his personal experience with the Howze Board and how the TAF's institutional existence could be threatened if the Army did not get the support it thought it needed, some viewed Creech's actions as holding maneuvers intended to placate the Army while giving away little.[84] Creech himself is clear in describing why he strongly supported the AirLand Battle concepts. First, he believed the AirLand Battle represented a substantial Army shift away from set-piece battles with a corps orientation and toward a theaterwide view of the battlefield with an appreciation of Air Force deep and high operations. Second, he recognized this favorable shift in Army orientation coming at no expense to the Air Force:

> The Air Force gave up NONE repeat NONE of its historical prerogatives regarding the [control of airpower] in the AirLand Battle approach. In fact, that was improved because the debate over corps commanders' ownership was parked on the sidelines in AirLand Battle in favor of centralized control of airpower. . . . Under AirLand Battle, the ground commander could nominate [BAI targets] (as he properly should be

> allowed to do) but the Army was given no allocation or control authority in the BAI zone whatsoever.[85]

Nonetheless, Creech's efforts to move the Air Force towards closer cooperation with the Army were seriously hindered by an unresponsive service-doctrine process that reflected much confusion about basic roles within the Air Force. It has become somewhat of a cliché for many Airmen to say of the AirLand Battle issue, "That was Army doctrine, not Air Force doctrine." As far as published doctrinal manuals go, that statement is true. From Creech's perspective though, the distinction was meaningless:

> I believe historians make an error when they compare Air Force and Army "doctrine" because the two services have very different approaches. Doctrine is expressed in many ways. What the nation saw in the Air Force performance in the Gulf War was Air Force doctrine in action—in equipage, strategy, tactics, training, and execution. Since its birth as an independent service, and even prior, the Air Force has paid very little attention to written doctrine. That, I believe, is because the Air Force is a service that believes in flexibility in thinking and force application rather than some "cookie cutter" approach. During all my years as the TAC Commander, the Air Force leadership as a whole paid very little, if any, attention to it. For example, in attending quarterly four-star executive sessions at "Corona Conferences" over a span of 6½ years, I cannot recall a single instance where the chief of staff and the assembled four-stars, addressing a huge range of issues, ever once talked about doctrine. We in the Air Force expressed our doctrine in our preparation for war, the Army wrote it down. That can't rightfully be construed to mean that the "AirLand Battle" approach was "only Army doctrine," because it was not. In fact, contrary to the views of many historical revisionists, it was on vivid display in the Gulf War.[86]

The issue Creech raised in this passage about the Gulf War and AirLand Battle is significant, yet Creech's view was not universally accepted within the service. After the 31 initiatives were signed, "One Air Force official [was] quoted as saying 'when we say we agree with the AirLand Battle concept, . . . we agree that the concept is a good concept for the Army.'"[87] What seems to stand out is that while the Air Force *as an institution* was divided on the issue of whether AirLand Battle was beneficial or not, the Air Force proposed no equally compelling vision of future warfare in its own written doctrine. Instead, it remained stubbornly attached to *strategic* and *tactical* as descriptors for a wide variety

of nouns and could not come to a clear understanding about whether strategic bombing and deep interdiction had any measurable distinction.

Creech's most significant influence on airpower thought came from the Warfighter Conference, undoubtedly a seminal event in airpower history. Based on the work done at that conference in 1978, Creech and his fellow Airmen plotted a new course for the way the TAF would approach a sophisticated enemy with formidable air defenses. Welch's recollection of the conference provides a useful summary:

> By the end of the conference, there was full agreement that low-level tactics might be necessary for a time but that we needed to get out of that mode as early as possible. Perhaps even more important for the subsequent evolution of both systems and tactics, there was a much greater appreciation for the potential of new tactical thinking, some further enabling defense suppression help, and the right munitions with precision guidance—all clearly within our technology capabilities.[88]

The equipment and training initiatives flowing from this vision were many and varied and constitute the subject of the next chapter.

Notes

1. Kitfield, *Prodigal Soldiers*, 242.
2. Creech, oral history interview, 225.
3. Gen W. L. Creech, to the author, letter, 31 December 2001; and Gen Jack I. Gregory, to the author, e-mail, 6 March 2002.
4. Boyne, *Beyond the Wild Blue*, 216.
5. Gregory, e-mail.
6. Statistics compiled by Grant M. Hales, Air Combat Command historian, 2002. Used with permission.
7. Gen W. L. Creech, interview by the author, 15 February 2002.
8. "TACAIR Rejuvenated."
9. Gen Larry D. Welch, to the author, e-mail, 4 March 2002.
10. Creech, oral history interview, 225–27.
11. Ibid., 227.
12. Kitfield, *Prodigal Soldiers*, 242–43.
13. Creech, oral history interview, 227.
14. Ibid., 226.
15. Ibid., 227; and Creech, interview, 15 February 2002.
16. "Interdiction: An Operational Perspective." The areas were important from the Army's perspective as well, cited explicitly in AirLand Battle Field Man-

ual 100-5, *Operations*, 1982. See Romjue, "Evolution of the AirLand Battle Concept," 11.

17. Creech (address, Air Force Association Symposium, 13 November 1981), 3–4.

18. Creech, "Tactical Air Command Readiness," 16.

19. Gen Larry D. Welch, to the author, e-mail, 2 May 2002.

20. Ibid.

21. Gen W. L. Creech, interview by the author, 9 May 2002. General Creech determined the date from a trip scrapbook that contained an itinerary.

22. Gen W. L. Creech, to the author, e-mail, 2 May 2002.

23. Welch, e-mail, 2 May 2002.

24. Creech (address, Air Force Association/Aeronautical Systems Division, 22 October 1981), 11–12.

25. "Interdiction: An Operational Perspective."

26. Gen Charles A. Horner, to the author, e-mail, 23 February 2002. The low-altitude navigation and targeting infrared for night (LANTIRN) program, discussed in detail in the next chapter, was designed to allow low-level operations at night and the delivery of precision-guided munitions.

27. "TACAIR Rejuvenated."

28. Creech (address, Association of the US Army, 21 October 1981), 4.

29. Wass de Czege and Holder, "New FM 100-5," 53.

30. Chapman et al., *Prepare the Army for War*, 59.

31. Starry, "Perspective on American Military Thought," 9; and idem, oral history interview, 37.

32. Starry, "Extending the Battlefield," 37.

33. Ibid., 36. See also Machos, "TACAIR Support for AirLand Battle," 19.

34. Wass de Czege and Holder, "New FM 100-5," 56. See also Richardson, "FM 100-5," 5; and Holder, "Doctrinal Development," 52.

35. Creech (address, Association of the US Army, 21 October 1981), 6.

36. Romjue, "Evolution of the AirLand Battle Concept," 10.

37. Starry, "Extending the Battlefield," 47.

38. Machos, "Air-Land Battles or AirLand Battle?" 38.

39. Deal, "Key to the Deep Battle," 53. *Offensive air support* (OAS) was an umbrella term for CAS, BAI, and tactical air reconnaissance.

40. "Myths about the Army's AirLand Battle Doctrine," 2.

41. Machos, "Air-Land Battles or AirLand Battle?" 39.

42. Cardwell, "One Step Beyond," 48.

43. Romjue, *From Active Defense to AirLand Battle*, 65. Gen Creighton W. Abrams, Army chief of staff, had taken this step in order to save manpower. Gen Donn A. Starry, interview by the author, 24 March 2002.

44. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 554.

45. Starry, oral history interview, 9.

46. Ibid., 22.

47. Berry, "TAC and TRADOC," 28.

48. Gen W. L. Creech, interview by the author, 9 January 2002.

49. Starry, interview by the author, 24 March 2002.

50. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 554.
51. Gen W. L. Creech, interview by the author, 11 January 2002.
52. Creech (address, Association of the US Army, 21 October 1981), 9.
53. Creech (address, Air Force Association Symposium, 13 November 1981), 6.
54. Creech, oral history interview, 221–22.
55. Romjue, *From Active Defense to AirLand Battle*, 62.
56. Starry, oral history interview, 21.
57. Romjue, *From Active Defense to AirLand Battle*, 63.
58. Creech, oral history interview, 222–23.
59. Drew, "Two Decades in the Air Power Wilderness," 12.
60. Air Force Manual (AFM) 1-1, *Functions and Basic Doctrine*, 2-13.
61. Murray, "Tale of Two Doctrines," 89.
62. AFM 1-1, *Functions and Basic Doctrine*, 6-5.
63. Tactical Air Command Manual (TACM) 2-1, *Tactical Air Operations*, 1-2.
64. Ibid., 4-30.
65. Fallows, "Muscle-Bound Superpower," 77.
66. Charles Myers, "Deep-Strike Interdiction," 47.
67. Machos, "Air-Land Battles or AirLand Battle?" 38.
68. Bennie Davis, "Indivisible Airpower," 46, 48.
69. History, Tactical Air Command (U), 1 January–31 December 1979, 31–36. (Secret) Information extracted is unclassified.
70. Berry, "TAC and TRADOC," 27, 36.
71. Cardwell, "One Step Beyond," 49.
72. Machos, "Air-Land Battles or AirLand Battle?" 36. See also Starry, oral history interview, 13.
73. Winton, "Ambivalent Partnership," 405.
74. "Interdiction: An Operational Perspective." Creech's handwritten comments on slides, ca. 2002.
75. Richard Davis, *31 Initiatives*, 91–92.
76. Ibid., 93–104.
77. Ibid., 105–15.
78. Chapman et al., *Prepare the Army for War*, 98.
79. See Reese, "Doctrine Gap."
80. Fogleman, "Multinational Joint Doctrine," 5.
81. Starry, oral history interview, 42.
82. Fastabend, "That Elusive Operational Concept," 39–40.
83. Dixon, "TAC-TRADOC Dialogue," 45–46.
84. Gen Merrill A. McPeak, to the author, e-mail, 10 January 2002. General McPeak wrote, "So, mostly, Creech's was a holding action, using a variety of devices, including personal charm, which he turned on as needed, to hold TRADOC at bay, and slow rolling on any Army proposals that pushed too hard into our business. . . . He agreed to set up an office (under my general supervision) which was expected to do various studies leading at best to inconsequential results." General Creech adamantly insists that McPeak's interpretation is incorrect and that it was simply a matter of a shared vision

between him and Starry—the AirLand Battle concepts were valid. Gen W. L. Creech, interview by the author, 19 May 2002.

85. Gen W. L. Creech, to the author, e-mail, 20 May 2002.
86. Gen W. L. Creech, to the author, e-mail, 1 June 2002.
87. London, *Military Doctrine and the American Character*, 26.
88. Welch, e-mail, 4 March 2002.

Chapter 4

Tools of the Trade

Several of the training and equipment programs under way when General Creech assumed command at TAC fitted nicely into the vision of warfare expressed at the 1978 Warfighter Conference. The Air Force, having developed dedicated air-superiority and CAS aircraft, was in the process of developing a multirole fighter in the form of the F-16, an aircraft much more suited to the general's views on airpower's flexibility. To bring those aircraft into the active inventory and to mature their performance would be a task left largely to General Creech. To do so, he would face significant resistance from the Defense Reform Movement (DRM), members of which already thought the F-15 was far too large and complex and who were unhappy with what the Air Force had done with their cherished LWF program. As commander of the ESD of AFSC and again as the assistant vice-chief, Creech had worked on several programs that would later become integral parts of the command he would inherit in May 1978. Creech enjoyed a good start in terms of PGMs and the Pave Strike night-adverse weather programs, although both efforts should probably be described as modest when Creech assumed command of TAC. The TAF had begun a realistic training program under the hand of officers like Momyer, Dixon, Horner, and Suter. The seeds had been planted, but whether or not the many trees in the orchard would grow and produce fruit would be largely up to Creech. This was especially true in the area of realistic training.

Realistic Training Takes Root

The scope of Red Flag training expanded significantly during Creech's tenure as the TAC commander. Reflecting Creech's long-held opinion that the Air Force lacked a credible capability to fight at night, Red Flag exercises began to incorporate night operations at least twice per year shortly after Creech assumed command.[1] During Creech's command at TAC, Red

Flag exercises grew from approximately 55 aircraft per exercise in 1977 to more than 250 by the time he relinquished command on 1 November 1984.[2] Some exercises later grew to more than 400 aircraft.[3] The exercises often included multinational participation—17 nations as active participants and 12 as observers by 1984.[4] The realism of the threats on the Nellis ranges increased substantially. During Creech's tenure, TAC spent more than $600 million on range improvement and instrumentation.[5] This money bought, among other things, 11 acquisition radars, 33 AAA radars, and 42 SAM systems.[6] Gen John L. Piotrowski, who served as Creech's operations deputy and vice-commander before becoming the Ninth Air Force commander, recalled that Creech also instituted composite-force training in which large packages of fighters trained with all the support assets they would need in wartime. He added that while Dixon and Suter had created Red Flag, Creech deserved credit for making each one more realistic than the previous and for upgrading the Fighter Weapons School from "a few cowboys and a few airplanes to a major enterprise. . . . It was a completely different world [than when I taught there in the 1960s]. General Creech professionalized it."[7]

By the summer of 1982, the tactics articulated at the Warfighter Conference and practiced at numerous Red Flags had been largely validated. In June 1982, the Israeli air force used the defense rollback strategy adopted by the USAF, decimated Syrian air defenses in the Bekàa Valley in a matter of 10 minutes, and destroyed 17 of 19 SA-6 missile sites and several SA-2 and SA-3 missile sites. The remaining sites were destroyed the following day. Meanwhile, 85 Syrian aircraft were destroyed in the air without a single Israeli loss.[8] This stunning success served to reinforce the vision that emerged at the Warfighter Conference and had been practiced regularly at Red Flag exercises. By building on the successes of the Red and Blue Flag exercises, Creech began to expand the focus on realistic training into other areas of air warfare as well as many of the critical support functions across the TAF.

In addition to the expanded scope of aircrew training under way at the Red Flag exercises, realistic aircrew training received a further boost when Creech broadly expanded dissimilar air

combat training (DACT) and low-level training across the board under the banner of Gold Flag. In an October 1979 speech to the Air Force Association, TAC's vice-commander, Lt Gen Robert C. Mathis, highlighted the expanded training opportunities, stating that "dissimilar air combat training, which involves dog-fighting with aircraft of different types and different services, has been more than doubled in the past year. As another example, the number of low-level missions flown below 200 feet has more than tripled in [fiscal year] 79 compared with [fiscal year] 78."[9] Indeed, between 1977 and 1983, Aggressor training sorties increased from 4,300 to 13,733 per year while unit-to-unit DACT grew from 460 to 20,612 sorties per year.[10] The Red and Gold Flag programs were quickly joined by another aircrew training program, this one designed to prepare the force for the realities of electronic combat.

Reflecting his long-held belief that electronic combat would be an integral part of future air warfare, Creech introduced electronic combat into selected Red Flag exercises as well as dedicated exercises, which Creech dubbed Green Flags. Because Creech believed that the TAF was not engaged in serious planning for a dense electronic combat environment, he wrote the Tactical Air Warfare Center (TAWC) commander a letter in March 1979.[11] In it, Creech designated him the lead agent for (1) defining and implementing the blueprint for all electronic warfare, with special emphasis given to integrated defense suppression, (2) applying innovative testing, training, modeling, and analysis, and (3) developing sound requirements to improve TAF electronic-combat capability across the board.[12] The first Green Flag was held in the spring of 1981.[13] With one dedicated, six-week Green Flag exercise per year, Creech hoped to achieve five goals: (1) to integrate electronic-warfare capabilities and assets into composite-force employment; (2) to provide a realistic enemy threat environment, including radio-electronic combat; (3) to increase aircrew knowledge and proficiency in the planning and execution of electronic combat; (4) to demonstrate mission effectiveness between aircraft operating with and without antijam radios; and (5) to train aircrews to employ destructive and disruptive defense-suppression techniques/capabilities. Comments from participating aircrews upon completion of the

first exercise indicated that Creech's goals were being met.[14] During the first Green Flag exercise, Creech employed a wide array of data collectors to record the results. A full 72 percent of the sorties were judged to be ineffective when faced with a sophisticated jamming threat, with only preplanned missions achieving any success. The dense electronic-combat environment had its greatest impact on missions requiring dynamic changes during execution. Creech used the results of this first Green Flag exercise to convince many within the Air Force and the Defense Department that increased spending on, and training with, electronic-combat systems (both offensive and defensive) was warranted.[15]

The realistic training tag did not apply only to flight training. Creech also expanded a wartime familiarization-training program shortly after assuming command. Early in his first month at TAC, Creech commented during a briefing to the 347th TFW at Moody AFB, Georgia, that he wanted the unit's training program to be tailored to the wartime taskings of its squadrons.[16] Creech—on his first day in command—told his operations deputy that he wanted each unit to become familiar with its wartime collocated operating bases (i.e., the airfields they would operate from during times of war).[17] These programs came together quickly. By the end of May 1978, Creech told the Ninth Air Force commander, "We should be able to deploy and hit the ground in a fighting posture and the only way we can accomplish this is by knowing everything possible about the deployment site."[18] By October 1978, these programs had coalesced and become known as Checkered Flag, which replaced more modest programs established since 1976. The 1978 TAC history described Checkered Flag as follows: "In its final form, the Checkered Flag Program consisted of four interlocking elements: a stabilized beddown program, a unit commander and staff visitation program, a tactical deployments program, and an aircrew and support personnel training program focused on individual unit requirements."[19] Gen Joseph W. Ralston recalled that the changes in TAC were very noticeable between the time he left flying to attend staff college in 1975 and his return in 1979: "The quality of training was excellent. . . . Everyone knew where they were going to be and we were much more combat

oriented."[20] In his 1979 Air Force Association speech, General Mathis described TAC's successful readiness initiatives: "With Checkered Flag pulling it all together, we're confident we can fight like pros in the first battle on the first day."[21] By 1984 Checkered Flag was fully embedded in TAC's training regimen with aircrews required to be annually verified in their unit's Checkered Flag program and all inspections containing specific Checkered-Flag program evaluations.[22]

During Creech's tenure, the familiar Red and Blue Flags were joined not only by Green and Checkered Flags but also by a whole host of other realistic training programs designed to prepare the entire TAF for war. For example, Copper Flag was designed to prepare air defense forces for their wartime taskings. Aircrews who participated in Copper Flag 83-1 had comments such as, "Never before have Air Defense aircrews been provided such intensive and challenging scenarios."[23] Silver Flag provided critical wartime-skills training to support personnel across the TAF, which allowed them to assist in wartime tasks such as rapid runway repair, air base security, and medical augmentation.[24] Black Flag represented a fundamental restructuring of unit-level aircraft maintenance. This program had far-reaching effects in terms of providing a wartime focus to sortie generation. Meanwhile, Blue Flag command and control exercises continued unabated during Creech's tenure, with four exercises in 1984 alone: two with European scenarios, one with a Korean scenario, and one with a Persian Gulf scenario that reflected the varied geographic concerns of the time.[25] The increased emphasis on specific skills such as low-level flying and DACT—coupled with the expansive series of flag exercises—was matched by the development and fielding of a new generation of aircraft, systems, and munitions that would fill in the comprehensive vision of aerial warfare that had become evident early in Creech's tenure.

Instruments of Air Warfare

During his tenure as the TAC commander, Creech had an unusually prominent voice in equipment programs and priorities. Beginning in 1973, TAC had acted as the worldwide

requirements spokesman for the TAF.[26] With semiannual meetings of the three TAF commanders to certify requirements and establish priorities, the TAC staff handled all of the many day-to-day requirements issues for the TAF.[27] Gen Joseph W. Ashy, who had served as executive officer for Gen Lew Allen Jr., the chief of staff, recalled that Creech had a vision of an "all day, all night, all weather, precision, standoff, interoperable force," and that Allen and Creech had an "unwritten understanding" in which Creech had significant leeway in TAF equipment issues.[28] Creech's executive officer from 1980 to 1983, General Ralston, had similar recollections, describing Creech as having "a pretty free hand due to his close relationships with Allen and [chief of staff Gen Charles A.] Gabriel."[29] General Fogleman acknowledged Creech's leadership in TAF systems and attributed a good deal of Creech's success in this regard to Creech's influence on the Air Staff, where he had carefully lined up—into key positions—officers who shared his vision of warfare.[30] Creech made a concerted effort to increase the TAF influence in equipment decisions early in his tenure. Assessing his impact in this regard in 1981, Creech said, "We now have a much more persuasive voice and the TAF commanders are almost in control of what we buy. Not 100 percent, nor should it be 100 percent. But we came from almost zero. I would think that would be my single biggest achievement [as the TAC commander]."[31] Consequently, Creech had the organizational imperative—as the TAF spokesman for systems requirements—and the personal influence, using his relationships with the chiefs of staff and key officers on the Air Staff, to play a significant role in shaping the Air Force's TAF equipment strategy. Creech took full advantage of his role in aircraft, systems, and munitions development.

Reflecting upon the intellectual underpinnings of the Warfighter Conference and the Army cooperation under way between TAC and TRADOC, Creech, not surprisingly, put high emphasis on aircraft that would support a defense rollback strategy and would enable deep operations. Creech and Starry had realized the need for a system to see deeply into the enemy's rear area to enable deep operations.[32] Creech drew on his experiences as the ESD commander and pushed the Pave-Mover program into development as JSTARS.[33] With the 31

Initiatives program in 1984, the Army agreed to follow the Air Force lead in JSTARS development and deep-battlefield reconnaissance.[34]

Another area fundamental to both the AirLand Battle and the defense-rollback strategy was electronic combat. Early in his tenure, Creech got solidly behind the radar-jamming EF-111A program, which had begun in 1973 with the EB-66's imminent retirement.[35] By December 1978, the EF-111 had become the TAF's top equipment priority, with Creech commenting, "We have done everything we can to convey the importance to the tactical air forces of this program."[36]

The EC-130H Compass Call communications-jamming aircraft quickly joined the EF-111 on Creech's must-have list. While serving as the assistant vice-chief of staff, Creech had secured Defense Department approval to field Compass Call on an expedited basis and, as the TAC commander, was in a position to ensure that program was given high priority. The EC-130H denied the enemy's air defense assets (e.g., fighters, ground radar controllers, and SAM sites) the ability to communicate. In a 1983 interview, Creech stated emphatically, "I'm very gung-ho about Compass Call. . . . When it flies along our side of the border and turns on all those jammers, he won't be able to talk MiG-to-MiG, MiG-to-ground, ground-to-MiG, and we can even jam some of his [surface-to-air missile] links. . . . We sometimes call [the Airborne Warning and Control System] the force multiplier; Compass Call is the world's greatest force subtracter."[37]

Accompanying his desire to deny the enemy the ability to communicate, Creech also sought to preserve US aircrews' ability to communicate in a wartime environment. Accordingly, he aggressively pursued an antijamming communications capability in the form of Have Quick radios, with which he had become familiar during his time at ESD. Creech described the necessity for antijamming communications capability in a 1983 interview in which he was asked about TAC's top areas of concern in command, control, and communications. He replied, "Let me talk communications, because that's the lifeline of command and control. . . . Well, first of all, present day communications are easily disrupted; therefore, we need more and

better antijam communications."[38] In a 1981 interview following the first Green Flag exercise, he stated that

> we're pushing antijam communication very hard. Have Quick was a huge success at our recent Green Flag exercise at Nellis. . . . We always jam in Red Flag, but we stop when it starts to hurt because our purpose is to train. We jam just a few seconds to make sure people know about the jamming. [At Green Flag,] I said, "You jam, jam, jam, jam, jam unrelentingly. People abort, it does not matter. Jam, jam, jam." And it has had a profound effect. For example, we had Have Quick radios in the A-10s where they had to turn the set to plain mode to find out if they were being jammed; and, meanwhile, 40 miles away, F-15s without [antijam] comm couldn't even effect a rendezvous with a tanker to refuel, or get to the target. Shows you the importance of antijam comm.[39]

Aircrew comments after several Green Flag exercises reinforced his belief in the need for antijam radios. They included statements such as, "I didn't want to talk to my wingman, even though I needed to, because that [deleted] jammer would start again," and, after being equipped with antijamming radios, "I didn't even know I was being jammed until I turned [Have Quick] off."[40] General Ralston characterized antijamming communications, along with the Compass Call jamming system, as "direct results of Creech's involvement."[41]

Yet not all of the desired defense suppression and electronic combat capabilities were ultimately fielded. Significantly absent was the precision location strike system (PLSS). The PLSS, which had begun in response to a Vietnam requirement, was designed to pinpoint ground emitters and provide their positions for air and ground attacks.[42] Three TR-1 reconnaissance aircraft were to be used as sensors while a ground station performed triangulation of the TR-1 data and rapidly disseminated the target location to attack forces. In his 1981 congressional testimony, Creech described the PLSS as follows:

> A critical element of our overall approach to defense suppression is the [PLSS]. Now, PLSS essentially is a system that provides . . . a precise location on each enemy threat emitter through electronic intercept by high-flying TR-1 aircraft. The great beauty of the system is that it allows us to keep track of those various threats in real time, and to develop the strategy for countering them. . . . Our strategy will call for us to kill some, disrupt others, and very importantly, to avoid the rest. . . . In this sense, PLSS is to the ground threats as AWACS is to the air threats.[43]

While elaborating in 1983, Creech said, "I don't want to find out where their SAMs are located by totaling up our losses. I want to know where they are beforehand."[44] Yet by 1986, PLSS had become largely a dead program, which prompted Gen Charles L. Donnelly, USAFE commander, to write the chief of staff and to recommend that he "back off from PLSS because it is only 'marginally effective.' "[45] Although the PLSS was eventually canceled, the TR-1 was fielded as planned to provide the signals intelligence critical to the defense-suppression mission. Despite the eventual failure of the PLSS, the emphasis on electronic warfare was significant during Creech's tenure. In his November 1981 speech to the Air Force Association, he said,

> I believe very strongly, and I am sure most of you agree, that the side that does the best in the electronic battle will probably do the best in the overall battle—and it may well decide the battle. . . . We are paying lots of attention to [electronic warfare (EW)], for example, in our development of the Compass Call jamming system—which exploits the potential enemy's heavy dependence on rigid command and control. Other examples are the EF-111, PLSS and the other EW systems that we are hoping to field. They are absolutely critical.[46]

In addition to the many electronic-combat initiatives under way, Creech was also engaged in fielding a new generation of fighter aircraft: some inherited, some not. When he assumed command in May 1978, TAC's operational fighter force had one wing of F-15s, one equipped (but not yet operational) A-10 wing, and a host of F-4, A-7, and F-111 units. The first operational F-16 delivery was about six months away.[47] He was faced with a daunting equipment swap from his first day in command.

The A-10, F-15, and F-16 programs came to fruition during his tenure, but Creech also played a large role in fielding the F-117, in developing the F-15E and F-22, and in improving multirole capability for the F-16. General Ralston, who in 1977 had begun to work in the (later-designated) F-117 office in the Pentagon, recalled an August–September 1978 briefing to Creech in which Creech put his full support behind the program, support that contributed to the production decision in October 1978.[48] Fogleman also credited Creech with bringing "stealth to fruition."[49] Yet Creech's support of the

F-117 was often contentious. It led in one instance to a clash with the secretary of the Air Force, who, according to Creech, described the F-117 as a "plane in search of a mission" and wanted to cancel the program.[50] Creech, however, understood the value of the aircraft as an enabler of the defense-rollback strategy as well as a means to strike deep targets of high value. Meanwhile, large efforts were under way to provide an additional nonstealth aircraft capable of deep operations. These efforts led to the F-15E.

The Air Force recognized a growing need for an aircraft capable of night, all-weather, second-echelon interdiction and proposed an enhanced tactical fighter (ETF) study in its fiscal year 1980 budget request in early 1979.[51] The ETF was envisioned as an existing aircraft modified with avionics to permit operations in that demanding environment. Leading contenders were a modified F-15 and a modified two-seat A-10. Lacking a clear articulation of the requirement, however, Congress refused to fund the program.[52] Creech demurred on the A-10 option, believing it too slow to survive on the deep battlefield, yet he was interested in a "missionized" F-15.[53] Particularly attractive was the F-15's range. In 1982 congressional testimony, Creech said, "I think it [the F-15] is an outstanding airplane for the Rapid Deployment Force. . . . In fact, range in the Persian Gulf area takes on a whole new importance that one does not feel in Central Europe. . . . Saudi Arabia is bigger than the United States east of the Mississippi."[54]

Creech was aware of the many fiscal priorities of the time and did not see how a "missionized" F-15 could receive much support, either within the service or from Congress, and subsequently turned to slightly unorthodox methods to field the needed capabilities. In keeping with his preference for aircraft capable of multirole operations, Creech approached George Graff, the president of McDonnell-Douglas Aircraft Corporation, and "solicited an unsolicited proposal." Creech described his actions at the time:

> The Air Force sold McDonnell-Douglas on the idea that the USAF needed the F-15E if it was going to continue buying F-15s into the future. I described to Graff what the F-15E's features needed to be: stretched fuselage, conformal [fuel] tanks for greater range, two-person aircrew, LANTIRN equipped, a radar with great ground map and ground target

> attack capabilities, modern glass cockpits—all with no diminution in any way in the aircraft's air-to-air weaponry or capabilities. . . . It's either go dual-role or get out of the F-15 business.[55]

By early 1981, McDonnell-Douglas had produced a demonstration air-surface F-15.[56] Creech described the aircraft as a "product improvement concept—for a possible buy of 400 airplanes—for the long-range battlefield interdiction mission, including at night."[57] Not surprisingly, TRADOC enthusiastically supported the program.[58] However, before a production decision could be announced, General Dynamics proposed an "F-16XL" with a larger "cranked arrow" wing for the same mission; and Congress directed the Air Force to hold a competitive flyoff between the two before it would provide funding.[59] In early 1984, the F-15E was announced as the winner of the competition and began to reach operational units by the end of the decade.[60]

USAF Photo

F-15E: Dual role, LANTIRN, PGMs, and the advanced medium-range air-to-air missile (AMRAAM)—the complete package

In 1980 the Air Force received funding for a mission analysis of an advanced tactical fighter (ATF)—an aircraft that would later become the F-22.[61] Creech sought to incorporate low-observables technology (stealth) into an aircraft with air-to-air maneuverability while adhering to the same philosophy as he had taken with the F-15E program—go dual-role or get out of the business—and the ATF was originally planned to have an inherent air-to-ground capability.[62] A 1984 briefing highlighted "air-to-surface capabilities" as one of nine ATF "required characteristics."[63] Perhaps Creech's biggest contribution to the ATF program was his insistence that it not be a completely "black program" in which congressional oversight and disclosure would have been limited due to classification issues. Creech perceived two pitfalls with highly classified programs and did not want the ATF to become victim to either. First, he believed that "black" programs impeded communications and that this would allow problems to go unnoticed. Second, he was convinced that with little oversight, cost overruns built up and, when finally addressed, resulted in "sticker shock." In a 1992 interview, he pointed to the Air Force's B-2 program and the Navy's A-12 program as examples of this phenomenon.[64] Accordingly, the F-22 program was executed as a "gray program," with most fiscal programming done in the "white" with full oversight. The only "black" portions of the program were some highly sensitive avionics and radar low-observables aspects.[65]

Perhaps the one system most closely associated with Creech is the one in which the first true night, under-the-weather capability was coupled with a formidable precision-munition employment capability: the LANTIRN system. Drawing on his Korean and Vietnam experiences, General Creech was convinced of the need to fight at night, and this was reflected in the thinking he brought to TAC. Not surprisingly, within a year of his arrival, TAC had issued a statement of need for a night-attack system.[66] In Creech's view, LANTIRN would solve many of the shortfalls in TAF's night fighting and precision-munition delivery. The LANTIRN system consisted of two external pods that were eventually fitted to F-15E and F-16C aircraft. The navigation pod permitted safe, under-the-weather, low-altitude operations while the targeting pod allowed identification and laser

designation of point targets from low and medium altitudes. Both pods performed equally well during the day or night.

Creech was a tireless proponent, extolling the virtues of flying at night in briefings and speeches as often as he could. Typical was his 1981 congressional testimony in which he returned to one of his favorite themes:

> We are taking steps to provide a portion of the latter half of our F-16 buy with a night, low-altitude, under-the-weather capability in the LANTIRN program. This will give it an around-the-clock capability that will be especially important, inter alia, for the following set of reasons:
>
> (1) Expands the 24-hour operating envelope to allow for higher sortie rates—and more firepower against enemy forces with a given number of aircraft.
>
> (2) Denies the adversary the sanctuary of darkness.
>
> (3) Soviet and Warsaw Pact ground forces are equipped and trained to operate at night—and NATO ground forces will be desperately dependent upon air support then just as in the daytime.
>
> (4) Provides a sanctuary for our own air operations—for example by rendering irrelevant his large quantity of interceptors without look-down, shoot-down capability and his optically aimed surface-to-air missiles.
>
> (5) Exploits our technological edge in such systems as to quantity on the other side.[67]

In 1983 he identified an inability to fight at night as the TAF's biggest weakness and rated LANTIRN a higher priority than any further increases in fighter-wing force structure.[68] Creech recalled having a hard time getting anyone interested in a night capability and was described as "the lone champion for LANTIRN."[69] General Ralston echoed this sentiment, suggesting that "LANTIRN would have died many times without Creech."[70]

Accompanying the emphasis on aircraft and systems was a prominent place for precision munitions in the strategy formulation of the time. Continuing its emphasis on LGBs, the Air Force bought approximately 10,000–12,000 guidance kits each year from 1977 through 1984.[71] Perhaps more significant was the number of other munitions under development during Creech's tenure. These included such systems as the imaging infrared Maverick (AGM-65D); the low-level LGB (GBU-24); an advanced antiradiation missile for use in the defense-rollback

mission (AGM-88 high-speed antiradiation missile); a penetrating 2,000-pound munition suitable for attacks on hardened aircraft shelters and command bunkers, capable of being fitted with laser guidance (BLU-109); and several area-denial weapons such as the Gator mine system and a combined-effects munition (suitable for use against personnel and lightly skinned vehicles).[72] In his 1981 speech before the Association of the US Army, Creech said, "We dare not turn our back on new developments in precision-guided munitions and, indeed, in developing new munitions that will allow us to kill armor, for example, in multiples at affordable costs."[73] In keeping with his Douhetian vision of air superiority, Creech advocated an airfield-attack strategy similar to his armor-killing strategy: "My primary approach to airfield attack is to go after the unsheltered aircraft. . . . We can destroy aircraft in the open in multiples with cluster-type munitions."[74]

Each of these munitions programs was tied to the AirLand Battle concept, the vision of warfare articulated at the Warfighter Conference, or both. For example, in the 1984 "Interdiction Brief," audiences were reminded that standoff is a "key concept to rollback."[75] Creech also often highlighted the synergistic effect of modernized delivery of modern munitions. General Creech used the F-4 and 66 unguided munitions as a base case and had a chart that showed the same level of effectiveness could be achieved with 12 bombs from an F-16 using its "continuously computed impact point" avionics. Furthermore, adding laser guidance would reduce the required bomb load to one to achieve the same level of effectiveness.[76] While charts such as these have become common in the aftermath of the Gulf War, the benefits of precision munitions were manifestly evident to Airmen long before then.

Finally, air-to-air munitions were upgraded as well. The advanced medium-range air-to-air missile (AMRAAM) program, for example, was begun in 1977 as the follow-on to the Sparrow missile and was developed throughout Creech's tenure.[77] Creech strongly supported the AMRAAM for two reasons. First, coupled with improved radar, it provided the F-16 its first radar-missile capability, thus allowing it to conduct air-to-air operations beyond dogfighting and enhancing its multirole utility. Second,

Creech believed that AMRAAM supported his emphasis on night capability and equated the capability to conduct a nighttime air-to-air engagement with the capability to conduct a beyond-visual-range engagement.[78] In congressional testimony in 1981, Creech said that "the . . . AMRAAM will provide the all environment look-down/shoot-down capability that the F-16 needs if it is to hold its own in modern air combat and air defense. AMRAAM also will provide far more kills per sortie for the F-15. Accordingly, we need your strongest support for the AMRAAM program."[79] The Air Staff shared Creech's strong support for the AMRAAM, with Maj Gen Robert D. Russ, the Air Force's chief of operational requirements, calling the AMRAAM the "number one priority air-to-air program for the tactical air forces" in 1983.[80]

All of the equipment programs under way from the mid-1970s through the mid-1980s were not without their detractors. While Creech and other Air Force officers like Gen Benjamin N. Bellis; Generals Allen, Jones, Mathis, Russ, Slay, and Welch; Gen John T. Chain Jr.; and countless others sought to modernize the Air Force and prepare it to meet a numerically superior Soviet threat, members of the Defense Reform Movement (DRM) opposed them routinely, offering an alternative vision of the armed services and their equipment needs. Nowhere was this alternative vision more clearly at odds with the services' desires than with the Air Force's TAF modernization plans.

Defense Reform Debate

The DRM, dating to the late 1960s with Pierre Sprey and John Boyd's opposition to the F-15 as it was fielded, had grown in stature during the 1970s with influential adherents throughout the government and media. Prominent reformers included Senator Hart, Congressmen Newt Gingrich (R-GA), and George William Whitehurst (R-VA); Senate staffers William Lind and Jeffrey Record; prolific Washington writer James Fallows; analysts Steven Canby and Edward Luttwak; Defense Department functionaries Tom Christie, Pierre Sprey, Franklin "Chuck" Spinney, and Chuck Myers; and serving and retired officers such as Everest Riccioni and John R. Boyd. These few formed the core of the DRM, although there were many more involved

over the years.[81] The DRM tended to be centered around the Defense Department's Program Analysis and Evaluations (PA&E) branch, and much of the opposition to Air Force programs originated from within that office.[82]

Perhaps the fundamental argument of the DRM was that American weaponry in general, and tactical air programs in particular, were too complicated and expensive to work in combat and that a "cheap but many" approach would be more combat effective. One argument along these lines was a simple numbers case. As Fallows suggested in a 1981 article, "The Soviets now add about 500 tactical fighters to their force each year, compared with our average of 250. If a sensible plane could be built for $5 million instead of $25–35 million, then it would cost about $2.5 billion to match the Soviet output."[83] Reformers also drew sweeping conclusions that supported their contentions from a series of air combat tests called air intercept missile evaluation (AIMVAL)/air combat evaluation (ACEVAL) in which F-15s were pitted against smaller, simpler F-5s. "It appears that one of the benefits of numbers is that they contribute to friction. AIMVAL/ACEVAL showed that as the total number of aircraft increased—even though the force ratios remained the same, for example, one versus one growing to four versus four, the exchange ratios for the sophisticated Blue Forces decreased and tended towards one to one."[84] Finally, reformers argued that the high-technology solutions sought by the services would fail when subjected to combat conditions.[85] General Creech addressed this issue in a 1981 speech to an Air Force audience:

> Meanwhile, critics of the U.S. military—some well intentioned but most not—contend that our weapons are unnecessarily complex, unnecessarily costly and indeed, due to our purported fetish with high-technology solutions, simply won't work in combat. You've seen and heard those charges in the 'CBS Reports' series and the books by Mr. Jim Fallows and others. Those charges are put together in a cocoon of criticism that ignores the threat and ignores the abundant body of data that shows that that simply is not the case.[86]

This type of exchange became increasingly more common as Air Force procurement initiatives, started in the 1970s and early 1980s, began to produce equipment.

The debate between the DRM and the institutional Air Force was fierce, and programs near and dear to the service hung in the balance daily. In a 1981 interview, Creech expressed concern that key TAF programs would be canceled. "I'm not sure I'm going to win on some of the things I'm trying to bring into TAC, like night capability through the LANTIRN program. . . . We're winning more of those battles than we are losing, but it is absolutely open guerilla warfare. Day by day. I mean we just fight, fight, fight, fight, fight. Tooth and claw."[87] One of the ways General Creech fought was by trying to provide the Air Force's position in response to the many DRM attacks. After Fallows published several critical articles and his DRM apologia (*National Defense*), Fallows was invited to Langley in 1981 to fly the F-15 and to hear the Air Force response to DRM criticism.[88] Creech recalled that during the visit, Fallows stated that lacking any personal military experience, he had relied in his "antisophistication" and "cheap but many" formulations on the continuing advice of Colonel Boyd, who had retired from the USAF and was then working as an unpaid advisor to the Defense Department's PA&E branch, the conceptual center of the DRM.[89] Fallows's Langley visit, although representative of the Air Force's attempt to provide the "other side of the story," did not significantly quiet the DRM criticism.

Objecting to radar-guided missiles, DRM critics noted, "The radar-guided missiles that many planes carry have the same drawback as the [Army's antitank missile]. The plane must stay locked on its target until the missile hits, leaving itself, for a few crucial seconds, completely vulnerable to attack by other planes."[90] Ironically, this was one of the issues that the AMRAAM was designed to eliminate with its launch-and-leave capability. DRM writers also drew an analogy in which radar was likened to a flashlight and a radar-guided missile to a gun. Using that analogy, they asked, "Imagine yourself holding a gun and a flashlight in a pitch-dark room, with a lot of other guys with flashlights and guns. Who's going to turn on his flashlight first? Well, radar is that flashlight."[91]

In addition to radar-guided missiles, the DRM objected to most of the other enabling elements of the air strategy articulated at the Warfighter Conference and in the AirLand Battle

concept. Arguing against deep-strike operations, Charles E. Myers Jr. wrote, "Long-term, deep-strike operations against heavily defended targets will almost certainly lead to disaster for the attacker, particularly when his force size is limited, as is the case with ultra-sophisticated, expensive weapons systems."[92] Fallows wrote, "The demand for 'deep interdiction' leads to planes with exotic engines, radar, and wings—expensive planes of which we can afford but a few. What makes a difference is numbers of planes; near the end of World War II, the Germans knew that any tank that moved would be shot from the sky, since the Allied planes were always there. It is hard to maintain enough planes to have that presence if each one is the top of the line."[93] Reformers were also skeptical of the rollback strategy articulated by Creech. In 1979 Canby wrote that

> the US approach has evolved toward a high-technology system, based on real-time command and control, sophisticated defense suppression, and precision-guided munitions. The Europeans, on the other hand, argue that this system is unduly costly, too susceptible to countermeasures (i.e., nonrobust), and that it is based on an incorrect perception of ground war. They make the telling point that the medium-altitude window in which the USAF is attempting to fly is in fact closed, and can only be kept open by hyperexpensive and uncertain defense suppression means. European programs, on the other hand, are oriented to the still-open low-altitude window. They have derived different views on command and control, operational methods, ordnance choice, and aircraft design, relying more on organizational technique than on high-cost technology.[94]

Finally, DRM writers often criticized the dubious value of precision munitions, as the above passage suggests. For his part, Myers argued that PGMs made the delivery aircraft too vulnerable.[95] Creech addressed this thinking in a 1981 speech as follows: "And therefore, we must continue, despite the modern 'Luddites' who say that we must turn our back on technology, to develop our precision-guided munitions and develop munitions that will kill targets in multiples, including armor."[96] Clearly, the DRM had a different vision of warfare.

The DRM proposed an alternative war-fighting strategy and had significant support within both the OSD as well as within Congress. One of the favored programs within the Congress was the Enforcer, a P-51 look-alike with a turboprop engine and

significant armor and munitions-carriage capability. In 1979 Congress directed the Air Force to add funds to test the aircraft: "The Committee is deeply concerned over the trend in tactical aircraft technology towards increasing sophistication. The record shows that increasing aircraft complexity has inevitably led to lower readiness rates and smaller forces."[97] Other favored DRM initiatives included the substitution of surface-to-surface missiles for manned aircraft. Within the Defense Department, this initiative took the form of programs such as "Assault Breaker" and "Counterair 90."[98] In his 1979 article, Myers rhetorically asked, "Would it not be wise to redistribute the manned resources allotted for deep strike to prime missions such as close air support, battlefield interdiction, and associated air-to-air combat? Could the inclusion of conventional surface-to-surface weapons dedicated to the attack of the most prominent and relevant deep-strike targets relieve aircraft of the obligation and thus enhance the effectiveness of the tactical air forces?"[99] The DRM often suggested the F-5 or some equally simple fighter aircraft as a substitute for the F-15 in the air-to-air role. Riccioni used a formulation for comparing costs and sortie rates for the F-5 and the F-15 in which one could buy four F-5s for the price of a single F-15. He termed this the *phantom force*. Additionally, the F-5 was purported to be able to fly 2.5 times as many sorties as an F-15 each day. Therefore, the "real" force that could be bought was 10 times greater for an F-5 than an F-15.[100] The DRM strategy was to buy less expensive fighters and ground-support aircraft that were optimized for fighting over the battle area, leaving deeper attacks to unmanned missile systems.

This thinking was captured in Senator Hart's proposal for the fiscal year 1984 defense budget in which he recommended canceling F-15 production (to be replaced with more F-16 production), canceling AMRAAM (AIM-7 Sparrow to be used in the few cases where radar missiles were needed), canceling all weapons with a "deep combat" orientation (interdiction is not effective), and canceling LANTIRN and the imaging-infrared Maverick (the concept of night-bad weather combat is flawed).[101] Clearly, there was little room for agreement between the DRM proponents on the one hand and the Air Force on the other.

Creech and many others actively argued against the substitute air-warfare strategy promulgated by the DRM. Speaking at an Aviation Hall of Fame induction ceremony in September 1981, Creech gave a lengthy and forceful defense of the Air Force position on equipment philosophy to an audience that included Gen James H. "Jimmy" Doolittle:

> In 1953, when we were secure in the knowledge that our weapons were technologically superior to those of the Soviet Union, General Doolittle emphasized the need to maintain this quality advantage. He declared, "We cannot match the Soviets man for man. We need not match them piece for piece in equipment so long as the quality of our equipment remains decisively superior to theirs. If we should have to fight, we should be prepared to do it from the neck up and not from the neck down."
>
> There are those today who would disregard this sound advice. They say we should opt for a numerically equal force of simple, small fighters, for example, to contend with the Soviet air threat. These critics claim the Pentagon has gone overboard on technology and sacrificed combat readiness for expensive complexity. Such critics have been with us a long time. I quote General Doolittle again, speaking in 1953: "There is frequent comment in the press and elsewhere on the undeniable fact that Air Force equipment is becoming costlier, heavier, and more complex. The public is often told that this trend is bad, that it increased the tax burden, that it pampers the aircrews, and that it even handicaps our pilots in combat. Actually, the enemy determines how complex our equipment must be. It must be better than his. Much of it must be able to operate in any part of the world, at any time, under any and all weather conditions."
>
> The enemy is still determining the kind of military equipment we must have. I challenge you to examine the data regarding Soviet equipment—Flogger, Fencer, and Foxbat fighters, for instance; Backfire bombers and so forth. We have studied them and they have formidable combat capability indeed—high speed, long range, sophisticated armament and lots of it, long-range radars with all-environment missiles, etc. Sending up swarms of simple, low-cost fighters to contend with them would be a futile effort that would result in appalling American losses. In many cases our aircrews would be shot out of the sky even before seeing their opponent. Our best hope for overcoming our force-size disadvantages and contending with improved Soviet quality continues to reside largely in qualitatives, reliable equipment capable of engaging the enemy at high rates, delivering precision firepower to achieve the edge in lethality and manned by the best trained people in the world. Many critics seem to contend that complexity and reliability are mutually exclusive. This is simply not true. In the case of fighter aircraft, we prove these critics wrong continually as we fly each F-15 we have, for example,

> 18 times a month in peacetime, even though 23 percent of our F-15s on any given day are not able to fly because the spare parts to fix them are not on the shelves—victims of inadequate spending in past defense budgets, a situation that is now being fixed.[102]

Creech returned to this theme again and again in speeches, testimonies, and briefings throughout his tenure as the TAC commander. The chief of staff from 1978 to 1982, General Allen stated that "[the Air Force] obviously didn't agree with [the DRM philosophy] and therefore argued very strongly against [it]. General Creech was in accord with Air Force thinking in the matter and was doubtless driving it to a significant extent."[103]

In addition to his frequent comments on the topic, Creech also sought to prove his point concerning the spare-parts issue. Creech maintained that the low in-commission rates for many "complex" aircraft were not a result of their inherent complexity but of their parts shortages. In the summer and fall of 1980, Creech directed a pair of exercises intended to deploy one squadron of F-111Ds (May–June) and one squadron of F-15s (October–November) to their wartime bases in Europe with their full authorization of personnel, equipment, and spare parts. The DRM often singled out these aircraft as examples of systems too expensive to work in combat conditions. In both cases, the aircraft flew approximately twice their wartime rates and well exceeded their peacetime fully mission capable (FMC) rates.[104] In the case of the F-111s, their FMC rate represented a 150+ percent improvement—86.4 percent during the month-long deployment as opposed to a 34 percent peacetime rate.[105] Creech intentionally selected the F-111D and the F-15 for the exercises because, as he said in 1981 testimony, they were the most poorly supported systems and he intended to prove they were not too complex, just undersupported. "[For these aircraft], the out-for-supply rates are in the high twenties to low thirties. Thus, each day, our people are confronted with one-fourth to one-third of the force totally incapacitated for parts."[106]

In an interview with James P. Stevenson, General Welch made several telling points concerning the DRM vision of warfare:

> You have to start with a principle that says any capability is relevant only if it can be brought to bear on the condition of combat. . . . So, if the condition of combat has to do with night or in Europe, under layers of clouds, under those kinds of conditions, then the only systems that are relevant in that situation are airplanes that can operate under those circumstances. . . . So the first thing is, I wouldn't argue that you couldn't have a cheaper airplane and make it do that job to some degree. And, if indeed, you could have 2,000 of those things, and you had a place to put them, and you could bring 'em to bear, and somebody had the stomach for buying them for you, then that would be an interesting trade-off.[107]

In this brief statement, General Welch captured several key points. First, the enemy and the environment drive the level of complexity needed. This was a point Creech made regularly. Second, the logistics of bedding down a much larger force of less-expensive equipment were not trivial. Even with the force in-being in the early 1980s, beddown in Europe was problematic, with airfields lacking sheltered facilities for even the aircraft then in existence, much less for the many more envisioned by DRM proponents.[108] There was a significant personnel cost associated with a larger force of less-expensive equipment. While one may have been able to buy four F-5s for the same cost as one F-15, one could not have "bought" four F-5 pilots or crew chiefs for each F-15 pilot or crew chief.

Analysis and Summary

The vision that flowed from the Warfighter Conference had a profound impact on the training initiatives undertaken during Creech's watch as the TAC commander. Although realistic training had gotten off to a solid start, Creech expanded it into virtually every area and career field under his command. Nascent programs such as Red Flag for aircrews, Blue Flag for command and control, and the Collocated Operating Base Program had been radically expanded in scope and realism by the time Creech left in 1984. Flag programs such as Checkered, Gold, Black, Silver, Copper, and Green provided combat-oriented training in fact and not just in description for all elements of the TAF. General Gregory described Creech's effect on realistic training: "[It] moved from undergraduate to graduate level under

Creech."[109] Generals Ashy and Jones were in accord on the topic, with Ashy describing Creech's role in Red Flag and realistic training bluntly: "Creech made it happen."[110]

Mirroring the leaps in training seen under Creech's tenure at TAC, the equipment-modernization programs of the day fully supported both the AirLand Battle as well as the defense-rollback strategy articulated at the Warfighter Conference. Creech's hand was most clearly seen in areas that, at the time, did not receive much advocacy elsewhere, such as electronic-combat and night-operations capabilities. Aircraft such as the Compass Call, EF-111, F-117, and F-15E either were born or survived because of Creech's active involvement, as did programs such as the Have Quick radio and the LANTIRN system. Furthermore, programs that garnered more mainstream support, such as the expansion of the PGM inventory and AMRAAM development, also enjoyed Creech's support and involvement. General Creech was one of the instrumental participants in the fielding of an entirely new generation of equipment and munitions for the TAF.

Nonetheless, the DRM proved to be a substantial bureaucratic opponent for Creech and the Air Force leadership who shared his vision of air warfare. Well connected and pervasive throughout the executive and legislative branches of government as well as in the media, the DRM proposed an alternative vision of warfare. This vision sharply conflicted with the Air Force vision and was the subject of bitter debates and controversy throughout Creech's stay at TAC. Press accounts of the day were largely sympathetic to DRM arguments, often painting officers in an unfavorable light. A front-page Sunday story in the *New York Times* of 24 October 1982 was typical of the press attitude of the day, reporting that "the Air Force Deputy Chief of Staff for plans and operations, calls members of the reform group 'fuzzy heads' and accuses them of 'doing a disservice to the country' and attempting to foist 'plain vanilla airplanes' onto the Air Force."[111] Yet the article failed to provide the Air Force's counter to the arguments of the reformers. Despite the lack of publicity, the Air Force managed to field virtually all of the aircraft, munitions, and systems on its

agenda. Creech played a substantial role in the victory won in this hard-fought, and largely unheralded, bureaucratic battle.

Ironically, one of the men at the heart of the reform movement, Colonel Boyd, suggested that "the outcome of combat is determined not by the bigger cannon or even by the larger force, but by the shrewdest combination of equipment, training, and ideas toward the end of adaptability."[112] It seems as though both sides in the debate would agree with this statement. However, Boyd and the DRM had a vision of how to achieve this "shrewdest combination" that differed from that of Creech and the Air Force. While the reform debate was broader than the debate concerning TAF equipment suggested herein, that aspect would continue to haunt the Air Force until the conclusion of the Persian Gulf War six-and-one-half years after Creech's retirement. The resolution of that debate, such as it was, is addressed later in this study.

At the very heart of the DRM critique of the TAF modernization program was the assertion that the costly, sophisticated systems the Air Force was procuring were unreliable due to their complexity. Creech disagreed. He saw the same decline in readiness but attributed it to something entirely different than did the reformers. The story of how Creech looked at the same data available to the reformers and came to remarkably different conclusions is also examined in this study.

Notes

1. History, Tactical Air Command (U), 1 January–31 December 1978, 235. (Secret) Information extracted is unclassified.
2. "Combat Readiness Initiatives."
3. Creech, oral history interview, 212.
4. "Combat Readiness Initiatives."
5. Creech, oral history interview, 212.
6. "Combat Readiness Initiatives."
7. Gen John L. Piotrowski, interview by the author, 13 January 2002.
8. Lambeth, *Transformation of American Air Power*, 92–96.
9. Mathis, "Tactical Air Command 1980," 34.
10. "Combat Readiness Initiatives."
11. The TAWC, located at Eglin AFB, Florida, was distinct from the Tactical Fighter Weapons Center (TFWC), located at Nellis AFB, Nevada.
12. Ibid.
13. Ibid.

14. "TACAIR Rejuvenated."
15. Gen W. L. Creech, interview by the author, 15 February 2002.
16. History, Tactical Air Command (U), 1 January–31 December 1978, 98. (Secret) Information extracted is unclassified.
17. Ibid., 102. (Secret) Information extracted is unclassified.
18. Ibid., 104. (Secret) Information extracted is unclassified.
19. Ibid., 106. (Secret) Information extracted is unclassified.
20. Gen Joseph W. Ralston, interview by the author, 17 March 2002.
21. Mathis, "Tactical Air Command 1980," 33.
22. "Combat Readiness Initiatives."
23. Ibid.
24. Mathis, "Tactical Air Command 1980," 32.
25. "Combat Readiness Initiatives."
26. History, Tactical Air Command (U), 1 January–31 December 1978, 296. (Secret) Information extracted is unclassified.
27. Ibid., 302. (Secret) Information extracted is unclassified.
28. Gen Joseph W. Ashy, interview by the author, 13 January 2002.
29. Ralston, interview.
30. Gen Ronald R. Fogleman, interview by the author, 12 February 2002.
31. O'Keefe et al., "Case Study," 97.
32. Starry, "Extending the Battlefield," 47.
33. Gen W. L. Creech, interview by the author, 7 December 2001.
34. Davis, *31 Initiatives*, 114.
35. History, Tactical Air Command (U), 1 January 1–31 December 1978, 363. (Secret) Information extracted is unclassified.
36. Ibid., 365. (Secret) Information extracted is unclassified.
37. Meyer and Schemmer, "Exclusive *AFJ* Interview," 32.
38. Ibid., 28.
39. O'Keefe et al., "Case Study," 98.
40. "TACAIR Rejuvenated."
41. Ralston, interview.
42. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 545.
43. Quoted in ibid., 546.
44. Meyer and Schemmer, "Exclusive *AFJ* Interview," 32.
45. Barger, "What USAF Has to Do," 62.
46. Creech (address, Air Force Association Symposium, 13 November 1981), 8.
47. "Tactical Air Command," May 1978, 82–84. See also "Tactical Air Command," May 1979, 88–90.
48. Ralston, interview.
49. Fogleman, interview.
50. Creech, oral history interview, 231.
51. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 561.
52. Ibid.
53. Ibid., 561, 563.
54. Quoted in ibid., 563.

55. Gen W. L. Creech, interview by the author, 16 February 2002.
56. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 565.
57. Meyer and Schemmer, "Exclusive *AFJ* Interview," 28.
58. Creech, interview, 7 December 2001.
59. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 565.
60. Lambeth, *Transformation of American Air Power*, 73.
61. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 563.
62. Creech, oral history interview, 245.
63. "TACAIR Rejuvenated."
64. Creech, oral history interview, 246.
65. Creech, interview, 15 February 2002.
66. Lambeth, *Transformation of American Air Power*, 79.
67. Creech, "Tactical Air Command Readiness," 16–17.
68. Meyer and Schemmer, "Exclusive *AFJ* Interview," 28, 32.
69. Creech, oral history interview, 34–35; and Fogleman, interview.
70. Ralston, interview.
71. Headquarters United States Air Force, *United States Air Force Statistical Digest, Fiscal Year 1978*, 31 May 1979, 100, declassified; idem, *United States Air Force Statistical Digest, Fiscal Year 1979*, 30 June 1980, 110, declassified; idem, *United States Air Force Statistical Digest, Fiscal Year 1980*, 15 March 1981, 114, declassified; Comptroller of the Air Force, *The Air Force Budget: Fiscal Year 1984*, April 1983, 106, 111; and idem, *The Air Force Budget: Fiscal Year 1985*, February 1984, H-21.
72. Lambeth, *Transformation of American Air Power*, 77.
73. Creech (address, Air Force Association Symposium, 13 November 1981), 6.
74. Meyer and Schemmer, "Exclusive *AFJ* Interview," 28.
75. "Interdiction: An Operational Perspective."
76. "TACAIR Rejuvenated."
77. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 563.
78. Creech, interview, 15 February 2002.
79. Creech, "Tactical Air Command Readiness," 16.
80. Futrell, *Ideas, Concepts, Doctrine*, vol. 2, *1961–1984*, 563.
81. See Clark et al., eds., *Defense Reform Debate*; Kross, *Military Reform*; Fallows, "Muscle-Bound Superpower"; and idem, *National Defense*.
82. Kross, *Military Reform*, 14.
83. Fallows, "America's High-Tech Weaponry," 30.
84. Stevenson, *Pentagon Paradox*, 39.
85. Fallows, "Muscle-Bound Superpower," 59.
86. Creech (address, Air Force Association/Aeronautical Systems Division, 22 October 1981), 7.
87. O'Keefe et al., "Case Study," 97.
88. Fallows, "I Fly with the Eagles," 70, 75–77.
89. Creech, interview, 15 February 2002.
90. Fallows, "Muscle-Bound Superpower," 61.
91. Fallows, "America's High-Tech Weaponry," 24–25.

92. Charles Myers, "Deep-Strike Interdiction," 52.
93. Fallows, "Muscle-Bound Superpower," 77–78.
94. Canby, "Tactical Air Power in Armored Warfare," 5.
95. Charles Myers, "Deep-Strike Interdiction," 50.
96. Creech (address, Air Force Association/Aeronautical Systems Division, 22 October 1981), 12.
97. "Congress Set to Fund USAF 'Enforcer' Tests," 17.
98. McCoy, " 'Full Strike,' " 78.
99. Charles Myers, "Deep-Strike Interdiction," 52.
100. Fallows, "America's High-Tech Weaponry," 22.
101. Kross, *Military Reform*, 174.
102. Creech, "Commitment to Excellence," 13–14.
103. Gen Lew Allen Jr., interview by the author, 23 March 2002.
104. "PA&E Assertions."
105. Creech, "Tactical Air Command Readiness," 19–20.
106. Ibid., 18.
107. Quoted in Stevenson, *Pentagon Paradox*, 17–18.
108. Meyer and Schemmer, "Exclusive *AFJ* Interview," 24–25.
109. Gen Jack I. Gregory, interview by the author, 23 March 2002.
110. Gen Joseph W. Ashy and Gen David C. Jones, interviews by the author, 4 March 2002, and 3 January 2002, respectively.
111. Mohr, "Drop in U.S. Arms."
112. Fallows, "Muscle-Bound Superpower," 62.

Chapter 5

Organizing to Fight, Building Leaders

When General Creech assumed command of TAC on 1 May 1978, he inherited an ailing organization with steadily declining sortie rates and flying hours and a correspondingly high accident rate. In his attempts to solve these problems, Creech's organizational prescriptions had two general themes. First, he consistently articulated the need to organize the units during peacetime as they would be organized during wartime. Second, he believed that organizations should be structured in small teams and oriented on their products rather than the functions or processes involved in production. In the case of TAC, the product was sorties. Creech believed that his principles were universally applicable and noted in a 1981 interview that "they apply to any organization of whatever size—of course, some are more compelling at higher levels and some are more compelling at lower levels. But they are basic tenets of leadership."[1] The scope of change would be neither narrow nor shallow and was sure to cause some upheaval. He counted himself fortunate to have the full support of the chiefs of staff during his tenure: Generals Jones, Allen, and Gabriel.

"TAC Turnaround"

Given the problems at TAC (and elsewhere throughout the Air Force), pilots were leaving the service at an alarming rate. From 1969 until General Creech took command, aircraft flying hours per month (called the "utilization rate" or "UTE rate") were down from 32 to fewer than 18 while sorties per month went from 23 to under 12.[2] Not surprisingly, the TAC accident rate was climbing as well. Meanwhile, several integrity scandals were plaguing TAC. One in particular was known as the "Dive-Cheat" scandal. A captain stationed at Holloman AFB, New Mexico, sent an anonymous letter to Creech that described how the wing's crews had been performing dive-bombing maneuvers but were crediting their scores toward their "dive toss"

maneuver requirements.[3] After an investigation, Creech fired the wing commander. Disheartened pilots across TAC wanted out, many of their concerns having been articulated in an infamous "Dear Boss" letter:

In October 1978, *Armed Forces Journal International* published a letter that had been circulated around TAC for several months. It became known as the "Dear Boss" letter. Written by Capt Ron Keys, it summed up the pilots' feelings in several pages following the opening, "Dear Boss, Well, I quit." Keys vented his frustrations and summed up with, "And that's why I'm resigning—long hours with little support, entitlements eroded, integrity a mockery, zero visible career progression and senior commanders evidently totally missing the point."[4] General Creech took action, calling Keys to his office at Langley AFB. Creech described the event as follows:

> I seriously thought, because it was unfairly unflattering in several places, I seriously considered two alternatives for Keys: decapitation or rehabilitation. I opted for the latter because I knew most of what he was saying, in an immature way, was right. So I called him in and spent three and one-half hours with him in my office. I said, "OK the first two hours are yours and the second two are mine." I listened and we talked.[5]

Creech told Keys that he agreed with about 80 percent of the letter and that the 20 percent he did not agree with was Keys's solution—quitting. The general told Keys what his intentions were as the TAC commander, and Keys elected to stay in the Air Force.[6] Afterward, Creech, plagued by another well-publicized integrity scandal at Homestead AFB, Florida, intentionally selected Keys to be on the three-man investigating team along with a colonel and a major general. As a result of the investigation, the wing commander at Homestead, like the commander responsible for the Dive-Cheat scandal, was fired.[7]

In addition to his actions in the Homestead and Holloman cases, Creech moved early on to correct breaches of flight discipline and enforce what he termed his "pass/fail" rules a number of times throughout his tenure in an effort to demonstrate that the TAC standards were universally applicable and enforced. Creech replaced virtually the entire senior staff of the aggressor squadrons at Nellis AFB due to breaches of flight

discipline.[8] In another instance, a captain made an unauthorized flyby of his hometown in Plano, Texas, and almost ran his F-15 out of fuel. When questioned, he lied about it. Creech grounded him permanently, despite many protests from the citizens of Plano.[9] Creech, having survived six years as a demonstration pilot, would brook no violations of flight discipline. He had a number of "pass/fail" items that he told his incoming wing commanders were cause for immediate dismissal: (1) any kind of integrity violation, (2) ruling through fear or terror, (3) losing one's temper in public, and (4) any kind of abuse of office.[10] In a talk he gave to incoming wing commanders, he said, "Those are the only pass/fail items I have, by the way. I prefer you to pass your [operational readiness inspections] but that's not an automatic cause for dismissal."[11]

General Creech also drew a distinction between crimes and mistakes, with room in his formulation for the latter but never the former.[12] One case in particular illustrates the difference. A brigadier general, who led 12 F-4s on a deployment to Germany, grounded two aircrews who ejected, according to the brigadier general, upon becoming disoriented in the clouds when they arrived at Jever Air Base in West Germany. Creech, recognizing the ejection as a mistake, countermanded the order and had the aircrews returned to flight status immediately.[13] However, when he received the accident report, Creech discovered that the brigadier general had actually put on an unscheduled and unbriefed arrival flyby at the base after the grueling 12-hour flight. In short, the brigadier had lied to him about the circumstances, thus committing a "crime" as well as a breach of integrity—one of his pass/fail items. Creech subsequently gave the brigadier general the choice of retirement or court-martial. He retired.[14]

In addition to admonishing his commanders to "be patient with . . . and tolerant of honest mistakes done with good intentions," Creech instituted a number of decentralization initiatives. In one example, he reduced the number of rules across his command, particularly those created to protect the careers of those making the rules in the first place:

> [After taking command of TAC], I called in working-level groups from operations, maintenance, supply, and the various other field activities.

> I then put them in a room with all the regulations that pertained to their activities and told them to get rid of at least half of them—and even more if they thought appropriate. *It was a labor of love.* There was a mountain of regulations because centralizers always add rules as they go along in the futile effort to *force* compliance. . . . Also, if commanders at lower levels added any rules, a copy came to my office for my personal attention. . . . If I detected a hint of "CYA" in the rule, [it was canceled].[15]

This relaxation of rules, and the underlying decentralization, had direct implications in TAC's flight-safety record. Creech described the effects as follows:

> [After substantial relaxation of the flying rules and greatly increasing the training realism,] I believed that those at the lowest level, if given more latitude and responsibility, could and would train more realistically with no increases in accidents. Not only that, I was convinced that if we increased their professionalism by that means we could actually bring our accident rate down significantly. So how did we do? At the time I left TAC the accident rate had been reduced from one crash every 13,000 hours to one crash every 50,000 hours—a 275 percent improvement. All achieved in the face of greatly increased realism, and far fewer rules. . . . In fact, by reducing the accident rate so dramatically, during my stay at TAC we saved 133 fighter aircraft . . . and saved the lives of 104 air crews.[16]

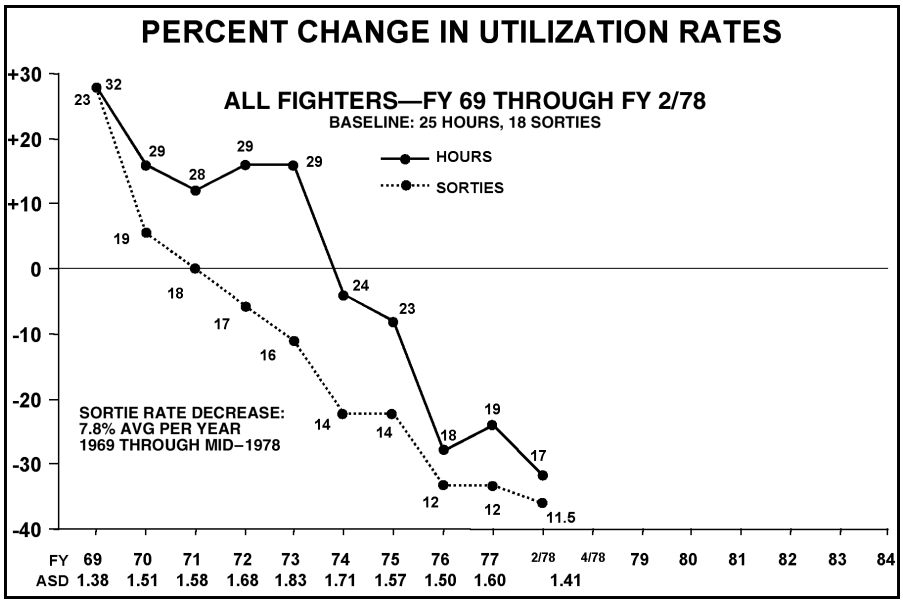
Furthermore, Creech viewed decentralization as the key to the other large problem facing him: TAC's declining sortie rates. In his widely circulated book on the need for defense reform, James Fallows attributed the sorry state of affairs to aircraft that were too complex, leading to more broken aircraft; the attendant reduced flying-training opportunities; and, consequently, dissatisfied pilots who expressed their dissatisfaction by walking away.[17] It made a lot of sense, but Creech disagreed with Fallows's fundamental assumption. He did not believe that the root of the problem was overly complex aircraft. Instead, Creech saw a combination of causal factors. According to one writer,

> Studying TAC, Creech was reminded of a stint he had served in the Pentagon briefly back in the 1960s during Robert McNamara's tenure, when he watched as the former Ford Motor Company president planted the initial seeds of centralized management. . . . Creech believed the principles of centralized management—eliminating duplication, realizing economies of scale, consolidation for the sake of efficiency—had spread like Kudzu vine in the loamy soil of the military bureaucracies, sprouting regulations

> and statistical imperatives along the way. Combined with declining budgets, they were choking off the more fragile flowers of teamwork, cooperation, and simple pride in a job well done.[18]

Creech ignored the charge of excessive complexity and began to work on the problem he perceived. He succinctly described the problem as "a steady decrease in sortie productivity over the years resulting in a decrease in aerial combat proficiency and readiness."[19] Based on aircrew opinion surveys and his own experiences, Creech believed the fiscal year 1969 levels to be desirable as targets but established a baseline of 25 hours and 18 sorties per month per airplane as TAC goals (fig. 1). Creech believed that level was supportable with the resources then in hand.[20]

Creech believed there were three fundamental factors contributing to this problem: (1) the centralized, functionally oriented organizational structure was causal; (2) TAC units were



ASD—average sortie duration
AVG—average
FY—fiscal year

Figure 1. TAC sortie rates, FY 1969–FY 2/1978. (From "TAC Turnaround," briefing slides, ca. 1984, author's collection.)

not organized as they would be when called upon to fight; and (3) the units were being tasked out of proportion to the resources they had been given. In his first month in command, he began to address these causal factors. One of his first initiatives was a program called "Robust Units."

On 16 May 1978 the TAC staff was informed of Creech's intention to start the Robust Units program. "His objective under this approach, would be to establish units capable of placing mission ready (MR) aircrews in the cockpits of every aircraft they possessed, rather than providing pilots for aircraft which were authorized but not possessed or assigning aircraft to be flown by hypothetical aircrews."[21] The program was formally established on 5 August 1978 with General Creech describing it to the command as follows: "We must be prepared to deploy rapidly and fight upon arrival. This requires the proper allocation of resources in our . . . squadrons. The Alpha Squadrons [the first squadron in each wing to deploy under the Checkered Flag program] should provide their full authorizations in aircraft and aircrews followed by Bravo and Charlie squadrons."[22]

Creech had a number of reasons for implementing the Robust Units program. Among the most compelling was that wings shared shortages, which hid them for reporting purposes. Creech used a chart to illustrate the difference between a wing with 72 primary aircraft authorized (PAA) that was sharing shortages and one that was highlighting shortages (fig. 2).

In another chart in his "Robust Units" briefing, Creech listed the following six advantages of the Robust Units policy:

1. Shares strengths, not weaknesses.
2. Prevents suboptimization of key resources.
3. Highlights shortages rather than hiding them.
   —Keeps pressure on providers of resources.
4. Keeps fighting units (squadrons) organized for war.
5. Fills present squadrons before creating new ones.
6. Most importantly, it keeps tasking in line with resources.
   —When commander is tasked to send a unit, he knows it's ready.
   —Gives commander the resources and lets him do the job.[23]

72 PAA AUTHORIZED/60 POSSESSED
90 AIRCREW AUTHORIZED/63 FORMED

SHARING SHORTAGES

	ACFT	CREWS	LOG SUPPORT	PERS	MAX POTENTIAL C-RATING
A SQDN	20 83%	21 70%	83%	80%	C-2
B SQDN	20 83%	21 70%	83%	80%	C-2
C SQDN	20 83%	21 70%	83%	80%	C-2
TOTAL	60	63	ALL C-2 FOR FORCE STATUS AND IDENTITY REPORTING		

HIGHLIGHTING SHORTAGES

	ACFT	CREWS	LOG SUPPORT	PERS	MAX POTENTIAL C-RATING
A SQDN	24 100%	30 100%	99%	99%	C-1
B SQDN	24 100%	30 100%	99%	99%	C-1
C SQDN	12 50%	3 10%	50%	42%	C-4
TOTAL	60	63	IN FACT, ONE SQUADRON IS C-4 WHEN WING POSTURED FOR DEPLOYMENT		

Figure 2. Example of sharing shortages. (From "Robust Units," briefing slides, ca. 1978, Creech Papers, Air Force Historical Research Agency, Maxwell AFB, AL.)

The chart suggested how the wing would be forced to reorganize for war. In 1981 Creech described this situation:

> Most importantly, [before the Robust Units program,] you had to reorganize to go to war. . . . We used to share our shortages and then whenever the button was pushed on the . . . plan to augment Europe or whatever, you certainly were not going to send the first squadron out the door with less than 24 airplanes and its other warfighting authorizations. So what did you do? Well, you grabbed a couple of airplanes from this squadron and people from over here—you had a tremendous confusion factor—you were working with strangers. If you need a fully ready squadron, you ought to have it in the first place. You don't want to reorganize to go to war. . . . I cannot think of a worse time to reorganize.[24]

In addition to ensuring that each squadron had its full complement of aircraft, Creech also moved to ensure that training aircraft were dedicated to training while combat-coded aircraft were kept separate. He saw to it that each major weapon system had its intended 25 percent training-coded aircraft, up from approximately 12 percent in the A-7, 8 percent in the F-4, and 0 percent in the F-111. While 40 wings of 72 combat

aircraft had been authorized since 1974, the capability of the force was reduced as long as combat units engaged in training functions.[25] Thus, by using the combat-coded aircraft for training purposes, the Air Force had also imposed an artificial cap on its force structure; during Creech's tenure, the Air force continued to build toward a 40 fighter-wing force.[26] The situation in which combat units conducted initial and replacement training had a deleterious effect on the readiness of the force in the years prior to Creech's tenure.[27]

Creech reflected on the propensity to share shortages:

> And I started every single TAC Commander's Conference with this statement: "Rule number one in the Tactical Air Command is that we keep taskings in line with resources—and we do not share shortages." . . . The robusting policy took care of the rest. . . . Industry is a lot more savvy about NOT suboptimizing the arrangement of its resources than is the military—and I have never been able to discern why that is so much the case. Certainly we in the military have no shortage of bright people at all levels, and assuredly so at the top. Yet, the "disease" of holding force structure sacred and "sharing shortages" seems endemic to the military mind.
>
> I've seen that scenario played out four times now: After World War II, after the Korean War, after the Vietnam War, and after the collapse of the USSR. In all those cases, the nation took a "peace dividend" well beyond the funding level called for in the "strategy" visited upon the armed forces—and in every single case, the armed forces responded by "hollowing out the force" by sharing shortages.
>
> You would think that after seeing the same pattern emerge on four separate—highly observable plus empirically measurable—occasions, the military thinkers would get the message. But perhaps that's too much to hope for. I'll keep on hoping, anyway.[28]

In keeping with his desire to "organize as you would go to war," TAC undertook a massive reorganization of aircraft maintenance in an effort to discard the organizational centralization that had been taking place for years in TAC, while also organizing the maintenance field as it would fight. Beginning in 1975, TAC had started an aircraft-maintenance reorganization program on a trial basis at MacDill AFB, Florida. It was called the Production Oriented Maintenance Organization (POMO) and reflected a sharp departure from the standard "66-1" maintenance system, in which all aircraft maintenance was centralized (so-named for the Air Force Regulation 66-1, which prescribed

aircraft-maintenance organizations).[29] In POMO, maintenance units at selected TAC bases were split into a component-repair squadron, an equipment-maintenance squadron, and an aircraft-generation squadron (AGS). The AGS was split into three aircraft-maintenance units (AMU), one for each of the flying squadrons. General Creech inherited POMO and liked most of what he saw but recognized problems with it:

> There was still a split in authority and responsibility between the AGS and job control. The [AGS] . . . owned the people; but *control* remained vested in the "job control" that had been the centerpiece of the centralized concept. Job control could still move specialists around the flightline—they had the *authority*, but the AGS had the *responsibility* for producing the sorties.
>
> That diffusion of authority and responsibility and some other vestiges of centralization in POMO needed to be corrected, and our solution was another step, to even greater decentralization. We call the result of that second step "COMO"—Combat Oriented Maintenance Organization.[30]

Under Creech's command, POMO—and later Combat Oriented Maintenance Organization (COMO) was expanded to all units within TAC. The concept was expanded to include all the TAF MAJCOMs with the publication of Air Force Regulation 66-5, *Production Oriented Maintenance Organization*, in July 1979.[31] TAC expanded the decentralization effort to include the supply field with a program called Combat Oriented Supply Organization (COSO). Many of the COMO principles applied for COSO as well, including focus on the flightline, decentralization, and authority and responsibility moved to the lowest levels.[32] TAC arranged several other wing functions into teams dedicated to specific flying squadrons to prepare them for their wartime taskings. The Aerospace Ground Equipment personnel, aircraft-phase inspection (heavy maintenance) crews, and munitions-buildup crews were divided into teams able to deploy with their associated flying squadron in times of war.[33]

POMO (and later COMO and COSO) was not enthusiastically received across the board within TAC. General Ralston recalled that many within the maintenance field resisted.[34] Especially resistant were the most senior noncommissioned officers within the maintenance career field. According to one account, "'We didn't care for it,' says one of these so-called supersergeants. . . .

'Here was this crazy general coming in and splintering an operation we'd spent years putting together.'"[35] Creech recalled,

> I would not suggest to you for a moment that everybody in TAC is in love with COMO. In fact, that's one of the reasons it has its name—*combat* oriented instead of *production* oriented. Because at one point in time, the backlash from some of the specialists that had to go to the flightline was so extreme that I found myself in long-winded arguments. Some wanted to argue that 66-1 was more productive than POMO. Granted, in the *early* days there wasn't a lot of data yet that showed any difference. And I would say, "OK, if it makes you feel better, I'll stipulate that 66-1 is more productive. I don't really think that it is. I'm convinced that COMO will be much more productive. But, in any event, we're going to do it, because we need to do it to get ready for combat."[36]

Despite the resistance, Creech continued to believe in the need to organize for war. Describing COMO's impact, he said, "It trains them as wartime leaders. They are not going to have [colonels] to change their diapers for them when they are over there on a [collocated operating base] getting ready to fight the war. It gives them squadron identity. It's a separate work unit. You can compare the 'reds' to the 'golds' to the 'blues.'"[37] This reorganization came to be known as Black Flag. Creech's vice-commander described Black Flag in combat-readiness terms in a 1979 speech: "After trends towards centralization for several years, we've come to believe that it's time to back up just a bit—to organize in peacetime like we would deploy and fight in wartime—in squadron-sized units. So Black Flag includes a focus on producing a maintenance unit—tied to a fighter squadron—which is organized and equipped to deploy with and maintain that squadron."[38] In March 1981 Creech was quoted as saying,

> [The importance of reorganizing for combat] is underscored by TAC's requirement to move out swiftly to its wartime bases and to fight immediately upon arrival. This is not the time for reorganization, nor the time to work with strangers—nor, for that matter, the time to find out about some deficiency masked from view by a centralized peacetime organization. There are a host of other benefits, not the least of which are marked improvements in unit identification and pride.[39]

When asked about the need for unit identification and pride, and why he elected to keep the AMUs organizationally separate from

the flying squadrons with whom they worked, he listed three reasons. First, he recalled the Dear Boss letter and suggested that flying-squadron commanders needed to focus on flying in order to remain credible in the mission. Second, he reiterated his train-for-war philosophy and noted that during wartime, the aircraft-maintenance specialists would need leadership focused 100 percent on maintenance, not trying to balance combat flying and maintenance responsibilities. Third, he described how the maintenance career field needed clear tracks for progression and by putting flightline maintenance within the flying squadron, the maintenance-officer career field would have been "eviscerated."[40] He recalled that when TAC absorbed the air defense mission, air defense units were organized with maintenance in the flying squadrons and, when compared to their TAC counterparts, "without exception, they struggled."[41]

Creech undertook a number of other initiatives to engender the pride he believed to be related to productivity. Among the first was to establish a system of goals, which had been lacking: "I remember when I first came to TAC, I used to walk into an AMU on the flightline and I would say 'What's your sortie goal this month?' I got all kinds of answers. No one knew!"[42] While there was a system in place, it essentially meant nothing to the troops on the flight line and, furthermore, it was based on a daily rate in which there was no catch-up. If a unit failed to meet its goal one day, the goal for the next did not change.[43] Creech abolished that system and created monthly goals that were clear and unambiguous. In late 1979, Lt Gen Robert C. Mathis, Creech's vice commander, described the system:

> We also set sortie goals by individual squadrons, so the troops on the line could relate to them. If sortie goals or output information are aggregated on a wing-wide basis, they can't relate to it. But when it's identified as their airplane's performance or that of their individual squadron, they can and do relate to it. For example, if they are supposed to fly 450 sorties per month, they fly them. If they meet their sortie goals, we give them some extra time off. If they are not meeting their sortie goals, they work longer. They understand that. It's straightforward and it works.[44]

General Creech gave the crew chiefs pride of ownership, expanding on the "dedicated crew chief program" that had begun the month before he arrived at TAC.[45] Creech described the

benefits of the program as follows: "[Under the old system,] any crew chief worked on any aircraft. What is the problem with that? Well, if you're the dedicated crew chief, all the work that you put into that aircraft shows up in that aircraft. It's definable. . . . One of our great [noncommissioned officers] in telling me why he supported the dedicated crew chief approach said, 'it's this simple—when's the last time you washed a rental car?' "[46] Creech also allowed the crew chiefs to paint their names on their aircraft to engender further pride.[47] He also allowed the crew chiefs to repaint their aircraft more often than allowed by Department of Defense regulation. Creech recalled, "There was a DOD rule you could only paint airplanes, quote, 'if they were 66% deteriorated.' That is, they had to look two-thirds crappy before you could paint them." Creech went on to say that expecting the maintenance troops to take pride in working on a shabby-looking airplane reflected a lack of understanding of basic human nature.[48] Clearly, Creech saw a close relationship between pride and appearance, and he carried it well beyond painting aircraft.

Gen Jack I. Gregory, a TAC wing commander when Creech took over, recalled that "in early 1978, the building colors on TAC bases looked like those on Easter eggs."[49] Many of the maintenance troops responsible for a large part of the flying mission were working out of abhorrent facilities. At some bases, they lacked buildings and worked from tents with porta-johns substituting for indoor plumbing.[50] Creech set about providing permanent facilities for those that did not have them as well as a massive facelift for TAC facilities in general. He instituted a series of "Look" programs—"New Look" for maintenance, "Sharp Look" for security police, "Proud Look" for the motor pool, and "Smart Look" for munitions.[51] These career fields were the ones with the lowest retention, and Creech actively sought to improve their lot in life. He took money from his headquarters budget for many of the projects and used self-help for many as well. Creech used some standard colors to paint the facilities on TAC bases, and one of them inevitably came to be known as "Creech brown."[52] When the Government Accounting Office (GAO) went to TAC and investigated the spending on facilities, Creech noted that he

could paint all of TAC for the price of one F-15.[53] The GAO found that most of the money was spent on materials, the labor was largely of the self-help variety, and the increased productivity more than offset the spending.[54] Creech later said, "You can't treat them shabbily, and house them shabbily, and expect quality work in return."[55] Putting it more succinctly in 1996, Creech said, "It's a hell of a lot more than brown paint."[56]

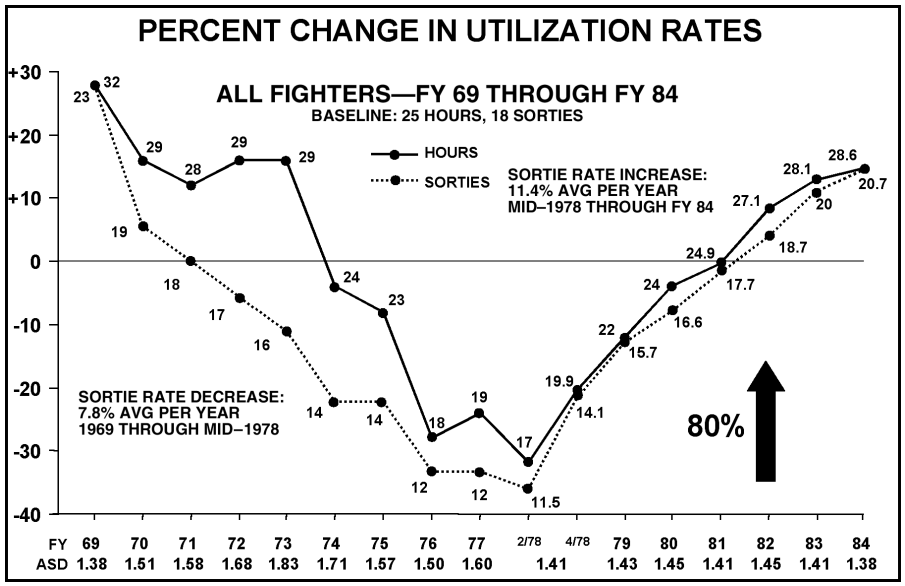
One of the fundamental complaints contained in the Dear Boss letter by Keys was the lack of credibility of squadron- and wing-level leadership. Seeing this as a serious and fundamental problem, Creech adhered to one of his command dictums: for important issues, the commander should become the "action officer."[57] Creech perceived two factors at work with the basic credibility complaint and actively worked on both issues. One part of the issue was the "rated distribution training management" (RDTM) issue. The basic problem was that because of a lack of young fighter pilots, many pilots from other types of aircraft were being assigned to TAC as senior captains and majors. Nearly three-fourths of the new pilots fell in this category, which created a large rank-experience mismatch throughout TAC. This led to squadron-level leadership that had no credibility with the more junior, yet more experienced, pilots.[58] General Welch recalled, "General Creech absolutely immersed himself in the rated course business when we were struggling with how we could produce the number of pilots we needed. General Creech was the action officer."[59] The RDTM problem had been a focus of concern and work for a number of years but had remained unsolved. General Creech personally worked closely with the Military Personnel Center, the Air Staff personnel offices, and other MAJCOMs to set fighter-pilot personnel and training policies and to ensure that the TAF was receiving an appropriate number of "pipeline" pilots (i.e., those coming directly from pilot training). Gen Joseph W. Ashy stated categorically, "Creech fixed it."[60]

The second issue at stake with midlevel leadership credibility was that many wing commanders did not seem involved in the mission. At the wing level, General Creech instituted an "immersion program" in which officers were required to get out

of their offices and get involved in specific aspects of the unit mission for several weeks at a time. For example, approximately every four months, TAC wing deputy commanders for maintenance (DCM) were required to drop everything and spend two weeks at the working level of their organizations. Two of every three immersion periods for DCMs had to occur during the night shifts. At the end of their immersion periods, they were required to write Creech a personal letter containing their observations, insights, and any changes they would make as a result of what they learned. The DCMs also included recommendations for commandwide implementation.[61] The program was in place for wing commanders and other key leaders too.[62] Wing commanders were required to immerse in the unit flying for two-week periods, flying every position in every mission in which the unit trained.[63]

The results of Creech's many initiatives were notable. Early on, Creech had identified the fundamental problem as "a steady decline in sortie productivity over the years resulting in a decrease in aerial combat proficiency and readiness" (see fig. 3).[64] By the time he left command, leadership and morale had changed significantly.

In March 1981, Creech stated, "In addition to sortie rates and accompanying flying hours being increased, TAC flew 101 percent of those increased programs in both fiscal years 79 and 80, which represented the first time in 10 years that all of TAC's allotted hours had been flown." He continued, "The most obvious advantage is the great increase in sortie productivity. . . . Higher sortie rates mean increased proficiency for our combat aircrews, and that, of course, is the name of the game since they must carry the fight to the enemy."[65] TAC overflew its annual flying-hour allotment every year of Creech's command except fiscal year 1978, in which Creech was in command for less than one-half of the year. Creech used a chart to illustrate the improvement (fig. 4). Further improvements included a reduction in response times for supply items from one and one-half hours to nine minutes under the COSO program and a decrease in the TAC accident rate (despite an increase in "realistic training," which tended to involve riskier flying).[66]



ASD—average sortie duration
AVG—average
FY—fiscal year

Figure 3. TAC sortie rates, FY 1969–1984. (From "TAC Turnaround," briefing slides, ca. 1984, author's collection.)

Creech's detractors were quick to attribute the turnaround in TAC to a number of other factors such as increased funding, greater manning, and higher experience levels within the force. In actuality, most of the improvements in these areas did not come until well after the turnaround was under way. Fallows, for instance, in a critical review of a book favorable to Creech's activities, claimed that "TAC's turnaround had everything to do with money. . . . Creech's tenure coincided with the early years of the Reagan boom in defense spending."[67] While inflation-adjusted Air Force operations and maintenance outlays grew at a 3.6 percent annual rate during Creech's command tenure, Air Force aircraft procurement averaged more than 310 new aircraft per year during the same period, mostly fighters.[68] Expanding operations and maintenance outlays likely helped in Creech's efforts at TAC, but those outlays were also tied to increased aircraft procurement, so the extent to which they were responsible for TAC's turnaround is clearly

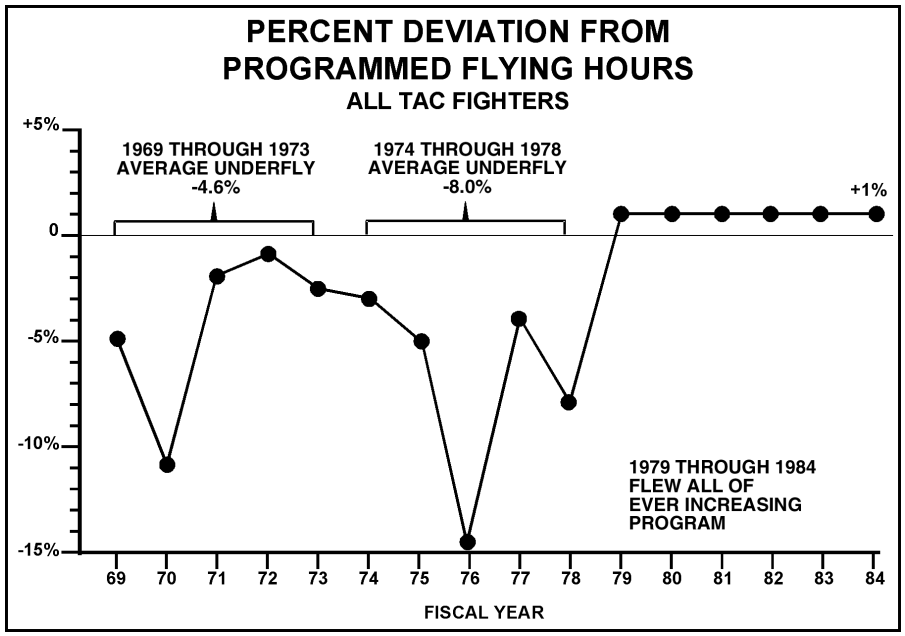


Figure 4. Flying-hour increases. (From "TAC Turnaround," briefing slides, ca. 1984, author's collection.)

debatable. Furthermore, the funding provided by "Reagan's boom in defense spending" would presumably have resulted in more spare parts. In fact, compared to the numbers for 1977, TAC had more fighters grounded for parts during every year of Creech's command except 1984. In Creech's words, "The dollars filled in the vision; the vision didn't flow from the dollars."[69] Maintenance experience was also lower for Creech's first three and one-half years than it had been in 1977.[70] By the standards of the defense reformers, the fleet of new aircraft, equipment, and munitions more complex than those of the preceding generation should have yielded decreasing rather than increasing sortie rates. Despite less experienced maintenance troops, fewer spare parts, and more complex machinery, General Creech had effectively solved the problem he identified in the summer of 1978. To perpetuate these wide-ranging changes and, more generally, his philosophy of leadership, Creech established a systematic process for developing subsequent generations of leaders.

Creating More Leaders

When asked about how he mentored and groomed his subordinates, Creech made an interesting distinction and pointed out that he had a three-part program for leader development: selection, mentoring, and grooming: "Each of those are very important; indeed, they feed one upon the other, and if you're weak in any of the three, the system will fall well short of what is needed."[71] General Ashy recalled Creech's oft-stated dictum that "the first responsibility of a leader is to create more leaders" and went on to say that Creech's brilliance lay in his development of his subordinates.[72] General Piotrowski recalled, "He always insisted that one of our primary jobs was to train our replacements—train them to be better than we were."[73] In developing his subordinates, the first step in Creech's three-part process was selection.

Creech spent an inordinate amount of time in the selection phase. According to him, most of the time he and his numbered-air-force commanders spent in the selection process was devoted to "studying the records and interviewing those who aspired to lead our wings and our air divisions. The more time I spent on that, I found, the less time I spent cleaning up after field mistakes."[74] Several of those who saw Creech in action have described his meticulous selection process. Gen Michael J. Dugan recalled that

> he spent a lot of time picking, personally, the senior officers he was going to use in various locations. He had them in for interviews in the office; he watched them carefully when he visited the field. He talked about . . . [how] a senior officer needs to spend something like a third of [his] time on [hiring and grooming] personnel because there's not enough time in the day to do everything you need to do, and if you don't hire well, then all you'll do is compound your time problem. . . . It is vitally important to get the right team put together so that they can bear a great deal of the load you otherwise would have to worry about.[75]

Mentoring was also an important part of Creech's program, and he often used the many formal "schools" that he held at Langley as a forum for teaching and mentoring literally thousands of TAC officers and enlisted troops. Regarding mentoring, Creech said, "We took a very broad view of who was to get it. Our mentoring involved all of those who were incumbents

in or were logical aspirants for wing commander or higher jobs. We met four times a year in three-day special interactive sessions that I conducted personally. We didn't talk in those sessions about recent happenings. We talked about leadership and how best to go about it in the various areas that required top leadership involvement and teaching."[76] General Horner said, "He untiringly taught all of us, over and over, what to me were three essential points. The first: The critical importance of decentralization in the way you organize. . . . The second: The absolute necessity of getting leadership and commitment from everyone. . . . The third: The power of quality in everything that you do."[77] General Jones offered the opinion that of Creech's many contributions, mentoring his subordinates was his most significant.[78]

General Creech carefully selected a number of officers for further development and typically had an entire career path in mind for those key officers. He suggested that the difference between mentoring and grooming was that with mentoring, one gives people the benefit of one's own experiences, while with grooming, one gives them the benefit of their own experiences. Mentoring was for the many, and grooming was for the few.[79] For those chosen for grooming, a challenging series of assignments awaited with between four and six different and very diverse assignments in as many years.[80] Beneficiaries of this type of grooming included Gen John M. Loh, who had six assignments in Creech's six-and-one-half-year tenure at TAC, and Gen Henry Viccellio Jr., who had four assignments during Creech's tenure. Gen John P. Jumper recalled from his time as Creech's executive officer that Creech spent a great deal of time grooming and teaching his subordinates.[81]

A consistent theme throughout all three phases of Creech's leadership-development program was teaching. General Loh described Creech's role as a teacher as follows:

> I keep coming back to his role as a teacher. . . . He spent tons of hours at TAC headquarters teaching people who came there from the field . . . and I know of no other MAJCOM commander who [to the same degree] has taken the time to sit down with his people and teach them . . . and talk about things, talk about principles . . . and then talk about leadership, and what all this means, and then getting into the specifics of their part of that overall mission of Tactical Air Command, and how they need to

Author's personal collection

President Reagan, whose defense budgets "filled in the vision," and Creech

> relate to their people, to their products, and to the goals they were trying to set. It was absolutely remarkable! Remarkable, hours, tons of hours. . . . I've learned that is one great role of a leader, of all the attributes you think about in leadership, teaching ought to be right near the top.[82]

Maj Gen Jerry Rogers, TAC's logistics chief for a time, stated that Creech and the TAC staff did the teaching personally and did not delegate it to lower-level functionaries after making a few opening remarks.[83] He used himself and his general officers to do the teaching.[84] Independently, Generals Ashy, Fogleman, Gregory, Piotrowski, and Ralston all highlighted Creech's critical role as a teacher and spoke of the inordinate amount of time he took to do so. General Piotrowski had some particularly interesting comments on Creech's role as a teacher in more than just leadership and organization topics. He described being a numbered-air-force commander under Creech's command and how Creech would go over his (Piotrowski's) war plans with him and help him improve them. Piotrowski said, "By training us [his numbered-air-force commanders], schooling us, and by going over our products—our campaign plans—he greatly influenced the way wars were fought."[85]

Analysis and Summary

Interestingly, Creech's own personal reading program contained many books on psychology.[86] Twentieth-century psychologist Frederick Herzberg, for example, played a role in shaping Creech's thinking about what motivates people. According to Herzberg,

> The "satisfiers" all refer to the job content or job task: achievement of a task, recognition for task achievement, nature of the task, responsibility for the task, and professional growth or advancement in task capability. In contrast, the "dissatisfiers" refer to the job context or job environment: the nature of the company's policies and administrative practices under which the job is performed, the type of supervision received when doing the job, the quality of the working conditions in which the job is done, and the salary received for doing the job.[87]

Within this context, Creech obviously worked to improve satisfiers and eliminate dissatisfiers, but most of his efforts were focused on the satisfiers—establishing goals, rewarding people

who met them, delegating authority and responsibility, and decentralizing the maintenance and supply organizations. It appears Creech did not stumble into his formula for the TAC turnaround. Rather, he had read and experienced enough that he went into the TAC assignment with a clear agenda and established ideas about how the organization needed to be structured.

The TAC turnaround was a substantial success and provided the backdrop for all the many training, equipment, and doctrinal developments taking place on Creech's watch. The TAC turnaround makes an impressive case for Creech's brand of organization and leadership, considering the fact that the majority of the improvements came during Creech's first few years in command. These were the years before increased funding, spare parts, or experience levels began to take effect; during a period when training realism was expanding; and during a period when new, and presumably more complex, systems were being fielded. In an interesting comment that reveals much about Creech's reorganization initiatives, he told an interviewer in 1981 that "realism is more than Red Flag. Realism is an organization, approach, concept. It permeates the organization."[88]

General Creech's role in developing ideas, doctrine, equipment, and training has been examined within the specific context of the period. However, this chapter looked at the universality of Creech's practices and command concepts. Creech had a number of long-held beliefs about leadership and organization that he applied over and over throughout his career. When he arrived at TAC, he put the same principles to work again. They are, to Creech's way of thinking, universal. Therefore, the summary of his philosophy and his prescription for TAC presented in this chapter are not so much a historic record of his actions in one particular case, but a case study in their application. Although they do represent history, the changes General Creech instituted at TAC may be more instructive when viewed in this context rather than as a specific solution to the specific problems of the time.

Perhaps more significant in the long term than his prescriptions for an ailing MAJCOM was the long-term effect that

Creech's leadership-development program has had on the Air Force. For his own part, Creech wrote, "I'm always very, very reluctant to take any credit for the 'future' accomplishments of others because it seems as if one is asking to share the credit they are due. I believe I had a good eye for talent, and picking them well and giving them challenging jobs (often times many such jobs) was just the best way to get our collective job done, as well as with an eye to the future."[89] This "eye to the future" deserves closer inspection.

Notes

1. O'Keefe et al., "Case Study," 1.
2. "TAC Turnaround."
3. Clancy, *Every Man a Tiger*, 141–42.
4. Janisch, "Trained USAF, Navy Pilots," 30.
5. O'Keefe et al., "Case Study," 92.
6. Gen W. L. Creech, interview by the author, 24 April 2002. Keys stayed in the Air Force and, as of this writing, is a lieutenant general and deputy chief of staff for air and space operations, Headquarters USAF.
7. O'Keefe et al., "Case Study," 92. See also Clancy, *Every Man a Tiger*, 141–42; and Creech, interview, 24 April 2002.
8. Kitfield, *Prodigal Soldiers*, 180.
9. Ibid. See also Creech (address, TAC wing commanders, 9 September 1983), 11.
10. Creech (address, Air University Armed Services Leadership and Management Symposium, 11–14 October 1983), 13.
11. Creech (address, TAC wing commanders, 9 September 1983), 14.
12. Ibid., 10–11.
13. Gen W. L. Creech, to the author, e-mail, 6 June 2002.
14. Kitfield, *Prodigal Soldiers*, 180–81.
15. Creech, *Five Pillars of TQM*, 314–15.
16. Ibid., 316–17.
17. Fallows, *National Defense*, 40–42.
18. Kitfield, *Prodigal Soldiers*, 176.
19. O'Keefe et al., "Case Study," 4.
20. Ibid., 6.
21. History, Tactical Air Command (U), 1 January–31 December 1978, 109. (Secret) Information extracted is unclassified.
22. Ibid., 110.
23. "Robust Units."
24. O'Keefe et al., "Case Study," 81.
25. Gen W. L. Creech, interview by the author, 15 February 2002.

26. In January 1987 the Air Force, having reached over 38 wings, abandoned its long-standing 40-wing goal and began a force reduction that would not end for nearly a decade. See "USAF Revises Goal," 24.
27. Creech, interview, 15 February 2002.
28. Quoted in "General Creech and Tactical Air Command," 17.
29. Anderton, "POMO and POST," 49.
30. Creech (address, Air University Armed Services Leadership and Management Symposium, 11–14 October 1983), 25.
31. Air Force Regulation (AFR) 66-5, *Production Oriented Maintenance Organization*, 1-1.
32. Creech (address, Air University Armed Services Leadership and Management Symposium, 11–14 October 1983), 35.
33. Gen W. L. Creech, interview by the author, 2 June 2002.
34. Gen Joseph W. Ralston, interview by the author, 17 March 2002.
35. Finegan, "Four-Star Management," 44.
36. O'Keefe et al., "Case Study," 54.
37. Ibid., 26.
38. Mathis, "Tactical Air Command 1980," 31.
39. "Turnaround in TAC Sortie Production," 33.
40. Gen W. L. Creech, interview by the author, 30 April 2002.
41. Ibid.
42. O'Keefe et al., "Case Study," 27.
43. Ibid., 28.
44. Mathis, "Tactical Air Command 1980," 34.
45. Anderton, "POMO and POST," 50.
46. Creech (address, Air University Armed Services Leadership and Management Symposium, 11–14 October 1983), 26.
47. Kitfield, "Superior Command," 20.
48. Creech (address, USAF Air War College, 18 September 1996).
49. Gen Jack I. Gregory, interview by the author, 23 March 2002.
50. O'Keefe et al., "Case Study," 32.
51. Ibid., 64.
52. Boyne, *Beyond the Wild Blue*, 216.
53. Finegan, "Four-Star Management," 48.
54. Boyne, *Beyond the Wild Blue*, 216.
55. Creech (address, Air University Armed Services Leadership and Management Symposium, 11–14 October 1983), 34.
56. Creech (address, USAF Air War College, 18 September 1996).
57. O'Keefe et al., "Case Study," 91.
58. Ibid., 90.
59. Quoted in Puryear, *American Generalship*, 273–74.
60. Gen Joseph W. Ashy, interview by the author, 4 March 2002.
61. Sutton, "Visionary Leadership," 9.
62. Creech, *Five Pillars of TQM*, 382–83.
63. Sutton, "Visionary Leadership," 9.
64. O'Keefe et al., "Case Study," 4.

65. "Turnaround in TAC Sortie Production," 33.
66. "TAC Turnaround."
67. Fallows, "Case for Reform," 123.
68. Office of the Under Secretary of Defense (Comptroller), *National Defense Budget Estimates*, 199. See also "USAF in Facts and Figures," 182.
69. "Interdiction: An Operational Perspective."
70. "TAC Turnaround."
71. Quoted in Puryear, *American Generalship*, 219.
72. Gen Joseph W. Ashy, interview by the author, 13 January 2002.
73. Gen John L. Piotrowski, to the author, e-mail, 26 May 2002.
74. Quoted in Puryear, *American Generalship*, 222.
75. Quoted in Sutton, "Visionary Leadership," 16.
76. Quoted in Puryear, *American Generalship*, 223.
77. Ibid., 218.
78. Gen David C. Jones, interview by the author, 3 January 2002.
79. Puryear, *American Generalship*, 224.
80. Ibid.
81. Gen John P. Jumper, interview by the author, 22 April 2002.
82. Quoted in Sutton, "Visionary Leadership," 18.
83. Finegan, "Four-Star Management," 46.
84. Sutton, "Visionary Leadership," 17.
85. Gen John L. Piotrowski, interview by the author, 13 January 2002.
86. Puryear, *American Generalship*, 175.
87. Herzberg, "New Approaches," 235.
88. O'Keefe et al., "Case Study," 20.
89. Gen W. L. Creech, to the author, e-mail, 8 January 2002.

Chapter 6

To Desert Storm and Beyond

On 1 November 1984, after six and one-half years in command, General Creech turned command of TAC over to Gen Jerome F. O'Malley. In the years leading up to the Gulf War of 1991 (Operation Desert Storm), many of Creech's initiatives and priorities continued unabated; others were modified. Many of the systems and organizational concepts Creech put in place at TAC saw a trial by fire in the Gulf War. After the war the strategic landscape changed significantly, both in a geopolitical sense and within the Department of Defense. All this must be considered before one can properly put Creech's impact into context. Perhaps of all the changes and developments after his retirement, those concerning doctrine and concepts have become the most controversial over time.

Increasing Turbulence in Airpower Thought

In 1986 the Army published a revised version of FM 100-5, *Operations*. From the Airman's perspective, the new doctrine was familiar with only minor changes apparent from the previous version. Evident in the new manual was continuing and explicit acknowledgment of the many ways airpower could contribute to land operations with counterair, air interdiction, close air support, special operations, and reconnaissance being singled out.[1] One Air Force analysis gave it high marks for giving a broader, theaterwide (e.g., Air Force) perspective of the battlefield and for reinforcing the benefits of massing airpower.[2] In a twist that would become ironic in less than a decade, one Army doctrine specialist said that during the coordination process for the new doctrine,

> it was the Air Force that put more of a "we're all in this together" tone in the Army's new Bible. "In the earlier drafts of [the new] 100-5," he said, "we had inadvertently used words like 'the ground campaign' and 'the air campaign.' It was the Air Force which said we ought to take those words out—there's only one campaign." The reason the new ver-

> sion of FM 100-5 spells out the role of air the way it does, he said, "is not because the Air Force got its way, but because we in the Army have come to appreciate that they're absolutely right."[3]

Many in the Air Force still perceived close cooperation between the services to be imperative and continued to focus on the relatively technical aspects of joint war fighting. For example, in late 1985, General McPeak wrote an article for the *Air University Review* in which he described how the services should cooperate with regard to the FSCL and the relationship between the FSCL, air-interdiction, and CAS missions.[4] McPeak suggested that it would be desirable for the Army's liaison element to the air commander's headquarters to "involve itself in the planning for virtually all kinds of air activity."[5]

Despite the evident and continuing spirit of cooperation, there were inevitably points of friction between the services. Gen William R. Richardson, US Army, who was Gen Glenn K. Otis's successor as the TRADOC commanding general, pointed out in a 1986 article how the new doctrine did not resolve a corps commander's dilemma when asking for interdiction support and failing to receive it. Richardson also suggested that "success in either rear or deep operations can only be measured by its impact on future close operations," an idea certainly anathema to many Airmen.[6] Few found it surprising that an article on Army doctrine would measure success in terms of the close battle. Meanwhile, more fundamental disagreements arose in other quarters. One Airman, Jon S. Powell, in a prize-winning essay for *Air University Review*, suggested that AirLand Battle was seriously flawed in several of its fundamental assumptions.[7] By 1988 the roles-and-missions debate, muted for one-half decade after Creech's personal involvement in the BAI issue, resurfaced with fundamental questions about air superiority, air interdiction, and CAS. According to one writer, "the AirLand Battle doctrine is bringing such questions to the fore—not so much because the services are steeped in parochialism, but because they must iron out their differences in order to make the best use of their increasingly versatile weapons and forces for the benefit of both."[8] Interestingly, the issues surrounding the revised Army doctrine were far more prominent when compared to the near-silence that met the

new version of Air Force basic doctrine published just prior to Creech's retirement.

In March 1984 Air Force doctrine had taken a step forward with the publication of a new AFM 1-1, *Air Force Basic Doctrine*. The new manual filled much of the void in war-fighting thought from the previous version. Additionally, it reflected a basic understanding regarding the nature of airpower. In discussing strategic and tactical actions, the manual advised that

> an air commander develops a broad plan for employing aerospace forces to undertake strategic and tactical actions against the will and capabilities of an enemy. Strategic actions produce effects and influences which serve the needs of the overall war effort; tactical actions produce direct effects on the field of battle.
>
> Strategic and tactical actions are not necessarily tied to specific geographic areas, operating environments, or types of vehicles. An air commander may employ any or all of his assigned forces to produce integrated strategic and tactical effects to support the overall objective. . . . Strategic and tactical actions are not mutually exclusive and to consider one in isolation of the other disregards their interdependence and their synergistic influence in warfare.[9]

Nevertheless, the manual still reflected confusion regarding the difference between strategic bombing and interdiction. The manual described the mission of "strategic aerospace offense" as one in which "attacks are directed against an enemy's key military, political, and economic power base. . . . Targets may include: concentrations of uncommitted elements of enemy armed forces, strategic weapons systems, command centers, communications facilities, manufacturing systems, sources of raw material, critical material stockpiles, power systems, transportation systems, and key agricultural areas."[10] Interdiction was defined as a mission in which the objectives are to "delay, disrupt, divert, or destroy an enemy's military potential before it can be brought to bear effectively against friendly forces." It listed typical interdiction target sets that were strikingly similar to those suggested for strategic offensive operations in air and space: "enemy surface forces; movement networks (including lines of communication); command, control, and communication networks; and combat supplies."[11] In retrospect, it seems evident that by 1984 the definitions of strategic operations and interdiction had become a distinction without much of a difference.

In 1988 and 1989, a sort of doctrinal debate in this same overall context took place within the pages of the prestigious journal *Strategic Review*. In many respects, this exchange encapsulated the ongoing debate concerning the nature of airpower and reflected the overall confusion about what the term *strategic* meant. In the spring 1988 issue, General Chain, SAC combatant commander, published an article titled "Strategic Bombers in Conventional Warfare," in which he attempted to debunk several "myths" about strategic airpower. These included the idea that the heavy bomber is solely a carrier of nuclear weapons; that the term *strategic* was equivalent to *nuclear*; and that theater warfare is the province of tactical aircraft.[12] "In fact," he continued, "the terms 'strategic' and 'tactical' describe actions, not weapons, and it is incorrect to associate these actions with specific types of aircraft."[13] Chain suggested that heavy bombers could play a "potentially decisive" role in conventional theater conflict.[14] General Chain observed that advances in low observables (stealth), precision, range, electronic countermeasures, and speed further blurred the traditional distinction between strategic and tactical aircraft, something that it appears was intuitively known but not widely promulgated in written form.[15]

Chain devoted the final several pages of his article to a proposal that drew a quick reply from several of the senior statesmen of strategic airpower. He suggested that theater commanders could profitably use the B-52 in deep-interdiction missions flown in what he referred to as a strategic area of responsibility (SAR). The SAR was to be a geographic area beyond the range of "most tactical air assets." (Despite Chain's caution that tactical and strategic were inappropriate when used to describe aircraft, he apparently could not find a more appropriate adjective for his own use.[16]) The theater commander would designate targets in the SAR based upon the advice of a SAC general officer.[17] What seems most interesting is that while the article cautions against artificial distinctions between strategic and tactical, it introduces a concept in which airpower would not be centrally controlled by an Airman but divided into two areas: one for the theater Airman and one

for the SAR Airman under the direct control of the theater commander.

However, this concept did not draw fire. Rather, it was the idea that a theater commander might control SAC assets at all. Maj Gen Haywood S. Hansell Jr., USAF, retired, and Arthur G. B. Metcalf, both highly regarded strategic-airpower advocates, replied that strategic airpower should never be parceled out to theater commanders whose outlook was decidedly local. Instead, they argued, SAC should maintain direct control of all SAC assets and what was needed was a conventional single integrated operational plan (SIOP) to mirror the nuclear SIOP that SAC maintained.[18] In a carefully worded reply, General Chain suggested that SAC had adequately addressed Hansell and Metcalf's concerns, and that the B-52s offered for theater missions were in excess of SAC's nuclear commitment.[19] Hansell and Metcalf's reactions to the SAR concept hearkened directly back to the experiences of World War II, when strategic airpower was directed not by the theater commanders but by the joint or combined chiefs of staff. Meanwhile, the TAC commander of the late 1980s, Gen Robert D. Russ, was examining the same historical threads elsewhere.

General Russ, in several late-1980s publications and speeches, suggested a strong TAC bias for Army support. Writing in the TAC-TRADOC *AirLand Bulletin* in 1988, Russ reminded his readers that "in 1946, General Spaatz promised General Eisenhower that, upon formation of the new Air Force, he would continue to support the Army through the formation of a 'Tactical Air Command.'"[20] Taking into account that the modern-day TAC had absorbed the mission of the Air Defense Command (ADC)—also established as one of the Air Force's first commands—Russ stated, "Tactical aviators have two primary jobs—to provide air defense for the North American continent and support the Army in achieving its battlefield objectives."[21] He made similar statements on other occasions.[22] Russ had a strong sense of the historical missions of TAC and ADC; but there was also an often overlooked, but strong, contextual element that most likely shaped Russ's seemingly narrow view of TAC's mission.

Equipment and Training: Steady as She Goes, Mostly

Shortly after taking command of TAC, General Russ found himself as the Air Force's lead spokesman in a renewed equipment controversy within the Department of Defense, this one centered on the CAS mission. Fielding a follow-on CAS aircraft for the A-10, which was increasingly viewed as too vulnerable to survive on the modern battlefield, was a significant requirement through the mid- and late 1980s. This debate began in 1985 when Secretary of the Air Force Verne Orr demanded the service begin development of an A-10 follow-on or risk losing support for the ATF.[23] The uniformed Air Force institutionally, with the support of the Army, wanted to field a combination of A-16s (F-16s modified especially for the CAS mission) and A-7Fs (A-7Ds modified with new engines, avionics, and an extended fuselage). The Air Force's position was driven by two factors. First, the Air Force had higher priorities and believed the A-16/A-7F combination would be much less expensive and put less fiscal pressure on four other higher-priority programs: ATF, Advanced Technology Bomber (later redesignated the B-2), C-17, and AMRAAM.[24] Second, the Air Force believed that the characteristics needed in CAS aircraft and those needed from BAI aircraft were identical and resisted attempts to develop and test a CAS-only aircraft.[25]

There were two central issues in this debate. Many within the OSD wanted the Air Force to develop a purpose-built CAS aircraft, tougher and able to absorb more punishment than the A-16 or the A-7F.[26] The Air Force generally believed that the best way to ensure survivability on the modern battlefield was with speed and maneuverability, not armor. One writer described the chief of staff's (General Welch) position on this issue as follows: "A CAS aircraft would not survive [on the modern battlefield] if it were built as a '23 mm sponge,' the chief of staff asserted. Rather it will be capable of surviving only by virtue of its speed and maneuverability, which means, he said, 'staying close to the target at a reasonable speed—in the vicinity of 350 knots or so'—and 'handling itself at 500 knots or so.'"[27]

Many within Congress and elsewhere feared that the Air Force would divert these aircraft away from CAS missions, leaving the Army bereft of air support.[28] Regarding this issue, one writer stated, "Among aerospace executives at the [Air Force Association] symposium, there was some hallway speculation that the Air Force, despite its best intentions, would not be able to resist the temptation to divert A-16s from CAS and employ them as fighters should the odds worsen for it in the air battle."[29] It was within this context that Russ made his several comments regarding TAC's imperative to support the Army. Russ correctly perceived a lingering suspicion within many circles that the Air Force preferred to modify F-16s for CAS so they could be used for other missions besides CAS. Accordingly, he made a point in many of his writings, speeches, and interviews to reassure his audiences that the Army would not be neglected and that the follow-on CAS aircraft should be capable of BAI as well as CAS.[30] Lt Gen James R. Brown, the TAC vice-commander in 1988, echoed Russ's themes in a reply to those who believed that the Air Force intended to divert the A-16 away from the CAS mission: "We want the A-16s to be dedicated to the Army commanders, and we are going to do that. . . . [The A-16] will be their airplane [and] we will even give it an Army paint scheme."[31]

The (uniformed) Air Force's cooperative spirit with the (uniformed) Army seemed to pay dividends with reciprocal gestures of trust and goodwill. When a former undersecretary of the Army, James Ambrose, complained, "We are not getting the fixed-wing close air support we need," General Richardson's successor as the TRADOC commander, Gen Maxwell R. Thurman, refused to comment directly but indicated that he would leave the choice of airframes to Airmen, and that he was, for the time being, satisfied.[32] By 1990 the two service chiefs were united on the CAS/BAI aircraft issue and appealed to the deputy secretary of defense (through the chairman of the joint chiefs, whose support they received) and key congressmen that the CAI and BAI mission areas should be evaluated together.[33] Later overcome by world events, this one-half-decade debate, initiated by the services' civilian leadership (the Air Force's Orr and the Army's

Ambrose), never led to any new aircraft, and no follow-on CAS aircraft were ever purchased.

In early 1985, Creech's successor, General O'Malley, stated that "the TAF priorities over the last two years have not really changed. LANTIRN has been consistently our number one priority."[34] In 1986 an Air Force acquisition official called the lack of a night-attack capability (i.e., LANTIRN) to be "the most serious operational deficiency in our tactical air forces today."[35] Many of the improved munitions programs developed during General Creech's tenure came to be fielded in the years following his retirement as well. Among them were the GBU-15 precision-guided glide bomb, HARM for defense suppression, and the imaging-infrared Maverick.[36] Other significant program initiatives during Creech's tenure as the TAF spokesman that continued through development and into fielding were the AMRAAM and the F-15E, both entering service just prior to the 1991 Gulf War.[37] The priorities among the various programs stayed relatively unchanged throughout the remainder of the decade. In describing Russ's program priorities, Gen John P. Jumper, who served as executive officer to both Creech and Russ, said that rather than starting a series of new programs as had been done during Creech's tenure, "General Russ . . . kept all of that stuff going, enthusiastically."[38] While the equipment battles were under way, TAF realistic training continued apace.

The various flag exercises continued throughout the latter half of the 1980s, and Creech's successor, General O'Malley, explicitly acknowledged Creech's contributions in this regard. Immediately after O'Malley assumed command in late 1984, he said, "I think that perhaps TAC's most important mission, and I think the one that it has done the best under General Creech, is training. I believe the pilots in TAC today are the best-trained pilots the tactical air forces have ever known—during World War II, Korea, Vietnam, or any time since Vietnam."[39] O'Malley and Russ continued the emphasis on realistic training throughout the decade as Red and Green Flags continued to train air forces throughout the 1980s.[40] TAC units continued their Checkered Flag deployments to both Europe and the Pacific.[41] There were no deviations in realistic training from the course Creech had set in the late 1970s.

Organization and Leadership: The Fighter Generals

The products of Creech's formal Commander's Leadership Awareness and Sensitivity Seminar (CLASS) program, in which wing commanders and other senior officers were formally mentored, as well as the individual grooming assignments that Creech arranged for selected officers, proved to be very fruitful. In the two-and-one-half decades following his formal seminars and grooming/mentoring programs, Creech's program had a hand in producing—from his six-and-one-half-year tenure at TAC—21 four-star generals out of a command (TAC) that constituted approximately 20 percent of the Air Force.[42] This figure does not include the broad label of "fighter generals" or even "TAC generals" but specifically graduates of Creech's program. Among them are a chairman of the joint chiefs, several chiefs and vice-chiefs of staff, several commanders in chief—now combatant commanders—of unified commands, and commanders of every Air Force four-star MAJCOM.[43] TAC graduates, as they are sometimes called, eventually brought many of the decentralization initiatives to the other MAJCOMs with similar effects to those achieved at TAC. Every chief of staff (six) from 1986 through 2002 was either a TAC wing commander or was on the TAC staff during Creech's tenure, with five of the six having been involved in the CLASS program.[44] While Creech was rightly reluctant to take credit for the accomplishments of others, the simple fact that 21 full generals, whom Creech had at the least a hand in developing, came to populate the Air Force's most senior leadership ranks stands as a powerful testimony to his ability to create new leaders, his self-described first responsibility of a leader.[45]

Not surprisingly, neither O'Malley nor Russ made any substantial changes to the organization of TAC throughout the remainder of the 1980s. The decentralized maintenance and supply organizations Creech had established remained generally unchanged. Many considered Russ and Creech of like mind concerning leader development and especially grooming.[46] General Ashy, who worked closely with both Creech and

Russ, viewed their organization and leadership principles as "a continuum."[47] In an oral-history interview, he said,

> General Creech said so many times that the first responsibility of a leader is to create new leaders. . . . What he meant by that was that you must have a clear leadership story, and you must teach, teach, teach, teach, teach, and teach! Although they were different men, different personalities, and different leaders, General Russ . . . absolutely agreed on this. We had 10 years [*sic*] of this two-commander continuum in [the] Tactical Air Command, with superb results. Nobody can argue with the excellence of the product.[48]

In early 1991, the TAC product would be tested in the first large-scale combat experience for the Air Force since the Vietnam War.

Desert Storm: The Crucible of Combat

In August 1990, Iraq's invasion of Kuwait set off a series of events that provided a trial by fire for each of the elements described in this study: doctrine and thinking; equipment and training; and organization and leadership. From August 1990 until January 1991, the United States and its coalition partners built up a substantial force throughout the Persian Gulf region during Operation Desert Shield. Gen H. Norman Schwarzkopf, the combatant commander of United States Central Command (CENTCOM), was the overall commander; Lt Gen Charles A. Horner commanded the Central Command Air Forces (CENTAF). As the CENTAF commander, Horner held responsibility for all Air Force assets deployed to the theater and was also designated the JFACC, a position which made him responsible for tasking and controlling much of the available joint and coalition airpower. General Schwarzkopf designated Horner the CENTCOM forward commander early in August 1990, which made him responsible for all US forces until Schwarzkopf arrived on 23 August.[49] These few weeks proved critical for the air planning under way in various headquarters around the world.

Horner's CENTAF staff deployed forward and developed an initial plan focused heavily on supporting the Army forces in-theater. Initially, the relatively small (compared to what it later became) CENTAF staff concentrated on defensive planning because of limited ground and air forces in-theater and

the need to prepare for the worst-case scenario of an Iraqi incursion into Saudi Arabia.[50] In essence, it reflected a scenario similar to the central European scenario in which Warsaw Pact forces would come across the border and allied forces would be forced to defend while bringing further forces into the theater. In this case, the threat was Iraqi forces coming into Saudi Arabia before there were substantial forces in place to defend the border. Consequently, CENTAF planning efforts during August 1990 had a decidedly defensive flavor.[51] A similar defensive scenario had been rehearsed earlier in the year during the biannual CENTCOM "Internal Look" exercise.[52] While Horner's CENTAF staff began their rudimentary planning, air planning had already begun elsewhere.

Schwarzkopf set another planning effort in motion when he called the Air Force chief of staff and asked for some help developing a strategic air campaign for the crisis. The chief, General Dugan, was away from the Pentagon, but General Loh, Dugan's vice-chief, enthusiastically agreed.[53] Loh and his director of planning, Maj Gen Robert M. Alexander, assigned the task to one of their Air Staff deputies, Col John A. Warden III.

Colonel Warden, in his 1988 book *The Air Campaign: Planning for Combat*, had a decidedly different view of the role of airpower from what he perceived to be that of many Air Force leaders. While serving as the deputy director for Strategy, Doctrine, and Warfighting on the Air Staff, Warden had developed a five-rings model that conceived of the enemy as a system of five concentric rings.[54] According to Warden, the enemy's leadership lay at the center of the five rings and comprised the most important targets in a conflict. In giving the planning assignment to Warden, Loh and Alexander created a situation destined to become rather combustible.

Warden gathered a team from his directorate (and others) and produced a concept called Instant Thunder in which he proposed aggressive air operations directed against the leadership of the Iraqi state.[55] The concept largely ignored the Iraqi fielded forces and suggested that victory could be had in six to nine days.[56] Instant Thunder quickly gathered steam in the Pentagon and at CENTCOM headquarters, with both Schwarzkopf and Gen Colin L. Powell, then chairman of the

Joint Chiefs of Staff, reviewing the proposal.[57] However, Powell's 11 August review foreshadowed the difficulty Colonel Warden would later have in presenting Instant Thunder as an operational plan. According to one account of Warden's briefing to the chairman, "General Powell listened patiently and when Warden finished said in a low, even voice, 'If we go this far in the air campaign, I want to finish it. Destroy the Iraqi army on the ground. . . . I don't want them to go home. I want to leave smoking tanks as kilometer posts all the way to Baghdad.'"[58] After some discussion among attendees, Powell continued, "I can't recommend only the strategic air campaign to the president. The campaign I laid out for the president was to sweep the air, leave the tanks to be picked off piecemeal. Make it joint."[59]

Despite Powell's reservations, Schwarzkopf directed Warden to go to Saudi Arabia and brief Horner on Instant Thunder. Schwarzkopf had made it clear that Horner was his Airman and that Horner would make the final decisions on air planning.[60] On 20 August Horner received the Instant Thunder briefing. Horner was well aware of the briefing he was about to receive. A week beforehand, Horner had asked Lt Gen Jimmy V. Adams—Alexander's and Warden's boss—for a preview of the planning taking place in the Pentagon. Adams had sent Lt Col Steve Wilson to Saudi Arabia to brief Horner, who was unhappy with the Air Staff involvement in theater air planning and gave Wilson a notably cool reception.[61] Having been the CENTCOM forward commander and having had to face the very real possibility of an Iraqi invasion of Saudi Arabia, Horner had an acute appreciation of the intimidating requirement for worst-case planning. Accordingly, on 20 August when Warden arrived, his briefing did not go well. His optimistic six-to-nine-day projections and heavily discounted defensive planning efforts suggested too much hubris to Horner.[62] During the briefing, Horner identified and dismissed a distinction that had been artificial to many Airmen for decades. He told Warden, "Let's not use the terms *strategic* and *tactical*. Targets are targets."[63] Despite his manifest disdain for Instant Thunder as an operations concept, Horner saw some value in the targeting information embedded in the Instant Thunder presentation and asked several of Warden's assistants to stay and help with

the ongoing CENTAF planning efforts. Within weeks, they had all returned to the United States save one: Lt Col David A. Deptula. Under Horner's supervision, Colonel Deptula became one of the key day-to-day mission planners in the CENTAF Special Planning Group, also known as the Black Hole.[64]

The plan that Schwarzkopf and Horner eventually went to war with grew to include far more than the "strategic air campaign" outlined in August.[65] As the war unfolded, eventualities such as the Scud missile attacks on Israel and Saudi Arabia illustrated Helmuth von Moltke's dictum that "no plan survives first contact with the enemy." At times, the air operations resembled the Army's published AirLand Battle doctrine: for example, the Battle of Khafji, in which air forces detected, engaged, and destroyed three Iraqi divisions before they could deploy and decisively engage coalition ground forces.[66] At other times, the air operations were relatively independent; they were striking deep within Iraq in pursuit of the theater commander's overall campaign objectives. According to both Creech and Starry, these situations (i.e., in which Army and Air Force forces engaged in joint as well as independent operations) were both in keeping with the broader AirLand Battle concepts they had agreed to more than a decade beforehand.[67] In all, Horner and his staff seemed to strike a productive balance between the many competing concepts for airpower employment.

Regarding Warden's contribution, it is useful to separate the Instant Thunder operational concept that Warden envisioned (which was not executed) from the strategic targeting data implicit in Instant Thunder (which Horner incorporated into his air plan). Instant Thunder as a concept of operations consisted of six-to-nine days of air operations by 32 fighter and attack squadrons, ready to execute as early as 18 August and certainly by late September.[68] This concept, which Powell and Horner adamantly rejected as a stand-alone operation due to its inattention to Iraqi ground forces, was never pursued beyond the 20 August briefing in which Horner sent Warden and Instant Thunder back to Washington—less than three weeks after the Iraqi invasion. In retrospect, Warden's six-to-nine-day projections proved in the event to be significantly divorced from the reality of

the Iraqis' ability to withstand the rigors of "strategic attacks," as Powell and Horner had foreseen.

Operationally, Horner's air forces employed in accordance with the concepts set forth over a decade before at the Warfighter Conference and profitably used the equipment and munitions developed and fielded during Creech's tenure as the TAC commander. Horner employed the F-117 and its precision munitions against many high-value targets in and around Baghdad as well as against key Iraqi communications and air defense nodes. Iraqi forces in Kuwait took a beating at the hands of B-52 bombers (among others) assigned to Horner in the first case of truly centralized control of airpower since before World War II. Other systems and munitions on prominent display through the Gulf War included the LANTIRN, EF-111, EC-130H, E-8C, and a host of precision munitions, such as the GBU-15, GBU-24, and the imaging-infrared Mavericks. The defense-rollback strategy was executed as envisioned with Iraqi air defenses rendered largely ineffective by the second day of air operations, which allowed coalition aircraft to operate safely from medium and high altitudes.[69] Air Force forces also took good advantage of the many precision munitions developed and fielded during the previous decade and a half. The differences in precision-munitions employment between the various service air arms clearly illustrate the thinking and procurement activities that had taken place in the preceding years (table 1).

Table 1. US expenditures of precision-guided munitions (PGM) during the 1991 Gulf War

	AF	*Navy*	*Marines*
PGMs	13,711	770	309
Total Munitions	162,101	29,769	32,924
Percentage PGMs	8.5	2.5	0.9

Source: Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey*, vol. 5, *A Statistical Compendium and Chronology* (Washington, DC: Government Printing Office, 1993), 550–52. Data includes guided bombs and air-to-surface missiles.

Horner and his Airmen benefited from the years of realistic training and logistics planning that preceded the Gulf War. In describing the first few tense weeks of Operation Desert Shield, one writer chronicled Horner's reaction:

> Watching from Riyadh as one squadron after another touched down after the exhausting overseas flight, Chuck Horner said a silent prayer of thanks to all the Checkered Flags and Blue Flags and operational-readiness inspections that Bill Creech had force-fed the Tactical Air Forces, getting them in the habit of deploying quickly as a way of life. The Air Force had promised Schwarzkopf five squadrons in place by the end of the week, and while the rest of the deployment was already behind schedule, they had actually delivered more than *double* that projection.[70]

As they flowed into theater, the squadrons were the beneficiaries of the groundwork laid a decade earlier when Creech and several of his TAC deputies proposed that the Saudis overbuild their main air bases while building bare bases in the desert and prepositioning American munitions and materiel within the kingdom. As a result, Air Force forces were ready to fight almost immediately upon arrival.

Post–Desert Storm: Changes in the Wind

After Desert Storm, Army and Air Force relations took a decided turn for the worse as Airmen began to reassert the decisiveness and independence of airpower, often at the expense of the cooperation and general harmony that had characterized Army–Air Force relationships since the end of the Vietnam War. Capturing the essence of much of the debate was an August 1991 memorandum written by an officer on the secretary of the Air Force's staff group who had been involved in the air planning for the Gulf War. In it, he decried TAC's propensity for seeing itself in an Army support role: "The danger in this relationship [in which TAC speaks directly to TRADOC—the Army's servicewide doctrine organization] is the potential for the subordination to the Army, and/or neglect of, capabilities and doctrine unique to the Air Force."[71] He suggested that "herein lies the crux of the problem—one which became painfully evident in dealing with CENTAF in developing the Gulf Air Campaign—their view of how to employ airpower was ensconced in AirLand

Battle doctrine *more* than in Air Force doctrine! . . . The Air Campaign in the Gulf would have looked a whole lot different than that executed if it had been put together under the aegis of 'AirLand Operations.' "[72] In a reversal of the dialogue that took place during the coordination process for the 1986 FM 100-5, he identified an "Army crusade" to excise the term *air campaign* from various documents and suggested that the move was motivated by Army attempts to retain some ascendancy over airpower.[73] He critiqued a memorandum that the new TAC commander, General Loh, had cosigned with the Army which indicated that "AirLand Operations sets the general azimuth for evolution of doctrine, organization, training, material, and leader development by both services."[74] This sentence was particularly objectionable to the memorandum's author because it explicitly stated that Army doctrine would drive Air Force doctrine, organization, and training.

In June 1992 most of the debate about strategic and tactical forces, campaigns, and targets was put to at least temporary rest with the formation of the Air Combat Command (from the force-projection forces of both TAC and SAC). The merger was made possible by the 1989 collapse of the Soviet Union, removing the need for SAC to keep a number of bombers on alert to execute nuclear war plans. This move organizationally ended what Airmen since at least the time of Kenney and Vandenberg—and continuing through Creech's time until Horner's admonition to Warden—had long understood to be the meaningless bifurcation between strategic and tactical.

The reorganization was accompanied by a reorientation of Air Force doctrine. The 1992 Air Force Manual 1-1, *Basic Aerospace Doctrine of the United States Air Force,* contained the clearest exposition on the definition of strategic attack in at least 15 years:

> Strategic attacks should produce effects well beyond the proportion of effort expended in their execution. Strategic attacks are carried out against an enemy's center of gravity including command elements, war production assets, and supporting infrastructure (for example, energy, transportation, and communication assets). Strategic attacks should be designed to be persistent and coordinated so as to affect the enemy's capability and possibly his will to wage war. Thus, strategic attacks should affect the entire war effort rather than just a single campaign or a single battle.

> Strategic attacks are defined by the objective—not by the weapon system employed, munition used, or target location. Strategic attacks (whether conventional or nuclear) can make vital and at times decisive contributions in gaining a war's objectives.[75]

Despite the progress in Air Force written doctrine, Creech's views on quality, which were centered on the organization, its people, and its product, were replaced with a servicewide program known as Quality Air Force (QAF). General McPeak succinctly offered, "The Quality Air Force is all about continuous improvement."[76] Regrettably, the QAF program quickly became mired in its process focus. This was brilliantly, if unintentionally, captured in a 1993 *Government Executive* article that focused on the QAF efforts under way in ACC. In a telling vignette, the article described how ACC attempted to produce a mission statement and describes how the ACC commander believed that in narrowing down the candidate-mission statements, "the process of inclusion was more important than the final product."(!)[77] The article goes on to say that "squadrons have . . . 'cross-function' quality improvement teams continually looking at ways to improve everything from aircraft sortie rates to day care!"[78] The Air Force implemented a QAF program ensuring that everyone was included in developing the ACC mission statement. However, this process of inclusion was more important than the ACC mission statement. Ironically, Creech at this time was writing a book titled *The Five Pillars of TQM: How to Make Total Quality Management Work for You*. In it, Creech warned against getting overly enamored with process-based quality programs, writing that "most are seizing on process improvement methodologies as the cure for all their organizational ills. That mind-set leads them to jump at the chance to instill another 'overlay' to their centralized, functionalized organization in the form of councils, committees, and 'cross-functional' process improvement teams."[79] Deviating from Creech's philosophy of selecting a few key measures to track output, ACC had, by 1993, established 166 "quality performance measurements," which represented "standards against which every squadron competes, whether it is a squadron of F-15 fighters trying to keep their abort rate below

5 percent, or a pharmacist trying to keep the waiting time to fill a prescription below 10 minutes."[80]

Not surprisingly, the QAF program led to much resentment within the service. In 1997 a pair of Air Force officers who had enrolled in a National Security Fellows program at Harvard University wrote a report titled *Total Common Sense: Choosing Professionalism at the Air Force Quality Crossroads,* in which they excoriated the QAF program and called for a return to the ethos of professionalism and the product and teamcentric brand of quality Creech championed.[81] The paper received wide circulation among a new generation of Air Force leaders in 1997 and 1998, and, after discussing the issue at a Corona conference, the Air Force's four-star leadership abandoned QAF-style quality and began a return to the brand of quality with which they had experienced such success. In describing the Gulf War, General Horner captured the essence of the earlier approach as follows:

> The great success of our air campaign flowed from a strong quality foundation. . . . It produced: Quality in the weapons we conceived, and had built. Quality in our insistence and insurance they would work as advertised—and they did. Quality, and maximum realism, in our training. Quality in the way we treated and supported our people. Quality in our team structured and team oriented organization. And quality in our leadership at every level that had been unleashed by that new organization. It was all of those, and the other important improvements that came with them, that blended together to build peak performance and strong, unwavering commitment from everyone involved.[82]

In the force drawdown following the Gulf War, many of the underpinnings of Creech's Robust Units program were abandoned in like fashion to what happened following World War II, Korea, and Vietnam. During the buildup to 40 wings, every TAF, Air National Guard, and Air Force Reserve fighter squadron had 24 aircraft both authorized and assigned per the Robust Units concept. The 24-aircraft squadron, the TAF had found, was the optimum size in terms of both peacetime sortie production and wartime synergies of scale.[83] In trying to cut force structure while retaining as many units as possible, in 1992 the Air Force directed that these squadrons be assigned 18 aircraft instead of 24 (with some drawing down to as few as 12 aircraft per squadron).[84] This restructuring proved to be both cost ineffective and also operationally troublesome as Airmen tried to meet the on-

going requirements of the 1990s with fewer assets while maintaining the same overhead.[85]

Analysis and Summary

Many have suggested that the TAC-TRADOC cooperation of the 1970s and 1980s contributed materially to ossified doctrinal thinking within the Air Force and that by the time of the Gulf War, TAC leaders had lost all perspective on any broader roles for airpower outside of Army support. In an interview shortly after the war, Colonel Warden was asked about Air Force capabilities to plan strategic offensive air operations outside of his division on the Air Staff. He replied, "I do not believe, as far as I know, that there was any other organization that had the right kind of people in sufficient numbers with the right kind of background that could put something of this sort together. It just didn't exist anyplace else."[86] He continued, "Since, for all practical purposes, all the planners were TAC people, for the most part they were imbued with the idea that the only purpose of TAC was to support the Army, so everything that they were doing—European focus, Korean focus—was, 'How can we help the Army fellows to hold the line?' "[87] Other literature echoes this view. One writer, in describing the airpower debates surrounding the Gulf War, suggested that TAC's view of supporting the Army not only precluded any thinking about airpower in a larger context but it actually caused TAC Airmen actively to resist efforts to do so.[88] General Horner and the other TAC-trained Airmen—so it was thought—were involved in an "unholy alliance" with the Army in which Airmen perceived their role to be nothing more than supporting the Army.[89]

The binary model used to describe this situation suggests that officers such as Generals Dugan and Loh, as well as Colonel Warden, represented a broader-thinking group within the Air Force while General Russ and Lieutenant Generals Adams and Horner represented the TAC-trained, Army-focused group within the Air Force. This view is flawed. All five of the general officers in this paradigm were TAC-trained, having, for example, worked for Creech and benefited from his leadership-development program. TAC's 1984 "Interdiction" briefing contained diagrams il-

lustrating the range to Tehran, Iran, for a Persian-Gulf scenario; notional targets for a European scenario including electric-power production, command posts, and communications centers; and target diagrams highlighting eastern European capitals alongside airfields and railroads. The traditionally strategic targets suggested that the tactical briefing should give pause to those who might believe TAC viewed itself in terms of Army support to the exclusion of all other forms of airpower application. While addressed under the rubric of interdiction, the briefing suggests a far broader appreciation of airpower than often attributed to TAC Airmen of the 1970s and 1980s. It reflects the lexicon of the time among TAC Airmen to whom interdiction meant far more than the narrower definition in use during the latter part of the 1990s and beyond.

Many have argued that Warden's Instant Thunder proposal formed the heart of the Gulf War's air operations.[90] While Instant Thunder did contain valuable strategic-targeting data, the Instant Thunder plan was misguided. The Gulf War and succeeding air operations in Bosnia, Kosovo, and Afghanistan suggest that a six-to-nine-day estimate was, as Powell and Horner perceived, unreasonably enthusiastic. The strategic-targeting effort carried out (for a time) under the name Instant Thunder contained a wealth of intelligence and targeting data that Horner needed. Horner seized the strategic-targeting portion of Instant Thunder and used it to make up one of the threads in the air operation with which Schwarzkopf and Horner went to war in January 1991—a full four months after the Instant Thunder projections of how to achieve a quick and decisive victory over the Iraqi forces.

Many critics of the TAC-TRADOC dialogue suggest that Russ's oft-repeated statement concerning TAC's missions—namely, air defense of the United States and support of the Army—provides manifest evidence of blinkered thinking. However, there are at least three other factors to consider before reaching this conclusion. First, Russ's comments were made at a time when several institutionally important Air Force programs were being threatened by an attempt to produce a follow-on CAS aircraft. The Air Force, of course, having other higher-priority programs, wanted to spend as little as possible on this

requirement. Many believed the Air Force would use the multirole F-16 (perhaps in a slightly modified A-16 configuration) as a pacifier for the Army's CAS requirement while intending to use those assets for other seemingly more important air missions in the event of combat. There was a serious need to build as many bureaucratic alliances against these forces as possible. What better ally in this battle than the Army? It seems likely that Russ intended to keep the Army's support and reinforce the institutional goodwill built up over the previous decade and a half by consistently repeating the "our mission is to support the Army" refrain. Of note, Russ's predecessors, who were not under the same pressures, never made such categorical statements.

If, on the other hand, Russ sincerely believed that TAC's *only* missions were to provide for the air defense of the United States and to support the Army, he would have been correct from an organizational perspective. TAC's organizational imperative from its inception was to support the Army. Assuming Russ believed this to the extent often ascribed to him, it seems that a better place to look for explanations as to why this would be so might be the original organization of air forces from World War II onward. Until Desert Storm, there had never been true "centralized control" of air forces, even within the Air Force. In the middle of World War II, airpower in Europe was divided into tactical and strategic air forces. While each air force had different aircraft types, they operated in generally the same geographic areas. Consequently, Airmen began to draw a distinction. When independently organized in 1947, the United States Air Force, for a number of reasons, divided aircraft as well as missions into strategic and tactical camps. SAC targeted homelands; TAC supported the Army. SAC had bombers and some escort fighters; TAC had light or attack bombers and fighters. Thus, the issue was not one regarding TAC's arrogation of airpower thought but the Air Force's abdication of airpower thought through a construct of strategic and tactical aircraft, munitions, and actions that by the 1990s had long since outlived their usefulness.

The experiences of Vietnam were seminal for many Airmen who came to occupy the most senior leadership positions in

the 1980s and 1990s. In Vietnam the distinction between strategic bombing and interdiction became blurred; this was reflected in doctrine and writings for the next two decades. Before 1992, when TAF Airmen said the word *interdiction*, it could have meant anything from leadership targets, to factories, to bridges, to fielded forces. TAF Airmen viewed their missions in terms of air superiority, CAS, and interdiction; but this was not, in the parlance of the day, as narrow as it may seem. In Vietnam, fighters performed interdiction against refineries in Hanoi while "strategic bombers" performed CAS in South Vietnam. The basic and operational-level doctrine until 1992 reflected this confusion, with the distinction between strategic bombing and interdiction (and who did which) becoming badly confused. Although there was never any shortage of Airmen prepared to comment on the latest version of the Army's doctrinal publications, the same Airmen were strangely silent concerning their own service's seriously flawed basic doctrine. This point was clearly illustrated in the wake of the Gulf War when a heated debate ensued concerning whether the Gulf War was or was not AirLand Battle.

Whether or not the Gulf War was AirLand Battle has occupied writers for a decade or more. While the debate should have been largely irrelevant, Airmen have gone to great lengths to distance themselves from AirLand Battle in the aftermath of Desert Storm. Shortly after the war, one Air Force doctrine analyst, Edward C. Mann, wrote, "It is conceivable (and logical) that the ground scheme [of maneuver] was designed to exploit the opportunities created by the air campaign, but the air campaign was not built in support of the ground scheme, because it wasn't ready yet. FM 100-5 never addresses such a possibility. In AirLand Battle, airpower can exploit opportunities created on the ground, but air never creates the opportunity to be exploited by ground forces."[91] In the winter 1991 *Airpower Journal*, another Airman, Mark Clodfelter, wrote, "AirLand Battle did not, however, provide for a *strategic* application of air power against the warmaking capability and will to resist of an enemy nation."[92] A decade after the Gulf War, military analyst Rebecca Grant opined,

> From all appearances, the massive, multicorps Gulf War offensive was a textbook example of AirLand Battle in the real world. In fact, Desert Storm used only broad-brush strokes from the operational palette of AirLand Battle. Schwarzkopf . . . did not order up simultaneous close, rear, and deep operations. . . . Rather, he constructed a campaign that began with prolonged deep air operations and which proceeded for quite some time without a ground offensive.[93]

Grant praised the Army's 1976 FM 100-5, the doctrine known as the "Active Defense."[94] Oddly, the 1976 publication was less friendly toward the Airman's traditional view of theaterwide airpower employment than was the supposedly objectionable AirLand Battle doctrine that replaced it. The trend of disparaging the AirLand Battle continues as airpower advocates try to distance themselves in the aftermath of the Gulf War.

In offering his own assessment of the Gulf War, Creech noted that

> there was a combined AirLand campaign with the forces of both services directly involved with the enemy forces. That's when the AirLand Battle concept kicked in, not during the . . . preparatory 39-day "air campaign" phase. And NOTHING in AirLand Battle precluded or foreclosed independent actions by either service if the unfolding battle scenario should so dictate—even up to and including totally independent operations by either service. AirLand Battle was strictly a concept to cover when both the Air Force and the Army were JOINTLY directly engaged with an enemy—wherever and whomever that enemy might be. It specifically envisioned "battlefield preparation" by the Air Force if circumstances so allowed.[95]

He elaborated further in his 1992 oral history interview:

> Any detailed and objective study of the doctrine applied in the Gulf War will reveal that new AirLand Battle Doctrine thinking at work. It was a war of maneuver, not of set-piece battles, just as the doctrine had envisioned. There were many other aspects that fit the doctrine to a "T."
>
> If any of the ground elements in the great left hook sweep across the Iraqi flank ran into trouble, the air was the reserve to come to their rescue. There was no ground reserve, per se, a classic piece of former Army thinking. And the Air Force softened the Iraqi capabilities—and will to fight—with extensive interdiction as well as battlefield attacks, both deep and shallow, against artillery and armor, all with devastating results.[96]

Despite the ongoing debate, AirLand Battle need not threaten Airmen. The broad AirLand Battle concepts that Generals

Creech and Starry envisioned were air-friendly: centralized control of airpower; theater-centric focus; and deep, maneuver-oriented operations. More narrowly, AirLand Battle as articulated in FM 100-5 was Army doctrine. It seems axiomatic that Army doctrine would have a ground perspective and thus view all other services in terms of their contribution to the ground scheme of maneuver. If Airmen do not intend to include the various cases of ground maneuver within air doctrine, it is puzzling why an Airman would expect Army doctrine to describe how airpower might be used independently from ground forces. Clearly, there were aspects of the Gulf War explicitly congruent with FM 100-5—the Battle of Khafji, for example. There were also aspects of the Gulf War that, while in accordance with the broader AirLand Battle concepts Creech and Starry envisioned, were not explicitly addressed in FM 100-5 because they dealt exclusively with air operations—the 39 days of independent air operations that preceded the combined air and land operations that concluded the Gulf War, for example. Rather than distancing themselves from Army doctrine, Airmen may have been better served by spending their time improving the flawed airpower doctrine with which Horner went to war.

Creech and the Air Force had good reasons to engage in the close cooperation with the Army. The reasons may have been to counter the Soviet buildup in central Europe, to stave off internecine battles with the Army during the impending drawdown after Vietnam, to gain a powerful ally in advocating for and developing new equipment, or even to help the TAF gain ascendancy within the Air Force. Whatever the motivations, the four suggested above were all accomplished. However, for many, the lingering suspicion remains that Air Force thinking may have been an unintentional victim of this cooperation, if not in Creech's time, then perhaps later. General Fogleman suggested that "the Air Force as a whole . . . lost the bubble on doctrine and so, by default, we sort of turned that over to the major commands, so it was easy for Creech to take that thing and run with it. . . . After Creech left, there were people, then, who forgot *why* he had become embroiled with the Army and they stayed with that doctrine too long."[97]

Partly as a result of this debate, there has been a renewed interest in written doctrine within the Air Force, with a salubrious effect on the service's intellectual growth and development. For example, the Air Force established its doctrine center at Maxwell AFB, Alabama, to capture much of the thinking that had previously been expressed in terms of equipment, tactics, and training.

However, the reorganization, while removing much of the artificial strategic and tactical distinction, has had some undesirable side effects. The elimination of a command that was formed for the explicit purpose of Army support has, not surprisingly, led to a diminished constituency within the service for that important mission. Consequently, interservice relations have been decidedly cool in the aftermath of the Gulf War. Reminiscent of the 1960s when roles and missions were the subject of heated debate, the services now find themselves at odds over issues such as ballistic and cruise-missile defense, tasking and coordination of Army Tactical Missile System (ATACMS) fires, and whether or not airpower can effect a "decisive halt." In a 1994 speech, General McPeak went so far as to suggest the Army give up ATACMS and air defense assets and the Air Force give up CAS by arguing that the former are better suited to the Air Force and that the Army should be more interested in the latter.[98]

Perhaps most troubling in debates over "Instant Thunder and its contribution to the Gulf War victory," "strategic versus tactical," and "AirLand Battle" is the fratricidal nature of these debates within the Air Force. While intellectual debate is almost always healthy, the tone of the debate surrounding these particular issues is often bitter and divisive, with the topics treated as binary issues: black and white, good and bad. For example, the very title *Heart of the Storm: The Genesis of the Air Campaign against Iraq,* Col Richard T. Reynolds's publication, suggests that its topic—the development of Instant Thunder—was both the heart of Desert Storm and the genesis of the air planning for the Gulf War. Instant Thunder as an air plan had a life of approximately 10 days: from the date on which Colonel Warden initially briefed General Schwarzkopf until General Horner rejected the plan on 20 August 1990. Nevertheless, finding its way into civilian work, the contentious debate re-

garding the role of Instant Thunder was chronicled in David Halberstam's 2001 work *War in a Time of Peace: Bush, Clinton, and the Generals*, in which an entire chapter is devoted to giving Colonel Warden credit for the Gulf War victory while at the same time painting Horner, and TAC Airmen in general, as veritable troglodytes incapable of thinking about war fighting on a grand scale. Regrettably, Halberstam's best-selling account draws heavily on Reynolds's work as evidence. Meanwhile, the companion piece to Reynolds's work, Col Edward C. Mann's *Thunder and Lightning: Desert Storm and the Airpower Debates*, frames the Gulf War debate in stark terms of "strategic" versus "tactical," with the latter implied to be decidedly inferior to the former. The distance that many have tried to put between the Air Force and the AirLand Battle is founded upon a narrow conception of the AirLand Battle concept in which the Air Force existed to support the Army. While these black-and-white accounts may make for exciting reading, they ignore the vast gray area in which the services must operate daily:

- Did Warden make a contribution to the Gulf War effort? Of course. Was he the mastermind of the air campaign as it unfolded? Hardly.
- Was there confusion concerning the terms *strategic* and *tactical*? Of course. Did the confusion, such that it was, cause Airmen—or the air effort, for that matter—to be either one or the other? Certainly not.
- Did the details of AirLand Battle contain points of friction for the Air Force and the Army? Of course. Did AirLand Battle represent unreasonable or excessive Army control of Air Force assets? No.

One of the cumulative effects of these artificially binary debates has been a rush among some Airmen to associate themselves with Warden's strategic as opposed to tactical thinking and independent as opposed to cooperative operations. Naturally, this has led to the perception in some circles that the Air Force (or at least some within it) has an "airpower über alles" mind-set, which has contributed to the generally deteriorated relationships between the Air Force and the other services.

The Air Force can be proud of *all* its Gulf War accomplishments—be they during the 39 days of precursor air-only operations or during the four-day combined air-ground operations. In this vein, Schwarzkopf told his air and ground commanders in early November 1991, "This attack will slam into an army that has been greatly weakened from weeks of air attack; and I want you to start out running and keep running until we surround them and destroy them as a fighting force."[99] The concepts of Air-Land Battle that Starry and Creech envisioned, which contained a range of operations neither exclusively strategic nor exclusively tactical, worked well in the war fought by Schwarzkopf and Horner.

Ironically, the increased bickering within the Defense Department has been accompanied by notable silence from the Air Force's harshest pre-1991 critics—the DRM. The equipment that was too complex to work in combat was not too complex after all. It is a matter of record that what they argued against has served the nation well in the intervening years while several of the systems and tactics they advocated have failed. Recall the following events and factors, for example:

- Steven Canby's 1979 article which suggested that the US reliance on defense suppression and precision munitions was flawed because the medium-altitude "window" was "closed."[100] In fact, the GR-1 Tornado, which, during Desert Storm, employed the low-altitude tactics Canby applauded, was lost at the rate of 10 per 1,000 sorties. This type owned the dubious distinction of the highest loss rate during the Gulf War. By comparison, the Tornado loss rate was 11 times that of the F-15E, which flew similar missions using the munitions and tactics developed within the TAF over the preceding decade.[101] Afterwards, Horner reported his frustration at not being able to offer his allies an alternative because of the requirement that their munitions be delivered from a low level.[102]

- Senator Hart's proposal for the fiscal year 1984 defense budget, in which he recommended, among other things, canceling all weapons with a "deep combat" orientation because, allegedly, interdiction was not effective; and

canceling LANTIRN and the imaging-infrared Maverick because, allegedly, the concept of night/bad weather combat was flawed.[103] To the contrary, there has not been an operation since he proposed his alternative budget in which the USAF's preferred method of operation has been *other than* night operations. Additionally, it can hardly be argued that deep operations, whether under the rubric of "strategic attack" or "interdiction," have been ineffective since 1984.

- Fallows's writings, echoing the sentiments of Boyd, Riccioni, Sprey, Spinney, and others, in which the common theme held that the aircraft and munitions pursued by the Air Force were too sophisticated and expensive to work in combat.[104] On the eve of Desert Storm, the complex and sophisticated F-15s and F-111Fs enjoyed 95.8 percent and 98.4 percent fully mission-capable rates, respectively. By the end of hostilities, the rates had fallen to 93.8 percent and 93.9 percent, respectively—hardly a disastrous performance.[105]
- The reformers' vision of air-to-air combat, in which swarms of fighters would grapple in close-in, turning engagements vaguely reminiscent of the battles over the Yalu River in Korea.[106] In the Gulf War, no USAF aircraft were lost due to air-to-air engagements, while 37 enemy aircraft were shot down, only three of which involved maneuvering. In contrast, 254 enemy aircraft were destroyed on the ground.[107] These aircraft were destroyed using the hardened precision munitions developed in the early 1980s for that explicit purpose. To escape that fate, 148 Iraqi pilots took their aircraft to Iran, where the Iranian government impounded them, making them of no further use to Iraq's war effort.[108] Ground attack and the threat thereof—not air combat (and especially not maneuvering air combat)—were the most deadly threat to the Iraqi air force. The trend away from the maneuvering dogfight has continued since the Gulf War as well, lending credence to the vision of theater air warfare that Creech pursued.

Of course, the Gulf War was not the battlefield context upon which proponents of the DRM based their argument. While the central European scenario would have presented a different enemy posing different challenges, the basic argument that USAF aircraft and munitions were too complicated to work in combat was independent of scenario and generally proven false. The "quality versus quantity" aspect of the DRM argument was only superficially attractive. As General Welch suggested, once infrastructure and personnel costs were considered, the quantity of less expensive, simpler equipment one could buy for the same amount was much closer to what the TAF actually fielded than DRM advocates would suggest. The Gulf War validated the Air Force's vision of TAF equipment and training, a vision that Creech and a handful of other Airmen expressed and relentlessly pursued.

The DRM debate was not pleasant, short, or minor in scope, yet it served at least one important purpose. The DRM debate reminds Airmen of the necessity of integrating their thinking, their equipment, and their organization. Without the clear vision of future warfare that Creech and many of his fellow officers shared, the DRM's many arguments would have been much more difficult to parry.

The Air Force's misguided foray into the Quality Air Force ignored Creech's successes in quality, which were clearly focused on the organization's product. Instead, the "Quality Air Force" became mired in a process focus that led to many of the things the Air Force did well becoming disembodied from what made the Air Force so successful in the first place. Thankfully, after a painful courtship with "process quality," the Air Force is now headed back toward the "product quality" that General Horner attributed to General Creech in the aftermath of the Gulf War of 1991. Hope springs eternal.

Notes

1. Barger, "What USAF Has to Do," 58.
2. Ibid., 64.
3. Ibid.
4. McPeak, "TACAIR Missions," 68. Although General McPeak was serving on the Air Staff at the time of publication, the article was almost certainly writ-

ten while he was still serving as the TAC/XP, in which position he was TAC's lead agent for TAC-TRADOC cooperation.

5. Ibid., 71.
6. Richardson, "FM 100-5," 7.
7. Jon Powell, "AirLand Battle," 15.
8. Canan, "Sorting Out the AirLand Partnership," 52.
9. Air Force Manual (AFM) 1-1, *Air Force Basic Doctrine*, 2-11.
10. Ibid., 3-2.
11. Ibid., 3-3.
12. General Chain followed Gen Larry D. Welch as the second successive career fighter pilot to lead SAC. In an ironic reversal of the situation in which General LeMay's protégé General Sweeney led TAC in the early 1960s, General Creech's key deputy Welch had assumed command of SAC in August 1985.
13. Chain, "Strategic Bombers in Conventional Warfare," 24.
14. Ibid., 25.
15. Ibid.
16. Ibid., 29.
17. Rhodes, "SAC Extends Its Wings," 44.
18. Hansell and Metcalf, "Conventional Strategic Air Warfare," 7–9. General Hansell died shortly after his editorial was published and never had an opportunity to reply to General Chain's subsequent rejoinder.
19. Chain, "Rejoinder to 'Conventional Strategic Air Warfare,'" 97.
20. Russ, "Open Letter to the Field," 7.
21. Ibid.
22. Several months later, General Russ wrote, "Outside of strategic air defense, everything that tactical air does directly supports the AirLand Battle. . . . Everything that tactical air does directly supports Army operations. Whether it's shooting down enemy airplanes, destroying a tank factory, attacking reinforcements or killing armor on the front line, tactical air's objective is to give friendly ground forces the advantage on the battlefield." Russ, "Air Force, the Army," 12. He repeated this sentiment almost verbatim in January 1990. Runge, *Firepower and Follow-on Forces Attack*, 65.
23. Barger, "What USAF Has to Do," 64.
24. Canan, "More Flak in the AirLand Battle," 79.
25. Correll, "Systems under the Gun," 48.
26. Canan, "More Flak in the AirLand Battle," 79.
27. Ibid.
28. Ropelewski, "US Tactical Air Power," 68.
29. Canan, "More Flak in the AirLand Battle," 80.
30. Russ, "Air Force, the Army," 14.
31. Canan, "More Flak in the AirLand Battle," 80.
32. Correll, "Battle Damage," 41.
33. Welch and Vuono, memorandum; Colin Powell, memorandum; Welch and Vuono, to Aspin, letter; and Welch and Vuono, to Nunn, letter.
34. McCoy and Schemmer, "Exclusive *AFJ* Interview," 76.

35. Barger, "What USAF Has to Do," 61.
36. Schemmer, "Smarter Planes," 73.
37. Correll, "Systems under the Gun," 46–47.
38. Gen John P. Jumper, interview by the author, 22 April 2002.
39. McCoy and Schemmer, "Exclusive *AFJ* Interview," 76.
40. Johnson, "Range Wars," 80, 82.
41. Byars, "When a Squadron Deploys," 90.
42. Puryear, *American Generalship*, 219.
43. Gen W. L. Creech, interview by the author, 24 April 2002.
44. Gen Michael E. Ryan was an action officer on the TAC staff as a major but was not formally involved in the mentoring program, probably because he was too junior at the time. He went on to be a TAC squadron commander and wing assistant deputy commander for operations during General Creech's tenure.
45. Puryear, *American Generalship*, 188.
46. General O'Malley died in an aircraft accident on 21 April 1985, less than a year after taking command of TAC. General Russ succeeded him and commanded until his retirement in May 1991.
47. Gen Joseph W. Ashy, interview by the author, 13 January 2002.
48. Gen Joseph W. Ashy, oral history interview.
49. Clancy, *Every Man a Tiger*, 283.
50. Ibid., 263.
51. Reynolds, *Heart of the Storm*, 116–17.
52. Mann, *Thunder and Lightning*, 28.
53. Reynolds, *Heart of the Storm*, 24.
54. The concept was later expressed in Warden, "Enemy as a System," 40–55.
55. Gordon and Trainor, *Generals' War*, 80.
56. Reynolds, *Heart of the Storm*, 126.
57. Gordon and Trainor, *Generals' War*, 84, 90.
58. Reynolds, *Heart of the Storm*, 72–73.
59. Ibid., 73.
60. Clancy, *Every Man a Tiger*, 187.
61. Reynolds, *Heart of the Storm*, 84–93.
62. Clancy, *Every Man a Tiger*, 262–63.
63. Reynolds, *Heart of the Storm*, 124.
64. Ibid., 134.
65. Richard Davis, "Strategic Bombardment," 547.
66. Gordon and Trainor, *Generals' War*, 269.
67. Gen Donn A. Starry, to the author, e-mail, 29 May 2002; and Gen W. L. Creech, to the author, e-mail, 20 May 2002.
68. Reynolds, *Heart of the Storm*, 55, 104–5.
69. Richard Davis, "Strategic Bombardment," 577.
70. Kitfield, *Prodigal Soldiers*, 344.
71. Deptula, memorandum.
72. Ibid.

73. Ibid.
74. Ibid.
75. Air Force Manual (AFM) 1-1, vol. 1, *Basic Aerospace Doctrine*, 7.
76. McPeak, "Quest for Quality," 267.
77. Kitfield, "Superior Command," 21.
78. Ibid.
79. Creech, *Five Pillars of TQM*, 234.
80. Kitfield, "Superior Command," 21.
81. Hoapili and Gagnon, *Total Common Sense*, 37–61.
82. Quoted in Creech, *Five Pillars of TQM*, 122.
83. Gen W. L. Creech, to the author, e-mail, 8 June 2002.
84. General Accounting Office, *Air Force Aircraft*, 1.
85. Ibid., 2. See also Nowland, "Implementing Force Structure Reductions," 24–25.
86. Warden, Desert Story interview, 18.
87. Ibid., 19.
88. Mann, *Thunder and Lightning*, 29–30.
89. Ibid., 166–68.
90. For a recent example of this line of argumentation, see Halberstam, *War in a Time of Peace*, 47–56.
91. Mann, "Operation Desert Storm?" 27.
92. Clodfelter, "Demons, Storms, and Thunder," 28.
93. Grant, "Deep Strife," 56.
94. Ibid., 58.
95. Creech, e-mail, 20 May 2002.
96. Creech, oral history interview, 223–24.
97. Gen Ronald R. Fogleman, interview by the author, 29 January 2002.
98. McPeak, "Roles and Missions," 327–33. See also idem, "Roles and Missions Opportunity," 32–34.
99. Clancy, *Every Man a Tiger*, 302–3.
100. Canby, "Tactical Air Power in Armored Warfare," 5.
101. Keaney and Cohen, *Gulf War Air Power Survey*, vol. 5, 651.
102. Clancy, *Every Man a Tiger*, 353.
103. Kross, *Military Reform*, 174.
104. Fallows, "America's High-Tech Weaponry," 21–22.
105. Keaney and Cohen, *Gulf War Air Power Survey*, vol. 5, 556 and 596.
106. Fallows, *National Defense*, 43.
107. Statistics compiled by Grant M. Hales, Air Combat Command historian, 2002. Used with permission.
108. Y'Blood, "Deserts to the Mountains," 468.

Chapter 7

Conclusions

On return to General Holley's construct of ideas, equipment, and organization, it is expedient to evaluate General Creech's impact on the way Airmen think about and conduct theater air warfare. Recognizing the existence of a history before Creech and a future after him, the following several paragraphs identify where he personally influenced the course of theater air-warfare thinking and conduct, and provide an overall assessment of the merit of any changes in the direction that may be attributed to General Creech. The most complex issue to assess is his contribution to institutional thinking and doctrine.

The impact of General Creech on air doctrine was significant in the areas where he chose to engage. The basic doctrine of the service was generally confused and ambiguous, with no constituency able to effect any significant changes to the doctrine or the underlying thinking about airpower. General Creech chose not to attempt to influence this doctrine; instead he focused on more practical war-fighting doctrine. At the operational level, he had a profound impact on de facto air doctrine through the concepts articulated at the Warfighter Conference and the equipment-and-training initiatives that followed. He also directed development of much of the tactical-level doctrine governing Army interactions. It appears that these interactions, useful in many respects, may have also increased the confusion among some regarding the roles of airpower, particularly in the years after his retirement. However, the confusion was not so great that TAF General Horner would fail to employ the full range of airpower against Iraq in 1991. Horner's skillful blending of airpower during the Gulf War gives lie to the belief that TAF Airmen were insensitive to applications of airpower beyond supporting the Army. Yet the myth remains that somehow TAC sold out to the Army in the 1970s and 1980s. Those who advance this line of argument forget two important truths: cooperation with the Army produced many institutional benefits for the Air Force;

and, in AirLand Battle, the Army moved substantially toward the Air Force's theater-centric view of airpower employment.

The de facto doctrine represented by the defense-rollback strategy and the accompanying medium- and high-altitude precision-weapon employment became in 1991 the Air Force's standard for air warfare to the present—without exception. The Air Force's emphasis on night operations—due in very large measure to General Creech's actions—has become so ubiquitous that Airmen now refer, as a matter of course, to "the first night" rather than "the first day" of any given air operation. For example, following a four-day punitive air operation against Iraq in 1998, the air commander, Lt Gen Hal M. Hornburg, wrote Creech a letter in which he said, "As you know, all missions were flown at night—no losses, pretty good results—again largely thanks to you. Only wish more people knew. Lots of wives will welcome home their husbands, and kids their Dads, because of you. On their behalf, I thank you."[1] Accompanying the new tactics was a whole new generation of aircraft, munitions, and systems developed and fielded during his tenure as the TAF spokesman that have been the mainstay of Air Force combat operations for two decades. One of the keys to Creech's success in this regard was that equipment was developed with tactics in mind, rather than tactics being developed to fit available equipment. Numerous PGM programs *enabled* effective attacks from medium and high altitudes. LANTIRN *enabled* night operations and PGM targeting. The EF-111, F-4G, EC-130H, HARMs, and Have Quick radios *enabled* operations in a dense electromagnetic environment and denied the enemy the ability to operate in that same environment. Meanwhile, new fighter aircraft such as the F-117 and the F-15E were designed from the ground up to be employed with precision in a nighttime environment. Cumulatively, these changes in equipment, tactics, and strategy have deeply influenced air warfare, not just in the United States Air Force but around the world. In the aftermath of the Gulf War, the other services' air forces, and indeed other nations' air forces, have struggled to catch up. In 1995 the principal authors of the *Gulf War Air Power Survey* commercially published their study's summary report (with several relatively minor changes) as *Revolution in Warfare?*

Air Power in the Persian Gulf (Annapolis: Naval Institute Press, 1995). They suggested that the Gulf War did represent a revolution in warfare. If this is indeed the case, then the revolution began years before as Creech and the Air Force leadership began to build the force that fought so well over the skies of Kuwait and Iraq.

Overarching all of the equipment and tactics initiatives were the various training, organization, and leader-development programs General Creech instituted during his tenure. It is clear that many of his efforts revolved around getting people ready to fight. With regard to organization, the Robust Units program and the decentralized, team-based organizations were clearly oriented on "organize the way you'll fight." His training programs were oriented to "train the way you'll fight." For example, Checkered Flag was focused on being familiar with wartime taskings and operating locations so that in the event of war, a unit could "hit the ground ready to fight." Similarly, the Red, Copper, Green, Silver, and Blue Flag exercises were focused on getting the force ready for war. The "TAC turnaround," in addition to the renewed focus on organizing to fight, had one other fairly obvious but important effect on the way Airmen conduct theater air warfare. The 80 percent increase in sortie utilization rates by the time General Creech left TAC effectively allowed for an 80 percent increase in mass applied to an enemy. Productivity, it would seem, is literally a force multiplier.

In the aggregate, it seems that one would have to conclude that General Creech had a substantial and lasting effect on the way Airmen conceptualize and conduct theater air warfare. His actions were significant in each of the areas Holley suggested in *Ideas and Weapons*. What made Creech's efforts so lasting was that he integrated the three areas into a common vision for TAC and the TAF rather than attacking any one of the three in isolation. Thinking alone is little more than daydreaming; equipment alone represents the so-called Icarus syndrome; and organization alone is a management fad. The coherent vision of knowing how to fight, knowing what is needed to fight, organizing to fight, and building leaders to prosecute the fight is how General Creech made his contribution.

Recall General McPeak's assessment of General Creech on the eve of the Gulf War: "We are about to harvest the results of years of hard work and leadership by you and a handful of other great Airmen. We will do well. But we need to recognize that we are beholden to you, because you really built this magnificent Air Force we have today."[2] General Horner's assessment after the Gulf War is perhaps even more telling:

> I am convinced our Air Force forces would not have performed even remotely as well under the old system, and the old way of centralized thinking. It yielded inefficiency, apathy, and disunity—the very things we did not see in action in the Gulf. And it was General Bill Creech who set us on, and kept us on, that new track to organization and leadership that proved so successful in everything that we did.
>
> It's hard to sum up the importance of that aspect of our success in a single sentence, but one of our commanders came as close as anyone could. A few days after the war was over I was visiting one of our bases. The wing commander and I were visiting with the people who had performed so brilliantly, basking in the glow of our success, and reminiscing about the events that had contributed to it. As we talked more and more about how it had all been put together the wing commander turned to me and put it in these words: *"You know, General Horner, after all that General Creech did for us, we couldn't miss."* I strongly echo his sentiments.
>
> The American people gave us unashamed and unwavering support, and General Bill Creech gave us the organization and training that made the success of our crusade possible. I can't thank him enough for that.[3]

In light of his thinking, equipping, training, organizing, and leading from 1978 until 1984, one would have to conclude that Gen Wilbur L. "Bill" Creech was, in fact, an architect of victory.

General Creech had a deep-seated belief that professionalism began with looking like a professional. Accordingly, he went to great lengths to help TAC Airmen become the professionals who contributed mightily to the Gulf War victory. While the color most often associated with Creech's efforts to reform the TAF is a particular shade of brown paint that adorned the buildings on TAC bases for a time, it would appear that long after the brown paint had chipped and flecked away, "Creech Blue"—and the TAF reformation it represents—remains a much more important influence on the Air Force.

Notes

1. Puryear, *American Generalship*, 225.
2. Gen Merrill A. McPeak, Air Force chief of staff, to Gen W. L. Creech, letter, 16 January 1991, in ibid., 226.
3. Quoted in Creech, *Five Pillars of TQM*, 123.

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