

A Concise History of the U.S. Air Force



Dr. Stephen L. McFarland

with updated articles by:

Dr. Rebecca Grant

John A. Tirpak

Amy McCullough

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A Concise History of the U.S. Air Force

Except in a few instances, since World War II no American soldier or sailor has been attacked by enemy air power. Conversely, no enemy soldier or sailor has acted in combat without being attacked or at least threatened by American air power. Aviators have brought the air weapon to bear against enemies while denying them the same prerogative. This is the legacy of the U.S. Air Force, purchased at great cost in both human and material resources.

More often than not, aerial pioneers had to fight technological ignorance, bureaucratic opposition, public apathy, and disagreement over purpose. Every step in the evolution of air power led into new and untrodden territory, driven by humanitarian impulses; by the search for higher, faster, and farther flight; or by the conviction that the air way was the best way. Warriors have always coveted the high ground. If technology permitted them to reach it, men, women and an air force held and exploited it--from Thomas Selfridge, first among so many who gave that "last full measure of devotion"; to Women's Airforce Service Pilot Ann Baumgartner, who broke social barriers to become the first American woman to pilot a jet; to Benjamin Davis, who broke racial barriers to become the first African American to command a flying group; to Chuck Yeager, a one-time non-commissioned flight officer who was the first to exceed the speed of sound; to John Levitow, who earned the Medal of Honor by throwing himself over a live flare to save his gunship crew; and to John Warden, who began a revolution in air power thought and strategy that was put to spectacular use in the first Gulf War.

Industrialization has brought total war and air power has brought the means to overfly an enemy's defenses and attack its sources of power directly. Americans have perceived air power from the start as a more efficient means of waging war and as a symbol of the nation's commitment to technology to master challenges, minimize casualties, and defeat adversaries.

A Concise History of the U.S. Air Force

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THE CONCISE HISTORY OF THE USAF

AIRPOWER THROUGH WWI





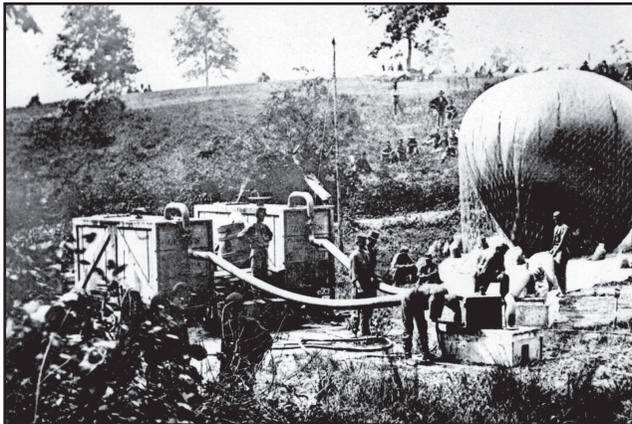
THE CONCISE HISTORY OF THE USAF



The Genesis of American Air Power

Americans took to the skies at an early date. Benjamin Franklin considered the possibility of using balloons in warfare in 1783, only days after the first successful hot-air balloon flights in France. John Sherburne, frustrated by the Army's ineffectiveness during the Seminole War of 1840, proposed using balloons for observation above the wilderness that hid the adversary. John Wise, dismayed by the prospects of a long and costly siege of Veracruz during the Mexican War, suggested using balloons in 1846 for bombing defending forces, three years before Austria actually did so against Venice.

John LaMountain and Thaddeus Lowe successfully launched manned reconnaissance balloons in support of Union operations during the



By means of such balloons as the *Intrepid*, shown being inflated during the Civil War battle at Fair Oaks outside Richmond, Virginia, in the spring of 1862, the Union Army conducted reconnaissance missions over enemy territory in America's first use of air power.



American Civil War. In late June 1861 Lowe's map of Confederate positions in Falls Church, Virginia, was the first significant contribution of manned flight to American warfare, although the Union lost the battle at Bull Run in July. The map allowed Lowe to report after the battle that the Confederates were not advancing on Washington. He was thus able to help prevent panic following the defeat. In September he demonstrated the balloon's potential when he directed artillery fire at Confederate positions. He went on to establish the first U.S. "Air Force," the Balloon Service of the Army of the Potomac, although weather, technological limitations, bungling, and military opposition prevented further development and exploitation.

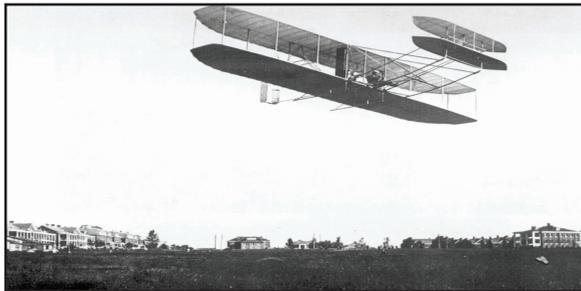
His Civil War experience convinced Brigadier General Adolphus Greely of the Army Signal Corps that the balloon's capabilities had been unrealized. As part of a special section formed in 1892, his one balloon directed artillery fire during the Battle of San Juan Hill in the Spanish-American War and reported the presence of the Spanish fleet at Santiago de Cuba Harbor. This limited success with lighter-than-air balloons (enemy ground fire destroyed the section's balloon in Cuba) encouraged Greely and the Army to give Samuel Langley, Secretary of the Smithsonian Institution, \$50,000 in 1898 to build a powered heavier-than-air flying machine. The spectacular failures of Langley's Aerodrome launched over the Potomac River on October 7 and December 8, 1903, soured Army opinions on the practicality of flight for several years. When Orville and Wilbur Wright succeeded in the world's first powered, heavier-than-air, controlled flight on December 17, 1903, the Signal Corps expressed no interest. Establishing the Aeronautical Division of the Signal Corps on August 1, 1907, the Army ignored the Wrights and their achievement. It preferred experimenting with the steerable airship or dirigible, then being perfected in Europe. The desertion of a private cost the Aeronautical Division half of its enlisted strength, but did not prevent the Army from ordering its first nontethered airship, Dirigible No. 1, for \$6,750 in 1908.

The Wrights' successes came to the attention of others, however, and President Theodore Roosevelt directed the Army to entertain bids for an aircraft in late 1907. Meanwhile, intrepid airmen pressed on. Lieutenant Frank Lahm became the first officer to fly in an aircraft in early September 1908. Not even the death of Lieutenant Thomas Selfridge, America's first military aviation fatality, killed in what the New York Times called a "wreck of bloodstained wood, wire, and canvas," could stop the advance



of military aviation. On August 2, 1909, the Army awarded the Wrights \$30,000 for delivering Aeroplane No. 1, and a \$5,000 bonus for exceeding specifications. The Aeronautical Division now had one aircraft, but no pilots, ground crews, or training establishment. Wilbur Wright taught Lieutenants Frank Lahm, Benjamin Foulois, and Frederic Humphreys to fly. (He included Humphreys as a passenger on the world's first night flight.) Poverty soon reduced America's air force to one pilot (Foulois) flying one much-damaged, much-repaired aircraft.

This was America's air force until Congress approved \$125,000 in 1911 for its expansion, despite the objection of one member: "Why all this fuss about airplanes for the Army? I thought we already had one." In Wright and Curtiss aircraft early Army flyers began



The Wright Military Flyer during flight tests held at Fort Myer in northern Virginia just across the Potomac River from Washington, D.C., 1908. Orville Wright was at the controls.

stretching aviation's limits with bomb-dropping, photography, and strafing while forming their first unit, the 1st Aero Squadron, on December 8, 1913. These achievements convinced Congress to give the Army's air force official status on July 18, 1914 as the Aviation Section, Signal Corps, which absorbed the Aeronautical Division and its 19 officers, 101 enlisted men, 1 squadron, and 6 combat aircraft.

Orville Wright's first flight in 1903 had lasted twelve seconds; by 1916 flights of four-hours duration had become possible. This progress was soon tested. Brigadier General John Pershing pursued Pancho Villa in Mexico from 1916 to 1917 to bring the Mexican revolutionary to justice for attacking an American border town, Columbus, New Mexico. Captain Benjamin Foulois, with ten pilots and eight aircraft of the 1st Aero Squadron, struggled against winds, storms, and high mountains to locate Villa; but a series of disasters, some comic, some tragic, stood in vivid contrast to aerial achievements on the Western Front of the Great War in Europe that had begun two years earlier.



THE CONCISE HISTORY OF THE USAF



Trial and Error in World War I

The potential of the airplane was proved in World War I when its use in critical reconnaissance halted the initial German offensive against Paris. It was not used to harass troops or drop bombs until two months into the war. On the basis of an aviator's report that the German Army had a large gap in its lines and was attempting to swing wide and west around the British Army, British commander Sir John French refused requests from the French to link up his Army with their forces to the east. At the resulting battle of Mons southwest of Brussels on August 23, 1914, the British slowed the overall German advance, forcing it to swing east of Paris. The Allies, on the basis of a British aviator's report of the move, stopped the Germans at the battle of the Marne from September 6 to 9. The Germans, on the basis of one of their aviator's observation of the Allies' concentration, retreated behind the Aisne River. These actions, spurred by aerial observation, forced the combatants into fixed positions and initiated four years of trench warfare.

When American aircrews arrived in France three years later to join the conflict, they found mile after mile of fetid trenches protected by machine guns, barbed wire, and massed artillery. The airplane's primary roles remained reconnaissance and observation over the trenches of both sides, into which were poured men, supplies, and equipment in huge quantities easily seen from the air. Thousands of aviators fought and died for control of the skies above armies locked in death struggles below.

In 1914 the U.S. Army's Aviation Section of the Signal Corps had five air squadrons and three being formed. By April 6, 1917, when the United States declared war on Germany, it had 56 pilots and fewer than 250 aircraft, all obsolete. Congress appropriated \$54.25 million in May and June 1917 for "military aeronautics" to create a total of 13 American



squadrons for the war effort. However, French Premier Alexandre Ribot's telegraphed message to President Woodrow Wilson in late May revealed that the United States did not yet comprehend the scale of the war. Ribot recommended that the Allies would need an American air force of 4,500 aircraft, 5,000 pilots, and 50,000 mechanics by 1918 to achieve victory. Trainer aircraft and spare parts would increase America's contribution to over 40,000 aircraft--this from a country that had produced only a few hundred, both civilian and military, from 1903 to 1916.

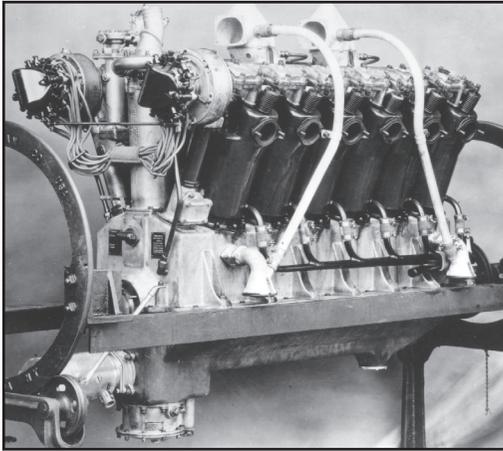
In the United States an outpouring of patriotism accompanied the declaration of war. Talk of "darkening the skies over Germany with clouds of U.S. aircraft" stiffened Allied resolve. It also appealed to the American people. Congress supported their sentiments when it approved \$640 million on July 24, 1917, the largest lump sum ever appropriated by that body to that time, for a program to raise 354 combat squadrons.

President Wilson immediately created the Aircraft Production Board under Howard Coffin to administer an expansion, but the United States had no aircraft industry, only several shops that hand-built an occasional aircraft, and no body of trained workers. The spruce industry, critical to aircraft construction, attempted to meet the enormous demand under government supervision. A production record that approached a national disaster forced Wilson on May 21, 1918, to establish a Bureau of Aircraft Production under John Ryan and a separate Division of Military Aeronautics under Major General William Kenly. The division would be responsible for training and operations and would replace the Aviation Section of the Signal Corps. Perhaps as an indication of the Army's attitude toward the new air weapon, the two agencies remained without a single overall chief. Not until four months before the end of the war did Wilson appoint Ryan Director of the Air Service and Second Assistant Secretary of War in a late attempt to coordinate the two agencies.

Despite President Wilson's initiatives American aircraft production fell far short of its goals. In June 1917 a mission led by Major Raynal Bolling to investigate conditions on the Western Front, decided that America's greatest contribution to the war besides its airmen would be its raw materials from which the Allies could produce the necessary aircraft in Europe, rather than in the United States. This time-saving approach was not particularly popular, given American chauvinism at the time. The



United States would build engines, trainer aircraft, and British-designed DH-4 bombers. It would buy combat aircraft from France (4,881), Britain (258), and Italy (59).

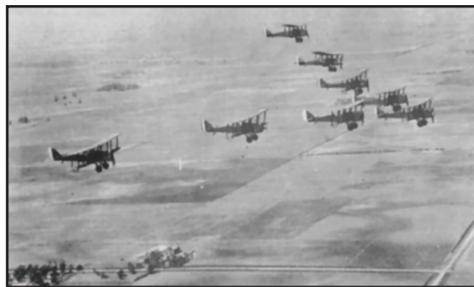


The most efficient aircraft engine of the war, the American 12-cylinder, 400-horsepower, liquid-cooled Liberty.

American industry managed to turn out 11,754 aircraft, mostly trainers, before the end of the war---a significant accomplishment. Detroit produced 15,572 Liberty engines, big 12-cylinder in-line liquid-cooled power plants of 400 horsepower that were more efficient than other wartime engines. The Army set up ground schools at 8 universities, 27 primary flying schools in the United States, and 16 advanced training schools in Europe.

On Armistice Day the Air Service had 19,189 officers and 178,149 enlisted men filling 185 squadrons.

One of the first American airmen to reach France was Major William “Billy” Mitchell, who studied British and French aerial techniques and recommended the establishment of two air forces, one to support ground forces and another to launch independent strategic attacks against the sources of German strength. A dearth of aircraft and aircrews prevented the development of the latter effort, and the 1917 Bolling mission had given the idea lowest priority. American Expeditionary Force commander, General John Pershing, created a divided tactical aerial force, with, first, Brigadier General William Kenly, then Benjamin Foulois,



A formation of De Havilland DH-4s, British-designed, Americanbuilt bombers of World War I.

and, finally, Mason Patrick as Chief of Air Service, American Expeditionary Force, and Mitchell as Air Commander, Zone of Advance. A less-than-clear chain of command insured a collision between Foulois and Mitchell, but Pershing wanted Mitchell in charge of combat operations.

Some Americans had already acquired combat experience in France, serving with French and British squadrons before the United States entered the war. Among the most famous were members of the Lafayette Escadrille, including Norman Prince (five victories) and Raoul Lufbery (seventeen victories). These veterans transferred to the Air Service and provided the cadre for new squadrons arriving from the United States. After advanced training, American squadrons joined French and British units for combat experience. Only when American ground units were ready for combat did Air Service squadrons join American armies. Flying French SPAD and Nieuport fighters and French Breguet and British DH-4 bombers, all-American units under American command began operations in March and April 1918. Lieutenants Alan Winslow and Douglas Campbell gained America's first aerial victories on April 14, 1918, in French Nieuport fighters armed with British Vickers machine guns.

The United States may have been slow in developing aerial weapons, but its ground commanders quickly put them to use. Airmen flew infantry contact patrols, attempting to find isolated units and reporting their location and needs to higher headquarters. Of these missions, the 50th Aero Squadron's search for the "Lost Battalion" in the Meuse-Argonne during the offensive of September and October 1918 is perhaps the most famous. Two airmen, pilot Harold Goettler and observer Erwin Bleckley flew several missions at low altitude, purposely attracting German fire to find out at least where the "Lost Battalion" was not. They paid with their lives but helped their squadron narrow its search. For their heroism, Goettler and Bleckley won two of the four Medals of Honor awarded to American airmen during the war. The other two went to Eddie Rickenbacker and Frank Luke for aerial combat.

Reconnaissance missions to determine the disposition and make-up of enemy forces were critical and were usually carried out by aircraft flying east at low altitude until shot at. Allied ground troops, for example, needed to know about German activity at the Valleroy railroad yard during the battle of St. Mihiel or, best of all, that the "convoy of enemy horse-drawn vehicles [was] in retreat along the road to Thiaucourt."



Airman Gill Wilson wrote spiritedly of such missions in the following lines:

*Pilots get the credit
But the gunner rings the bell
When we go to bomb the columns
On the road to Aix-la-Pelle!*

The pilots of each side, attempting to prevent their counterparts from conducting tactical reconnaissance, encountered fierce air-to-air combat in aerial “dogfights” that evoked images of medieval warfare and its code of chivalry. The men in the trenches welcomed these solitary knights of the skies who were willing to take on the heavily-defended German observation balloons and their artillery fire aimed at everything that moved. More often than not, life was short in World War I and American aviators lived it valiantly. Frank Luke spent only seventeen days in combat and claimed four aircraft and fourteen balloons, the most dangerous of all aerial targets. Shot down at age 21, he died resisting capture behind German lines. The United States awarded him a Medal of Honor and named an air base after him. Raoul Lufbery claimed seventeen victories before jumping from his own burning aircraft without a parachute. But more died in crashes brought on by malfunctioning aircraft than in combat.

Low-level flight in close support of the infantry was exceedingly dangerous as it involved strafing and bombing over enemy positions. The 96th Aero Squadron flew twelve day bombardment aircraft in three missions against ground targets the first day of the St. Mihiel offensive on September 12, 1918. The next day it mustered only four aircraft ready for duty. Casualty rates of 50 percent or higher were not unusual. When Brigadier General Billy Mitchell had his way, targets were farther to the rear and included rail centers and bridges. One of his officers, Lieutenant Colonel Edgar Gorrell, developed a plan to bomb Germany’s “manufacturing centers, commercial centers, and lines of communication.” General Pershing approved the plan, but opposition from other ground commanders and insufficient aircraft thwarted America’s nascent testing of strategic bombing.

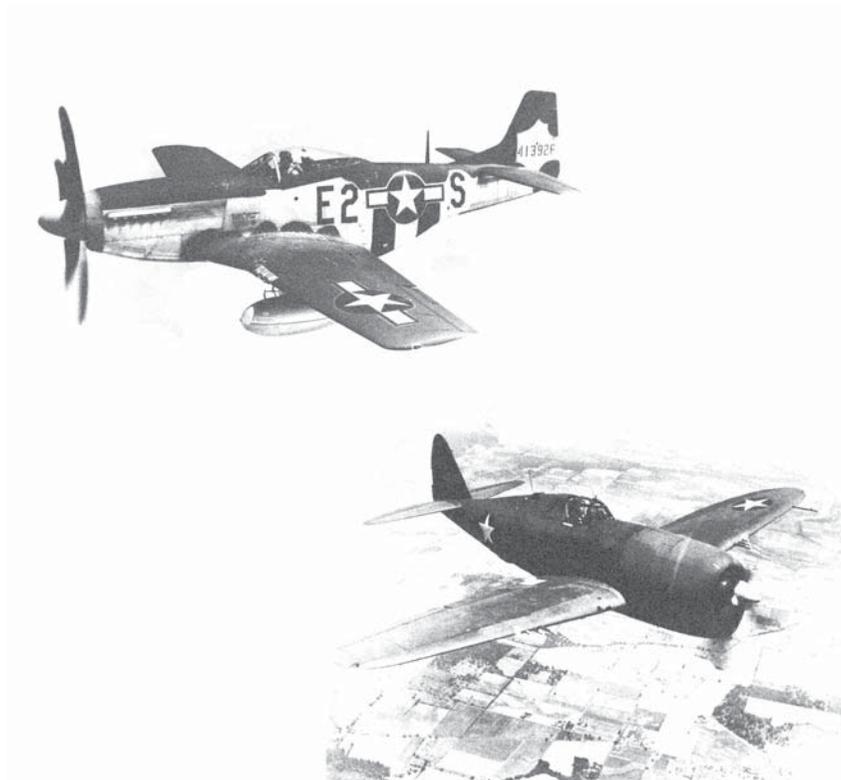


As an American air force, the First Air Brigade (strengthened by French units) in June 1918 fought superior German forces during the battle of Chateau-Thierry, a bloody initiation to full-scale combat for most American pilots. Mitchell, however, learned the lessons of massing air power in the battle area and of seizing the offensive. This experience served him well at St. Mihiel in September. With nearly 100 squadrons amounting to 1,500 aircraft under his control, Mitchell organized two forces, one to provide escorted reconnaissance and the other to serve as an independent striking force. With superior numbers, mostly French, Mitchell's airmen seized the initiative, gained air superiority, attacked enemy ground forces, and interdicted supplies flowing to the German front lines. In the final action of the war, during the Meuse-Argonne offensive in September and October, Mitchell concentrated a largely American force to establish air superiority in support of American ground operations.

By Armistice Day on November 11, 1918, the Air Service had prepared and sent 45 squadrons to fight under Mitchell, with 140 more organizing in the United States. In supporting the war the Air Service had about 750 American-piloted aircraft in France, or about 10 percent of all Allied forces. Seventy-one Americans became aces, downing 5 or more enemy aircraft, led by Eddie Rickenbacker with 26 victories. His success paled compared with Manfred von Richthofen's (German) with 80 kills, René Fonck's (French) with 75, and Edward Mannock's (British) with 73, but few claimed as many as quickly as the American. The launching of 150 bombing attacks and the claiming of 756 enemy aircraft and 76 balloons in 7 months of combat and the losses of 289 aircraft, 48 balloons, and 237 crewmen did not turn the tide of war but were portentous of things to come. The airplane had entered combat, and by eliminating the element of surprise through observation and reconnaissance, it had helped Allied forces to victory on the Western Front.



AIRPOWER: END OF WWI THROUGH WWII





THE CONCISE HISTORY OF THE USAF



Interwar Doctrine, Organization and Technology

The scale of destruction and bloodshed in World War I was truly shocking. No one could have imagined 10 million dead and 21 million wounded soldiers or 9 million dead civilians. A generation had been slaughtered in the trenches, the events witnessed by 2 million American servicemen who went home from “over there,” convinced that such a war should never be fought again. In its aftermath, diplomats pursued collective security through the League of Nations; the Kellogg-Briand Pact renouncing war as an instrument of national policy; the Locarno Pact recognizing the inviolability of European borders; and the Washington, London, and Geneva disarmament treaties and talks. In Germany, airmen sought to restore mobility to the battlefield, joining aircraft and tanks to create blitzkrieg warfare. In America airmen strove for the coup de grace—strategic bombing directly against the vital centers of a nation’s war-making capability.

American airmen came back from France with a unique perspective on modern war. Josiah Rowe, of the 147th Aero Squadron, wrote of the World War I battlefield as “a barren waste, broken only by shell holes, trenches and barbed wire, with not one living thing in sight.” He was “glad to get away from such gruesome scenes” by climbing into the sky in his airplane. Billy Mitchell wrote that the Allies could cross the front lines “in a few minutes” in their aircraft, whereas “the armies were locked in the struggle, immovable, powerless to advance, for three years. It looked as though the war would go on indefinitely until either the airplanes brought [it to an end] or the contending nations dropped from sheer exhaustion.”

American airmen knew that aircraft lacked the range, speed, and reliability for strategic bombing, but they had faith that technology could overcome any restrictions. They also knew the importance of concentrating on basic objectives such as winning air superiority or interdicting the



front, both of which, they believed, required an independent air force. They had caught tantalizing glimpses of what strategic bombing could do to an enemy's industrial centers. They saw the effectiveness of offense and the futility of defense against a determined aerial assault.

For these and other servicemen, aircraft seemed the answer to the slaughter of trench warfare. German airmen soon envisioned air power as mobile artillery accompanying fast-moving armored units (blitzkrieg warfare). American airmen, however, saw air power as an independent strategic force that could bring an enemy nation to its knees. Throughout history, an attacking army fought its way through a defending army to get to its enemy's vital centers. Strategic bombers would fly over the army to strike at the enemy's heart. Air leaders such as Billy Mitchell believed that with aircraft future wars would be shorter and less bloody.

During World War I America's air force had not coalesced. Afterwards it had to be built in an atmosphere of antiwar fervor and congressional stinginess. In addition, the U.S. Army and U.S. Navy, viewing the air force as their auxiliary arms and a supporting weapon, placed obstacles in the way of its further development. The President's Aircraft Board, better known as the Morrow Board for its chairman, the banker Dwight Morrow, called by President Calvin Coolidge in 1925 to evaluate the Air Service's call for independence, reinforced this view: "The next war may well start in the air but in all probability will wind up, as the last war did, in the mud." Evolving technology and irrepressible flyers, however, drove the Air Service in a different direction.

No one in the Air Service was particularly keen on flying close air support in trench warfare. Most airmen thought it unglamorous, marginally effective, and dangerous. What then could air power do, especially with advanced technology? The War Department General Staff already knew what it wanted from its airmen--close air support, reconnaissance, interdiction, and air superiority over the battlefield. The Dickman Board, named for its chairman, Major General Joseph Dickman, appointed in 1919 by General Pershing to evaluate the lessons of the war, concluded: "Nothing so far brought out in the war shows that aerial activities can be carried on, independently of ground forces, to such an extent as to affect materially the conduct of the war as a whole."

The Air Service could hardly contradict this judgment. Its heavy bomber at the time was the French-built Breguet. A veteran of the Great



War with a range of 300 miles and a top speed of 100 miles per hour, it could only carry a 500-pound bomb load. In the postwar demobilization, by 1920 the Air Service was reduced to fewer than 2,200 officers and 8,500 enlisted men. To formulate basic doctrine for the fledgling air force and train officers, Air Service Chief Major General Charles Menoher established the Air Service Tactical School at Langley Field in Virginia, later to become the Air Corps Tactical School at Maxwell Field in Alabama. He made Brooks and Kelly Fields in Texas responsible for flight training and the Engineering Division at McCook Field in Ohio, later to become the Materiel Division at nearby Wright Field, responsible for flight technology. Congress provided the Air Service a measure of independence, changing it from an auxiliary force to an offensive force equal to the artillery and infantry, by creating the U.S. Army Air Corps on July 2, 1926.

Other aerial pioneers sought to test the versatility of aircraft through aerial exploration and discovery in a succession of record-setting flights. In 1921 Lieutenant John Macready climbed to 35,409 feet, higher than anyone before. In 1923 Macready and Lieutenant Oakley Kelly flew a Fokker T-2 nonstop across the width of the United States. In 1924 several Air Service crews led by Major Frederick Martin took 175 days to fly around the world. In 1925 Lieutenants Jimmy Doolittle and Cy Bettis won the Pulitzer and Schneider Cup speed races for the Air Service. Major Carl Spatz (later spelled Spaatz), Captain Ira Eaker, Lieutenant Elwood Quesada, and Sergeant Roy Hooe flew the Fokker trimotor *Question Mark* to a record duration of 150 hours in 1929, displaying the great promise of inflight refueling. Doolittle and Lieutenant Albert Hegenberger achieved what the New York Times called the “greatest single step forward in [aerial] safety”—a series of blind flights from 1929 to 1932 that opened the night and clouded skies to flying. Only the Air Corps’ assignment to deliver air mail in the first half of 1934, called “legalized murder” by Eddie Rickenbacker because of the 12 lives it claimed, detracted from the image that these aerial pioneers were helping to create.

Record-breaking military flights, alongside trailblazing civilian achievements by Charles Lindbergh and Amelia Earhart, represented the public side of a revolution in aviation technology. The staff at the Engineering Division, and later the Materiel Division, worked with American industry and the National Advisory Committee for Aeronautics (predecessor of the National Air and Space Administration) to develop essential technologies such as sodium-cooled engine valves, high octane gasoline, tetraethyl lead knock suppressants, stressed



duraluminum aircraft structures, cantilevered wings, superchargers, turbosuperchargers, retractable landing gear, engine cowlings, radial engines, variable pitch constant speed propellers, and automatic pilots. The two-engine Keystone bomber of the 1920s, a biplane constructed of steel tubes and wires and fabric surfaces, with an open cockpit and fixed landing gear, could fly 98 miles per hour for 350 miles with one ton of bombs. A decade later Boeing's four-engine B-17 bomber could fly nearly 300 miles per hour for 800 miles with over two tons of bombs.

How would America's military aviators use this technology in war? The Army General Staff wanted to employ tactical air power "in direct or indirect support of other components of the Nation's armed forces." It believed the primary target was the adversary's Army. The most vocal opponent of this view was Assistant Chief of the Air Service, Brigadier General Billy Mitchell, who saw in strategic bombing the proper use of air power. Close air support and interdiction, he asserted, only perpetuated trench warfare and the horrors of World-War I-like slaughter. He argued for a force that could strike directly at an enemy's vitals, "centers of production of all kinds, means of transportation, agricultural areas, ports and shipping," forcing "a decision before the ground troops or sea forces could join in battle."

Mitchell's actions created opponents as well as adherents. A series of highly publicized ship-bombing tests begun in 1921 overshadowed the ideas he had espoused in books such as *Winged Defense: The Development and Possibilities of Modern Air Power-Economic and Military*. Air Service bombers sank several unmanned, anchored ships, including battleships. Mitchell's apparent success, despite poor bombing accuracy, diverted both the public's and the Congress's attention from more critical aerial achievements and issues of the period. Mitchell's troubles with Army and Navy leaders eventually led to his court martial after he spoke intemperately about the crash of the airship Shenandoah in 1925. (He blamed the loss on "incompetency, criminal negligence, and almost treasonable administration.") President Coolidge, famous for his reticence and nicknamed "Silent Cal," expressed a widely-held view when he contended, "General Mitchell [has] talked more in the last three months than I [have] in my whole life."

Behind such scenes, Chief of the Air Corps Major General James Fechet urged his officers in 1928 to look beyond the battlefield, beyond close air support, and find a way for the Air Corps to win a war



independently. He imposed only three limitations: First, the Air Corps had to get the most for any money available. Second, civilians could not be targets of aerial attack. Secretary of War Newton Baker had ruled earlier that doing so “constituted an abandonment of the time-honored practice among civilized people of restricting bombardment to fortified places or to places from which the civilian population had an opportunity to be removed.” Americans would not undertake terror raids, he said, “on the most elemental ethical and humanitarian grounds.” Third, anything the Air Corps did would have to solve or avoid the evils of trench warfare.

One officer who answered Fechet’s challenge was Lieutenant Kenneth Walker. Conventional wisdom taught that while airmen achieved high accuracy when they bombed from high altitudes, they exposed themselves to deadly ground fire. Walker showed that daylight high-altitude precision bombing was superior to low-altitude bombing and provided greater survivability, explosive force, and, ironically, accuracy. (Bombs released at low altitudes tumbled and ricocheted when they hit the ground.) He wrote, “Bombardment missions are carried out at high altitudes, to reduce the possibilities of interception by hostile pursuit and the effectiveness of anti-aircraft gun fire and to increase the explosive effect of the bombs.” The keys to attaining accuracy from high altitudes were Carl Norden’s new M-series bombsights, designed under Navy contract, but destined to equip Air Corps bombers beginning in 1933.



The Air Corps Tactical School at Maxwell Field in Alabama. Air officer training was first established in 1922 at Langley Field in Virginia under the Air Service Field Officers School, later redesignated the Air Service Tactical School.

At Maxwell Field in Montgomery, Alabama, Major Donald Wilson and the faculty of the Air Corps Tactical School proposed in the early 1930s to destroy an enemy’s ability to resist by bombing what Wilson called the “vital objects of a nation’s economic structure that tend to paralyze the nation’s ability to wage war and the hostile will to resist.” Because of America’s

opposition to attacking civilians or non-military targets, this bombing would be aimed not directly at an enemy's will, but at the machines and industries that supported that will and its military defenses. The destruction of an enemy's vital industries would destroy its ability to continue to wage war. Wilson viewed high-altitude precision bombing as "an instrument which could cause the collapse of this industrial fabric by depriving the web of certain essential elements---as few as three main systems such as transportation, electrical power, and steel manufacture would suffice."

The technological innovations of the 1930s, which so profoundly inspired the ideas of Walker and Wilson among others, were applied in particular to the large aircraft demanded by America's airlines, and they created a curious situation--large bombers flew faster than small fighters. Thus was born the conviction among airmen, as expressed by Brigadier General Oscar Westover: "No known agency can frustrate the accomplishment of a bombardment mission." The B-17 of 1935 could reach 252 miles per hour at high altitudes, compared with the P-26 front-line fighter, which could not exceed 234. Because speed would allow a bomber to overcome enemy aerial defenses, strategic bombing became the focus of air power development for Mitchell, Walker, Wilson, Wright Field's engineers, and such Air Corps leaders as Brigadier General Henry "Hap" Arnold, commanding the 1st Bombardment Wing, who labored to create the tactical formations, flying techniques, and organization needed for this new kind of warfare.

Upon the recommendation of a War Department committee, known as the Baker Board (named for former Secretary of War, Newton Baker), Congress established the General Headquarters Air Force (GHQ AF) on March 1, 1935. This first American "named" air force, under the command of



Brigadier General Frank Andrews with his staff at ceremonies inaugurating his leadership of the new General Headquarters Air Force's (GHQAF's) command.

Brigadier General Frank Andrews and headquartered at Langley Field in Virginia, controlled all offensive aviation in the nine corps areas of the United States, including organization, training, and operations. Powerful opponents in the Army separated the GHQAF from the Air Corps under Major General Westover, in charge of individual training, procurement, doctrine, and supply. The Air Corps remained a combatant arm of the Army, while the GHQAF came under the Chief of Staff in peacetime and the commander of field forces in wartime. The two air components remained divided until March 1, 1939, when the GHQAF came under the control of the Chief of Air Corps.

The MacArthur-Pratt agreement of 1931 made the Air Corps responsible for short-range coastal defense and Army operations on land, but left the Navy as America's offensive force on the sea. Two developments changed this division of responsibility. First, advances in aviation technology made restrictions to short-range operations nonsensical, as when three B-17s intercepted the Italian liner *Rex* in the Atlantic over 700 miles from America's shores in 1937. Still, the Army continued buying, for the most part, short-range tactical aircraft, including the twin-engine B-18, to support ground operations. Second, Adolf Hitler's successful use of air power as a threat in the Sudetenland-Czechoslovakia crisis of 1938 convinced President Franklin Roosevelt that the United States needed a large air force "with which to impress Germany," and ordered the acquisition of 10,000 aircraft (later 5,500) when Congress appropriated \$300 million for the buildup.

When Germany invaded Poland in September 1939, the Air Corps had 26,000 officers and airmen and a heavy bomber force of only 23 B-17s. Chief of Air Corps Arnold had used President Roosevelt's support and British and French orders for 10,000 additional aircraft to launch a huge expansion of the aviation industry. With the fall of France in June 1940, Roosevelt ordered an Air Corps of 50,000 aircraft and 54 combat groups. Congress appropriated \$2 billion, eventually, to insure funding for both strategic and tactical air forces. In March 1941 the Air Corps expanded to 84 groups. These actions and events presaged what would become the largest air force in the world equipped with the most modern aircraft available. By December 1941, however, the Army's air force still had only 3,304 combat aircraft, but World War II mainstays such as P-51 Mustang and P-47 Thunderbolt fighters and the B-29 Superfortress bomber still were not operational. All would become part of the U.S. Army Air Forces



(USAAF) led by Major General Hap Arnold, established under Army Regulation 95-5 on June 20, 1941, with the Air Corps and the Air Force Combat Command (formerly the GHQAF) as subordinate arms. Less than a year later, Army Chief of Staff George Marshall made the USAAF coequal to the Ground Forces and Services of Supply.

In August 1941, at the behest of the War Department, USAAF Chief Arnold directed four former faculty members of the Air Corps Tactical School to devise an air plan against America's potential adversaries. Lieutenant Colonels Kenneth Walker and Harold George and Majors Haywood Hansell and Laurence Kuter of the newly-formed Air War Plans Division (AWPD) identified in their plan 154 "chokepoint" targets in the German industrial fabric, the destruction of which, they held, would render Germany "incapable of continuing to fight a war." A lack of intelligence prevented the design of a similar plan against Japan. The four planners calculated that the desired air campaign would require 98 bomber groups—a force of over 6,800 aircraft. From their recommendation General Arnold determined the number of supporting units, aircraft, pilots, mechanics, and all other skills and equipment the USAAF would need to fight what became World War II. The 239 groups estimated came close to the 243 combat groups representing 80,000 aircraft and 2.4 million personnel that actually formed the USAAF in 1944 at its wartime peak. The planners had also assumed that they would not have to initiate their air plan, known as AWPD/1, with a complete 98-group force until April 1944. However, they were not allowed the luxury of time. When the Japanese attacked Pearl Harbor four months after the air plan's submission to the War Department, an ill-equipped USAAF found itself thrust into the greatest war in human history.



THE CONCISE HISTORY OF THE USAF



World War II - Global Conflict

Despite the heroics of such Airmen as Lieutenant George Welch, who was credited with having downed 4 enemy aircraft, the surprise strike on Pearl Harbor showed the limitations of the USAAF's preparations for war. The Hawaiian Air Force lost 66 percent of its strength on December 7, 1941, while the Japanese lost only 29 pilots. Across the International Dateline, Lieutenant Joseph Moore claimed 2 Japanese aircraft the next day in the skies over Clark Field in the Philippines, but General Douglas MacArthur's air force of 277 aircraft, including 2 squadrons of B-17s (35 aircraft in all), was destroyed. These greatest concentrations of American air power at the time had failed to deter or hinder the Japanese.

At the start of World War I a solid industrial infrastructure on which to construct the world's greatest air force had not existed in the United States. At the start of World War II this was not the case. The aircraft manufacturing sector was large and growing daily. Before the war, General Arnold had established nine civilian primary flight training schools, two Air Corps basic flight training schools, and two Air Corps advanced flight training schools. The number of trained pilots had jumped from 300 in 1938 to 30,000 in 1941 (plus 110,000 mechanics). On December 7, 1941, the USAAF had a running start and was in the war for the duration.

Arnold planned first for vastly expanded production, training, and research, with the long-term military interests of the nation in mind. While German factories maintained a one-shift peacetime work week until 1943, American plants ran around the clock. Swelled by hundreds of thousands of women, more than two million American workers built nearly 160,000 aircraft of all kinds for the Army and 140,000 for the Navy and Allied nations during the war. America's aircraft production overwhelmed



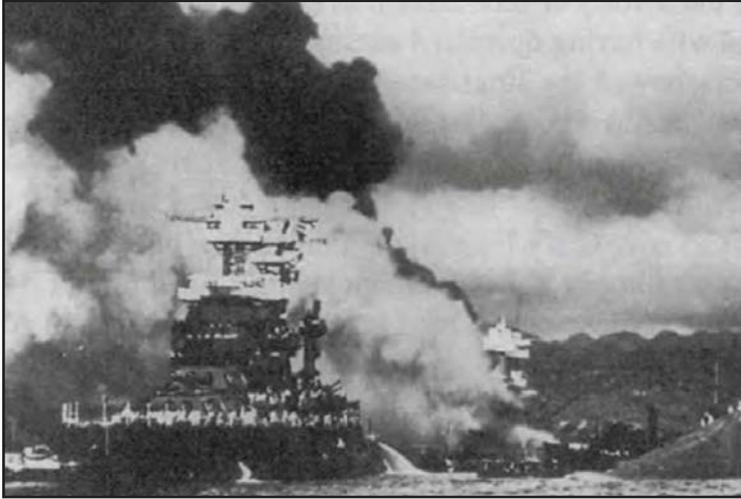
that of every other nation in the world. Altogether, its factories turned out 324,750 aircraft for the war effort; Germany's factories turned out 111,077 and Japan's 79,123. Where other nations stopped production lines to make modifications, or manufactured models long obsolescent, the United States, according to Arnold's orders, left its factories alone to insure high production levels and established separate depots to modify and modernize older models. Until the German ME 262 jet, American aircraft set the standard for performance and combat success with their ruggedness (the B-17 Flying Fortress, B-24 Liberator, and P-47 Thunderbolt); their range and bomb load (the B-29 Superfortress); their range, speed, and agility (the P-51 Mustang); and their utility (the C-47 Skytrain). Eventually, they were to equip 243 groups, consuming about 35 percent of America's total investment in equipment and munitions for the war. They were supported and flown by two and a half million men and women, nearly a third of the U.S. Army's total strength.

As important as production to Arnold was training. The demands of flight required the best from the brightest. Voluntary enlistments swelled the USAAF initially, supplemented by a pool of deferred flyers previously enrolled in the Air Corps Enlisted Reserve. Flying Training Command prepared nearly 200,000 pilots, nearly 100,000 navigators and bombardiers, and many hundreds of thousands of gunners and other specialists. American pilots received more uninterrupted training than those of any other nation, again because of Arnold's strategic vision and America's bountiful resources. Primary, basic, and advanced training were for individual flyers, brought together at operational training units under the First, Second, Third, and Fourth Air Forces and I Troop Carrier Command for forming into new units. Technical Training Command prepared over two million others, mostly mechanics and specialists to keep aircraft airworthy. Arnold and others labored to insure that the equipment these legions employed was the most advanced available. Research centers and test facilities sprang up all over the United States, dedicated to stretching aviation performance to the limit—and beyond. High octane aviation gasolines, radars, jets, rockets, radios, and special bombs were all products of the USAAF's commitment to basic and applied research and development.

This enormous aerial force was wielded by General Arnold, who assumed control over all USAAF units, with the War Department reorganization of March 1942. He quickly agreed with General George



Devastation and Renewal



Pearl Harbor, December 7, 1941. Japan's surprise attack against American naval and air forces, *above*, at installations on the Hawaiian island of Oahu, precipitated the entry of a shocked United States into World War II. It also set into motion an unprecedented arms buildup as America's factories, *below*, churned out weapons of war such as these Consolidated Vultee Aircraft Corporation B-24 Liberator bombers on an around-the-clock basis.



Marshall to postpone any discussion of an independent air force until after the war. However, Arnold was a member of both the American Joint Chiefs of Staff (JCS) and the joint American and British Combined Chiefs of Staff. The March 1942 reorganization and Arnold's position on the Combined Chiefs of Staff, nevertheless, gave the USAAF a large measure of autonomy, which was subsequently enhanced with the formation of the Twentieth Air Force (responsible for the B-29 campaign against Japan and under Arnold's direct command). A tireless commander, Arnold sacrificed his health building a winning air force.

Before the United States entered the war, American and British officials met from January to March 1941 for the ABC-1 talks and agreed on a strategy for defeating the Axis nations. They decided that because Germany represented the stronger enemy, British forces in the Mediterranean would hold their positions. In the Pacific, American forces would go on the strategic defensive, while Allied armies in Europe built up for an eventual landing on the continent followed by a victorious march to Berlin. After December 1941, however, events worked to modify this strategy. First, the U.S. Navy successfully bid for higher priority in the Pacific in an early two-pronged assault on Japan, one from Australia and New Guinea through the Philippines, the other through the islands of the South and Central Pacific. Second, in Europe, British demands for action in the Mediterranean and the immediate need for a reduction of German pressure on the Soviet Union diverted British and American forces to fight in North Africa. These developments left only the England-based Allied air forces to attack the German home land through a strategic bombing campaign.

On June 12, 1942, the USAAF inaugurated operations in the Mediterranean, striking against the Ploesti, Romania, oil fields, a target American airmen would come to know well. Large-scale action began with Operation TORCH—the invasion of North Africa—six months later on November 8. American doctrinal and organizational problems allowed the German Luftwaffe to achieve early domination in the air. Allied ground commanders demanded that air units maintain continuous air cover over Army formations. Their firepower thus diluted, “penny packets” patrolled the skies constantly, rarely finding the enemy, and were therefore not available in sufficient numbers when the Luftwaffe made concentrated attacks. German pilots achieved a three-to-one advantage in aerial victories. At the Casablanca Conference, in late January 1943, the United



States adopted a tactical doctrine formulated by British commanders Arthur Coningham and Bernard Montgomery after bloody fighting against Germany's Afrika Korps. Air superiority became their first objective for the air arm, including deep sweeps against enemy airfields, followed by interdiction to isolate battlefields, and then close air support to assist ground units in their movements against the enemy. Air and ground commanders would work together, neither auxiliary to the other.

Codified as Field Manual 31-35, this new doctrine of tactical warfare served the USAAF well. With their air forces organized into an independent Northwestern African Air Forces under General Carl Spaatz, including a Strategic Air Force under General Jimmy Doolittle and a Tactical Air Force under Coningham, the Allies achieved air superiority in the spring of 1943 and cut the flow of supplies and reinforcements to Field Marshal Erwin Rommel's army in North Africa. Allied commanders had the assistance of ULTRA intercepts, the top secret code-breaking operation, that provided detailed information about German ship and aircraft schedules. Axis armies in Tunisia, numbering 270,000 men, surrendered in May.

These initial steps toward organizing air power as an independent, unified force also led Army Chief of Staff George Marshall to issue Field Manual 100-20 in 1943. This document, the USAAF's "declaration of independence," recognized "land power and air power" to be "coequal and interdependent forces." In the Mediterranean, the Twelfth Air Force neutralized the



Principal American participants at the Casablanca Conference in French Morocco. Planning meetings on Allied war strategy between President Roosevelt, Prime Minister Churchill, and the Combined Chiefs of Staff in January 1943 included Lieutenant General Henry Arnold, Commanding General, USAAF. Seated, left to right, General George Marshall, President Roosevelt, and Admiral Ernest King. Standing, left to right, Harry Hopkins, General Arnold, General Brehon Somervell, and Averell Harriman.



Luftwaffe when Allied forces invaded Sicily in July and the Italian peninsula in September. Tough fighting slowed Lieutenant General Mark Clark's forces as they pushed northward, forcing him to rely increasingly on USAAF assistance to break through German lines. Since the bombing of the abbey at Monte Cassino failed to break the stalemate on the ground, USAAF units focused their attention on interdiction. Operation STRANGLE hoped to cut the flow of supplies to German defenders in Italy. The Twelfth Air Force learned how difficult that could be. Downing bridges, strafing trains and trucks, and bombing supply dumps contributed to eventual victory in 1945, but the protection of darkness gave the enemy opportunities to supply its forces.

AWPD/1 had called for a strategic bombing campaign against the sources of Germany's power as the most efficient and effective means of achieving victory. With the United States on the defensive in the Pacific and Allied units bogged down in North Africa, the Eighth Air Force in England joined the Royal Air Force (RAF) in the largest strategic bombing campaign ever attempted. Progress was slow through 1943. Airfields had to be built, crews trained, aircraft modified. Circumstances diverted Eighth Air Force units to pressing needs elsewhere in the world. The first official bombing mission did not come until August 17, 1942, when twelve B-17s of the 97th Bomb Group, accompanied by Eighth Air Force commander Ira Eaker, attacked a marshalling yard in France. The Eighth Air Force, along with the RAF and the Italy-based Fifteenth Air Force (beginning in late 1943), would be the only Allied forces attacking targets inside Germany's borders until late 1944.

Missions through the summer of 1943 were trial and error, as the Eighth Air Force slowly pushed deeper into German-occupied territory. Prewar doctrine dictated that unescorted self-defending bombers could fight their way through air defenses to destroy targets in an enemy's heartland. Attacking in small numbers (AWPD/1 had called for a force of 6,834 bombers), the USAAF was severely tested by poor weather, bombing inaccuracy, diversions of bombers to North Africa and against submarine pens, and stiff enemy defenses as it attempted to get at Germany's industrial web.

While the Eighth Air Force labored to overcome these challenges, the Air Staff, the AWPD, and the Committee of Operations Analysts worked to identify for destruction chokepoints in the German war economy.



Although RAF Bomber Command's Arthur Harris wanted the USAAF to join him in a night campaign of area bombing to destroy Germany's cities, the Combined Chiefs of Staff at the Casablanca Conference gave its support for daylight precision strategic bombing. AWPDI had identified 154 targets. A new plan, AWPDI/42 found 177. In late April 1943 at the Trident Conference, the Combined Chiefs approved a list of 76 targets as Eighth Air Force objectives. The Eighth Air Force, with the RAF, was to win air superiority, an "intermediate objective second to none in priority," and weaken Germany enough to allow an invasion. Its undertaking was to be known as Operation POINTBLANK, the Combined Bomber Offensive.

The pace of operations intensified for the 17 groups General Eaker had available in July 1943. Brigadier General Laurence Kuter and Colonel Curtis LeMay worked out combat formations at the wing and group levels to maximize the number of defensive machine guns to be brought to bear against attacking fighters. Day after day, weather permitting, the Eighth Air Force struck at German airfields, aircraft depots, and aircraft industry, hoping to win air superiority by bombing the Luftwaffe on the ground; in late July alone it lost 10 percent of its attacking bombers, in August it struck at ball bearing factories in Schweinfurt and the Messerschmitt aircraft factory at Regensburg while the Twelfth Air Force hit oil refineries in Ploesti, Romania, and aircraft factories in Wiener Neustadt. Eighth Air Force P-47 Thunderbolt fighters were soon outfitted with drop tanks, which extended their range and were intended to reduce losses as they escorted the bombers, but the Luftwaffe simply withheld attacking until they ran short of fuel and had to return to England.

The second week of October 1943 marked the high point in the Eighth Air Force's initial campaign. Scoring some bombing successes, General Eaker's command lost 8 percent of its bombers over Bremen, 8 percent over Anklam-Marienbourg, 13 percent over Munster, and 26 percent in a return trip to Schweinfurt. The loss of over 1,000 crewmen and nearly 150 bombers forced a change in American strategy. First, Arnold ordered all long-range P-38 Lightning and P-51 Mustang groups completing training in the United States to England to provide escort for the bombers for the duration of the war. Second, he created a new strategic air force in Italy, the Fifteenth, to attack Germany from the south. Third, he revised the command structure of the strategic bombing effort, moving General Spaatz to England as head of United States Strategic Air Forces in Europe (USSTAF) to command the bombing campaign against Germany, assisted



by Fred Anderson and Jimmy Doolittle as operational commanders and William Kepner as fighter commander. Eaker went to command the Mediterranean Allied Air Forces, including the Fifteenth and Twelfth Air Forces.

Change came quickly. Kepner revised fighter tactics to include phased and relay escort to extend the range of the fighters accompanying the bombers deep into Germany, especially when P-51 groups began arriving in December 1943. Doolittle ordered Kepner to unleash his fighters, assigned not just to escort bombers, but to go out, find, and destroy Luftwaffe aircraft. Kepner told his pilots to strafe German fighters on the ground if necessary. On February 20, 1944, Spaatz and Anderson began an all-out bombing offensive against German aircraft production. Five days of bombing, nineteen thousand tons worth, impaired some production; but the key to Big Week's effectiveness was the Luftwaffe's loss of one-third of its strength through aerial combat, and the Eighth and Fifteenth Air Forces growth in theirs.



American air leaders in Europe. *Center*, Carl Spaatz, Commanding General, United States Strategic Air Forces (USSTAF), in the top command position over America's air chiefs; *left*, Ira Eaker, Commanding General, Mediterranean Allied Air Forces (MAAF); *right*, Frederick Anderson, Deputy for Operations, USSTAF; and, *below*, William Kepner, Commanding General, Eighth Fighter Command, and Jimmy Doolittle, Commanding General, Eighth Air Force.



To keep up the pressure, Spaatz and Anderson resolved to bomb industrial targets in Berlin, under the assumption that the Luftwaffe would make an all-out effort to defend its capital. Their assumption was correct. Two days of the heaviest fighting yet seen in the skies over Germany so depleted the defender's forces that on the third day, March 9, 1944, the Luftwaffe failed to rise and give battle. Anderson relished reports that Berlin radio was "squealing like a stuck pig." The Luftwaffe grew weaker and the USAAF grew stronger as new groups, both fighter and bomber, arrived from the United States. A flood of men and materiel bespoke Arnold's 1941 commitment to prepare for a long war. Further attrition of the German defenders would be necessary in future months, but air superiority was now firmly in American hands.

To Arnold and Spaatz, this hard-won victory finally opened German industries to destruction from the air. Two conditions affected the strategic bombing effort and delayed the final bombing campaign. The pending V-weapon assault by Germany on England forced a massive preemptive Allied bombing campaign against it, diverting 6,100 sorties from POINTBLANK strategic targets. The cross-channel invasion, scheduled by the Allies for late spring, diverted Eighth Air Force bombers against transportation targets in France to isolate the invasion area. In support of the invasion, Spaatz wanted to go after German oil targets to ground the Luftwaffe and force the German army to park its vehicles. Invasion commander General Dwight Eisenhower overruled him on March 25, assigning USSTAF to interdict the landing area. VIII Fighter Command under Kepner continued to strafe German airfields and other ground targets through June.

When eight Allied divisions landed in Normandy on June 6, 1944, they did so under conditions of near total Allied control of the air, courtesy of USSTAF---only two Luftwaffe fighters appeared in the area that day. In late July USSTAF bombers again proved critical to the ground campaign as they blasted a hole through German lines at St. Lo for Lieutenant General George Patton's Third Army. Allied tactical air forces, which included Major General Elwood Quesada's IX Tactical Air Command for the First Army and Major General Otto Weyland's XIX Tactical Air Command for the Third Army, provided protective cover and close air support, in line with procedures established in North Africa, for Allied armies sweeping across France toward Germany. At Argentan-Falaise in August air power plugged the gap between encircling American and Canadian armies,



destroying hundreds of German armored vehicles and aiding in the capture of fifty thousand German troops. During the Battle of the Bulge in December, airlift, aerial interdiction, and close air support helped turn a near-disaster into an Allied victory.

Eighth and Fifteenth Air Force attacks on Germany's fuel industry provided immeasurable help to the ground offensives, restricting severely the ability of German ground forces to maneuver their armored and mechanized units. Allied air superiority, a product of the Eighth Air Force's aerial campaign, had permitted the landings in Europe, the Allied armies freedom of maneuver, and resupply without concern for the Luftwaffe. Germany had shown the world in 1939 and 1940 what close coordination between tactical air power and ground armies could accomplish. The USAAF repaid the favor with a vengeance in the drive from Normandy into Germany in 1944 and early 1945.

Eisenhower held first call on Spaatz's strategic bombing force through the summer of 1944, but allowed it to return to POINTBLANK objectives with an assault on Germany's oil production when it was not bombing targets in France in support of ground units. ULTRA intercepts confirmed that the USAAF had finally found a true chokepoint in the German industrial economy. German armaments minister Albert Speer predicted that continued attacks on it would have "tragic consequences." Despite heroic efforts to restore production, Germany found its tanks and aircraft immobilized because of growing fuel shortages. The entrance of the ME 262 jet fighter into combat inflicted occasional heavy losses on USSTAF, including thirty-three of the 445th Bombardment Group's thirty-seven bombers on September 27, 1944, but it could not change the war's outcome.

Adding Germany's railroad network to its priority target list in the autumn of 1944, USSTAF brought Germany's economy to the point of collapse by February 1945. Responding to temporary German successes during the Battle of the Bulge, Soviet requests, and a desire to hasten the enemy's surrender, USSTAF joined with the RAF in area-bombing Berlin, Dresden, and other German cities in February. Assigned targets remained industrial and transportation chokepoints in keeping with precision strategic bombing doctrine, but clouds and other factors made these missions, in effect, terror bombings. Spaatz declared an end to the strategic bombing campaign on April 16, 1945.



American Airmen had decided that they could defeat the enemy most efficiently by destroying its industrial web through precision strategic bombing. In so doing they hoped to prevent a repeat of World War I's trench warfare. Ironically, the contest they found in the skies over Europe from 1942 to 1945 was in many ways just as bloody as the earlier war's contest on the ground. Medal of Honor recipient Lieutenant William Lawley of the 305th Bombardment Group flew a B-17 back from Heiterblick, over 550 miles, with a face full of broken glass and shrapnel, a dead copilot draped over the controls, wounded crewmen, and only one engine running. The numbers associated with the USAAF's tactical and strategic campaigns against Germany reveal the ferocity of the air war: 1.6 million tons of bombs dropped on Europe, 765,000 bomber sorties, 929,000 fighter sorties, 31,914 airmen dead (by combat and accident), and 27,694 aircraft lost (by combat and accident).

In the waning days of the war against Germany, Arnold ordered an independent team to evaluate air power's accomplishments and failures. Their product, called the United States Strategic Bombing Survey (USSBS) and supported by 216 volumes of analysis and documentation on the European war (another 109 covered the war against Japan), concluded "that even a first-class military power—rugged and resilient as Germany was—cannot live long under full-scale and free exploitation of air weapons over the heart of its territory." The USSBS admitted that a slow buildup of aerial forces and inaccurate bombing had kept air power from reaching its potential, but judged as "decisive" the diversion of Germany's capabilities from the supporting of armies to the defending of its own skies, the attrition of enemy air forces, and the destruction of enemy oil supplies and transportation networks. The strategic bombing campaign forced Germany to divert 40 percent of its industry to aerial defense, 2 million of its workers to manufacturing supplies and equipment for air defense, 2 million of its soldiers to manning ground defenses, and 2.5 million of its laborers to cleaning up the damage. Victory in the air was "complete," and air power had helped "turn the tide overwhelmingly in favor of Allied ground forces."

Despite Europe's priority in Allied planning, America's first strategic bombing effort of the war began against Japan, when sixteen B-25 Mitchell bombers under the command of Lieutenant Colonel Jimmy Doolittle and launched from the USS Hornet attacked targets on the Japanese home island of Honshu in mid-April 1942. Although militarily insignificant, the



Doolittle raid embarrassed and infuriated Japanese military leaders and raised Allied morale. It was an omen of what Japan could expect from America's air power.

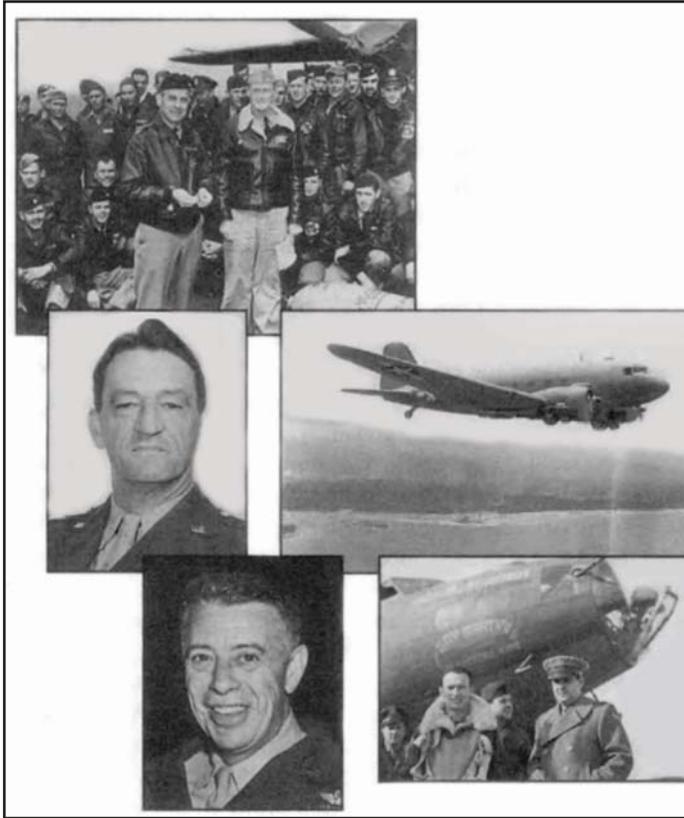
All the while, the Pacific war was more than just half-a-world away. In Europe the United States had powerful allies to consult and support at every turn. Except for the British Empire's forces in India, Burma, and Australia, the war against Japan was an American show. Europe had Eisenhower to unite British and American armies, navies, and air forces. In the Pacific, the U.S. Army and U.S. Navy competed in the drive toward the Japanese homeland. In General Douglas MacArthur's Southwest Pacific Area, the U.S. Army fought from Australia through New Guinea to Leyte and Luzon in the Philippines. In Admiral Chester Nimitz's Pacific Ocean Areas, the U.S. Navy moved among the islands from the Solomons and Gilberts through the Marshalls, Carolines, and Marianas to Iwo Jima and Okinawa. Combined with a lesser American effort to support China's war against Japan, the distances involved insured a major role for the USAAF.

In the Army's initial fighting on Papua New Guinea, thick jungles, rugged terrain, and inadequate forces restricted the help the USAAF could provide for MacArthur's hard-pressed command. By December 1942 the Fifth Air Force under Major General George Kenney had sufficient numbers of P-38s to seize air superiority over the island, allowing its B-17, B-24, B-25, and A-20 bombers to cut the flow of Japanese reinforcements and supplies. Kenney proved the master tactical innovator, developing skip bombing to sink enemy ships and arming his medium bombers with extra nose-mounted machine guns and even 75-mm cannon to improve their firepower. Kenney took a "seamless" approach to air power that had, in Carl Spaatz's words, "no line of cleavage between strategic and tactical air forces." One day his heavy bombers would attack enemy troop formations hundreds of feet from American lines; the next, they pursued enemy shipping hundreds of miles behind enemy lines.

General MacArthur adopted an island-hopping strategy, skipping over large enemy forces in the American drive northward, and, because of the Fifth Air Force's command of the air, leaving isolated Japanese garrisons to starve, cut off from resupply and rescue. The range of General Kenney's aircraft determined the distance to the next objective. By October 1944 MacArthur's army was ready to leap from New Guinea to Leyte in the Philippines, a target beyond the range of land-based air power. Admiral



Holding the Line in the Pacific



Top, Lieutenant Colonel Jimmy Doolittle and his Tokyo Raiders on board the USS Hornet, from whose deck they flew a formation of North American B-25 Mitchell bombers to attack the home of the Japanese empire and raise the spirits of discouraged Americans in 1942. Captain Marc Mitscher, the *Hornet*'s skipper, stands at Doolittle's left; *center, left*, Major General Claire Chennault, leader of the legendary Flying Tigers and, *bottom, left*, Major General George Kenney, Commanding General, Fifth Air Force, fought the conquest-hungry Japanese valiantly while Allied resources were directed to "Europe first"; *center, right*, the Douglas C-47 Skytrain transport, and indispensable workhorse in Asia. C-47 "Hump" flights from the U.S. Tenth Air Force's hastily-built base in Assam, India, over the Himalayas overland supply route; *bottom, right*, Brigadier Generals Heywood Hansell and Curtis LeMay, first and second leaders of XXI Bomber Command of the Twentieth Air Force. LeMay employed the command's B-29s, prone to engine fires and imprecise targeting at high altitudes, as successful medium-altitude bombers in incendiary raids over much of Japan.

William Halsey's carriers provided air cover until Kenney's Far East Air Forces (FEAF), which combined the Fifth and Thirteenth Air Forces, could move to the Philippines. There, FEAF became engaged in the Army's longest Pacific land campaign, which continued until the end of the war.

The USAAF also became involved in the frustrating and costly effort to keep Chiang Kai-shek's China in the war, tying down dozens of Japanese divisions. Initially this involved Claire Chennault's small mercenary force of private American pilots in China's pay, the Flying Tigers, who captured headlines in the United States when victories of any kind were few in number. With their occupation of Siam and Burma by mid-1942 the Japanese had isolated China, blockading it by sea and cutting supply roads. The USAAF had little choice but to launch a resupply effort into China over the "Hump"—the Himalaya Mountains—from India. The route took American crews above some of the most dangerous terrain in the world in overloaded C-46 and C-47 transports not designed for the weather and high altitudes the missions required. By war's end Hump pilots had ferried 1.18 million tons of supplies from India into China for the fight against Japan.

Although America's original Pacific strategy sought to choke the enemy through a naval blockade, after three years of war Japan remained unwilling to surrender. For Hap Arnold, a strategic bombing campaign employing B-29s would force it to capitulate, obviate the need for an Allied land invasion, and present an opportunity to prove the war-winning potential of an independent air force. The JCS had approved Arnold, as their executive agent, to command the Superfortresses of the Twentieth Air Force. They could strike from fifteen hundred miles, but even their great range left few options for bases from which to launch the air assault. Nimitz's drive through the Marianas in the summer of 1944 freed Tinian, Guam, and Saipan to base the B-29s of Brigadier General Haywood Hansell's XXI Bomber Command, the combat arm of the Washington-based Twentieth Air Force. Iwo Jima, conquered after heavy fighting in February 1945, provided an emergency landing field for damaged B-29s and a base for P-51 fighter escorts. After a largely futile strategic bombing effort from India and China in 1944, XX Bomber Command joined Hansell's growing force in the Marianas early in 1945 for the final strikes against Japan.



Hansell, an author of AWPD/1, stayed true to high-altitude daylight precision strategic bombing doctrine, beginning with XXI Bomber Command's first mission against the Japanese home islands on November 24, 1944. His assignment was to "achieve the earliest possible progressive dislocation of the Japanese military, industrial, and economic systems and to undermine the morale of the Japanese people to a point where their capacity and will to wage war was decisively weakened." He faced technical problems (including B-29 engines that tended to burst into flames), unanticipated 200 mile-per-hour winds of the jet stream over the home islands, and bad weather when striking mainly at Japan's aviation industries. At high altitude bombing accuracy was minimal; only 10 percent of bombs dropped fell within 1,000 feet of a target. Twenty-two missions disabled only one factory.

Arnold replaced Hansell with Major General Curtis LeMay in January 1945, with orders to achieve immediate results. During January and February 1945, LeMay's results were no better than Hansell's. He then surmised that Japanese industry was too dispersed and bombing accuracy too poor for a precision campaign from high altitude in daylight. Recognizing that Japanese air defenses were far weaker than those he had encountered in Germany, but still taking a great gamble to produce immediate results, he ordered his crews to remove their defensive guns and fly low (at seven thousand feet) by night to carry heavier bomb loads, and burn down Japan's cities with incendiaries. The initial raid against Tokyo on March 10, 1945, burned 15.8 square miles of urban area, killed almost 85,000, wounded almost 45,000, made almost 1 million homeless, and became the most deadly air attack in history. By August LeMay's air force had burned 150 square miles in 68 Japanese cities—few of significant size remained undamaged. Faced with an implacable enemy unwilling to surrender and the prospect of a costly invasion, but equipped with a new weapon of tremendous destructive capability, President Harry Truman ordered the first atomic bomb dropped on Hiroshima on August 6 and a second on Nagasaki three days later. Japan surrendered on August 14 after strategic bombing had levelled all of its major cities and killed or injured 800,000 of its people.

Given the great flying distances over open sea, the Pacific war cost the United States over 13,000 aircraft. Most were lost in transit, to battle damage, and through general wear-out. At war's end, the USAAF claimed 9,100 Japanese aircraft destroyed in combat. America's top ranking ace



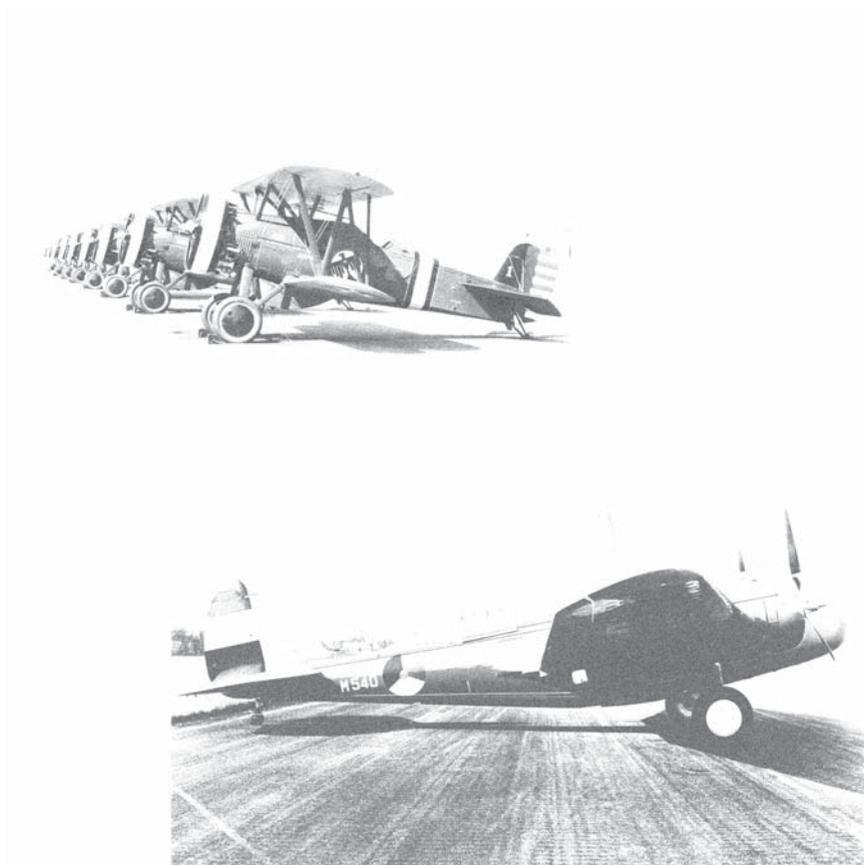
of all time, Medal of Honor recipient Major Richard Bong, became one of the war's last statistics when he crashed in California, test-flying a jet. The Allies used 502,781 tons of bombs against Japan, 160,800 of which were dropped on the home islands. The B-29 mining campaign and the naval blockade had destroyed Japan's economy, but only a strategic bombing campaign convinced its leaders to surrender.

From 1939 to 1945 the USAAF's personnel strength grew from 24,000 to 2,253,000; its aircraft inventory from 2,400 to 63,715. It dropped 2.05 million tons of bombs in World War II, flying and fighting over every ocean and six continents. Strategic bombing and air power did not live up to doctrinal expectations and win the war independently, but the USAAF forced enemy nations to divert enormous resources and effort toward defending their skies against it. If the USAAF did not make the Army and Navy obsolete, it insured that they rarely had to face the full force of enemy counterparts. Generals learned that air superiority and close air support were essential to the success of any ground campaign and that battlefield air interdiction was perhaps the most difficult of air power functions. North African operations proved that air power worked best when its forces were concentrated and directed as an independent or at least autonomous arm to achieve wartime objectives—coequal to the ground forces, auxiliary to neither. Finally, and to Arnold perhaps most important, the USAAF learned that air power meant planning, organization, training, and harnessing technology and science to produce new ordnance, radar, jets, rockets, and a variety of advanced aircraft that ensured success in combat.



Commanding General, U.S. Army Air Forces, Henry "Hap" Arnold. Under his leadership and fresh from victory in World War II, the USAAF was well-positioned for separation from and equality with the Army as a fully independent service.

AIRPOWER THROUGH THE COLD WAR, PART I





THE CONCISE HISTORY OF THE USAF



Air Power in the Nuclear Age

After the war the U.S. Army Air Forces established a number of major Commands—Strategic Air Command (SAC), Air Defense Command (ADC), Tactical Air Command (TAC), Air Materiel Command (AMC), and Air Transport Command (ATC, which later became Military Air Transport Service [MATS] and then Military Airlift Command [MAC]) and finally Air Mobility Command among others. Before his retirement, Hap Arnold, working to insure that America’s air force remained at the forefront of science and technology, established a civilian Scientific Advisory Group (now the Scientific Advisory Board), the RAND Corporation “think tank,” and several flight testing and engineering centers. Arnold proclaimed “the first essential” of air power to be “preeminence in research.” He and General Spaatz proclaimed the second to be education, establishing Air University as a major command.

If the USAAF remained subordinate to the Army, its wartime record and the atomic bomb guaranteed that its status would change. The atomic bomb had altered the nature of warfare. The organization that delivered it, the Twentieth Air Force, was the predecessor of SAC, soon to become the world’s dominant military force and responsible for conducting long-range combat and reconnaissance operations anywhere in the world. The USSBS had concluded from World War II that “the best way to win a war is to prevent it from occurring.” A Strategic Air Command, properly equipped and trained, also would help deter any adversary state from starting a global nuclear war and would thereby ensure international peace.

At war’s end the USAAF continued its quest for an American military establishment composed of three coequal and separate military departments. The Navy Department opposed unification and the



formation of a separate air force, but the War Department, led by General of the Army Dwight Eisenhower, supported the drive for a separate air component. The National Security Act of July 26, 1947, was a compromise, creating a National Military Establishment under a civilian Secretary of National Defense, with three coequal services that preserved the air arms for the Navy and Marines. President Truman's first choice for



The newly independent U.S. Air Force's (USAF's) first Secretary, Stuart Symington, and its first Chief of Staff, General Carl Spaatz.

Secretary of National Defense, Robert Patterson, turned down the job and James Forrestal, then serving as Secretary of the Navy, was appointed. The U.S. Air Force (USAF) gained its independence on September 18, 1947, under the Department of the Air Force, headed by Secretary of the Air Force Stuart Symington. General Carl Spaatz was named the first Air Force Chief of Staff.

At a time of demobilization, the National Security Act only postponed a confrontation between the Navy and Air Force over roles and missions in an era of declining defense dollars. For over a century, the Navy had been America's first line of defense and its offensive arm overseas until the era of the long-range bomber and the atomic bomb. Air power appealed to an American love of technology, a desire to avoid heavy casualties, and to austerity-minded presidents like Harry Truman and especially Dwight Eisenhower. The atomic bomb made air power the preeminent force in the postwar world. Giant six- and later ten-engine B-36 Peacemakers seemed to eclipse the Navy's expensive and vulnerable aircraft carriers in the nuclear world. A group of naval officers, led by Admirals Louis Denfeld, Chief of Naval Operations, and Arthur Radford, protested when budget restraints forced a Navy cutback from eight to four carriers and the cancellation of a planned supercarrier, the USS United States, large enough to launch atom bomb-carrying aircraft. The outbreak of war in Korea in June 1950 ensured higher defense budgets and limited further interservice contention.



Among the changes wrought by World War II for the U.S. Air Force was that affecting its basic composition. What had been a predominantly white male force became over time more representative of American diversity. African Americans had served in many roles during World War II, most visibly as fighter pilots in the 332d Fighter Group in Italy. Their combat record helped pave the way for the full racial integration of the armed forces under President Truman's July 1948 Executive Order 9981 which stated: "There shall be equality of treatment and opportunity for all persons in the Armed Services without regard to race." The Air Force achieved racial integration quickly and smoothly, eliminating its last segregated unit (the 332d Wing) in June 1949. American airmen first fought together without racial separation during the Korean War—Captain Daniel "Chappie" James, Jr., an African-American recognized and decorated for his performance as a reconnaissance pilot, came out of that experience. Equal opportunities and promotions for African Americans came more slowly, however, causing several riots at Air Force installations in the 1970s; but the service's commitment to a strong equal opportunity program erased remaining racial barriers. The armed services in general were ahead of the rest of American society on this issue.



WASPs (Women's Airforce Service Pilots) and Martin B-26 Marauders.

Similarly, the Air Force helped lead the nation in the struggle to extend equal opportunities to women; 29,323 women served in the Army Air Forces in World War II as part of the Women's Army Corps (established on July 1, 1943); another 1,074 served as civilian Women's Air-force Service Pilots (WASPs). Under the leadership of Nancy Love and Jacqueline Cochran, WASPs ferried aircraft and trained male airmen. President Truman signed the Women's Armed Services Act on June 12, 1948, establishing the WAFs (Women in the Air Force). Another barrier to professional advancement was removed in 1976 when women entered Air Force non-combat pilot training programs for the first time, and 1993 when the first female combat pilots entered active service.

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Atomic bombs carried by strategic bombers eventually ruled postwar Air Force and Department of Defense (DOD) war planning. Only aircraft such as the B-29 Superfortress, the B-36 Peacemaker, and the all-jet B-47 Stratojet, could carry atomic bombs that weighed upwards of 10,000 pounds (the Mark II-IV series). The Atomic Energy Commission (AEC), formed in 1946 to replace the wartime Manhattan Engineering District, succeeded in reducing the size of the bomb (the Mark 7 weighed 1,680



The enormous ten-engine Convair bomber, the B-36 Peacemaker, the largest aircraft ever to serve with the USAF. With atomic bomb-carrying capacity and inter continental range, the B-36 was ordered in 1941 and debuted in 1946. When its J variant was retired in 1959 Strategic Air Command (SAC) became an all-jet force.

pounds) but did not change the basic atomic equation. A handful of Air Force bombers carried more power than all of history's armies and navies combined.

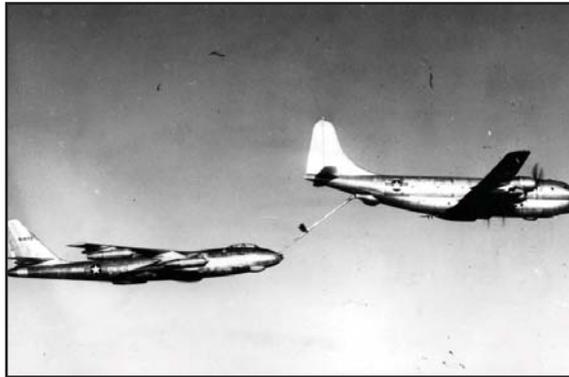
Under postwar demobilization, which affected the AEC just as much as the armed services, the nation's stockpile of atomic weapons rose to only nine in 1946. In 1947 the commission took over weapons-building programs and the stockpile reached thirteen as the Truman administration and the JCS discussed the level of production necessary to maintain an effective deterrent. In December 1947 the JCS approved a goal of 400 weapons for the AEC. At the same time, while SAC began to recover from the chaos of demobilization, its state of readiness remained low. Under General George C. Kenney and his deputy, Major General Clements McMullen, it assigned high priority to establishing a rigorous aircrew training program. This program, the secrecy that shrouded atomic weapons jealously guarded by the AEC, and the lack of information available to operational forces limited SAC'S potential as an atomic strike force.



In addition, vast distances to targets challenged the skill and endurance of its aircrews. Although SAC operated the B-36 intercontinental bomber to strike anywhere in the world, it initiated the development of an aerial refueling capability in fall 1947. In 1948 it adopted the British hose method, converting some piston-engine B-29s to tankers, and formed two aerial refueling squadrons in June 1948. SAC later adopted the Boeing flying boom method of refueling, made standard in 1958. Using four aerial refuelings, the B-50 Lucky Lady II flew nonstop around the world between February 26 and March 2, 1949, to demonstrate the technique's global strike potential. Destined to serve Air Force jet bombers and fighters for the next five decades and beyond, the jet turbine-powered KC-135 Stratotanker, became operational in 1957.

The crisis that precipitated the Berlin Airlift began on June 24, 1948. It revolved around American plans for rebuilding a separate West German State and led the Soviet Union to initiate a ground blockade of the Western-controlled zones of Berlin, 90 miles inside Soviet-controlled East Germany. Forcing the blockade would have required the West to launch a general mobilization, fire first shots, and possibly set off another global war. Although the United States had deployed the conventional B-29 to Europe, perhaps in a calculated bluff that

relied on the aircraft's reputation as an atomic delivery vehicle, the crisis continued. The Allies saw an opportunity to resupply Berlin and feed its 2.5 million



Aerial refueling. A Boeing KC-97 Stratofreighter nourishes a Boeing B-47 Stratojet, the USAF's first swept-wing jet bomber. The B-47, as capable as the B-29 and the B-36 of carrying atomic weapons, played important roles in SAC and the Cold War. Eighteen solid rockets mounted at the rear of its fuselage, which was dedicated almost completely to bomb and fuel containment, maximized takeoff performance. The B-47 served with the USAF from 1947 to 1969.

beleaguered inhabitants by air through three air corridors guaranteed by agreement with the Soviet Union. Lieutenant General Curtis LeMay, then commanding U.S. Air Forces in Europe (USAFE), pieced together an airlift



force of C-47 Skytrains left over from World War II, but the 80 tons per day they supplied were not enough. On July 30, 1948, Major General William Tunner, who had run the Himalayan “Hump” airlift during the war, replaced LeMay, the combat leader. Reinforced with four-engine C-54 Skymasters and C-74 Globe-masters, Tunner initiated around-the-clock flights guided by ground control approach radar. His aircraft landed every three minutes, carrying a record capacity of 5,620 tons per day. When the airlift appeared to succeed, the Soviet Union threatened to interfere with it.

President Truman responded by sending a wing of B-29s, widely described in the world press at the time as “atomic” bombers, to England. They were not, but the Soviet Union apparently believed they were and made no move to interrupt the airlift. In May 1949 it provided the United States with the first victory of the Cold War (without a shot being fired) when, after eleven months, 277,000 flights, and 2.3 million tons of life-sustaining supplies, it opened Berlin to surface traffic. A few months later in late August, it exploded an atomic bomb of its own, causing Americans grave national security concerns. Almost before the Truman administration could respond, it faced a new crisis in Korea.



THE CONCISE HISTORY OF THE USAF



Limited War in Korea

When North Korean forces invaded South Korea on June 25, 1950, in a surprise attack, they awakened the United States to the dangers of brushfire war in the nuclear age. The earlier crisis of 1948 in Berlin, Communist successes in Czechoslovakia in 1948 and China in 1949, and news of the Soviet explosion of an atomic device in 1949, had prompted the National Security Council (NSC) to issue a secret directive, NSC-68, in April 1950. It judged the Soviet Union to be bent on world domination. NSC-68 called for a massive increase in defense spending of 20 percent of the gross national product if necessary, the development of a hydrogen bomb, and the containment of Communism. The sustained American-led buildup of the North Atlantic Treaty Organization (NATO) in Europe was unmistakable evidence of containment, but Korea would be the first test of revitalized American resolve.

A heavy reliance on the nuclear strike force left the Air Force ill-prepared to deal with a conventional war on the other side of the globe. Moreover, when Congress approved the use of force to repel the North Korean invasion on June 30, 1950, the absence of a formal declaration of war introduced the Air Force to the new tribulations of limited war. The few air combat units of Major General Earle Partridge's Fifth Air Force, the main combat force of Lieutenant General George Stratemeyer's Far Eastern Air Forces (FEAF), launched interdiction raids against advancing North Korean units from bases in Japan in an attempt to slow their headlong rush down the Korean peninsula. Armed reconnaissance by fighters against targets of opportunity increased their effectiveness.





Principal American air commanders at the outset of the Korean War, Major General Earle Partridge, *left*, Fifth Air Force, and Lieutenant General George Stratemeyer, *right*, Far Eastern Air Forces (FEAF).

The United Nations (U.N.) Security Council had called on member nations to aid South Korea on June 27, but for a time, the U.S. Air Force's thin aluminum line was the only help harassed American and Republic of Korean ground forces could expect. B-26s of the 3d Bombardment Wing from Johnson Air Base in Japan put the interdiction effort on an around-the-clock basis with night intruder operations beginning on the night of June 27. B-29s of the 19th Bombardment Group, based at Kadena, Okinawa, added heavy bombs the next day. Continuing interdiction strikes (40 percent of all missions) against overextended North Korean supply lines and desperate ground action supported by air strikes (60 percent of all missions) saved U.N. forces trapped in the Pusan Perimeter. This success in direct support of U.N. troops freed Air Force units for strikes against strategic targets in North Korea. Accurate bombing in all weather conditions and North Korea's small size allowed the B-29s to all but eliminate its industrial base by September 1950.

General Douglas MacArthur, named Commander in Chief of the U.N. Command in Korea on July 8, launched a surprise amphibious landing at Inchon on September 15, coupled with a U.N. drive north from the Pusan Perimeter, clearing South Korea of North Korean forces. In early October the U.N. changed its objective from saving South Korea to unifying all of Korea under a pro-Western government. Before the end of the month, as MacArthur's army approached the Yalu River separating China from North Korea, signs pointed to probable Communist Chinese intervention. The Air Force switched to interdicting the flow of men and materiel across the Yalu bridges. The freezing of the Yalu River in January 1951,

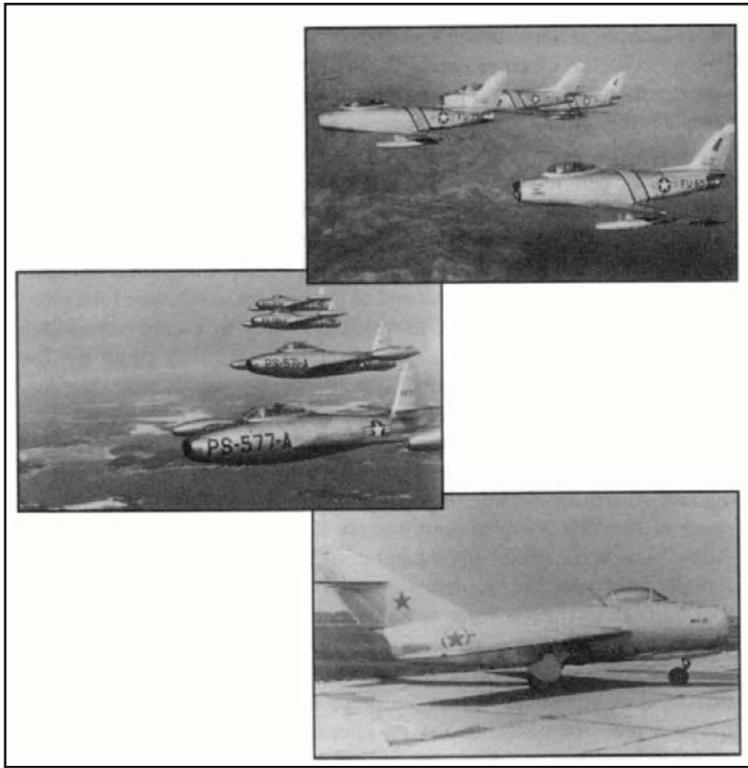


and rules of engagement that forbade American overflights of Chinese territory on the north end of the bridges, condemned the effort to failure. B-29s had to fly above 20,000 feet to escape anti-aircraft artillery fire from the Chinese side of the Yalu, but they could not fire back. That altitude and bombs errantly falling on Chinese territory insured little success. Bombing became even more difficult when China escalated the conflict in November 1950 by sending Soviet-provided MiG-15 jet fighters, launched from safe sanctuary on lightning attacks against American aircraft, especially FEAF B-29s. The airspace just south of the Yalu River in northwestern Korea became known as “MiG Alley.” The performance advantages of the MiG-15 in speed and altitude initially held sway over propeller-driven P-51 Mustangs (pursuit aircraft redesignated by the Air Force as fighters in June 1948), jet-powered F-80 Shooting Stars, and even newer F-84 Thunderjets.

Chinese Communist forces counterattacked on November 26, driving U.N. units back toward South Korea. For the U.S. Air Force, this meant a renewed concentration on interdiction, combined with a campaign to maintain air superiority against the MiG-15s. Air Force airlift brought 1,600 tons of supplies to Marines cut off at Changjin (more widely known by its Japanese name, Chosin) Reservoir and evacuated 5,000 wounded. After retreating, U.N. forces stabilized along the 38th parallel in early 1951 and the war deteriorated into a series of small, bloody battles, with no significant movement by either side. War objectives changed again. Peace talks opened in July 1951. They were backed by a new American strategy to force high rates of attrition on the enemy. It would be up to FEAF, now under Lieutenant General Otto Weyland, and U.S. naval aviation to carry the war beyond the front, to pressure North Korea and China into a ceasefire, substituting air power whenever possible for ground operations that inevitably resulted in high casualties.

This strategy presented new threats and complications for the Air Force. Doctrine dictated strikes against the enemy’s industrial fabric, but the bombing operations of 1950 had destroyed these limited North Korean targets. Industries supporting the Communist war effort, located in China and the Soviet Union, were off limits to aerial attack. The Air Force had to operate under the rules and restrictions of limited war and could not bring SAC’S massive nuclear power to bear. FEAF B-29 Superfortresses, supported by tactical aircraft, bombed targets all over North Korea with conventional weapons, including radar-directed high-





Korean War fighters. North American F-86 Sabres, *top*, and Republic F-84 Thunderjets, *center*, challenged Soviet MiG-15s, *bottom*, sent into “MiG Alley” in northwestern Korea by Red China, to menace FEAF B-29s. Rules of engagement forbade the fighters from pursuing the MiGs across the border.

altitude strikes against enemy troops forming for attack. They blurred the lines between tactical and strategic air power, proving the value of George Kenney’s “seamless” approach.

After China’s intervention, both the United States and the U.N. sought a more limited objective, that of a negotiated truce. Dissatisfied, MacArthur advised Congress that “there was no substitute for victory,” and contradicted national policy. On April 11, 1951, President Truman fired MacArthur, replaced him with Matthew Ridgway, and in the process changed the nature of air warfare in Korea. The Air Force would still interdict the flow of supplies to Chinese units along the 38th Parallel and provide close air support to U.N. forces opposing them, but it would now also pressure the enemy into a settlement by inflicting maximum losses of men and materiel. The “police action” had become a war of attrition.



The Fifth Air Force's new commander, Lieutenant General Frank Everest, believed that interdiction was key to reducing the impact of Chinese offensives and U.N. ground losses. MiG-15s outnumbered F-86 Sabres over North Korea by five-to-one in 1951. Thus the Air Force's losses climbed as B-29s operated mainly at night. Complicating its air superiority campaign were air bases which the Chinese tried to build in North Korea to support their own forces and which FEAF was compelled to target. F-86s engaged MiGs in air-to-air combat and B-29s cratered the air bases' runways, forcing Communist jets to continue flying out of China and limiting their ability to challenge because of their short range. However, any bomb damage was quickly repaired by enemy labor units and necessitated continuous return missions. Interdiction, although costly, racked up long lists of destroyed trucks, trains, rail lines, and bridges, including the heavily-defended Yalu crossings. Nonetheless, supplies still reached Communist front lines in quantity by night. Medal of Honor recipient Captain John Walmsley, Jr., of the 8th Bombardment Squadron gave his life using his searchlight-equipped B-26 as a beacon to direct other B-26s while they bombed an enemy supply train on September 14, 1951. As it had in Operation STRANGLE in Italy during World War II, the Air Force learned that no air campaign was tougher than interdiction.

By the spring of 1952 the Chinese had won the battle of interdiction and the Americans had failed in their attrition strategy along the 38th Parallel. Communist representatives, first at Kaesong and then at Panmunjon, stalled peace talks and demanded mandatory repatriation for prisoners-of-war. General Weyland proposed to break the impasse by expanding the air war against North Korea. As U.N. casualties climbed and negotiations dragged on, the new American commander in Korea, General Mark Clark, accepted Weyland's proposal. In June 1952 he ordered the bombing of the Suiho Hydroelectric Complex, previously "off limits" and one of the largest facilities of its type in the world. It was a major exporter of electricity to Chinese industries across the border. A four-day onslaught over Suiho and other hydroelectric plants cost North Korea 90 percent of its power system. Through the remainder of 1952, the Air Force attacked 78 cities and towns identified as supportive of a number of military functions, chiefly supply; however, to limit civilian casualties and weaken morale it alerted their inhabitants.



In Korea, as in World War II, the bombing of critical targets attracted the enemy's air force into the sky, where it could be engaged. Intelligence revealed that China had a thousand MiGs ready for combat and Fifth Air Force fighter squadrons, for the first time in the war, did not have to go hunting—the “game” came to them. A new version of the F-86, the F model, gave Air Force pilots superior performance to go along with their better training and tactics. In May and June 1953 the F-86Fs achieved a 133-to-1 advantage in combat kills over the MiGs. Individual scores rose, with Air Force Captain Joseph McConnell, a B-24 navigator in World War II, topping all pilots with 16 confirmed victories in only four months.

Three developments in 1953 brought peace to Korea. In March Soviet Premier Joseph Stalin, a major obstacle, died. In May, Air Force bombers increased the frequency of their attacks again, striking North Korean irrigation dams that, when breached, washed away railroads and highways and threatened the nation's rice crop. At the direction of President Dwight Eisenhower, Secretary of State John Dulles asked Indian Prime Minister Jawaharlal Nehru to warn China that the United States intended to use tactical and strategic nuclear weapons and might unleash SAC against Chinese cities if a settlement was not forthcoming. On May 27, 1953, China agreed to an armistice in Korea. It went into effect on July 27.

The Korean War should have taught the United States that nuclear weapons had limited use in conventional wars, but the appeal of the new hydrogen bomb, first tested in November 1952, and plans for a new all-jet intercontinental bomber, the B-52, continued to dominate strategic thinking. TAC sought a new generation of fighters (the “century series,” including the F-100 Super Sabre, F-101 Voodoo, F-102 Delta Dagger, F-104 Starfighter, F-105 Thunderchief, and F-106 Delta Dart) with supersonic speeds, but also adapted them to carry tactical nuclear weapons. The Air Force realized that while turbojet technology was the future, it alone was no substitute for good training, tactics, and aggressiveness. Military casualties in Korea of over two million for both sides, including more than 36,000 dead Americans, belied the judgment that this was a “limited” war—Americans learned firsthand the costs of war in Asia. Air Force aircraft had dropped 476,000 tons of explosives to achieve a standoff. Korea exposed the Air Force to the reality of post-World War II warfare, where conventional (non-nuclear) air power would be used to “influence” an enemy, not to destroy it.



THE CONCISE HISTORY OF THE USAF

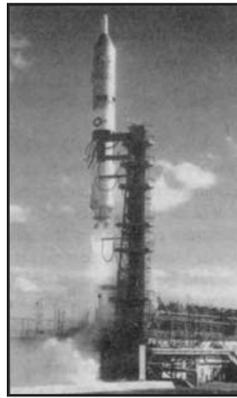


The “New Look” Air Force

After Korea, President Eisenhower told the JCS that the next war they planned would be nuclear. Conventional capabilities paled before super liquid deuterium bombs such as the Mark 17 (a 41,400-pound thermonuclear device). Only the Air Force B-36 Peacemaker and B-52 Stratofortress could carry the weapon. How to defend America against the Soviet Union’s nuclear threat was the question of the day. Brushfire wars would be addressed when they arose, but, so the argument went, they should not occur under the threat of American nuclear retaliation. In January 1954, Secretary of State Dulles unveiled America’s new defense strategy—the “New Look.” The United States would deter any Soviet attack by threatening to destroy Soviet cities. Commanded by General Curtis LeMay, SAC would expand from 19 to 51 wings, armed with a new generation of smaller, but enormously destructive high-yield thermonuclear weapons. These wings would be placed on constant alert, based around the world, and eventually augmented by KC-135 turbojet Stratotankers to extend their aircrafts’ range. In the mid-1950s the major portion of budgetary allocations to the Air Force went to SAC. This specified command, responsible for intercontinental nuclear retaliation, had become “an Air Force within an Air Force.”

Besides acquiring such bomber aircraft as the B-52 Stratofortress and B-58 Hustler, the Air Force pursued missile development to support the “New Look.” Beginning in 1946, Project MX-774 investigated the development of a 5,000-mile ballistic missile, however, the Scientific Advisory Group, formed by General Arnold, cautioned that atomic bombs were too large for any such delivery system and directed its efforts toward large, unmanned cruise missiles like the Snark. Ballistic missile development lagged until the test of the hydrogen thermonuclear bomb in November 1952 offered prospects of smaller warheads with greater





Atlas, left, and Titan I, right, intercontinental ballistic missiles were among several types that entered SAC's defensive inventory after the Korea War.

power. Intensive research began in 1954, accelerating in 1956 when the DOD assigned the Air Force responsibility for all ground-launched missiles with ranges of more than 200 miles (later changed to 500 miles). Success with the liquid-propellant Thor and Jupiter intermediate range ballistic missiles (IRBMs, operational in June 1960 and April 1961, respectively) and Atlas and Titan I intercontinental ballistic missiles (ICBMs, deployed from September 1960 to December 1962 and April to August 1962 respectively) came in time to carry a whole new generation of miniature nuclear and thermonuclear warheads. The solid-propellant Minuteman ICBM series followed, beginning in October 1962, and became the mainstay of SAC's missile retaliatory force. The U.S. Air Force was becoming an aerospace force.

Before ICBMs, manned bombers formed the strength behind the "New Look." Airmen had argued since World War I that air power was essentially offensive, but they were compelled to view it as defensive in light of the damage that resulted from the explosion of even one nuclear weapon. To detect incoming attacks, President Truman approved the Distant Early Warning (DEW) radar line which, with Canada's assent, was built across its northern territory beginning in 1954. To operate the line and coordinate their defensive forces, both the United States and Canada established on September 12, 1957, the binational North American Air Defense Command (NORAD). A generation of interceptor aircraft began service, beginning with the F-89 and F-100, succeeded by the F-102, F-106, and F-15. For a time anti-air defenses included surface-to-air missiles such as the Nike Ajax system. The development of several follow-

up designs occurred, but none was deployed. In the early 1960s the Air Force reinforced NORAD with the Ballistic Missile Early Warning System (BMEWS) and, later, the Perimeter Acquisition Radar Characterization System (PARCS). An Air Force general officer historically has served as NORAD commander, which historically operated from a command center inside Cheyenne Mountain near Colorado Springs, Colorado.

Because of its experience of World War II in Europe, the Air Force expressed little faith in the ability of America's defenses to stop a



North American Air Defense (NORAD) command center inside Cheyenne Mountain, Colorado Springs, Colorado.

determined air attack, nuclear or otherwise. The only defense was deterrence, made possible by a protected force of bombers and missiles. Any strike at the United States would result in immediate, overwhelming

retaliation and a smoking, radioactive wasteland. This "countervalue" strategy targeted cities. Because accuracy was limited, especially with early model ICBMs, and thermonuclear warheads were few, the Air Force targeted large, easy-to-hit cities to inflict the greatest possible damage. A countervalue strategy was at odds with the Air Force's traditional commitment to precision bombing, but consistent with Dulles's doctrine. Reliance on it and massive retaliation created three problems for the Air Force and the DOD.

The first problem had to do with the increasing vulnerability of manned bombers to improved enemy ground defenses when airborne and, when not, to a surprise nuclear first strike. The Air Force's solution to ground defenses was the production of standoff weapons (including the Hound Dog and eventually the SRAM short-range attack missile and ALCM air-launched cruise missile) to keep bombers at a distance from their targets. "Airborne alert" helped offset the threat of a surprise first strike against the United States. Beginning in 1957, part of SAC's bomber force always remained on ready alert, its crews on standby, poised to take



off at a moment's notice; another was dispersed to satellite bases around the world, complicating Soviet targeting; while a smaller was actually airborne. The DOD's ultimate solution was the Triad, maintaining three primary nuclear forces, each with special advantages. The first element of the Triad was the manned bomber, important for its load-carrying and ability to be recalled once launched. ICBMs formed the second component. They were important for their speed, size, and, eventually, accuracy. Early ICBMs, the Atlas and Titan I, burned cryogenic liquid propellant and required extended launch preparations which rendered them vulnerable to a first strike. In the 1960s later model Titans IIs employed storable propellants and, joined by the solid-propellant Minuteman, were placed in protective silos and capable of near-instantaneous launch. Submarine-launched ballistic missiles (SLBMs), including the Polaris, Poseidon, and Trident, comprised the third component of the Triad. Able to roam the world's oceans, missile submarines represented the most survivable of the three legs. Although the sub-launched solid-propellant ballistic missiles at first lacked range and accuracy, technology soon removed these drawbacks.

The second problem created by a countervalue strategy and massive retaliation had to do with the control and integration of diverse weapon systems into a single American war plan. In 1959 President Eisenhower ordered that a single integrated operational plan (SIOP) be adopted, which required coordination by the Army, Navy, and Air Force. The need for SIOP became apparent when in the late 1950s an investigation revealed that the military services had targeted Moscow with fewer than 170 nuclear bombs and warheads in case of all-out war.

The third problem had to do with intelligence. America's first steps into space, the "ultimate high ground," were associated with intelligence, surprise attack prevention, and nuclear war planning. The Air Force also sought to exploit space for communications, navigation, and weather forecasting.

Chuck Yeager and the X-1 rocket aircraft, the first to break the sound barrier, began pushing back the aerospace frontier in 1947, as did other experimental aircraft that flew over 301,000 acres of desert testing ground in California at Edwards Air Force Base's Air Force Flight Test Center. The X-15 rocket airplane flew nearly seven times the speed of sound and seventy miles high in the mid-1960s---records that still stand





Chuck Yeager and the Bell XS-1 rocket aircraft, Glamorous Glennis, in which he became the first man to break the sound barrier in 1947.

for winged aircraft. In 1957 the Air Force began the Dyna-Soar program, later designated the X-20, to build a manned space boost glider/aerospace plane. Dyna-Soar was cancelled in 1963 in favor of a Manned Orbital Laboratory, itself scrapped in 1969 because automated satellites could perform the same missions. The flights of the X-aircraft, however, provided critical knowledge for manned space travel and for the special

materials used in a new generation of aircraft, starting with the SR-71 Blackbird reconnaissance aircraft.

Strategic reconnaissance became the primary goal of space exploration. Fears of a surprise nuclear attack, based largely on the memory of Pearl Harbor, and the secrecy of events behind the Iron Curtain forced every administration after 1945 to seek information on the status and disposition of military forces inside the Soviet Union. Initially, U.S. Air Force and U.S. Navy aircraft were deployed along its vast periphery to take photographs and intercept radio and radar signals. In early 1956 the Air Force launched 448 unmanned camera-carrying balloons from western Europe propelled eastward by prevailing winds. Although inherently random in their coverage, 44 were recovered and provided tantalizing glimpses of some 10 percent of the Soviet Union's land area. At the direction of President Eisenhower, the Air Force, with the Central Intelligence Agency (CIA), and the Lockheed Aircraft Corporation developed the U-2, a single-engine glider aircraft capable of flying above 70,000 feet and beyond the range of Soviet air defenses. Eisenhower authorized U-2 overflights across the Soviet Union beginning on July 4, 1956, but, fearing that they might become a casus belli, he limited their number. Fewer than 25 missions occurred before a Soviet surface-to-air missile downed a U-2 flown by Francis Powers on May 1, 1960. The resulting diplomatic crisis ended aerial reconnaissance flights over



the Soviet Union. A more capable SR-71 Blackbird was soon available to replace the U-2, but by then safer, “national technical means” were available for intelligence-gathering.

In part because of the Soviet Union’s success with Sputnik in October 1957, President Eisenhower in early 1958 established within the DOD the Advanced Research Projects Agency, accelerating efforts to exploit space for reconnaissance purposes. The Air Force had begun investigating the use of satellites for this purpose as early as 1946, beginning actual development in October 1956 with a contract to Lockheed for the WS-117L (SAMOS) reconnaissance satellite. Dissatisfied with the technical prospects of the SAMOS, which transmitted images to Earth from space, in February 1958 Eisenhower approved Project CORONA, A CIA-Air Force effort to put into outer space a spy satellite capable of ejecting film capsules for retrieval on earth. The first CORONA satellite, known publicly as Discoverer, went into space on February 28, 1959, atop a modified Air Force Thor IRBM. After twelve consecutive failures, complete success came with number 14 on August 18, 1960. It provided analysts with film coverage of more of the Soviet Union than all of the U-2 flights combined.



Francis Gary Powers, *right*, talks to U-2 designer Kelly Johnson in 1966. Powers was an Air Force fighter pilot recruited by the CIA in 1956 to fly civilian U-2 missions deep into Russia. America’s need for vital strategic reconnaissance increased in the Cold War period. The single-engine Lockheed U-2 glider aircraft was developed to overfly and gather information on the Soviet Union, principally. It attained altitudes above 70,000 feet. To mask the U-2’s true purpose, the USAF at first designated it a “utility” vehicle.

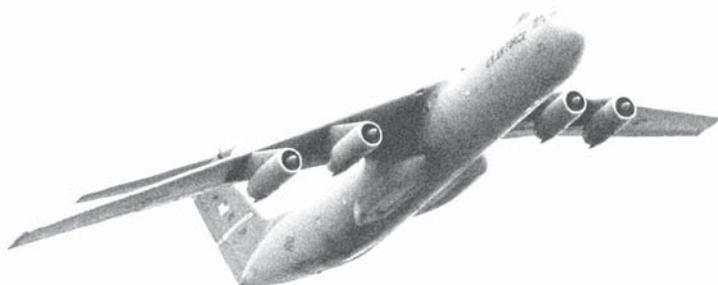
This first successful CORONA satellite ended the “missile gap” controversy, revealing that the Soviet Union possessed fewer IRBMs than the United States. Only a few SAMOS satellites were launched in the early 1960s. Designed to scan images in space and broadcast them as radio signals to receivers on the ground, SAMOS failed to return one usable photograph of the Soviet Union. Before leaving office in 1961, President Eisenhower established the National Reconnaissance Office to direct all U.S. reconnaissance efforts, with the Air Force and CIA participating. To provide satellite early warning of a nuclear attack, the Air Force also developed the Missile Defense Alarm System (MIDAS) and its operational successor, the Defense Support Program (DSP), that detected missiles within moments of their launch. DSP would later play a key role in detecting the launch of Iraqi Scuds Missiles during the Gulf War.

After the discontinuance of the space reconnaissance mission, on March 28, 1961, Secretary of Defense Robert McNamara assigned the Air Force responsibility for other DOD military space operations such as the worldwide Defense Satellite Communications System I (DSCS I). Twenty-six system satellites were launched from 1966 to 1968. Beginning in 1972, larger geosynchronous communications satellites reinforced the original DSCS I, followed in the 1980s by a third generation of DSCS and in the 1990s by the Military Strategic Tactical and Relay Program (MILSTAR) system. Another key space flight project was the Defense Meteorological Satellite Program (DMSP) for monitoring weather conditions around the globe, with information transmitted to the Air Force’s Global Weather Center at Offutt Air Force Base, Nebraska. The Air Force tracked and identified space debris produced by space missions through the Space Detection and Tracking System (SPADATS). The service also held primary responsibility for launching all DOD satellites at Cape Canaveral Air Force Station, Florida (into low inclination equatorial orbits) and at Vandenberg Air Force Base, California (into polar orbits).





AIRPOWER THROUGH THE COLD WAR, PART II





THE CONCISE HISTORY OF THE USAF



Flexible Response and Vietnam

President John Kennedy initiated a more activist, interventionist national strategy in 1961, one that brought profound changes to the overwhelmingly nuclear-strike Air Force. The Kennedy administration authorized the expansion of the Air Force's ICBM arsenal to 1,000 Minuteman and 54 Titan IIs, deployed mainly at isolated bases in the north-central United States. The Navy nuclear component grew to 41 Polaris submarines, while the Army field forces eventually increased from 12 to 16 divisions and included a counterinsurgency capability. This expansion was intended to give the President increased flexibility in ordering a military response to international crises. In the Cuban missile crisis of October 1962, enormous American offensive power forced the Soviet Union to back down and prompted Secretary of State Dean Rusk to conclude, "We're eyeball to eyeball, and the other fellow just blinked." Kennedy had immense nuclear power at his disposal in confronting the Soviet Union over its nuclear missiles stationed in Cuba, but at the time he had few conventional options. His military choices were an invasion of Cuba, with no guarantees of success, or an all-out countervalue thermonuclear war. After the crisis, won through a third alternative, a naval blockade referred to as a "quarantine," Kennedy hastened to adopt the "flexible response" as America's new war-planning doctrine. SIOP- 63 introduced the potential for limited nuclear war, while preserving the possibility of an all-out countervalue strike.

Even while the SAC-dominated Air Force had eagerly adopted the Eisenhower administration's "New Look" structure, it had also maintained forward-based units in Japan, Korea, Guam, the Philippines, and elsewhere on the Pacific rim. With almost 1,000 aircraft in place, these



units came under the command of the Hawaii-headquartered Pacific Air Forces (PACAF), which replaced FEAF as the air component of the Navy-led Pacific Command in 1957.

Meanwhile, by 1957 the U.S. Air Forces in Europe (USAFE) had built up an even larger forward presence to bolster NATO. With more than 2,000 assigned aircraft of all types (not including SAC bombers also deployed in theater), USAFE's network of 32 primary installations stretched from England to Saudi Arabia. Reflecting NATO's "sword and shield" policy, USAFE focused on nuclear strike and air defense roles. By the time of the Berlin crisis of 1961, the command had shrunk in size, but it was quickly reinforced by the largest deployment of tactical aircraft since World War II. After the crisis eased, USAFE began a 20-year effort to improve its conventional capabilities in line with the flexible response strategy, which NATO officially adopted in 1967.

This flexibility increased the Air Force's responsibilities, which now ranged from waging all-out nuclear war to supporting the Army in limited conflicts. Tragically, the lessons of Korea had to be relearned in the skies over Vietnam. During the French Indochina War, as early as 1954, the JCS considered Operation VULTURE, in which the U.S. Air Force would be deployed to save the French army at Dien Bien Phu. The operation would involve nuclear and conventional bombing around the isolated French garrison. President Eisenhower vetoed this proposal, concerned, like General Omar Bradley during the Korean War, that this was "the wrong war, at the wrong place, at the wrong time, and with the wrong enemy." The Geneva Agreement of 1955 left Vietnam divided at the 17th Parallel into the Communist north under Ho Chi Minh, and the pro-Western south, under Bao Dai and Ngo Dinh Diem. The desire to contain the spread of Communism brought about America's involvement in Vietnam. When President Kennedy declared that the United States would "pay any price, bear any burden, meet any hardship, support any friend, oppose any foe to assure the survival and the success of liberty," the stage was set. The Taylor-Rostow mission of October 1961 investigated the situation in South Vietnam and proposed the use of American air power against North Vietnam. Between 1965 and 1974 the United States would drop three times as many bombs in Southeast Asia as it did in all of World War II, but victory would prove even more elusive than in the Korean War.



Driven by its nuclear strategic bombing doctrine, the Air Force was ill-prepared for a limited war in Vietnam. Air Force training, technology, and strategy focused on general nuclear war with the Soviet Union. F-105 Thunderchief “fighters” had been designed to carry tactical nuclear weapons in an internal bomb bay, but were forced into use in Vietnam carrying 750-pound high-explosive bombs. F-104 Starfighters, the fastest fighters in the world, were designed to intercept Soviet bombers, but lacked the range and dogfighting ability to compete for air superiority over North Vietnam. Fortunately for the Air Force, the Navy had begun the development of two superb fighter-bombers, the F-4 Phantom II and the A-7 Corsair II, better suited to combat, although the absence of a machine gun in the former aircraft limited its usefulness as an air superiority fighter until the arrival of the gun-equipped E model.

U.S. Air Force aircrews flew combat missions in South Vietnam before 1964, but only if accompanied by South Vietnamese aircrews. The Gulf of Tonkin incident involving the Navy destroyers C. Turner Joy and Maddox in August 1964 resulted in a nearly unanimous Congressional vote of support for President Johnson “to take all necessary measures to prevent further aggression.” As in Korea, however, there would be no declaration of war. Neutral sanctuaries in Laos and Cambodia would be off-limits to aerial attack for much of the conflict. Targets close to China and in Hanoi and Haiphong would also be off-limits for fear an expanded fight would lead to a direct confrontation between the United States and the Soviet Union and China, with the possible result of a nuclear holocaust. Vietnam would be another limited war. National objectives were, for the military, exasperating: “Don’t lose this war, but don’t win it, either.” As President Johnson stated: “Not now, or not there, or too much, or not at all.” The strategy was designed to hold off North Vietnam until South Vietnam became a viable nation able to defend itself. The Air Force would fight two wars—one against internal subversion by South Vietnam-based Viet Cong, the other against North Vietnamese aggression.

The Air Force initially intended to destroy North Vietnam’s industrial fabric and then to interdict its supplies to Viet Cong units in South Vietnam by attacking its railroads and Ocean shipping and mining its harbors. Secretary of Defense Robert McNamara and Chairman of the Joint Chiefs of Staff Maxwell Taylor vetoed the air plan, however, because it might



prompt Chinese or Soviet intervention. Like that in Korea, the strategy in Vietnam was to punish the enemy until it agreed to a ceasefire and peace, not to provoke the Chinese or Soviets.



The Lockheed F-104 Starfighter, *above*, and the Republic F-105 Thunderchief, *below*. Although ill-suited to it, they were pressed into limited, rather than nuclear strategic conflict in Vietnam. The Starfighter interceptor, known as “the missile with a man in it,” was one of the smallest aircraft ever to serve with the USAF. It could sustain speeds above Mach 2 and held the first ever simultaneous speed and altitude records. Its wings were extremely thin and small. The powerful Thunderchief was one of the most important weapons used in the bombing of North Vietnam. Its wings were sharply swept. Modifications that allowed it to carry anti-radar missiles gave it yet another mission.



The Air Force, they stated, would provide close air support for Army units operating in South Vietnam. The sustained bombing of North Vietnam began when circumstances changed in South Vietnam.

On February 8, 1965, Operation FLAMING DART I launched tit-for-tat retaliatory bombings in response to enemy attacks on American installations in South Vietnam. Such an attack on the Pleiku Special Forces base resulted in limited air strikes against oil supplies and naval bases in North Vietnam. The strikes were intended to deter the enemy with the “potential” of American air power.

These circumscribed efforts gave Ho Chi Minh time to construct perhaps the strongest air defense network in the world at the time. Eventually, it included over 8,000 anti-aircraft artillery pieces, over 40 active surface-to-air missile (SAM) sites, and over 200 MiG-17s, -19s, and -21s. Continued Communist ground action in South Vietnam brought the Air Force into the teeth of this network. Operation ROLLING THUNDER began in March 1965 and continued until October 1968. It was a frustrating air campaign marked by limits at every turn, gradualism, measured response, and, especially, restrictive rules of engagement. Doctrine drove the Air Force to strike against industrial web, but Air Force and Navy aircraft would be bombing a nation with a gross national product of \$1.6 billion, only \$192 million of which came from industrial activity. Like those of Korea, the industrial sources of North Vietnam’s power were in China and the Soviet Union, beyond the reach of American air power.

ROLLING THUNDER’S initial targets were roads, radar sites, railroads, and supply dumps. Because of bad weather the first mission of March 2, 1965, was not followed up until March 15. The Johnson administration did not permit attacks on airfields until 1967. SA-2 surface-to-air missile sites went unmolested; North Vietnam was permitted to establish SAM sites, and only after missiles were launched from them could they be attacked. Another rule restricted operations in a 30-mile zone and prohibited operations in a 10-mile zone around Hanoi. In 1965 and 1966 165,000 sorties against the North killed an estimated 37,000, but the war intensified in the South, with 325,000 American troops stationed there by the end of 1966.

In the summer of 1964, the JCS had proposed a list of 94 strategic targets as part of an intensified bombing campaign over which President Johnson and his advisers maintained careful control, assigning targets during Tuesday luncheon meetings at the White House. They doled out enough to pressure Ho Chi Minh but too many to prevent peace negotiations or to invite Soviet or Chinese intervention. Of the many



bridges bombed, the two most famous were the Thanh Hoa bridge eight miles south of Hanoi and the Paul Doumer bridge in Hanoi itself. Both were critical to transport supplies flowing from China into North and South Vietnam. Hundreds of bombing sorties conducted over several years failed to bring down the solidly-built Thanh Hoa bridge. When the Johnson administration finally permitted the bombing of the Doumer bridge in 1967, fighter-bombers quickly dropped one span. After several weeks, repair crews put the bridge back into operation and it had to be bombed again. Over France in World War I, American airmen contested with Fokkers for air superiority and over Germany in World War II, with Focke-Wulfs and Messerschmitts. Over Korea they fought MiGs. Over North Vietnam they fought fewer MiGs as the struggle became primarily directed against surface-to-air missiles and antiaircraft artillery. When the Johnson administration approved the cessation of bombing north of the 19th parallel in the spring of 1968, North Vietnam agreed to negotiate. Peace negotiations began in Paris in November 1968, and the United States halted ROLLING THUNDER. The JCS then limited Air Force operations in North Vietnam to protective reaction missions. Aircraft would conduct reconnaissance and would strike only if attacked.

Meanwhile, in South Vietnam, the ground war worsened. In 1965 American commander, General William Westmoreland, oversaw the change of commitment in South Vietnam from a coastal enclave strategy for the protection of large cities, to direct ground involvement (“search and destroy” missions) into the interior after Communist forces in a massive campaign of close air support and interdiction. By 1968 over half a million American troops were engaged. Again, as it had in Korea, American strategy called for substituting air power for ground action whenever possible to reduce Army casualties. Ironically, while dropping less than one million tons of bombs on North Vietnam, the enemy, the United States dropped more than four million tons on South Vietnam, the ally. When Westmoreland ordered a major offensive into the “Iron Triangle” northwest of Saigon, more than 5,000 Air Force tactical strike sorties, 125 B-52 strikes, and 2,000 airlift sorties paved the way.

Operations included an extensive defoliation campaign (RANCH HAND) in which C-123 Providers and other transports sprayed 19 million gallons of herbicides over the jungles that provided convenient hiding places for Viet Cong guerrillas and North Vietnamese regular units out to ambush American ground troops. The overwhelming firepower brought



by America to Vietnam gave Air Force airlift a major role in the war. Because jungle roads were rarely safe, Allied forces called on Army helicopters and Air Force C47 Skytrains, C-119 Boxcars, C-123 Providers, and C-130 Hercules to move mountains of supplies around South Vietnam. C-141 Starlifters and C-5 Galaxies, augmented by commercial airlines, helped move in personnel and critical supplies from the United States.

Despite the fact that many targets were obscured much of the time by Vietnam's triple canopy jungles, the key to limiting ground casualties was close air support. As in earlier wars, the solution was to drop more bombs to inundate an area. Carpet bombing by B-52 Stratofortresses, each dropping up to 108 500- and 750-pound bombs, was the favored technique. Directed by LORAN, occasionally to within one thousand feet of American units, these ARC LIGHT missions flew at 30,000 feet. Bombs fell without warning. After the war, Vietnamese who survived



AC-130 gunship at Ubon Air Base, Thailand.

this deluge described the ARC LIGHT experiences as the most terrible they had faced. Another technique involved employing newly developed gunships, including the AC-47 Spooky (known popularly as Puff the Magic Dragon), AC-119 Shadow, and AC-130 Spectre. The later carried four 7.62-mm machine guns and four 20-mm cannon, each firing 6,000 rounds per minute, and 40-mm and 105mm cannon. Orbiting over enemy concentrations at night, they covered the jungle with a rain of projectiles, well-appreciated by American soldiers nearby.

Again, as it had in Korea, the Air Force in Vietnam learned that the most difficult function of air power was interdiction; its major effort involved interdicting the flow of enemy troops and supplies down the Ho Chi Minh trail through Laos and Cambodia into South Vietnam. Many targets were merely geographical coordinates superimposed over the vast green jungle of Southeast Asia. Others were the smoke and dust kicked up by enemy forces as they moved down the trail by day. At night, they were campfires, hot engines, and other man-made infrared signatures picked up by airborne sensors. Fighters soon compelled the enemy to move only by night, when gunships took over. But using \$10 million aircraft to destroy \$10,000 trucks was no solution. Three Soviet



ZIL-157 six-wheel drive trucks or 400 bicycles carrying 75 pounds each could provide the fifteen tons of supplies to Communist forces in South Vietnam each day. More came from plundered American and South Vietnamese storehouses.

On January 30, 1968, enemy units launched the Tet Offensive, striking cities and other targets throughout South Vietnam. In February alone, Air Force units launched 16,000 strike sorties in support of ground operations, helping to blunt the offensive. The focus of the Air Force's operations, however, was the besieged firebase at Khe Sanh, where 6,000 Marines faced three North Vietnamese divisions. President Johnson told General Westmoreland that he did not want another "damn [Dien Bien Phu]." Air power would have to hold off Communist attacks. Three months of Operation NIAGARA totaled 24,000 fighter-bomber and 2,700 B-52 strikes, 110,000 tons of bombs, and nightly assaults by gunships. Additionally, the Air Force airlifted 12,000 tons of supplies to the surrounded Marines. Air power guaranteed that there would be no repeat of the French disaster at Dien Bien Phu.

The Tet offensive proved a military defeat for the Communists, who lost between 50,000 and 80,000 soldiers, but it represented a political victory that galvanized the antiwar movement in the United States. It led many other Americans to question the war's objectives, especially in the face of General Westmoreland's announcement just before its launching that he could see "the light at the end of the tunnel." The Tet offensive (and a poor showing in the New Hampshire primary) convinced President Johnson not to run for reelection. It also brought to the Oval Office a new president, Richard Nixon, committed to ending American involvement in the war and turning it over to the South Vietnamese. F-5 Freedom Fighters strengthened the South Vietnamese Air Force while Nixon withdrew American ground units. On March 30, 1972, the North Vietnamese Army invaded South Vietnam with 12 divisions from the north and west. Although South Vietnamese forces were no match for the invaders, the Spring offensive was a major miscalculation. American ground forces were gone, but U.S. Air Force and U.S. Navy aviation remained. For the first time in the war, the Air Force was up against the kind of conventional war it could win. Eighteen thousand fighter-bomber and 1,800 B-52 sorties stiffened South Vietnamese resolve. In the desperation of the moment, fighter pilots found themselves aiming



2,000-pound laser-guided bombs at Communist tanks-not cost effective, but effective nevertheless. The massive employment of air power bought more time for South Vietnam.



LINEBACKER I AND II operations, 1972. In missions carried out from May to October and in December to compel enemy negotiators back to the Paris peace talks, intercontinental Boeing B-52 Stratofortress, *top*, on the way to intensive bombing missions over North Vietnam. A General Dynamics variable-sweep wing F-111 tactical fighter, *bottom*, provides high-precision bombing.

Although American air power had repelled the invasion, implications for Nixon's Vietnamization strategy were clear. American hopes for ending the war revolved around the Air Force's applying greater pressure on North Vietnam to influence its negotiators to return to the Paris peace talks. The LINEBACKER I bombing campaign from May to October 1972 was a major escalation of the war and included the mining of Haiphong and other ports. Bridges that had resisted bombing now fell before precision laser-guided and electro-optically-guided bombs. Before LINEBACKER, peer pressure and pride drove American aircrews, even as they asked: "What the hell is this all about?" During LINEBACKER they had a clear and limited objective-forcing the regime in Hanoi back to Paris.



In Paris some progress was made, but in December 1972 Communist negotiators became recalcitrant. Their delaying tactics prompted President Nixon to order the most concentrated bombing campaign of the war-LINEBACKER II. For 11 days beginning on December 18, with a Christmas break, SAC B-52s struck at rail yards and other targets in the outskirts of Hanoi and Haiphong. On the first mission, 129 B-52s penetrated the area, supported by a wide array of Air Force and Navy aircraft. F-4s dropped



The Lockheed SR-71 Blackbird strategic reconnaissance aircraft, first employed during the Vietnam War. A marvel of technology, it outperformed all of the other military aircraft of its time, attaining altitudes above 85,000 feet and speeds of nearly Mach 3.5.

F-4s dropped chaff in wide corridors. EB-66s, EA-3s, and EA-6s jammed enemy radar with electronic countermeasures. F-105 Wild Weasels with Shrike radar-seeking missiles attacked enemy radar sites. SR-71s provided reconnaissance. EC-121s fed early warning information to the attacking aircraft. F-4s, A-7s, and F-111s struck airfields, storage sites, and other precision targets. F-4s flew MiG suppression. KC-135s orbited over the Gulf of Tonkin, ready to feed thirsty jets. This was the air war the Air Force had wanted from the beginning. A B-52 tail gunner shot down a MiG on the first night, but 200 surface-to-air missile launches claimed three B-52s-the first 3 of 15 lost.

By December 27 North Vietnam had depleted its supply of SA-2 missiles and much of its antiaircraft ammunition. Interdiction strikes against rail lines and bridges coupled with mines in Haiphong Harbor prevented resupply from China or the Soviet Union. By December 30, LINEBACKER II had destroyed many industrial and military targets in

the Hanoi and Haiphong area, although its major impact was on North Vietnam's morale. To Captain Ray Bean, an F-4 crewman imprisoned in the "Hanoi Hilton," the B-52s "got the attention of the North Vietnamese" because the United States seemed to have forsaken precision attacks on purely military and industrial targets in favor of "wholesale destruction." North Vietnam witnessed the path of devastation a single B-52 could create, especially in an urban environment. Its negotiators returned to the peace talks, agreeing to a cease-fire in January 1973 and signing a treaty in April. Before the year was out Congress cut funds for Southeast Asian operations and passed the War Powers Act, which limited the President's options.

Two years later North Vietnam launched a final offensive against a South Vietnam operating without American air support. After 55 days, on April 29, 1975, Saigon fell. In Vietnam, the United States lost 58,000 men and women. The war helped cause a decade of inflation and alienated a generation. The Air Force had invested over 1.2 million fixed wing sorties, 6.2 million tons of explosives, 2,118 dead, 599 missing in action, and 2,257 aircraft (at a cost of \$3.1 billion).

The Air Force learned the dangers of political and military micro-management, of gradualism, and of being used to influence the conduct of America's enemies instead of defeating them. Restrictive rules of engagement caused aircrews to die and left little room for initiative. "Route packages," artificial divisions of North Vietnam in which Air Force and Navy aircraft operated separately, guaranteed a dilution of effort. A generation of future air leaders came away convinced that "body counts," sortie rates, and tons of bombs dropped were all poor means for judging air power's effectiveness. They also relearned the importance of air superiority, but with a twist—air superiority now involved not only overcoming an enemy's air force; it involved also overcoming an enemy's air defenses on the surface. Air power had to be focused, united, and coordinated in what was termed "jointness" after the war.

Most of all, the Air Force learned the dangers of strict, uncompromising adherence to doctrine. In the years after Vietnam a new generation of air leaders realized that the Air Force had focused almost exclusively on the strategic bombing of industrial chokepoints without regard for the character of the society to be bombed or the type of war to be fought. Training, technology, and doctrine revolved around the destruction of a



developed nation's industrial fabric or the nuclear destruction of a nation's cities. The Air Force had become imprisoned by a doctrine established in the years before and after World War II. Applied against undeveloped states such as North Korea and North Vietnam, each equipped and supplied by other countries, and unable to use nuclear weapons because of the Cold War and moral considerations, strategic bombardment and its related strategies did not prevail.



THE CONCISE HISTORY OF THE USAF



The Cold War Concluded

President Kennedy's flexible-response nuclear war-fighting doctrine of the early 1960s lacked the technology to match its vision of many options adapted to meet the varieties of Cold War crises. Advances in geodesy (Geologic science of the size and shape of the earth) and cartography and the integrated circuit developed in the early 1960s for missile and satellite guidance systems, significantly improved missile accuracy. Decreased CEP (circular error probable—the radius of a circle in which at least 50 percent of the targeted missiles would hit) meant that warheads could be smaller. New warheads could be sized to detonate at kiloton or megaton ranges independently. Because they were smaller and lighter, more warheads could be mounted to each ICBM and SLBM. In the early 1970s the DOD developed MIRVs (multiple independently targetable reentry vehicles), allowing three or more warheads on each ICBM and SLBM. The Air Force's arsenal did not rise above 1,054 ICBMs; many now carried three MIRVs (Minuteman III) as opposed to earlier models that carried a single Minuteman I or II warhead. Strategic launchers remained static, but warheads multiplied.

Although Secretary of Defense McNamara introduced “counterforce” targeting in 1962, the improvement in CEP and dramatic increases in the number of nuclear warheads in the American arsenal of the 1970s encouraged the Air Force to return to the more traditional practice of bombing precise military targets instead of countervalue cities. Counterforce targeting identified enemy military and industrial choke points—command centers, military industries and bases, and ICBM silos. Whatever the targets selected, in the 1960s political leaders adopted a doctrine for deterring nuclear war known as “assured destruction,” i.e., the capability to destroy an aggressor as a viable society, even after a well-planned and executed surprise attack on American forces. This doctrine held that superpower strategic nuclear forces would be sized



and protected to survive a nuclear attack and then to retaliate with sufficient force to ensure a level of destruction unacceptable to the other side. With such retaliatory destruction assured against an aggressor, no rational Soviet or American leader would consider starting a nuclear war. On May 26, 1972, the United States and the Soviet Union signed the Anti-Ballistic Missile (ABM) Treaty, which limited both sides to two ABM sites each to protect the national capital and an ICBM complex. The treaty reinforced the continued effectiveness of assured destruction in deterring war in the face of new, destabilizing ABM weapons. SALT I, the Strategic Arms Limitation Treaty which was signed at the same time, limited the numbers of nuclear weapons with the objective of obtaining a verified freeze on the numerical growth and destabilizing characteristics of each side's strategic nuclear forces.

The Nixon administration adopted counterforce targeting beginning with SIOF 5 of 1974. The Carter administration expanded it with Presidential Directive 59 and SIOF 5D. Counterforce, however, offered an option to assured destruction of a limited, prolonged nuclear war based on accurate attacks with limited collateral damage while maintaining a creditable second strike capability. In an address on March 23, 1983, President Ronald Reagan proposed replacing the doctrine of assured destruction with one of assured survival, in the form of the Strategic Defense Initiative (SDI). SDI was to focus on the development and deployment of a combination of defensive systems such as space-based lasers, particle beams, railguns, and fast ground-launched missiles, among other weapons, to intercept Soviet ICBMs during their ascent through the Earth's outer atmosphere and their ballistic path in space. While the ABM Treaty restricted various methods of testing SDI weapon systems, the end of the Cold War and collapse of the Soviet Union removed the justification for the level of research and development associated with this project, although research continued at a much reduced level under the Ballistic Missile Defense Organization.

Beginning in March 1985, Soviet Communist Party General Secretary Mikhail Gorbachev initiated major changes in Soviet-American relations. The Intermediate Range Nuclear Forces Treaty in December 1987 eliminated short-range nuclear missiles in Europe, including Air Force ground-launched cruise missiles stationed in the United Kingdom. Gorbachev's announcement in May 1988 that the Soviet Union, after nine years of inconclusive combat, would begin withdrawing from the



war in Afghanistan, indicated a major reduction in Cold War tensions, but it provided only a hint of the rapid changes to come. Relatively free and open Russian elections in March 1989 and a coal miners strike in July shook the foundations of Communist rule. East Germany opened the Berlin Wall in November, which led to German reunification in October 1990. A coup against Gorbachev in August 1991 by Boris Yeltsin, led to the dissolution of the Soviet Union and its replacement by the Commonwealth of Independent States on December 25, 1991.

This chain of events brought major changes to American nuclear strategy. Under START I, the Strategic Arms Reduction Treaty signed by the United States and the Soviet Union in July 1991, the Air Force was reduced to a level of 6,000 total warheads on deployed ICBMs, SLBMs, and heavy bombers. START II, signed in January 1993, was to reduce (upon entry into force) total deployed warheads to a range of 3,000 to 3,500. The resulting force structure would ultimately lead to the deployment of five hundred single warhead Minuteman III ICBMs, 66 B-52H and 20 B-2 heavy bombers. Ninety-four B-1 heavy bombers would be reoriented to a conventional role by 2003, in addition to all Peacekeeper ICBMs would be removed from active inventory through the elimination of their associated silo launchers. The Air Force, by Presidential direction in September 1991, notified SAC to remove heavy bombers from alert status. SAC was subsequently inactivated several months later in June 1992. U.S. Strategic Command replaced Strategic Air Command, controlling all remaining Air Force and Navy strategic nuclear forces.

Rebuilding the conventional Air Force after Vietnam began with personnel changes. The Vietnam-era Air Force included many officers and airmen who had entered its ranks in World War II. President Nixon ended the draft in 1973 in favor of an “all volunteer” American military. The Air Force attracted recruits as best it could, but encountered problems with the racial friction and alcohol and drug abuse that reflected America’s social problems. Enough Vietnam career veterans remained, however, to direct the new service and institute changes, one of the most noticeable of which was more realistic, and thus more dangerous, combat training. In combat simulations Air Force pilots flew as aggressors employing enemy tactics. By 1975 their training had evolved into Red Flag at the U.S. Air Force Weapons and Tactics Center at Nellis Air Force Base in Nevada, in which crews flew both individual sorties and formations in realistic situations, gaining experience before they entered actual combat.





The Fairchild A-10 Thunderbolt, *top*, the McDonnell Douglas F-15 Eagle, *center*, and the General Dynamics F-16 Fighting Falcon, *bottom*. These attack and fighter aircraft armed with missiles, cannon, and various electronic countermeasure (ECM) features have been in service since the 1970s and performed outstandingly in the Gulf War.

The vulnerability of air bases to enemy attack and sabotage had long been the Achilles heel of land-based air power. In western Europe, living under the threat of a massive Warsaw Pact air offensive and land invasion, the U.S. Air Force spearheaded an active program to improve

the survivability and readiness of air bases. The effort was marked by the construction of thousands of reinforced concrete aircraft shelters and other hardened facilities, alternate runways, rapid repair elements, chemical weapons protection, and a host of other defensive measures.

The Air Force's post-Vietnam rebuilding also involved applying improved technology. The battle for control of the skies over North Vietnam underscored the need for a dogfighting aircraft that featured maneuverability before speed-one armed with missiles and cannon. Begun in the late 1960s and operational in the mid-1970s, the F-15 Eagle and the F-16 Fighting Falcon filled this need. The struggle against radar-guided antiaircraft artillery and surface-to-air missiles in Vietnam encouraged the Air Force to pursue stealth technology utilizing special paints, materials, and designs that reduced or eliminated an aircraft's radar, thermal, and electronic signatures. Operational by October 1980, both the B-2 stealth bomber and the F-117 Nighthawk stealth fighter featured detection avoidance.

Other Vietnam War technologies included precision guided missiles and bombs. From April 1972 to January 1973 the United States used over 4,000 of these early "smart weapons" in Vietnam to knock down bridges and destroy enemy tanks. Continued development of laser-guided bombs and electro-optically-guided missiles offered the prospects of pinpoint, precision bombing on which traditional Air Force doctrine rested—the destruction of chokepoints in an enemy nation's industrial web with economy of force and without collateral damage. These technologies, which afforded a strike precision far beyond that available to earlier air power thinkers, sparked a revision of the traditional doctrine of strategic bombing. This revision took two forms. First, the Air Force, to overcome numerically superior Warsaw Pact forces, cooperated with the Army in updating the tactical doctrine of AirLand Battle promulgated in Field Manual 100-5 in 1982. The Air Force would make deep air attacks on an enemy army to isolate it on the battlefield, conduct battlefield air interdiction (BAI) to disrupt the movement of secondary forces to the front, and provide close air support (CAS) to Army ground forces. The Air Force procured the A-10 Thunderbolt II CAS attack-bomber in the 1970s to support such missions.



Second, the Air Force pursued a new approach to conventional strategic bombing doctrine in the fertile atmosphere of the post-Vietnam era. Key leaders in the effort were Generals Charles Boyd and Charles Link and Colonel Dennis Drew. Strategic bombing doctrine of the Air Corps Tactical School, World War II, Korea, and Vietnam had relied on carpet bombing to saturate linear chokepoints, with industry as the key. Colonel John Warden's ideas in the Gulf War relied on precision munitions to attack an expanded complex of targets. He viewed an enemy nation's war-making capacity in five concentric rings. The center ring consisted of its civilian and military leadership, the first ring out, its key production sources, the second ring out, its transportation and communication infrastructure, third ring out, the will of its population, and, the last ring, its military forces. An air attack on these would be "inside-out" warfare, starting from the center and working outward. The first objective of an air war would be to seize air superiority followed by attacks on an enemy's leadership and other vital centers. Colonel John Boyd focused on "control warfare" and "strategic paralysis" by loosening the observation, orientation, decision, and action loops (the "OODA Loop") that maintained the "moral-mental-physical being" of an enemy nation.

Participation in three crises in the 1980s allowed the Air Force to test these new ideas and technologies. Operation URGENT FURY (October 1983) rescued American students and restored order on the island of Grenada. In this operation the Air Force primarily transported troops and cargo, but discovered problems with command, control, planning, and interservice and interservice coordination. President Reagan called on England-based F-111s to strike against Libya on April 19, 1986, in support of his policies to counter state terrorism. Operation ELDORADO CANYON exposed continuing difficulties with target identification and intelligence, punctuated by some inaccurate bombing. Finally, Operation JUST CAUSE in 1989 again tested air operations, this time in Panama. The Air Force provided the airlift for troops and supplies, although the F-117 Nighthawk stealth fighter made its debut when it and an AC-130 Spectre gunship intimidated Panamanian troops loyal to the dictator Manuel Noriega.



AIRPOWER IN THE POST COLD WAR





THE CONCISE HISTORY OF THE USAF



Air Power Triumphant—The Gulf War

The U.S. Air Force found itself in a third major war since 1945 when, on August 2, 1990, forces led by Iraqi President Saddam Hussein, seized Kuwait and began a conflict that differed considerably from those in Korea and Vietnam. The ending of the Cold War had eliminated concerns about an expanded war and the client support Iraq might have expected from the Soviet Union. Flexibility of doctrine, technology, leadership, and training allowed the Air Force to adjust to the unique components of the Gulf War—a desert battlefield, a loosely united coalition (including several Arab nations desiring minimal damage to Iraq), and an American people strongly opposed to a prolonged war and resulting heavy casualties. A first phase, Operation DESERT SHIELD, the defense of Saudi Arabia and its huge oil reserves, began on August 6, when Saudi Arabia requested American assistance. Two days later F-15C Eagles from the First Tactical Fighter Wing, supported by E-3B Sentry airborne warning and control aircraft, arrived in the Persian Gulf—a first step in the rapid relocation of one-quarter of the Air Force’s total combat inventory and nearly all of its precision bombing assets. Military airlift, including the Civil Reserve Air Fleet, rapidly moved 660,000 Coalition personnel to the area, although most supplies and equipment came by sea. Turbojet-powered C-141 and C-5 military transports operating between the United States and the Persian Gulf carried ten times more tons of cargo per day than all of the piston-engine transports designed for commercial traffic carried during the entire Berlin Airlift. That distance insured that U.S. Air Force KC-135 and KC-10 tankers would play a critical role in a war that required more than fifteen hundred aerial refuelings per day. Fortunately, Operation NICKEL GRASS, the aerial resupply of Israel during the October 1973 War, had revealed the need to equip Air Force C-141 cargo aircraft with inflight refueling capabilities, extending airlift’s range in time for the Gulf War.



The second phase was Operation DESERT STORM, the liberation of Kuwait and the reduction of Iraqi military capabilities, especially its nuclear, chemical, and biological weapons. The U.N. coalition opposing Hussein depended primarily on air power to hammer enemy forces and achieve its objectives while minimizing casualties. The U.S. Air Force flew nearly 60 percent of all fixed-wing combat sorties in support of DESERT STORM, dropping 82 percent of precision guided weapons.

The air offensive began at 0238 local time, January 17, 1991, with night attacks on Iraqi early warning radar sites, Scud short-range ballistic missile sites, and communication centers, including the internationally-televised attack by two F-117A Nighthawks on the so-called AT&T communications building in downtown Baghdad. Air Force and Navy cruise missiles hit additional targets, including government buildings and power plants. It was the beginning of a thirty-eight day aerial offensive consisting of four phases: a strategic campaign against Iraq, an air superiority campaign, an effort to weaken Iraqi ground units in Kuwait, and, eventually, close air support for the ground offensive. Over 2,000 combat aircraft in the Coalition inventory struck targets in all four components to be struck simultaneously. Contrasted sharply with the 12 sorties Eighth Air Force launched on August 17, 1942, in its first strike against German targets in World War II, the Coalition flew 2,759 combat sorties on day one of the Gulf air offensive.

The air war defied easy analysis because of simultaneous strikes against targets in all of Warden's concentric rings. In past wars identifiable campaigns were mounted against various kinds of targets—ball bearing, aircraft assembly, oil production, transportation, irrigation, power dams, or interdiction, but in the Gulf War such attacks and more were mounted concurrently. Unlike AWPD planners of 1941, Gulf War planners did not have to choose between target categories—they selected targets from among all categories. Coordinating the two or three thousand sorties required per day was the responsibility of Lieutenant General Charles Horner, the Joint Force Air Component Commander (JFACC). He controlled all aircraft



Lieutenant General Charles Horner, Joint Force Air Component Commander (JFACC) for Operation DESERT STORM, ran the coalition air war.

in the theater except those of the Navy in sorties over water, those of the Marines supporting their own ground units, and helicopters flying below five hundred feet. The lesson of conflicting responsibilities, priorities, and command and control represented by the “route packages” of Vietnam had been learned well. Despite problems with intelligence and communication between the diverse Coalition air forces, never had there been such a carefully directed air campaign.

Air superiority came quickly, as Saddam Hussein ordered his air force not to compete for command of the skies. His plan was to absorb any air blows and force the Coalition into bloody trench warfare, in the “mother of all battles.” Losses to Coalition attackers on the first night were limited to one Navy F/A-18. Considering the quantity and quality of the forces arrayed against Iraq, Hussein’s withholding of his Air Force was perhaps appropriate. Coalition air forces shot down only 32 of 700 fixed-wing combat aircraft in the Iraqi Air Force (27 by the U.S. Air Force), although they destroyed many more on the ground. There would be no air aces in this war. Rules of engagement that allowed the firing of missiles at enemy aircraft beyond visual range aided Coalition success against the few Iraqi jets rising to do battle. Pressed by U.S. Air Force attacks on their protective shelters, more than one hundred Iraqi aircraft fled to safety in neutral Iran. The struggle for control of the air was primarily against Iraqi ground defenses, which absorbed many Coalition strikes. These included 122 airfields, 600 hardened aircraft shelters, 7,000 anti-aircraft guns, and 200 surface-to-air missile batteries.

Never had the world seen such a variety of bombing targets and aircraft. Air Force crews dropped laser-guided bombs down air shafts in hardened buildings and on oil tank valves when Saddam Hussein ordered millions of gallons of oil poured into the Persian Gulf. They “plinked” tanks with laser-guided and electro-optically guided bombs and missiles. They carpet-bombed Iraq’s Republican Guard divisions from high altitude in B-52s. Coalition aircraft, including more than 70 distinct types from ten countries, struck at command, control, and communications centers, bridges, oil refineries, air defense facilities, radar sites, nuclear weapon production facilities, chemical and biological production facilities, electrical production facilities, weapons production facilities, missile launch sites, ports, and others. There were plenty of targets. The initial INSTANT THUNDER air plan for the strategic bombing of Iraq identified



84 to be hit in less than a week. By the start of the air war on January 17, however, the Coalition target list had increased to 481, compared to the 154 of World War II's AWPDI.

The most sensitive targets were in Baghdad, defended by the heaviest concentration of anti-aircraft weapons. The world press observed Coalition strikes there and reported collateral damage and civilian casualties with special interest. General Horner limited these most dangerous and most critical attacks to Air Force F-117 stealth fighters flying by night and Navy Tomahawk cruise missiles striking by day and night. The stealthy F-117 Nighthawk fighters proved most valuable to Coalition success, bombing 40 percent of strategic targets in Iraq while flying only 2 percent of combat sorties. Their favorite weapon was the laser-guided bomb, which although amounting to less than 5 percent of all bombs dropped, accounted for most of the key targets. Precision-guided munitions and F-117s proved their value as "force multipliers," increasing the impact of the bombing campaign. Their strikes were not completely free of political interference, however, as President Bush made Baghdad off-limits to bombing for a week after two laser-guided bombs hit the Al Firdos Bunker on February 13, a command structure also used as an air raid shelter by civilians. The attack left hundreds dead.

The Iraqi army mounted Scud surface-to-surface ballistic missiles on small, mobile launchers. Hidden in civilian traffic, and fired at night, the Scud counteroffensive proved nearly unstoppable, although Iraq launched only eighty-eight of these weapons during the war. One Scud landed in Dhahran, Saudi Arabia, and killed twenty-eight American soldiers, the deadliest single action for the United States during the war. Like the V-1 and V-2 weapons of World War II, Scud missiles caused a major diversion of sorties from the air offensive. The Coalition leadership diverted 22 percent of its sorties from strategic targets to eliminate the politically significant Scud missile attacks on Israel and Saudi Arabia, but the mission proved impossible.

The Gulf War demonstrated the vital importance of the U.S. Air Force's Space Command. Organized on September 1, 1982, it provided a first look at what warfare would be like in the twenty-first century. The Air Force began launching satellites of the Navstar Global Positioning System, made famous simply as GPS, in 1973, but GPS was not fully operational until after DESERT STORM. Nonetheless, signals from the constellation of



available GPS satellites provided Coalition forces information about Iraqi Scud Missile position, altitude, and velocity with unparalleled accuracy during most hours of the day. DSP satellites furnished early warning of launches, while DSCS satellites ensured secure communications between the Gulf, the United States, and facilities all over the world. These satellite systems were controlled through the Consolidated Space Operations Center at Colorado Springs, Colorado, and the Satellite Control Facility at Sunnyvale, California.

When General Norman Schwarzkopf launched the “100-hour” DESERT STORM ground offensive on February 24, 1991, his forces met little resistance. Air power and total command of the air made possible the maneuver warfare of Schwarzkopf’s “Hail Mary”—the employing of American Army and Marine and Arab ground forces in a direct assault on Kuwait while Coalition armored units looped around it to cut off enemy forces retreating into Iraq. Three thousand air sorties that day provided air support, but found few tactical targets—the air campaign had worked. The greatest threat to ground troops that day was friendly fire. On the first day of the Battle of the Somme in World War I, British casualties amounted to 57,000, including 20,000 killed. On the first day of the Gulf War ground attack, Coalition casualties totaled 14, including 3 killed. Over the next several days the Air Force focused its attention on battering the Republican Guard divisions held in reserve in southern Iraq and interdicting the flood of Iraqi units retreating from Kuwait. The most visible of these efforts was the bottleneck created on the highway northwest out of Kuwait City, in what was called the “highway of death.” The strategic bombing campaign continued through the one hundred hours of the ground offensive, including a last effort to destroy Saddam Hussein’s bunker sanctuaries. Early in the morning of February 28 President Bush and the Coalition unilaterally declared a cease fire. Despite flying 37,567 combat sorties, the Air Force lost only 14 aircraft to hostile action (all from ground fire)—testimony to the professionalism, training, technology, leadership, and doctrine of the post-Vietnam U.S. Air Force.

With the end of the Cold War, the Air Force adopted a new doctrine—Global Reach—Global Power. Released in June 1990, it prompted the first major Air Force reorganization since March 1946. Under Chief of Staff General Merrill McPeak, Strategic Air Command and Tactical Air Command were deactivated on June 1, 1992. Many of their assets were incorporated into Air Combat Command, headquartered at Langley



Air Force Base in Virginia. The new organization represents the “global power” portion of the new Air Force, controlling ICBMs; command, control, communication, and intelligence functions; reconnaissance; tactical airlift and tankers; fighters; and bombers. Air Mobility Command and its in-flight refueling assets headquartered at Scott Air Force Base in Illinois, replaced Military Airlift Command as the “global reach” portion of the Air Force, controlling strategic airlift and tanker forces.

Global Reach-Global Power and a new doctrinal manual issued in March 1992, AFM 1-1, Basic Aerospace Doctrine of the United States Air Force, represented an Air Force committed to matching aerial forces with changing circumstances, drawing on nearly 100 years of experience. The Gulf War, like previous wars, demonstrated that the technology, leadership, training, strategy, and tactics employed for a specific set of conditions and circumstances in one war will not necessarily guarantee success in the next. An innovator behind fighter tactics in the Vietnam War, Colonel Robin Olds, concluded from his own experience that “no one knows exactly what air fighting will be like in the future.” The U.S. Air Force proved decisive to victory in World War II and in the Gulf War and to separation from the limited conflicts in Korea and Vietnam. As conflicts in the near future would prove, Col Olds was right, we never know what the future holds. Events in the Balkans would prove this theory conclusively.



Airpower Made It Work

By Dr. Rebecca Grant

Reprinted courtesy of the Air Force Association

Operation Allied Force started out on March 24, 1999, to be a short, sharp military response to a political event—the refusal of Yugoslavia to accept the Kosovo peace plan forged earlier during talks in Rambouillet, France. When the NATO strikes began, 112 US and 102 allied strike aircraft were



committed to the operation. Thirteen of NATO's 19 nations sent aircraft to take part. NATO's three newest members—Poland, Hungary, and the Czech Republic—did not join in. Greece, Iceland, and Luxembourg also abstained.



Two B-2 stealth bombers flew from Whiteman AFB, Mo., marking the first use of the B-2 in combat.

50 targets, but the consensus in NATO would support only limited action.

The initial plan envisioned a few days of air operations against a carefully chosen set of about 50 preapproved targets. Target categories included air defense sites, communications relays, and fixed military facilities, such as ammunition dumps. No targets in downtown Belgrade were on the list for the initial strikes. Planners had data on far more than



The alliance military campaign opened with the use of a formidable array of weapons. The Air Force's conventional air launched cruise missiles and the Navy's Tomahawk land attack missiles were launched against Yugoslavian air defense sites and communications. Two B-2 stealth bombers flew from Whiteman AFB, Mo., marking the first use of the B-2 in combat. The B-2s flew more than 30 hours on a round-trip mission and launched the highly accurate Joint Direct Attack Munition against multiple targets. US and NATO fighters in theater maintained combat air patrols while others bombed targets.

No one knew exactly what it would take to shake Serbian dictator Slobodan Milosevic. Two statements made at the start of the campaign bracketed the range of ways it might unfold. Pentagon spokesman Kenneth Bacon said on March 23, "We have plans for a swift and severe air campaign. This will be painful to the Serbs. We hope, relatively quickly, that the Serbs will realize they've made a mistake." Bacon's comment echoed NATO's collective hope that a show of resolve would get Milosevic to accept Rambouillet.

Tough Talk

The Supreme Allied Commander Europe, Army Gen. Wesley K. Clark, on March 25 spelled out the other option at the other end of the spectrum. He said, "We are going to systematically and progressively attack, disrupt, degrade, devastate, and ultimately destroy these forces and their facilities and support—unless President Milosevic complies with the demands of the international community." Clark's statement described what NATO airpower could do, given time. But the air campaign had started from the premise that NATO wanted to try limited action to achieve its goals.



Army General Wesley K. Clark, Supreme Allied Commander, Europe

How would Milosevic react? A White House "senior official" had already mulled over the possibilities: "As we contemplated the use of force over the past 14 months, we constructed four different models. One was that the whiff of gunpowder, just the threat of force, would make Milosevic back down. Another was that he needed to take some hit to justify acquiescence. Another was that he was a playground bully



who would fight but back off after a punch in the nose. And the fourth was that he would react like Saddam Hussein. On any given day, people would pick one or the other. We thought that the Saddam Hussein option was always the least likely, but we knew it was out there, and now we're looking at it."

Milosevic ignored the initial NATO airstrikes, just as he had flouted NATO-backed diplomacy. CIA Director George J. Tenet had forecast for weeks that Yugoslav forces could respond to NATO military action by accelerating the ethnic cleansing. Now Milosevic gambled that his forces would push ethnic Albanians and the Kosovo Liberation Army out of Kosovo before NATO could react.

By the time Milosevic backed away from Rambouillet, his forces had battlefield dominance in Kosovo. The Yugoslav 3rd army was assigned to Kosovo operations, along with reinforcements from 1st and 2nd armies. About 40,000 troops and 300 tanks crossed into Kosovo, spreading out in burned out villages and buildings abandoned by the refugees. Paramilitary security forces from the Interior Ministry were engaged in multiple areas across Kosovo.

By early April, the KLA was bloodied, and organized resistance in most of central Kosovo was diminishing. An American official said the government forces had carried out devastating attacks, and the prospects for the KLA were dim.

The Tactical Blunder

But Milosevic's gamble was also his major miscalculation. His push through Kosovo created a mass of refugees that ignited world opinion. Estimates of the number of displaced persons jumped from 240,000 in March to 600,000 by early April. Clark called it "a grim combination of terror and ethnic cleansing on a vast scale." Central Kosovo was largely emptied of its ethnic Albanian population.

Milosevic's tactical gamble hit NATO in a vulnerable spot. The allies were committed to limited airstrikes, with no firm plans beyond a few days or weeks. Since fixed targets were the focus of the plan, NATO flew just a few packages each night. There was nothing that military force



could do quickly against the fully developed offensive. As US Air Force Chief of Staff Gen. Michael E. Ryan commented, there was no way that airstrikes alone could halt the door-to-door killings that had been under way. On April 3, a Pentagon official said of Milosevic's campaign, "He's basically done."

The plight of the Kosovo refugees stiffened NATO's resolve. Now, the alliance would have to win.

To deprive Milosevic of his gains in Kosovo, the alliance would have to use its air forces to meet goals that had just gotten much more difficult. The politics of the situation meant that NATO missed the chance to let its airmen do it "by the book" and halt or disrupt Milosevic's forces as they massed on the border and moved into Kosovo in March. As Secretary of State Madeleine K. Albright explained on March 28, the new goal was to force Milosevic to back off by "making sure that he pays a very heavy price."

The first thing NATO needed was more airpower. An additional five B-1 heavy bombers, five EA-6B electronic warfare aircraft, and 10 tankers were already en route, along with more allied aircraft. The aircraft carrier USS Theodore Roosevelt, veteran of Bosnia operations four years earlier, was due to arrive with its battle group around April 4.

NATO also needed enough aircraft to sustain 24-hour operations over the dispersed Yugoslav forces in Kosovo. Allied



The stealthy B-2 was not the only U.S. bomber in the action. B-1 Lancers, *above*, and venerable B-52 Stratofortresses, added heavy firepower to Operation ALLIED FORCE.

planners proposed an augmented package of forces. This was known as the “Papa Bear” option, and it would more than double the number of strike aircraft in the theater.

Secretary of Defense William S. Cohen captured the new mood of resolve after a meeting at Supreme Headquarters Allied Powers Europe on April 7 when he declared, “Whatever General Clark feels he needs in order to carry out this campaign successfully, he will receive.”

Now the joint and allied air forces faced a most difficult task. NATO air had to take on the military both directly, at the tactical level, and indirectly, by hitting strategic targets in Yugoslavia as well as in Kosovo. Airmen would have to expand the roster of strategic targets and seek out and destroy both fixed military targets and mobile military forces, including tanks, armored personnel carriers, and artillery pieces. Much of this would take place in close-battle conditions. Yugoslav forces were mixed in with civilians and refugees. Military vehicles and forces hid in and around buildings.

Two Target Sets

In early April, NATO expanded and clarified the air campaign plan, revising it to including simultaneous attacks on the two types of targets. Here was the heart of the air campaign as it would be carried out over the next two-and- a-half months.

Target set 1 included fixed targets of unique strategic value. It included national command and control; military reserves; infrastructure such as bridges, Petroleums, Oils, and Lubricants (POL) production, and communications; and the military–industrial base of weapons and ammunition factories and distribution systems. Serbia’s electric power grid was soon added to the list.

Target set 2, a high priority for Clark, comprised the Serbian fielded forces—military forces, tactical assembly areas, command-and-control nodes, bridges in southern Serbia and Kosovo, supply areas, POL storage and pumping stations, choke points, and ammunition storage. Initial guidance focused on forces south of the 44th parallel, but soon, military targets north of the line also made the list.



NATO was now pursuing a multipronged strategy with its air campaign. The goal was not just to demonstrate NATO resolve and hope to coerce Milosevic. It was to directly reduce and eliminate the ability of Yugoslav forces to carry on their campaign of destruction in Kosovo.

American military experience and doctrine say that it is most efficient to hit enemy forces when they mass and maneuver at the beginning of operations. In early April, NATO did not have enough forces in theater to clamp down on units of the regular Yugoslav army (VJ) or the paramilitary special police (MUP). NATO air forces had been postured for combat air patrol and flexible strike packages against a limited set of targets, not for 24-hour operations over dispersed forces. In early April, it was possible to close one engagement zone over some of the ground forces for only a few hours a day. Under these conditions the Yugoslav forces could hide in buildings and move at night.

Poor weather also limited airstrikes. Brig. Gen. Leroy Barnidge Jr., commander of the 509th Bomb Wing, Whiteman AFB, MO., told how one night, one of the wing's B-2s enroute to the target was recalled because of weather. That night "the weather was so bad, the whole war was canceled," he remarked. Weather was favorable only about one-third of the time—with most good weather days coming late in the campaign.

Preservation of NATO's cohesion rested on several factors that defied military logic but made political sense. First, NATO casualties had to be held to an extremely low level. The allies came to the Balkan War with sharply differing views on the Balkan political dispute, and commanders feared that losing aircraft could undermine NATO's will to continue the campaign.

We're Here to Help

Moreover, each NATO government could approve or veto targets. In the US, sensitive targets were forwarded for White House approval, and similar processes took place in the capitals of Europe. "Each president of the NATO countries, at least the major players, [are given] an opportunity to at least express their judgment on targets," explained Cohen in April. Some targets of high military value were never released to be added to the list for airstrikes.



Gen. Richard E. Hawley, then commander of USAF's Air Combat Command, spoke for many airmen when he said, in late April, "Airpower works best when it is used decisively. Shock, mass are the way to achieve early results. Clearly, because of the constraints in this operation, ... we haven't seen that at this point."

However, the tide was about to turn. On April 23, the allies gathered in Washington, D.C., for the long-planned celebration of NATO's 50th anniversary. They reaffirmed their commitment to stick with the air war. Target approval procedures eased somewhat. The White House announced a major force increase, and now the campaign was on course toward its objectives.

Combat deployments increasingly demanded more aircraft and supplies. In the midst of the surge, the air mobility forces of the US Air Force also began humanitarian relief operations. Albania's capital city, Tirana, opened up its airfield and quickly became the aerial port for relief supplies and for a heavy Army force of Apache helicopters.

While the air campaign was gearing up in intensity, talk of a ground invasion began. However, it was clear from the beginning that NATO had to keep discussion of ground force options off the table. President Clinton said outright, "I do not intend to put our troops in Kosovo to fight a war." The Chairman of the Joint Chiefs of Staff, Army Gen. Henry H. Shelton, pointed out the military reality that NATO estimated it would take anywhere from a low of 20,000 up to a couple hundred thousand ground troops to carry out a NATO military action in Kosovo—numbers well beyond what NATO was willing to contemplate. The options for using ground forces never materialized.

The experience of Bosnia and ambivalence about political elements of the Kosovo crisis made it highly improbable that NATO would agree as an alliance to fight Milosevic's army and special police with ground forces. Also, the Russians made it plain from the start that they would stand against a ground force invasion. On April 9, Russian President Boris Yeltsin appeared on Russian television to warn against NATO bringing in ground troops.



Clark did, however, move quickly to deploy Army attack helicopters to Tirana. Twenty-four Apache helicopters plus 18 multiple launch rocket systems went into the busy airfield along with nearly 5,000 soldiers. Pentagon spokesman Bacon described the deployment as “an expansion of the air operation.” With their formidable firepower, it was thought the Apaches could help in identifying and attacking Yugoslav military forces in Kosovo. A force of 12 USAF C-17s flew more than 300 sorties to deploy the Apache force.

In the end, the Apaches were never used in combat. Two training accidents in late April and early May tragically claimed the lives of two crewmen and destroyed two helicopters. However, the problems with employing the Apaches had been evident from the outset. To reach the key areas of fighting, the Apaches would have had to fly 100 miles and more at low altitude over terrain studded with Yugoslav military forces. Small-arms fire, anti-aircraft artillery, and shoulder-fired missiles from these troops would pose a constant threat to the helicopters.

The Lion’s Share of Airpower



NATO’s Airpower

To carry out a sustained air campaign, NATO tapped primarily the resources of the US Air Force. For the Air Force, the commitment to the Kosovo campaign quickly went from a contingency operation to a Major Theater War. The Air Force had downsized 40 percent since 1989. That meant that Kosovo strained the smaller force and tested its new concept for expeditionary operations. In late April, President Clinton called up reserve component forces to keep the air war going.

DESERT STORM had marked a leap forward in capabilities in 1991, but the Kosovo operation demonstrated that aerospace power had evolved into something far stronger. Many aspects of the Kosovo campaign resembled other operations in the 1990s. But unique rules of engagement and the spectacular debut of new systems marked points of special interest in the campaign. All along, the overriding challenge was to summon expeditionary airpower and unleash the aircrews to carry out the missions they had been trained to do.



Operations began with constant combat air patrols over Kosovo and Bosnia. Suppression of Enemy Air Defenses assets were also on call. Then, strike packages, most with dedicated SEAD assets, would be assigned to specific missions. Operation Allied Force included combinations of NATO and US aircraft and some US-only packages. NATO seized and held air dominance from the start of the operation. However, the operational environment for NATO Airmen flying over Yugoslavia held many challenges.

Yugoslavia's air defenses could present a considerable challenge, as NATO airmen well knew. Just before the air war began, USAF head Ryan cautioned: "There's no assurance that we won't lose aircraft in trying to take on those air defenses." The air defense system in Yugoslavia, especially around Belgrade, was dense, and mobile Surface-to-Air-Missiles added more complexity.

Targets in the integrated air defense system were included in the first night's strikes. However, even as NATO gained freedom to operate, the Yugoslav air defense strategy presented some unorthodox challenges. Reports suggested that spotters used cell phones and a chain of observers to monitor allied aircraft as they took off. Many times, the air defense system simply did not "come up" to challenge NATO strikes. "Their SAM operators were, in the end, afraid to bring the SAMs up and engage our fighters because of the lethality of our SEAD aircraft," Gen. John P. Jumper, commander, US Air Forces in Europe, remarked.

More Dangerous Than 1991?

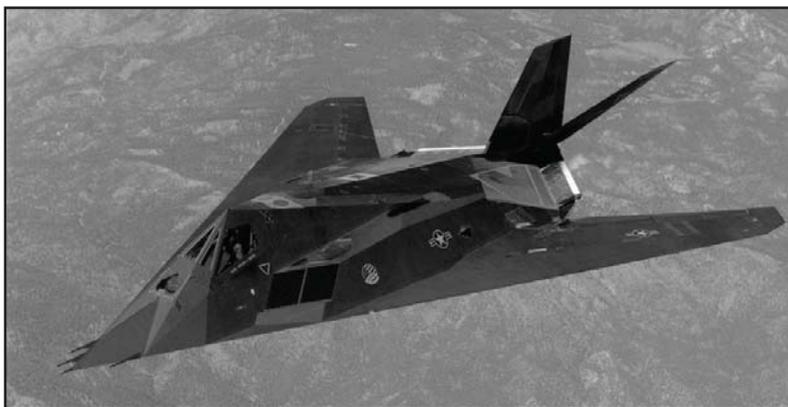
That was a mixed blessing. The Yugoslavs could not prevent NATO from attacking key targets, but they could—and did—make it tough to completely decimate the air defense system. Yugoslav air defenses were not efficient, but they were not dead, either. As a consequence, pilots often got warnings that SAMs were active while on their missions. An initial assessment from pilot reports and other sources tallied almost 700 missile shots: 266 from SA-6s, 174 from SA-3s, 106 from man-portable systems, and another 126 from unidentified systems. One informal estimate concluded a pilot was more than twice as likely to be shot at by SAMs over Kosovo than in DESERT STORM.



Overall, NATO did not destroy as many SAM batteries as air planners would have liked. Preliminary data from the Joint Staff estimated that two out of a total of three SA-2 batteries were hit and 10 of 13 SA-3s were destroyed. However, early estimates cited kills of only three of about 22 SA-6s. “We learned from this war that it is a different ball game when SAMs don’t come up to fight,” acknowledged Jumper. The concept of operations for lethal SEAD depended on targeting individual batteries as they begin to track and illuminate friendly aircraft.

Offensive counterair actions scored many successes. The Yugoslav air force included frontline MiG-29s as well as older MiG-21s and other aircraft. American pilots shot down five aircraft in air-to-air engagements and a Dutch F-16 got a MiG-29 on the first night. Many more aircraft were destroyed on the ground. In one remarkable example, a Tomahawk targeted and destroyed a MiG-29 fighter on the ramp.

NATO also did well against Yugoslav airfields. “One of the myths that was dispelled in this conflict was that you can’t close an airfield,” commented Jumper. “As a matter of fact, we closed almost all the airfields,” he said.



In the early 1980s, the Air Force Flight Test Center teamed with Lockheed to complete the development test and evaluation of the F-117A stealth fighter.

Despite this overall success story, the loss of the F-117, known by the call sign Vega 21, became one of the major media events of the war. On March 27, the stealth fighter went down over Serbia. Sources cited evidence suggesting the airplane was hit by a Yugoslav SA-3 missile active in the area at the time. Other reports hinted that the Serbs

may also have tracked the fighter optically using an intricate network of ground observers. A daring rescue retrieved the pilot from Serb territory. Public interest spiked with dramatic television pictures of the wreckage clearly showing the aircraft's Holloman AFB, N.M., markings.

USAF officials stuck to a policy of revealing no details about the crash or the rescue. The loss of the F-117 did not shake the commitment to employing stealth as 24 F-117s in the theater continued to perform tough missions. SEAD was used routinely for all strike packages, as had been the custom in the Balkans since the shutdown of Capt. Scott F. O'Grady four years earlier.

Supplement to Stealth

In early July, Lt. Gen. Marvin R. Esmond, USAF's deputy chief of staff for air and space operations, described it this way, "The question I get frequently is, was ECM Electronic Countermeasures required for stealth assets? The answer is no, it is not required—depending on the risks you want to put the aircrews at. If you have the capability, then the prudent person would say, why not suppress the threat with Electronic Countermeasures as well as taking advantage of our stealth capability, which all totaled up to survivability for the platform. That is simply what we did."

Concern over collateral damage had a profound impact on how NATO ran the air war. A key part of the air campaign strategy was to target Milosevic's power base, shock the Serb leadership, and disrupt the functioning of the state—but it all had to be done without targeting the populace.

The rules of engagement for Operation DELIBERATE FORCE in Bosnia in 1995 indicated that collateral damage would always be a dominant factor in the execution of a NATO air campaign. Back then, NATO and the UN approved a category of targets prior to the operation. Ryan, who was then the commander of Allied Air Forces Southern Europe, personally approved every designated mean point of impact that was struck.



In the Kosovo operation, target approval and concerns for collateral damage became some of the stickiest challenges for the alliance. The vast displacement of refugees made the pilot's job infinitely harder. "There's little doubt in my mind that Milosevic had no compunction at all about putting IDPs (Internally Displaced Persons) inside of what we felt to be valid military targets," said USAF Lt. Gen. Michael C. Short, NATO's joint force air component commander. "And, in fact, a couple of times we struck those targets and then saw the results on CNN."

NATO released 23,000 bombs and missiles, and, of those, 20 went astray to cause collateral damage and casualties. By far the most serious geopolitical shock came from the accidental bombing of a Chinese Embassy building May 7. Reports suggested that several JDAMs hit the building, crashing through several floors, and killing three Chinese nationals.



On 7 May 1999, NATO war planes on a mission to bomb Belgrade accidentally hit the Chinese embassy, killing three journalists and nearly dragging them into the war on the Serbian side.

The US apologized and said that intelligence sources had been using an outdated map of Belgrade that pinpointed the wrong location.

Even so, the air campaign kept up high standards of accuracy. Defense Secretary Cohen said, "We achieved our goals with the most precise application of airpower in history."

Pilots operated under very strict rules of engagement. They were "as strict as I've seen in my 27 years [in the] military," commented USAF Maj. Gen. Charles F. Wald, of the Joint Staff's Strategic Plans and Policy Division and key Pentagon spokesman during the operation. NATO was able to impose and live with the rules of engagement because aircrew training and technical capacities of aerospace power permitted rapid conferences



about whether to strike a target or not. Often, getting clearance to attack a target required a pilot to make a radio call back to the Combined Air Operations Center to obtain approval from the one-star general on duty.

The 15,000-Foot Floor

Concern over the air defense threat led Short to place a 15,000-foot “floor” on air operations. Flying at that altitude reduced the effects of anti-aircraft fire and shoulder-fired SAMs. Aircraft could dip below the limit to identify targets. For the most part, precision attacks were carried out with laser-guided weapons that worked well from that altitude.

Changes came from the highest political authorities, too, even after aircraft had taken off. One B-2 strike had to turn back when a target was denied en route. Short recounted how at the last minute, one or two nations could veto a target, causing packages in the air to be recalled via airborne warning and control system aircraft and tankers. This played “havoc with a mission commander’s plan.”

While the short leash was frustrating, it was also a sign of the incredible technological sophistication of the NATO air campaign. Controlling it all was the Combined Air Operation Center (CAOC). According to Jumper, it is a weapon system in its own right. The CAOC connected pilots and controllers airborne over the battlespace to the nerve center of the operation. Since Bosnia, the CAOC at 5th Allied Tactical Air Force in Vicenza, Italy, had grown from a hodgepodge of desks and unique systems to an integrated operation. Its staff swelled from 300 to more than 1,100 personnel.

CAOC planners crafted the air tasking order on a 72-hour cycle to plan allocation of assets. But the strikes were executed on a much shorter cycle. Commanders were able to assign new targets to strike aircraft and change munitions on airplanes in a cycle as short as four to six hours.

Increasingly, the CAOC served as the pulse-point of aerospace integration, linking up many platforms in a short span of time. Multiple intelligence sources downlinked into the CAOC for analysis. Operators integrated target information and relayed it to strike aircraft. Pilots could radio back to the CAOC to report new targets and get approval to strike.



Jumper recounted how, in the CAOC, “We had U-2s that allowed us to dynamically retask to take a picture of a reported SA-6, beam that picture back to Beale AFB [in California] for a coordinate assessment within minutes, and have the results back to the F-15E as it turned to shoot an AGM-130 [precision guided munition].” This real-time tasking was a leap ahead of DESERT STORM operations. Over time, Predator unmanned aerial vehicles were used in a similar way via the CAOC and, with a brand-new laser designator, could direct strike aircraft already flying in the engagement zone onto positively identified targets like tanks and armored personnel carriers.



The B-2 flew 49 sorties, with a mix of two-ship and single-ship operations. All told, the B-2 delivered 650 JDAMs with an excellent, all-weather accuracy rate. The targeting system allowed the B-2 crew to select 16 individual designated mean points of impact, one for each JDAM carried.

F-15E Strike Eagle

Measures of Effectiveness

The B-2 crews proved first of all that they could operate effectively on missions that took more than 30 hours to complete. A folding chaise lounge behind the pilots’ seats and stashes of hot food on board helped the two-man crew manage fatigue. At the same time, the bomber proved itself combat-worthy. Using just six of the nine aircraft at Whiteman, the 509th made every takeoff time and participated in 34 of the 53 air tasking orders generated for Operation Allied Force. Every B-2 was launched in “pristine” condition—meaning its radar and infrared signature met low-observable specifications, with no rough patches to degrade survivability. The B-2 stood up to the demands of combat operations, sometimes taking as little as four hours to refuel, rearm, and turn the jet in preparation for another combat sortie. “It is an incredibly durable, incredibly robust airframe. You turn it on, and it just keeps running,” Barnidge reported.



The secret new art of disrupting enemy military capabilities through cyberspace attacks appeared to have been a big part of the campaign. Air Combat Command stood up an information warfare squadron in Fiscal 1996 to handle defensive protection of information and offensive



KC-135 Stratotanker prepares to refuel a B-2 Stealth Bomber.

information techniques at forward-deployed locations. According to one report, the unit had its “combat debut” during the Kosovo operation and the Serbs felt the impact. “They’re pulling their hair out at the computer terminals,” said one unnamed official. “We know that.” Jumper said there was “a great deal more to talk about with regard to information warfare that

we were able to do for the first time in this campaign and points our way to the future.”

By May, the USAF had deployed another significant increment of forces. With 24-hour operations under way the air campaign was able to keep the pressure on military forces in a much wider area of Kosovo via the “Kosovo engagement zones,” updated terminology for the “kill box” concept pioneered in the Kuwait theater of operations in DESERT STORM. There were enough forces in theater to cover the engagement zones for about 20 hours a day. Strike aircraft tripled so that a total of 323 American and 212 allied strike aircraft worked against the two major goals of hitting Serb military forces and striking targets of unique strategic value. Air forces now attacked from all sides. Marine F/A-18s flew missions from a base in Hungary. Strike packages from Italy could fly around Yugoslavia to ingress from the northeast, surprising air defenses around Belgrade.

“Take Them Out”

“The mission is to pin them down, cut them off, take them out,” said NATO spokesman Maj. Gen. Walter Jertz. “We have pinned them down, we have pretty much largely cut them off, and are about to begin to take



them out.” Under the relentless pressure of air attacks, Milosevic’s forces in Kosovo were losing. Evidence of VJ and MUP defections was mounting. Their fuel supplies were limited, and their resupply lines had been cut, and Milosevic knew it would only get worse. More forces were slated to deploy, and two months of good summer weather lay ahead. Wald said, “This is a game with as many innings as we want, and I think [Milosevic] is running out of baseballs.”

Around May 22, the pressure increased again. Better weather and more forces allowed NATO airmen to ramp up the pressure on the Yugoslav army. In about 10 days, bomb damage assessment confirmed that NATO Airmen had doubled the number of tanks destroyed, hit three times the number of armored personnel carriers, and hit four times as many artillery and mortar pieces. “We’re driving him to a decision,” announced Clark at the end of May.

Also in late May the KLA began its first large-scale offensive in more than a year. About 4,000 troops pressed ahead from points along the Albanian border. The KLA’s OPERATION ARROW soon met heavy resistance from Yugoslav artillery and troops. In about two days, the rebels were pinned down along Mount Pastrok. Heavy mortar and artillery fire ensued and the KLA was “creamed” according to a senior US intelligence official.

The small-scale offensive reportedly helped NATO identify more Yugoslav military equipment in the immediate area. “As the VJ and MUP fire their artillery, they’re detected,” said Wald. “Then we’ll go ahead and attack them and destroy them.” Cohen emphasized that NATO was not coordinating operations with the KLA. Indeed, by this time, NATO air attacks on Yugoslav military installations and forces were spread widely across Kosovo and southern Serbia every day and night, well beyond the localized effects of the KLA actions.

By early June, military impact and a series of diplomatic events were coming together as powerful coercion. The diplomatic chain of events had started a few weeks earlier, with the G-8 meeting in Bonn on May 6. There, the major Western economic powers plus Russia agreed on a basic strategy to resolve the conflict. The European Union announced its appointment of President of Finland Martti Ahtisaari as its special envoy for Kosovo on May 17. Under Ahtisaari’s auspices, the US, NATO,



and Russia agreed to a NATO–drafted plan in late May. On May 27, an international tribunal in The Hague indicted Milosevic as a war criminal—an indictment, as Cohen pointed out, with no statute of limitations. Yugoslavia’s parliament voted to accept the plan on June 3.

The air campaign was also having a devastating effect. Roads, rail lines, and bridges across Yugoslavia had been knocked out, halting the normal flow of the civilian economy. Good weather and long summer days ahead meant that more of Milosevic’s country and his military forces would be exposed to devastation. In late May and early June, the impact on fielded forces spiked.

Heavy Losses

Destruction of armored personnel carriers, artillery, and tanks continued to rise “almost exponentially” in the words of Shelton. He said the Yugoslav army forces lost 450 or about 50 percent of their artillery pieces and mortars to air attack. About one-third of their armored vehicles were hit: a total of about 122 tanks and 220 armored personnel carriers. A later NATO assessment released Sept. 16 put the numbers at 389, 93, and 153, respectively. These heavy losses meant they could not effectively continue organized offensive operations.

At the same time, Yugoslav forces in Serbia were also feeling the pressure. First army, in the north, had 35 percent of its facilities destroyed or damaged while 2nd army, near the Kosovo border, had 20 percent of its facilities hit. Third army, assigned to operations in Kosovo, had 60 percent of its fixed facilities damaged or destroyed. The Joint Staff assessed that the air attacks had significantly reduced 3rd army’s ability to sustain operations.

Belgrade was largely without electric power and about 30 percent of the military and civilian radio relay networks were damaged. Across Yugoslavia, rail and road capacity was interdicted: Some 70 percent of road and 50 percent of rail bridges across the Danube were down. Critical industries were also hard hit, with petroleum refining facilities 100 percent destroyed, explosive production capacity 50 percent destroyed or damaged, ammunition production 65 percent destroyed or damaged, and aviation and armored vehicle repair at 70 percent and 40 percent destroyed or damaged, respectively.



Industrial targets and bridges would take a long time to repair. In many cases, electric power and communications could be restored more readily. However, the combined effect had brought the war home to Belgrade and restricted Milosevic's ability to employ his fielded forces effectively. On June 9, after last-minute wrangling with Yugoslav military commanders, Milosevic accepted the NATO conditions. "I think it was the total weight of our effort that finally got to him," said Short, the allied air commander.

The 78-day air campaign brought about an ending that seemed almost impossible back in March. Milosevic agreed to a cease-fire, the withdrawal of Serb forces from Kosovo, the entry of an international peacekeeping force, the return of refugees, and Kosovar autonomy within Yugoslavia. Kosovo would remain within the sovereignty of Yugoslavia. However, the international peacekeeping force would be armed and empowered.

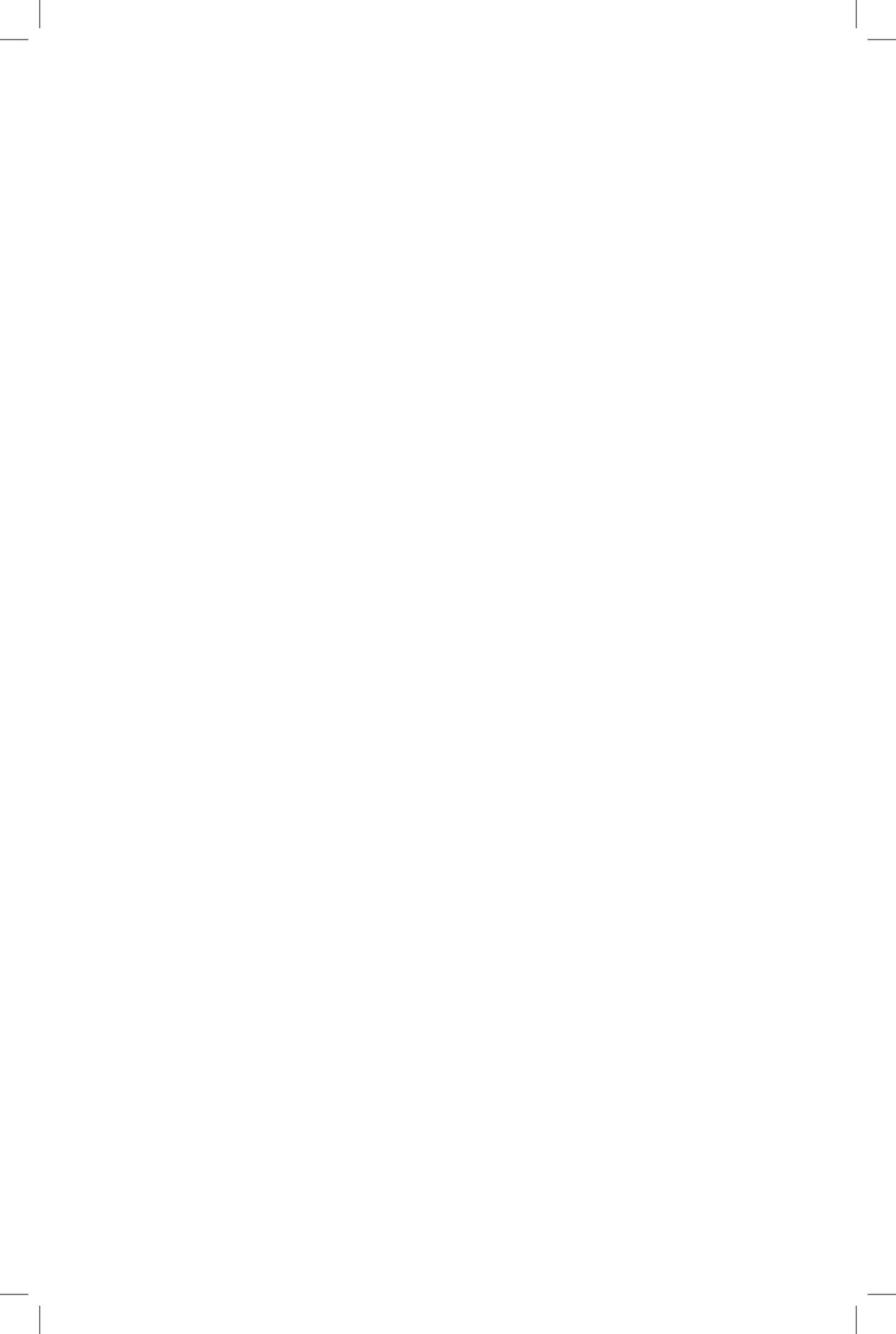
Military historian John Keegan wrote with some awe, "Now, there is a new date to fix on the calendar: June 3, 1999, when the capitulation of President Milosevic proved that a war can be won by airpower alone."

While the entire decade of the 1990's saw the USAF engaged in near constant combat operations, including DESSERT STORM, NORTHERN and SOUTHERN WATCH, and finally ALLIED FORCE, the service was still unprepared to deal with the most devastating attack ever seen on the U.S. mainland.



AIR AND SPACE POWER TODAY





THE CONCISE HISTORY OF THE USAF



The Afghan Air War

The Afghan Air War

By Dr. Rebecca Grant

Reprinted courtesy of the Air Force Association

The September 11, 2001 terror attacks in New York City and Washington D.C., changed forever the way Americans viewed national security. For the United States Air Force and its partners in joint airpower, too, the attacks and resulting Global War on Terrorism erased distinctions between



Smoke rises over the Pentagon September 11, 2001.

fighting “over there” and the defense of the United States. American strategy would be affected for decades to come.

The large-scale US response to an act of terrorism was a first for the American military. Operation ENDURING FREEDOM, the US overseas response, was in its most intense phase in the period October 2001 through January 2002, but it was not a massive air war. The sortie count from its start on Oct. 7 through the final takeover of Afghan cities was half



that of Operation Allied Force in 1999 and nowhere near the effort of the Gulf War in 1991. Air Force pilots flew some of the longest missions in history, but the success of the campaign was never seriously in question.

What made ENDURING FREEDOM unique was that, in a war unlike any other, joint airpower was able to respond on command in a harsh and politically complex environment. Airpower set the conditions for the coalition campaign and achieved success from the first night onward. Airmen took it all in stride. They conducted a campaign that, initially, filled the pundits with doubts, but they made it look routine, adapting to tactical constraints and bringing precise firepower to bear wherever needed, despite the obstacles.

The overarching US Global War on Terrorism does not fit neatly into the cause-and-effect calculations of international politics. Military force mingles with diplomacy, international financial sanctions, cyber-defense, law enforcement, and many other forms of response. It is in part the by-product of several regional security policies, from the effort to contain Iraq to the US relationship with Israel. It is directly a product of the emergence of a non-national group—al Qaeda—ideologically bent on destruction in service of a cause defined only by itself.

This war is colored by religious and philosophical beliefs in a way seen in no other American war—save possibly the Civil War. Its complexity is enough to spark longing for the harrowing but at least comprehensible problems of the Cold War, with its blocks of East and West. It is a consequence of the late 20th century's spread of global culture and of the misuse of the technologies of jet airliners and the Internet which normally serve a constructive purpose. The Global War on Terrorism will be a fact of life for a long time yet.

Before Sept. 11: The Phantom Menace

For many decades now, Americans have experienced the traditional form of terrorism, but they only got a first taste of multifatality superterrorism in 1983. US troops were sent as part of a multinational force policing Lebanon after the Israeli invasion in June 1982. On October 23, 1983, a truck bomb prepared by Islamic terrorists killed 220 US Marines, 18 Navy sailors, and three Army soldiers in their barracks at the



Beirut airport. Another attack on the same day killed 63 French troops who were also part of the multinational peacekeeping force. The October 1983 bombings were preceded by an attack on the US embassy in Beirut on April 18, killing 58 and followed by a truck bomb in the US embassy compound in Kuwait on December 12. Reprisals included ineffectual naval gunfire against targets in Lebanon.

Even after the experience of Lebanon, conventional wisdom held that terrorist attacks were not militarily significant. They might be horrible and politically disruptive, but their punch would be too weak to dent the military armor of a superpower. The problem of terrorism was shuffled off as a lesser included case in the realm of guerilla warfare and low-intensity conflict.



World Trade Center Tribute, September 11, 2006.

The first terrorist attack at New York City's World Trade Center, on February 26, 1993, stood out as a frightening anomaly. Six were killed and approximately 1,000 were injured from a bomb blast in the parking garage of one of the Twin Towers. The terrorists, who were fundamentalist Muslims, were caught.

The next significant event was the April 19, 1995, terror bombing of the Murrah Federal Building in Oklahoma City. Traced to Timothy McVeigh and accomplices, the immense attack did not seem to be part of a pattern. Still, the Oklahoma City bombing was a turning point for the US government. It came at a time when other evidence was beginning to reveal disturbing new trends. A month earlier, in March 1995, a Japanese cult released the nerve agent sarin on five subway trains in Tokyo. Casualties were few, but the attempt at a mass attack signaled what a determined group working inside a nation might be able to accomplish.



The White House released its first formal policy on countering terrorism on June 21, 1995. President Clinton signed Presidential Decision Directive 39, titled “US Policy on Counterterrorism.” PDD-39 became the benchmark US statement, declaring, “It is the policy of the United States to deter, defeat, and respond vigorously to all terrorist attacks on our territory and against our citizens or facilities, whether they occur domestically, in international waters or airspace or on foreign territory.” The directive went on to state that terrorism was a threat to national security as well as a criminal act and that the United States would “deter and pre-empt” terrorists and give them no quarter. Specific instructions for federal agencies underscored the need to make personnel less vulnerable.

A final section of PDD-39 included the proviso: “The United States shall give the highest priority to developing effective capabilities to detect, prevent, defeat, and manage the consequences of nuclear, biological, or chemical (NBC) materials or weapons use by terrorists.” PDD-39 led to the commissioning of a group to review the vulnerability of critical infrastructure— not just physical locations but cyber assets as well.

Then, in the mid- and late 1990s, terrorism grew from being a relatively small “cost of doing business” in foreign lands to a serious, quasi-military danger, at least to US forces abroad. On June 25, 1996, a truck carrying



On June 25, 1996, a truck carrying a bomb was backed up to a barracks at the Khobar Towers complex in Dhahran, Saudi Arabia, where it was detonated.

a bomb was backed up to a barracks at the Khobar Towers complex in Dhahran, Saudi Arabia, where it was detonated. The explosion, later estimated to have a force equivalent to 20,000 pounds of TNT, killed 19 USAF Airmen and injured scores more. Rumors of a connection between the bombing and exiled Saudi millionaire Osama bin Laden circulated at the time, but no one established a definitive link.

After Khobar Towers, force protection became a paramount concern for deployed units and their commanders. New directives from the Joint Staff mandated that commanders complete a force protection course before taking up overseas assignments.

However, the next blow fell on diplomatic installations. On August 7, 1998, massive truck bombs hit US embassies in Nairobi, Kenya, and Dar es Salaam, Tanzania, within minutes of each other. In Nairobi, the terrorist driver backed up to the embassy's rear parking lot; the explosion killed 291 people, including 12 Americans, and injured 5,000 more. At Dar es Salaam, the truck bombers tried to penetrate one of the two vehicle gates, but the lucky presence of an embassy water truck blocked the way, and the explosives went off 35 feet from the building. The force of the blast propelled the filled water tanker three stories into the air, noted a State Department review, but it also helped absorb some of the blast, leaving the toll at 10 dead and 77 injured. State found there was no tactical warning of the attacks.

Intelligence sources quickly fingered Osama bin Laden's organization. "Rarely do numerous sources converge so uniformly and persuasively as they have in this instance," explained a senior intelligence official speaking on background. On August 20, Clinton launched Operation Infinite Reach. US attack submarines fired Tomahawk LandAttack Missiles at two targets linked to bin Laden's terror network—a training camp in Afghanistan 60 miles south of Kabul and the Shifa pharmaceutical plant in Khartoum, Sudan. (Note: Later intelligence revealed the pharmaceutical plant was not in fact connected to bin Laden.) The Shifa plant was known to produce a precursor to the chemical weapon agent VX. As justification, the Chairman of the Joint Chiefs of Staff, Gen. Henry H. Shelton, said, "Osama bin Laden's network of terrorists was involved in the planning, the financing, and the execution of the attacks on the US embassies."

The 1998 attacks catapulted bin Laden to the top of Washington's list of international threats. With an estimated net worth of about \$250 million, the Saudi renegade was able to set up an autonomous terrorist organization. As a senior intelligence official explained in 1998: "He has a very intricate financial infrastructure. He has networks on every continent almost. He has an infrastructure that's very, very replete with capability, people and money. This is not someone who is wanting of resources or capability to acquire things."



The East Africa bombings revealed bin Laden's brand of multifatality terrorism to be a serious threat, but formulating a strategy for a war on terrorism was exceedingly difficult. Nothing about it fit any existing models for how America could ensure its security.

CIA Director George Tenet regularly updated Congress on the terrorist threat. As he said in February 1999, he had "not the slightest doubt" that bin Laden, his worldwide allies, and his sympathizers were planning further attacks against US targets. "Despite progress against his networks," warned Tenet, "bin Laden's organization has contacts virtually worldwide, including in the United States." He went on to add that bin Laden had stated unequivocally "that all Americans are targets." Tenet said, "Bin Laden's overarching aim is to get the United States out of the Persian Gulf, but he will strike wherever in the world he thinks we are vulnerable." The CIA, he concluded, was anticipating bombing attempts with conventional explosives, but kidnappings and assassinations also were possible.



A huge explosion blew a hole in the hull of the USS Cole, a Navy destroyer, as she was moored at Aden port to refuel.

For three days, the surviving crew fought damage below the water-line, sudden losses of electric power, and breached drive-shaft seals that threatened to sink the ship. Whatever the 1998 US strikes in Afghanistan and Sudan had accomplished, they had not eliminated the bin Laden network or deterred it from attacking.

The next bin Laden attack came on October 12, 2000, in the Arabian nation of Yemen. A huge explosion blew a hole in the hull of the USS Cole, a Navy destroyer, as she was moored at Aden port to refuel. The bomb blast made clear that bin Laden's terrorist network was still active. Seventeen US sailors died and three dozen more were

While American military forces and diplomats abroad had a new adversary, the idea of a foreign-backed terrorist attack on American soil remained a vague and distant-seeming fear—although scattered warning signs were emerging. CIA Director Tenet testified in February 2001 that “the threat from terrorism is real, it is immediate, and it is evolving.” Tenet went on to speculate that “as we have increased security around government and military facilities, terrorists are seeking out softer targets that provide opportunities for mass casualties.”

Defending America at home became a theme of sorts in the presidential campaign of 2000, building on a collection of fears about missile proliferation, weapons of mass destruction, and the increasing abilities and cunning of terrorists such as those who targeted the World Trade Center in 1993. “Once a strategic afterthought, homeland defense has become an urgent duty,” said the future President, George W. Bush, in a September 1999 campaign speech.

For the most part, however, the focus was on possible ballistic missile attack. Terrorism was seen as a small-scale threat. While bin Laden’s earlier attacks put the spotlight on threats to forces and American diplomats and civilians overseas, nothing had yet shaken the sense of security at home.

In December 1997, the National Defense Panel placed “homeland defense” first in its section on meeting national security challenges in 2020. The panel listed many elements ranging from border and coastal defense to terrorism, information warfare, defense against ballistic and cruise missiles, and attacks on critical infrastructure. “The primary reason for the increased emphasis on homeland defense is the change, both in type and degree, in the threats to the United States,” explained the panel.

Two years later, the Hart-Rudman Commission’s Phase 1 report delivered in 1999 took a much stronger tone, establishing homeland security as a potential top priority mission. “America will become increasingly vulnerable to hostile attack on our homeland and our military superiority will not entirely protect us,” stated the commission’s Phase 1 report. The commission foresaw no peer military competitor, but a rise



in states, terrorists, and other disaffected groups who could acquire and use Weapons of Mass Destruction. “Americans will likely die on American soil, possibly in large numbers,” said the report.

Yet the increasing attention to homeland defense was not tied to any specific threat indications. Based on progress in Weapons of Mass Destruction and ballistic missiles, the threat, shadowy as it was, appeared to be five to 10 years off. An FBI report stated in 1998 that a WMD terrorism threat was “still considered low in comparison to the threat from conventional terrorist tactics, such as bombings, shootings, and kidnappings.” The Hart-Rudman commission talked about an attack in the next quarter of a century. Then came September 11, 2001.

September 11th: The Massacres

At 8:40 a.m. on that day, the Federal Aviation Administration alerted air controllers at NORAD’s Northeast Air Defense Sector (NEADS) in Rome, N.Y., that there was a problem of some kind on American Airlines Flight 11, which earlier that morning had taken off from Boston’s Logan Airport bound for the West Coast. NEADS notified the air defense unit at Otis ANGB, Mass., on Cape Cod, and two F-15 fighters prepared to launch to go take a look. Thus, the first US response in the war on terrorism fell to two Air National Guard pilots sitting on alert on that bright, clear morning on the US east coast.

Just five minutes after the FAA alert, at 8:45 a.m., Flight 11 crashed into the North Tower of the World Trade Center at the tip of Manhattan. The Otis fighters did not get airborne until 8:52 a.m. By that time, the North Tower was engulfed in a huge fireball and was spewing thick black smoke into the air.

The F-15s streaked toward New York City. Soon thereafter, however, at 9:03 a.m., a second aircraft, United Airlines Flight 175, slammed into the WTC South Tower. When that occurred, the F-15s still were 71 miles—about eight minutes flying time—from New York. The strike on the South Tower cleared away all doubt about whether the US was in danger. It demonstrably was under attack, and the F-15s established a Combat Air Patrol over New York.



Warnings about other suspect airliners soon emerged. “By this time, we were watching United Airlines Flight 93 wander around Ohio,” recalled Brig. Gen. Larry K. Arnold, then-commander of the NORAD air component, 1st Air Force, which is based at Tyndall AFB, FL. Then came a report— which turned out to be false—that a Delta flight had been hijacked in the Cleveland area. Arnold was trying desperately to find airborne fighters in that part of the country.

Amidst the confusion, Arnold said he scrambled two ANG F-16s—home-based in Fargo, N.D., but temporarily assigned to Langley AFB, VA. They took off at 9:30 a.m. and headed for Washington, D.C., but were about eight minutes out when, at 9:38 a.m., American Airlines Flight 77 plowed into one side of the Pentagon, setting it ablaze. The Langley F-16s took up station for a Combat Air Patrol over Washington.



Military members illuminate 184 beams of light in honor of those who lost their lives at the Pentagon during the attacks on September. 11, 2001, at the Pentagon.

UA Flight 93 had taken off from Newark International Airport en route to San Francisco, then, over Ohio, it turned back east and for nine minutes disappeared from the FAA’s radar track. Meanwhile, two Washington, D.C., Air National Guard F-16s, alerted by the Secret Service, also set up a CAP over Washington. Office workers streaming out of government buildings from Capitol Hill to Foggy Bottom heard their sonic booms.

NORAD now had clearance for the fighters to engage the wayward airliner if it neared the capital. According to Arnold, the plan was for the D.C. or Langley F-16s to intercept Flight 93 and be prepared to take further action if it approached Washington. Then, with the airliner about 200 miles from D.C., the passengers of Flight 93 fought back against the terrorists on board and took the airliner into the ground in Somerset County, PA., preventing an attack on another US target.

Federal officials immediately ordered the grounding of all nonmilitary aircraft flying in US airspace. Exactly 3,181 tracks were in the FAA's database at 10 a.m. By midday, the skies over America were quiet. The threat was not gone, however, and the US scrambled to put together defenses against further attack. The first line of defense came from fighters, tankers, and E-3 AWACS, which patrolled the skies around the clock.

President Bush was in Florida on the morning of September 11 and was flown out at 9:57 a.m. Officers at 1st Air Force pulled an AWACS, with its full suite of communications gear, closer to the President's route of flight as Air Force One flew first to Barksdale AFB, LA., and then pressed on to Offutt AFB, NB. Combat Air Patrols went into place over major cities and other sites. Within 18 hours, more than 300 military aircraft were airborne. USAF active, Guard, and Reserve units pitched in, while Navy and Marine Corps aircraft joined the patrols. Aircraft carriers USS George Washington and USS John F. Kennedy were dispatched to New York City.

Over the next several weeks, keeping US skies safe became a monumental new task. "We have made a number of adjustments in the Combat Air Patrols," Defense Secretary Donald H. Rumsfeld said September 27. "We do have aircraft on strip alert at any number of places around the country." The 1st Air Force surged from a total of just 14 aircraft sitting alert at seven sites, to an operation that rivaled an expeditionary deployment in commitment of people and resources. NATO airborne early warning aircraft deployed to the US to help absorb the workload. Navy E-2 Hawkeyes and Customs Service P-3s augmented the surveillance tracks. Air Force aerial refueling aircraft units kept the whole operation in action.

Mid-September 2001: Forging the Response

The shock and grief of September 11 prompted national security fears markedly different from anything faced in generations. Even in Washington policy circles, no one anticipated anything like the September 11 attack. "We've always said the more likely threat was a rental truck or a tanker truck or a suitcase or a ship in a harbor," said one Congressional staffer in October 2001.



For a long time, the threat of catastrophic terrorism appeared to be a problem for the future. Its outline was shadowy, its profile was incomplete, and its likelihood seemingly small. By the time the second airliner hit the South Tower, however, terrorism had a face, and that face belonged to none other than Osama bin Laden.

On September 11, General Shelton, the JCS Chairman, was just two weeks away from retirement. He was aboard a military aircraft two hours out of Andrews AFB, MD., and en route to a NATO meeting when he got word of the attacks. Shelton recalled, "I was thinking, 'This is a big one.'" He added, "There was no doubt in my mind. When I heard the second plane had hit, I knew that wasn't an air traffic control problem or just a pilot problem." Shelton ordered his airplane to turn around and return home. "We came back right over the World Trade Center," he noted, "and could see, even from that altitude, the devastation, the smoke that was coming up. It was obvious it was going to be horrible."



Montana farmer Steve Raska pounded his ploughshares into an artist's brush Sept. 16, 2001 when he plowed 'USA' in letters 1,000 feet high. Steve and his wife, Lola, own the 2,500-acre farm 12 miles southeast of Great Falls, near Malmstrom AFB, Mont. They wanted 341st Space Wing's helicopter crews to know they supported them in their efforts to defend the nation.



The suddenness and the form of the attacks came as a thunderous strategic surprise. In the aftermath, it was hard to come up with a blanket counter-terrorism policy. One thing, however, was certain: the attacks of September 11 left the entire nation yearning for a chance to strike back.

American military forces went on alert. The pilots of USAF's B-2 stealth bombers, located at Whiteman AFB, MO., went into crew rest almost immediately after receiving word of the attacks. So did USAF tanker and airlifter crews. "We believe that acts of war have been committed against the American people," Secretary of State Colin Powell said on September 12 "and we will respond accordingly." However, it took time for the Bush Administration to formulate its strategy. Eventually, however, the US focus was drawn inevitably to Osama bin Laden's nest—Afghanistan. It had offered the Saudi terrorist safe harbor since 1996.

Task 1 was to assemble international support for the effort to destroy that nest. Prime Minister Tony Blair announced Britain would stand "shoulder-to-shoulder" with the US. Taliban-ruled Afghanistan, a rogue nation, enjoyed little international backing. The United Arab Emirates and Saudi Arabia, two of the few nations having diplomatic relations with Afghanistan, withdrew their recognition of the Taliban government on September 22 and 25, respectively. Senior US officials consulted with regional powers such as Pakistan and big powers such as China, which pledged nonmilitary cooperation. President Bush froze al Qaeda financial assets on September 24, a move later backed by the United Nations in a special resolution.

The US made it clear that, if the Taliban would hand over bin Laden and his criminal henchmen, Afghanistan might be spared attack. Repeated US requests went nowhere, however. Finally, on September 28, a special delegation of nine senior Pakistani religious leaders, deputized to make a final appeal, went to Afghanistan. They asked again for the Taliban to turn over bin Laden. The answer was no.

Thus, the die was cast. Going after bin Laden and his terrorist network depended on breaking the Taliban's control over Afghanistan. As Rumsfeld bluntly remarked, "The only way to deal with that kind of a problem is to liquidate or root out those terrorist networks." The Pentagon chief said, "Terrorists do not function in a vacuum. They don't



live in Antarctica. They work, they train, and they plan in countries.” As later explained by Rear Adm. John Stufflebeem, a DOD spokesman: “There has been an arrangement between Osama bin Laden and [Taliban leader] Mullah Omar for some time. They are mutually supportive.”

The first step in reducing the terror threat would be to eliminate al Qaeda main bases in Afghanistan. For the US and its allies, planning for a new operation—at first codenamed Infinite Justice—faced a number of obstacles. Afghanistan had the look of a quagmire. After its 1979 invasion, the Soviet Union was ensnared in a protracted, ultimately unsuccessful war against the Afghan mujahedeen. Afghanistan was landlocked, meaning there was no easy access from the sea. Afghanistan’s rugged



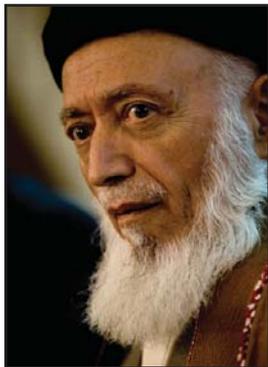
terrain was home to about 25 million people, many of them sympathetic to Islamic extremists. Ten years of war with the Soviet Union left the country in the hands of tribal warlords, who fought amongst themselves and sucked others into their disputes.

In this setting, the Taliban initially attracted public support because it pledged to halt the fighting, end corruption, and build a pure Islamic state. The actual result was oppression, austerity, and the decay of basic government functions. Women were forced to wear the all-concealing burkha and soccer-stadium executions and amputations terrorized citizens. Although the Taliban in 2001 controlled about 80 percent of Afghan territory, Afghanistan was not at peace. By one estimate, 76,000 people died as the result of internal fighting between 1992 and 2000. As many as 2.5 million Afghan refugees were living in Pakistan.

The Afghan military had once been well-equipped with Soviet tanks, armored personnel carriers, artillery, rocket launchers, and short-range surface-to-surface missiles. As many as 100 MiG-21s and MiG-23s remained in Afghanistan, as did assorted armed and utility helicopters. SA-2 and SA-3 surface-to-air missiles plus an unknown number of



Stingers, SAM-7s, and SAM-14s rounded out the inventory. Much of this equipment was old and in serious disrepair. It was difficult to estimate exactly what sort of resistance the Taliban could muster.



Former Afghan President Burhanuddin Rabbani.

The primary opposition to Taliban rule came from the Northern Alliance, a loose coalition of irregular forces under the leadership of Ahmad Shah Masood, charismatic and highly innovative guerilla leader, former Afghan President Burhanuddin Rabbani, and Gen. Abdul Rashid Dostum, leader of the National Islamic Movement. The Taliban controlled most major cities, but the mountains belonged to factions of the Northern Alliance. In the summer of 2000, a major Taliban offensive had put pressure on Masood, but the so-called “Lion of the Panjshir” was able to resist and survive.

Battle lines in Afghanistan were never permanent. Smaller groups often switched loyalties back and forth between the Northern Alliance and Taliban. Then the Northern Alliance suffered what was intended to be a fatal blow. Bin Laden must have anticipated that the US would strike back against Afghanistan. On September. 9, 2001, Masood was assassinated by al Qaeda terrorists posing as a news camera crew. The loss of Masood weakened the leadership of the Northern Alliance at a critical moment.

Somewhere in the days after September. 11, the Bush Administration decided that teaming with the Northern Alliance, even without Masood, offered the best hope for “liquidating” the Taliban and al Qaeda in Afghanistan.

Inserting any US military forces into the region would require cooperation from Afghanistan’s neighbors. They were a complicated group. Afghanistan bordered nations whose names must have made planners shudder: China, Iran, the now-independent republics of Turkmenistan, Uzbekistan, and Tajikistan, and on-again, off-again US ally Pakistan.



Washington was lucky in two respects.

First, many important regional actors had an interest in smacking Muslim extremists. China and Pakistan were worried about the emergence of radical Islamic groups within their borders. Uzbekistan was already dealing with its own insurgent terrorist group, the Islamic Movement of Uzbekistan, whose leader, Juma Namangoni, threatened to launch a holy war against Uzbekistan's government. In 1999, the threat to the region was such that Russia first began hosting a counter-terrorism exercise, code-named Southern Shield. Included were forces of Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. Additionally, France, China, and Turkey were sending aid to the region.

Second, the US military already had been running small exercises in the region since the late 1990s. In 2000, the US provided \$10 million in aid to Uzbekistan border units battling terrorism and the drug trade. A thin network of mutual interest was already in place, and the horror of September 11 strengthened it enough to provide a basis for planning.

Late September 2001: The Strategy Develops

The US was ready for a war on terrorism, but what would that war look like? "In the past, we were used to dealing with armies and navies and air forces and ships and guns and tanks and planes," Rumsfeld said. "This adversary is different. It does not have any of those things. It does not have high-value targets that we can go after. But those countries that support them and give sanctuary do have such targets."

The Infinite Reach strikes of 1998 sought to disable bin Laden's training camps, but, after the September 11 massacres in the United States, the war campaign would have to do much more. US forces needed to find bin Laden and his top lieutenants and break Taliban control over Afghanistan. With the world on notice that America intended to respond, US military forces had to act fast, before the terrorists and their supporters had time to disperse, dig in, or disappear.

Assembling forces in the area was the first step. The US already had established a modern, top-of-the-line nerve center, called the Combined Air Operations Center, or CAOC—in the Persian Gulf





The CAOC is a true joint and Coalition team, staffed by U.S. Air Force, U.S. Army, U.S. Navy, U.S. Marine Corps and Coalition partners. Built at a cost of \$60 million, the project involved installation of more than 67 miles of high-capacity and fiber optic cable.

region. This would be used to direct all facets of the coming air campaign. Moreover, some Navy warships were in place in the northern Arabian Sea. The aircraft carrier USS Enterprise and its battle group had begun their return to the US after six months at sea but turned back on station after hearing of the attacks. Beyond that, everything for the war in Afghanistan had to go in by air. USAF's Air Mobility Command began putting in place an air bridge of tankers to refuel inbound aircraft. For the first time, the air bridge out of the United States ran in two directions, east and west, converging on Central Asia.

Early October 2001: The Campaign Begins

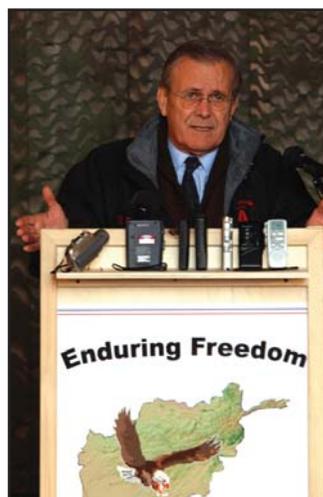
Enduring Freedom began on October 7, 2001. Gen. Richard B. Myers, the Air Force officer who had only recently succeeded Shelton as JCS Chairman, announced the action at an October 7 DOD news briefing. He said, "About 15 land-based bombers, some 25 strike aircraft from carriers, and US and British ships and submarines launching approximately 50 Tomahawk missiles have struck terrorist targets in Afghanistan." At the same briefing, Rumsfeld outlined the operation's goals, which were broad and ambitious but also cautiously worded to hedge against a commitment to a long campaign. They were:



- To make clear to the Taliban that harboring terrorists carries a price.
- To acquire intelligence to facilitate future operations against al Qaeda and the Taliban.
- To develop relationships with groups in Afghanistan that oppose the Taliban and al Qaeda.
- To make it increasingly difficult for the terrorists to use Afghanistan freely as a base of operation.
- To alter the military balance over time by denying to the Taliban the offensive systems that hamper the progress of the various opposition forces.
- To provide humanitarian relief to Afghans suffering oppressive living conditions under the Taliban regime.

Rumsfeld denied that bin Laden individually was a target in the initial strikes. “This is not about a single individual,” said the Pentagon chief. “It’s about an entire terrorist network and multiple terrorist networks across the globe.”

Rumsfeld was not promising to track down bin Laden or win the war on terrorism in one blow. Instead, the Administration viewed Enduring Freedom as an operation that would create proper conditions for sustained antiterrorist and humanitarian relief operations in Afghanistan.



Secretary of Defense Donald Rumsfeld

On October 7 and 8, strikes by Air Force bombers and Navy fighters hit Taliban air defense sites, airfields, military command and control centers, and other fixed targets near major cities and installations. The first order of business was to “remove the threat from air defenses and from Taliban aircraft,” Rumsfeld said on October. 7.



“We need the freedom to operate on the ground and in the air and the targets selected, if successfully destroyed, should permit an increasing degree of freedom over time,” he added. The attacks by US and British forces knocked the stuffing out of the Taliban’s small air force. “The aircraft, to our knowledge, did not leave the ground,” said Rumsfeld.

“The problem is not the Afghan people,” explained Rumsfeld. “The problem is the al Qaeda organization and the Taliban that have been closely linked and supporting, and they are creating enormous damage in the world, and they have to be stopped.”



C-17 airlifter carrying out a long distance air drop of humanitarian daily rations.

Humanitarian relief missions began that same night as two C-17 airlifters carried out a long-distance air drop of humanitarian daily rations. A DOD official later cited the Taliban as a major impediment to international relief efforts in Afghanistan. He declared, “They’ve taxed UN World Food Program deliveries. They’ve seized UN and International Red Cross vehicles and warehouses

in Mazar-e Sharif. They’ve taken over most UN vehicles and facilities in Kandahar. They’ve stolen aid trucks, beaten drivers, and persecuted Afghan aid workers.

They’ve transported troops in vehicles with US–UN markings, and they have systematically prevented food distribution into areas not under Taliban control.”

Air strikes to eliminate air defenses and other key targets were a logical first step, given the success of airpower in the conflicts of the 1990s. But Rumsfeld took pains to point out that a few days worth of strikes would not topple the Taliban. “We have to have a clear understanding of what is possible in a country like that,” Rumsfeld said. “That country has been at war for a very long time. The Soviet Union pounded it year after year after year. Much of the country is rubble. They have been fighting among

themselves. They do not have high-value targets or assets that are the kinds of things that would lend themselves to substantial damage from the air.”

Rumsfeld and Myers did not show their cards but hinted at a more intricate phase to come. “We have to create the conditions,” said Rumsfeld, “for a sustained effort that will assist those forces in the country that are opposed to Taliban and opposed to al Qaeda, and we have to do it in a variety of different ways. We have to dry up their bank accounts. We have to bring political, diplomatic pressure to bear on them. We have to bring economic pressure to bear.”

It was plain from the outset that Enduring Freedom was not going to unfold according to a predetermined strategy. The Gulf War air campaign of 1991 pounded Iraqi forces for 38 days as the US “tried to set conditions” for hostilities, Myers noted in a late October briefing. “Then,” he went on, “we had a ground component that went in and finished the job. You shouldn’t think of this [the war against terrorists] in those terms.” Echoing that point was Gen. Tommy R. Franks, the Army officer who served as commander in chief of US Central Command and thus the war’s top military figure. “It’s been said that those who expect another Desert Storm will wonder every day what it is that this war is all about,” said Franks. “This is a different war. This war will be fought on many fronts simultaneously.”

October’s oblique comments by civilian and military officials offered hints of the process under way in this “different war.” First, since it was a campaign against terrorist networks, part of the strategy was to take steps to hunt down key individuals and learn more about al Qaeda’s structure and any plans for future operations. The search for top Taliban and al Qaeda leaders became a war within a war, rarely discussed, but yielding an occasional glimpse into a subterranean level of complexity quite different from recent US operations.

On a larger scale, unseating the Taliban was to be the work of the Northern Alliance, backed up by US airpower. The Northern Alliance—always a loose grouping—was not instantly ready for coordinated air and ground offensives. Aid ranging from ammunition to horse fodder had to



be flown into theater and air-dropped to the Northern Alliance forces. Trained US special operations teams and air controllers had to link up with assigned elements of the Northern Alliance.

Airpower led the way in both lines of operation.

The mechanics of airpower for Enduring Freedom were different from recent conflicts. Distance was a major challenge. Navy fighters flew 700 miles one-way from their carriers to their CAP stations. Bombers coming from the British-owned Indian Ocean atoll of Diego Garcia faced a 2,500-mile one-way trip.

For Airmen, the war shifted rapidly from strikes against pre-planned targets to a combination of pre-planned and flexible targets. “After the first week, the pilots didn’t know what targets they’d be striking when they launched,” said Vice Adm. John Nathman, former commander, Naval Air Forces, Pacific Fleet. As emerging targets came to dominate the tasking, the key was to keep fighters and bombers on station over Afghanistan long enough to get good targets for their weapons.

To cope with these requirements, Navy aircraft carriers worked under a new and different kind of operational concept in the Afghan air war. Previously, exercises focused on a single carrier generating combat power—a reflection of the Cold War emphasis on each carrier being able to survive and operate alone. Enduring Freedom saw several aircraft carriers combining forces to generate the required effort. The USS Enterprise was joined by four more carriers. USS Kitty Hawk shed all but eight strike aircraft from the air wing to make room on the deck for Special Operations Forces helicopters. Some of Kitty Hawk’s fighter units pulled temporary duty at Diego Garcia to provide air cover for the bomber base on the island.

Typically, two aircraft carriers on station swung into a day/night rotation to keep up the pace. The results were impressive. Naval aircraft flew a little more than half the total sorties and 70 percent of the strike sorties. With all-precision air wings, the strike fighters averaged two aim points per aircraft per sortie—a monumental shift from the mass force packages of Desert Storm. A full 93 percent of the Navy strike sorties delivered precision-guided ordnance.



“We’re more precise than we were in the past,” explained Adm. Vern Clark, the Chief of Naval Operations. “The specific comparison to Operation Desert Shield/ Desert Storm is we simply have developed more precision capability than we’ve had in a dozen years. And this operation is all about that kind of precision.” Gen. John P. Jumper, the Air Force Chief of Staff, concurred with Clark. “We have come a long way from 10 years ago [Operation Desert Storm], when we had to fly ATOs [Air Tasking Orders] out to the aircraft carriers,” Jumper later said.

Once on station, the air component became a roving strike force positioned over the battlespace to provide prompt, precise firepower on demand.

For the fighters—including land-based Air Force fighters launched from the Gulf region—a standard mission was to take off and fly to an assigned engagement zone. The fighters might orbit, waiting on the most recent information synthesized from a variety of sources, to be passed on to the strike aircraft. The main obstacle for continuous fighter coverage was distance. The need to fly more than 500 miles inland, strike, and recover within the intricate deck cycle time of the carrier’s operations created a major challenge.



B-2 and B-52 Bombers support OEF.

Bombers suffered less from range limitations and soon shouldered the major part of the job. After the initial two days of strikes, Whiteman’s B-2s were not used again; since the air defenses in Afghanistan did not pose a threat to conventional bombers if they stayed above the altitudes for such man-portable SAMs and anti-aircraft fire as might be left. But other bombers were cast in starring roles.

Eighteen B-52s and B-1s deployed forward to Diego Garcia. Typically, officers in the Combined Air Operations Center could count on four sorties per day from the B-1s and five from the B-52s. Both the B-1 and B-52 now



carried GPS-guided Joint Direct Attack Munitions. For the first time in combat, these bombers followed the lead of the B-2s in Allied Force in 1999 and linked into the net of updated information to take new target coordinates in real time. Bombers generally did not have their entire load of weapons designated for fixed targets. Instead, bomber crews headed for their first pre-planned targets and then were on call to be redirected to other targets. Jumper called the use of the B-52 against emerging targets in a close air support role transformational. Those sorties, he said, would normally have been flown by attack aircraft such as the A-10.

While USAF bombers and Navy fighters were shifting gears, another very unusual type of air war was just getting under way. A clandestine air war used unmanned vehicles, satellites, and other intelligence sources to track time-sensitive targets—of which the most tempting and critical were the Taliban and al Qaeda officials on the campaign’s most-wanted list.

Time-sensitive targeting went by several names. Originally dubbed “flex targeting” during Allied Force in 1999, the process was also nicknamed “time-critical targeting.” It could be used for attacking any moving or moveable target of high importance, especially one that through electronic emissions, communications, or other telltale signs gave only brief, elusive indications of its location. In the Kosovo war, time-sensitive targets were more often military equipment such as SAMs. In 2001, the most time-sensitive targets of all were people such as Mullah Muhammad Omar, the Taliban’s principal spiritual leader.



Predator MQ-1B

There was another twist. In February 2001, the Air Force had successfully test fired Hellfire missiles from a Predator UAV. The CIA appropriated the capability and used Predators to fire at, as well as track, key targets in Afghanistan.

The targeting of these time-sensitive targets, no matter how exciting, had to conform to the laws of war as dictated by the Geneva Conventions. Strict adherence to the rules of war served to eliminate any possibility of being justifiably accused as a war criminal down the road. CENTCOM long had employed lawyers from the military's Judge Advocate General Corps as experts on the laws of war. In Desert Storm, for example, the lawyers got a chop on pre-planned targets. However, getting approval for time-sensitive targets was harder. Not only did intelligence sources have to produce coordinates in time for them to be relayed to a command center and then on to a strike aircraft, but also somewhere along the line, the target might have to be approved. No commander wanted to be caught out attacking a carload full of Afghan civilians when the target was al Qaeda fighters. Restaurants, private homes, civilian-style vehicles all posed nightmarish ID problems, especially under time pressures.

Early in the campaign, US operators in this clandestine air war believed they had Mullah Omar in their sights. As reported by Seymour Hersh in the *New Yorker*, a Hellfire-armed Predator was patrolling the roads south of Kabul on the first night of the war. According to Hersh, "The Predator identified a group of cars and trucks fleeing the capital as a convoy carrying Mullah Omar, the Taliban leader." The CIA controller had to refer the shoot–don't shoot decision to "officers on duty at the headquarters" of CENTCOM in Tampa, FL.

Hersh reported: "The Predator tracked the convoy to a building where Omar, accompanied by a hundred or so guards and soldiers, took cover. The precise sequence of events could not be fully learned, but intelligence officials told me that there was an



General Tommy Franks, CENTCOM commander.

immediate request for a full-scale assault by fighter-bombers. At that point, however, word came from General Tommy R. Franks, the CENTCOM commander, saying, as the officials put it, 'My JAG'—Judge Advocate General, a legal officer—'doesn't like this, so we're not going to fire.' Instead, the Predator was authorized to fire a missile in front of the building—'bounce it off the



door,' one officer said." Hersh added that "an operative on the ground" later confirmed that Omar and his guards were in the convoy tracked by the Predator.

Whatever the reality, the story revealed that the coordination required for tracking and killing a time-sensitive target was not a smooth process. Rumsfeld even offered a hint of confirmation of the story. In response to a question about Mullah Omar, he told reporters on October 9: "There were some elements outside of one of his compounds that probably were targeted."

Target approval remained a delicate process throughout Enduring Freedom, giving rise to speculative press stories about who grants approval and why and how often authorization was held back. The need for target approval by Franks and levels above him sometimes slowed the campaign. According to a report in the Washington Post, CENTCOM often overrode the CAOC's calls for strikes on newly identified targets. This reportedly provoked one officer to declare, with heavy sarcasm, "It's kind of ridiculous when you get a live feed from a Predator and the Intel guys say, 'We need independent verification.'

Mid-October 2001: Danger and Dissatisfaction

News stories such as these cast a pall over Enduring Freedom at a time when the air war was shifting from the short period of strikes on fixed targets to the hunt for Taliban military targets. As yet, cracks in the Taliban's control of Afghanistan were not evident.

Coalition achievement of air supremacy was followed by a brief interval of seeming inactivity; serious Northern Alliance ground operations did not start up right away. To many pundits, this came across as a sign of failure. Within days, questions about the inability of airpower to eliminate al Qaeda's centers of resistance filled the press. Columnist William Arkin, calling the effort "sparse to the extreme," lamented the slow, plodding pace of the campaign after just one week. By the end of October, disenchantment had spread far and wide. "The initial US air strategy against Afghanistan is not working," University of Chicago



professor Robert A. Pape declared in the Washington Post. “We appear to be escalating toward a sustained air campaign to bomb that country for as long as it takes to topple the Taliban regime,” Pape fretted.

Part of the discomfort came from an intense desire for revenge, but part was also based on a classic misreading of the purpose of airpower, conditioned by selective history and inflamed by the uncertainties of the Afghanistan campaign. Pape, an academic in the field of strategic bombing, judged the operations in Afghanistan by the yardstick of how leaders might react to bombing of fixed strategic targets. In this war, it was like expecting Mullah Omar to capitulate because of hard blows on an SA-3 site. Despite repeated efforts by Rumsfeld, Myers, and other Pentagon officials to explain that this war was different, the reflex desire to blame airpower surfaced again.

Pape was not alone in his doubts about airpower. In an attempt to remedy what “ailed” Enduring Freedom, many recommended committing US ground troops in substantial numbers. Mackubin T. Owens, a professor of strategy and force planning at the Naval War College, Newport, RI, estimated the job would take 35,000 to 40,000 US troops. Former Pentagon official Daniel Goure upped the ante, projecting a need for at least 250,000 troops. Even al Jazeera, the tendentious Arabic language television news channel based in Qatar, questioned Myers as to why there had been a delay between achieving air superiority and progress by ground forces.

The cacophony eventually prompted Franks to say publicly that the war was “not at all a stalemate.” Rumsfeld even prepared a public statement (released on November 1, 2001) reminding Americans that the US in the past had fought and won long wars and that there was no possibility of instant victory.

The unspoken charge was that continuing the bombing campaign would be an exercise in senseless destruction to prove a point, while, in the end, it would take conventional ground forces to do the job properly. Scattered collateral damage incidents—such as a hit on a warehouse—fueled more complaints. The common view of the peanut gallery was, as Owens argued, “It’s doubtful the opposition forces can win without



substantial help.” Owens was dead on about the Northern Alliance’s need for help but wrong about the source. Help was about to arrive, in a spectacular form, from CENTCOM’s joint air component.

Late October 2001: Ready for the Push

For all of the hand-wringing about the progress of the air war, operational success always hinged mainly on the strength of the linkage between air and ground forces. Rumsfeld said, “We feel that the air campaign has been effective. The fact that for a period we did not have good targets has now shifted, because we are getting much better information from the ground in terms of targets. Also, the pressure that has been put on fairly continuously these past weeks has forced people to move and to change locations in a way that gives additional targeting opportunities.”

The Taliban and al Qaeda were feeling the pressure. While supporting the Northern Alliance push against the Taliban, the joint air component was also busy with attacks on the network of mountain caves that might be sheltering al Qaeda forces. “We use all-source intelligence to try to refine where they’re at, either as individuals who may be there or as storage facilities,” remarked Stufflebeem.

“And, when we feel comfortable that we have a known facility or we suspect that it has been used, then we strike it.”

Stufflebeem went on to say that al Qaeda did not any longer appear to be active in Afghanistan, given the continuous military pressure. As he put the situation, “We have taken away their ability to use their training camps. We have taken away their known infrastructure. We are striking at the caves that we have learned that they utilize or have utilized. So we believe that we are chipping away at al Qaeda.”

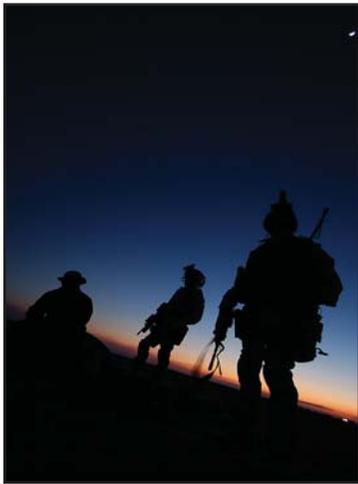
By late October, the coalition had in place all of the pieces needed for rapid success on the ground. Rumsfeld said that “a very modest number” of US troops were in Afghanistan to coordinate air strikes and provide logistic support to the Northern Alliance. An unnamed Bush Administration official also explained, “The new thinking is to take those



cities that are within reach of Northern Alliance forces without waiting any longer to be sure we can control in advance all the risks of postwar factional rivalries.”

Myers, in his interview with al Jazeera, explained the tactical concept for the next phase of operations. “For several days now we’ve had US troops on the ground with the Northern Alliance,” he said. “Their primary mission is to advise and to try to support the Northern Alliance with air strikes as appropriate. They are specially trained individuals that know how to bring in airpower and bring it into the conflict in the right way, and that’s what they’re doing. We think that will have a big impact on the Northern Alliance’s ability to prosecute their piece of this war against the Taliban.”

The campaign was approaching a turning point. Some 300 Special Operations Forces members, divided into small teams, were in place,



AF Combat Contoller Support OEF

with about 200 of those in the north and the other 100 or so in tribal groups in the south. The first step for each team, of course, was to build trust and relationships with the leaders of the Afghan group to which they had been assigned. The teams went into Afghanistan after careful preparation. In the politically charged environment of the Northern Alliance, the assignment of teams no doubt had to respect and take into account the status of each faction’s warlord. It would never do to send one warlord a captain and the other a sergeant. Such niceties might be viewed with contempt in the tightly knit world of SOF teams, but they likely affected the process of getting the teams in place. As

Powell noted, “You had a first-world air force and a fourth-world army, and it took a while to connect the two.”

Once in place, the SOF teams and the CAOC’s provision of “on-call” airpower proved to be the right operational concept for unseating the Taliban. The ability to call in air strikes on precise coordinates gave the



Northern Alliance the boost in firepower needed to break the Taliban strongholds. At one Pentagon briefing, Myers showed gun-camera film of air strikes hitting two tanks and an artillery piece. Another news briefing featured film of a B-52 strike on Taliban fielded forces. Air ground coordination was working: Controllers operating with the Northern Alliance were helping to bring precise firepower to bear on individual targets, and directing bomber strikes against concentrations of troops.

Early November 2001: The Rout Begins

In the first week of November, air strikes concentrated on Taliban and al Qaeda forces and military equipment near Mazar-e Sharif and Kabul, two major cities. Aircraft on November 4 dropped two gigantic BLU-82 15,000-pound bombs on Taliban troops, with a telling effect. Stufflebeem said, "If the Northern Alliance is feeling emboldened or ready to make moves, then that means that the bombing has had the intended effect."

Move they did. By November 6, Northern Alliance forces had captured villages around Mazar-e Sharif. Shulgareh fell on November 7 and on November 9, the Northern Alliance claimed Mazar-e Sharif itself. Taliban spokesmen admitted they had left the city but whitewashed it as a withdrawal for strategic reasons.

The CAOC kept producing bombs on target and the Northern Alliance started rolling up the Taliban. A stunning demonstration of the new technique at its best came when a B-52 bomber put ordnance on target within 20 minutes of a call for assistance. Northern Alliance forces on horseback came across a Taliban military outpost with artillery, barracks, and a command post. The outpost was not engaged in combat at the time, but Northern Alliance identified it as a stronghold. The commander requested an air strike on the target within the next few days. However, the target lay in a location with engagement zones already established. A US forward air controller on the ground with the Northern Alliance forces contacted the CAOC, which passed the target to a B-52 overhead—19 minutes after the initial call the B-52 dropped its load on the enemy.

Backed by that kind of airpower, the Northern Alliance pressed the pedal to the floor, and the allegedly stalemated war accelerated into high gear. Over the course of a week, the alliance, with its on-call American





airpower overhead, took town after town. Taloqan—center of a major battle in summer 2000—fell on November 11. The Northern Alliance announced the liberation of Herat on November 12.

These opposition forces soon were making plans to recover the capital, though both Bush and Powell had initially expressed qualms about besieging Kabul.

Mid-November 2001: Victory Achieved

USAF Joint Terminal Attack Controllers support OEF

US uncertainty did not stop the Northern Alliance. The morning of November 12 saw the beginning of the end for the Taliban's control of Kabul. B-52 strikes pounded Taliban lines around the capital in the morning. By late afternoon, Northern Alliance armored forces were moving down the Old Road toward the city with infantry sweeping through former Taliban positions. Fleeing Taliban fighters discarded their equipment and their dead and ran for their lives. The air strikes around Kabul also killed Bin Laden's deputy, Mohammed Atef.

On November 13, the Northern Alliance's United Front forces took control of Kabul and began to set up police control of the city. Rumsfeld admitted US special forces teams were already in Kabul to work with the new conquerors. "Every day," he said on November 13, "the targeting and effectiveness of the air attacks has improved, and that has clearly played a critical role in killing Taliban and al Qaeda troops."

Elements of the Taliban were now in headlong flight southward to the sparsely populated areas controlled by Pashtun tribes. "Where we can positively identify Taliban as such, we are pursuing them," said Stufflebeem. However, Stufflebeem admitted, it was difficult in the southern part of Afghanistan, west of Kandahar, to be able to positively identify what may be southern Pashtun tribes or Taliban troops on the move.

Thus, in the space of only two weeks, the coalition broke the Taliban's grip on Afghanistan. Franks summed up the progress to date on November 15: "We in fact have the initiative. We have said that it's all about condition-setting followed by our attaining our objectives. The first thing we did was set conditions to begin to take down the tactical air defense and all of that. So we set conditions and then we did that. The next thing we did was set conditions with these Special Forces teams and the positioning of our aviation assets to be able to take the Taliban apart or fracture it. And we did that."

Bush himself summed up the meaning of the action in Afghanistan in a major December 11 speech at the Citadel, Charleston, SC. "Afghanistan," he said, "has been a proving ground. These past two months have shown that an innovative doctrine and high-tech weaponry can shape and then dominate an unconventional conflict. This combination—real-time intelligence, local allied forces, special forces, and precision airpower—has really never been used before. The conflict in Afghanistan has taught us more about the future of our military than a decade of blue ribbon panels and think-tank symposiums."

The successes of November also highlighted the coalition effort behind Enduring Freedom. Senior officials said from the start that some nations would cooperate openly, while others would help in secret. The coalition put together for the war on terrorism did not have the military grandeur that comes with deployment of tanks and fighters in the desert. However, it actually matched—and in some ways surpassed—the power of the Desert Storm coalition. It was not a host of nations leaping on the bandwagon for a major offensive, as was the case in 1990–91; this time, the coalition nations pledged support for an open-ended war, with no clear markers of success. Allies delivered their political backing, military forces, humanitarian aid, and vital logistical support for little or no recognition or glory.

Italy sent its only carrier battle group to the North Arabian sea. Australia deployed fighters for Combat Air Patrol missions at Diego Garcia. Nations like Georgia and Azerbaijan simply offered "whatever necessary" to support Enduring Freedom. By the end of November, some 50 nations were providing support to Enduring Freedom. Twenty nations had representatives at Central Command in Tampa, where Franks met with them regularly to discuss plans, pass intelligence, and provide operational



summaries. It was a two-way street. Rumsfeld commented that “one of the important aspects of what they’ve provided also is intelligence and that has contributed significantly to the pressure that exists on terrorist networks, not just in Afghanistan, but elsewhere around the globe.”

Coalition nations soon formed the bedrock of the peacekeeping forces and security assistance forces for Afghanistan. Britain, a major participant in combat operations through Tomahawk cruise missile strikes and aircraft support, also took the lead for the first peacekeeping operations. Canadian forces arrived early and deployed more than 3,000 personnel to support the operations. Special operations forces from many countries, including Britain, Australia, Canada, and Denmark joined in later phases of the operations. France deployed ground forces, Mirage fighters to Kyrgyzstan, and its carrier battle group, whose aircraft flew strike missions. Germany sent special forces and personnel to train the Afghan police force. Among other contributions, Greece sent an engineering company; Jordan a mine-clearing team. A Korean ship transported building materials to Diego Garcia. Norway and the Netherlands scheduled F-16 deployments. Russia joined in the humanitarian assistance effort. Spain and Sweden sent C-130s. Turkish naval vessels joined NATO’s counter-terrorism force in the Mediterranean. The “floating coalition,” as Rumsfeld once called it, was no textbook alliance, but as these nations linked arms they formed a powerful force against global terrorism.

Late November/December 2001: The Three Tasks

Meanwhile, the swift, mid-November collapse of the Taliban left the forces of Enduring Freedom facing three main tasks in the months ahead:

- Conquest of the last remaining Taliban strongholds, such as Kandahar, the spiritual capital of the Taliban movement.
- Initial reconstruction of civilian government and infrastructure in Afghanistan.
- Elimination or capture of the scattered remnants of al Qaeda and Taliban, including the leaders.



With peacekeeping duties beginning and with the Taliban collapsing so quickly, the pressure was on to finish the rout. The Northern Alliance took its hot pursuit of the Taliban and al Qaeda south to the remaining strongholds of Taliban power near Kandahar and Kunduz.

However, after the mid-November fall of Kabul, several conflicting goals made the next phase of operations intricate and dangerous. Fighting at Kunduz was intense. Franks said there might be 2,000 to 3,000 Taliban and al Qaeda fighters in the fray, and he described Kunduz as “heavily infested with some of the more hardcore people.”



USAF Airmen support OEF.

Operations to “liquidate” the Taliban became difficult when the Taliban contingent at Kunduz petitioned the Northern Alliance to arrange a surrender and safe passage for foreign fighters. Mirroring their concern, President Pervez Musharraf of Pakistan made it known he wanted Pakistani nationals fighting with the Taliban to be allowed to return to their native country. On November 20, the Northern Alliance halted operations at Kunduz to allow three days of negotiations on such matters.

DOD officials were well aware of the problems of completing the destruction of the Taliban or even gauging what remained of their forces. Al Qaeda forces were stuck, but the Taliban fighters had options. “They can go across a border and wait and come back,” Rumsfeld said November 15. “They can drop their weapons and blend into the communities. They can go up in the mountains, in the caves and tunnels. They can defect—join the other side—change their mind, go back.”

On November 20, more than 1,000 Taliban fighters surrendered to the Northern Alliance. Six days later, Kunduz was occupied. About a week later, on December 4, Kandahar fell.

In addition to taking the Afghan towns, the Afghan and US forces faced a grim task of searching sites that might have links to Weapons of Mass Destruction. “The first thing that we did was take a look at all of the intelligence feeds that we have had over a prolonged period of time, over the last two or three months, to get the potential locations of WMD-related efforts,” Franks said at the November 15 briefing. Several days later, Franks announced: “We’ve identified more than 40 places which represent potential for WMD research or things of that sort.” Each was to be systematically checked.



Each was to be systematically checked.

The second task—restoring civil order and starting the rebuilding process—gained some strength from the momentum of the Northern Alliance’s victories and the ongoing humanitarian relief operations.

In no small part, Enduring Freedom was a different kind of war because of the success of relief operations taking place in the combat zone. Allied Force in 1999 saw massive relief efforts for 600,000 Kosovar refugees who had fled to Albania. Enduring Freedom cast a new mold by delivering food—Humanitarian Daily



Rations—and other supplies starting the very first night. The HDRs were described by Deputy Assistant Secretary of Defense Joseph J. Collins as “a safe, vegetarian, non-culturally sensitive meal that has everything you need, unless you need taste.” An average daily airdrop delivered 35,000 HDRs. Sometimes the number went as high as 70,000. By November 15, the number of rations delivered had exceeded the 1.5 million mark.



Close cooperation between military and non-governmental organizations “enabled the war and a major humanitarian operation to go on at the same time,” said Collins. “In fact, in the first week of November, before the apparent collapse of the Taliban, UN World Food Program deliveries doubled the pace of their October deliveries, and their October deliveries had been a record for the past few years.”

Getting a new government in place was a major task. By late December, Hamid Karzai was selected to serve as an interim ruler. “What a difference three months makes,” Rumsfeld reflected during a press conference on December 27. He said that before September 11, “Afghanistan was a reasonably safe haven for terrorists,” but now “the Taliban have been driven from power. Their leaders are on the run.”

The third task entailed mopping up on a grand scale. Though Afghanistan was no longer under Taliban control, the country was not entirely free of Taliban or al Qaeda, either. Only a fraction of top leadership had been killed in battle or fallen into the hands of the Americans. A conventional war might have ended with the fall of major cities and elevation of the Karzai government. The war on terror had to continue.

Enduring Freedom began to focus on tracking leadership, remaining troops concentrations, and strong points. As Franks had said November 15, “The Taliban is not destroyed as an effective fighting force from the level of one individual man carrying a weapon until that individual man puts down his weapon.” Last fall, DOD officials repeatedly explained that the US still had to find and get Al Qaeda and the Taliban, specifically the leadership.

The new phase of operations included deploying ground troops and using expeditionary air bases inside Afghanistan. By November 27, US Marines were on the ground at Kandahar Air Base. Over the next several months, coalition air and ground forces worked together on a series of raids to eliminate the rest of the Taliban and al Qaeda. Hovering over it all was the hope of finding bin Laden himself—or, at least, gaining new clues as to his whereabouts. “He’s an elusive character,” Stufflebeem said.



Franks had said CENTCOM was closely watching both Kandahar and an area to the south, near Tora Bora. A Taliban ambassador announced in mid-November that Bin Laden and his family had relocated to parts of Afghanistan not controlled by the Taliban. Then, on December 9, coalition forces attacked a cave complex near Tora Bora in the White Mountains. Despite intense air strikes and an attack by the Northern Alliance, the battle did not round up all al Qaeda. Marine Gen. Peter Pace, Vice Chairman of the JCS, said on December 12, "There are multiple routes of ingress and egress, so it is certainly conceivable that groups of two, three, 15, 20 could be walking out of there."

"I would think that it would be a mistake to say that the al Qaeda is finished in Afghanistan at this stage," said Rumsfeld on December 19. He noted that some of the Taliban fighters had "just gone home, dropped their weapons—these are Afghans—and they've gone back to their villages and said, 'To heck with it. I'm not going to do anything.'" He speculated that some Taliban had just drifted into the mountains and villages, but added, "Al Qaeda do not drift into the villages, particularly. They're still in some pockets. They're still fighting, in some cases. Some have gotten across borders. A lot have been killed. A good number has been captured most recently. And they are dangerous and armed and have more difficulty blending into the Afghan villages or mountains, because, in many cases, they don't know the language; in many cases, they just don't fit in; and, in many cases, they're not wanted."

January/February 2002: Downshifting

The hunt continued after the dawn of 2002, with CENTCOM launching several operations targeted at small groups of al Qaeda fighters. CENTCOM staged one large attack around a camp complex at Zhawar Kili in January 2002. By February, after the first 120 days of the war, the Air Force had flown more than 12,600 sorties, of which 5,500 were air refueling sorties. Air Force bombers and fighters dropped more than 7,000 tons of bombs and other munitions and logged 74 percent of the tonnage dropped, most of it being precision-guided weapons. Then, the air war downshifted a bit. Though the volume of air strikes tapered off, the joint air component still provided reconnaissance and surveillance, which proved to be a vital element in the ongoing hunt for the terrorists.



Meanwhile, back in America, Operation Noble Eagle had not slackened. By December, the Combat Air Patrols over US cities had produced nearly 10,000 sorties. February 3, 2002—a typical day—saw 140 aircraft flying CAP in the United States. (From September 11, 2001 through June 30, 2002, NORAD vectored fighters on CAP to chase aircraft 462 times—a sevenfold increase over the 67 “unknown riders” in the same period a year earlier.) To carry out this and other tasks, the Air Force had mobilized a steady-state force of about 37,000 members of the Guard and Reserve.

Then, in February, intelligence detected a concentration of Taliban and Al Qaeda fighters in the Arma mountains. CENTCOM began deliberate planning for a new operation. CENTCOM’s plan for eliminating al Qaeda pockets would be a “movement to contact” as Franks later termed it. Instead of forming a single, traditional front line, the objective was to take key positions and form a screen around several known caves, compounds, and other al Qaeda strongholds. Then, the enemy was expected to flee before the advancing Afghan forces and into the arms of US and other forces positioned to catch them. Myers was briefed on the upcoming assault during a visit in late February. Maj. Gen. Buster Hagenback, who drew up the initial plan for the operation, contended it would be wrapped up in about 72 hours. The plan had a name: Operation Anaconda.

March 2002: The Anaconda Surprise

Under Franks’s command, Anaconda began March 1. Trucks carried Afghan troops plus US and coalition special forces toward the small town of Sirkankel. The encirclement did not go as smoothly as planned. Heavy fire stalled the convoy, and one American soldier was killed by a mortar shell that hit his truck. Al Qaeda fighters were dispersed in small groups of as few as three men and as many as 20. Some sheltered in the cave system while others occupied prepared positions on the mountain ridges. As coalition forces later found, the strong points were well supplied with weapons brought in over the preceding months. The al Qaeda were indeed herded together—but they were ready for a fight.

Worse, the coordination with the Afghans was not working. One US detachment poised near a small al Qaeda compound expected a supporting attack from the forces of Afghan Warlord Zia Lodin, but



called in airpower instead. The al Qaeda “kind of hit us by surprise at first, south of the compound, and moved up,” said Lt. Charles Thompson, “but aircraft blew up about a platoon-sized element.”



Plaque honoring Jason Cunningham at Bagram AB, Afghanistan.

For US forces, the worst was yet to come. On March 4, a total of seven Americans died in fierce mountain fighting at an altitude of about 10,000 feet during attempted helicopter insertions near a mountaintop called Takur Gar. A senior defense official said, “The original plan was supposed to be Afghan led and US supported. After the early difficulties, it ended up becoming US led and Afghan supported.” The other change entailed fighting al Qaeda in place instead of blocking and trapping

them as they fled, as expected from their behavior at Tora Bora. “We ended up having to fight the war in the area where the enemy was, rather than get them to run into choke points,” the senior official added.

The new approach relied far more on US forces and on airpower to help draw out Al Qaeda. By Sunday, bombers, fighters and gunships were stacking up in the area estimated by the Pentagon to be only about 70 square miles—about the size of the District of Columbia. On March 10, A-10s from Pope AFB, NC moved forward, flying combat sorties within 15 hours after receiving its mission notification. The A-10s tallied 36 sorties in a 10-day period. Two A-10 pilots, Lt. Col. Edward Kostelnik and Capt. Scott Campbell, were credited with killing more than 200 Al Qaeda and Taliban fighters in a single mission, according to their



squadron commander, Lt. Col. Arden Dahl. “After that night, all the Al Qaeda and Taliban and their buddies were on the run,” Dahl said. “They just got swacked.”

Of his seven days in battle, Army Lt. Chris Beal said: “We were hailed on, snowed on, shot at, and mortared at, but we did the right thing at the right time. After a lot of close air support came in, anything that moved was killed by our birds [helicopters] or snipers.”

Franks later said he was not surprised by the intensity of the fight. “I think anytime you have a whole bunch of people in uniform moving into an enemy area in order to attack objectives, there will certainly be places within this area where we’ll encounter very, very substantial resistance.” As Franks explained it, troops had to be inserted to gauge the strength of al Qaeda. Franks said “we will almost never have perfect intelligence information and so what we do is we take the information that we have and we move in to confirm or deny the presence of the enemy forces that we suspect.” Franks admitted he “would not downplay the possibility” that his forces “got into a heck of a firefight at some point that they did not anticipate.”

When Operation Anaconda ended, coalition forces were in control of the mountain heights, but many of the enemy evidently had escaped and the US had sustained its highest casualty count in the war.

Afghanistan’s Cloudy Future

Just as NATO’s Allied Force freed Kosovo from the depredations of Slobodan Milosevic, the Enduring Freedom campaign extirpated surgically and destroyed the brutal, backward Taliban regime and gave Afghans the chance to build a better future. A bright future and economic prosperity are not assured, however. The assassination of one of



USAF OSI Agent searches for Taliban Weapons cache.

Afghanistan's vice presidents on July 6, 2002, pointed out that achieving stability will not be easy. Afghanistan may never be a model democratic state or a how-to guide for economic development.

However, the Northern Alliance's victories under the aegis of US military power stabilized the country.

"Truth be told, the security situation in Afghanistan is reasonably good," said Rumsfeld on August 15, 2002. "There's one region where there is difficulty— southeast of Kabul. But throughout the rest of the country, in Mazar and Herat, Kandahar, Kabul, the situation is reasonably stable."



F-16 Falcon

Credit goes to joint US military forces and more than 50 allied nations who have provided troops, aircraft, supplies, logistic support and assistance of other kinds. As Rumsfeld said, "We have US Special Operations teams embedded with regional forces, and they are really able to counsel restraint and communicate with each other and create situational awareness that contributes to a more secure situation. We also

have civil affairs teams that are in most of the regions, digging wells, rebuilding schools, bridges, roads and hospitals."

Rumsfeld went on to say that the security situation in Afghanistan today is "the best it's been, probably, to a quarter of a century"--in close series of coups and counter-coups that led to the Soviet invasion in December 1979 and a 10-year occupation. "Afghanistan has a transitional government with a popular mandate," said Rumsfeld. "It's no longer a safe haven for terrorists. Humanitarian aid is flowing, women are able to work, children are back in school and executions in soccer stadiums have stopped. Over a million refugees have returned to the country. They're voting with their feet, and the country has been liberated."



The Impact of Airpower

Ever since the Gulf War, US strategy debates have tended to stumble over the issue of whether large-scale maneuvering by land combat forces with tanks and artillery are essential to success in battle. The early criticisms of airpower in Enduring Freedom brought



that argument to the table once again. In mid-October, it scarcely seemed possible that the hard work of routing a wily and experienced Taliban force on its own turf could be accomplished by Afghans and Americans on horseback, a few hundred highly-trained US airmen, soldiers, and sailors on the ground, and 50 to 100 strike sorties per day ingressing from distant bases.

Yet this is exactly what happened. The Air Force and Navy, using precision laser-guided and satellite-guided munitions, made every strike count. With a minimum of collateral damage and bloodshed, the air strikes enabled the Northern Alliance to overcome the Taliban's numerical advantage and their supply of tanks, artillery and vehicles and retake the 80 percent of Afghanistan once controlled by that oppressive regime. At the same time, the air component mounted a major humanitarian relief effort and delivered nearly all materiel to surrounding bases by air. It proved the validity of a concept: US and allied airpower can work efficiently with local ground forces to accomplish the combatant commander's objectives. While this will not be the solution for every potential campaign, it is now beyond dispute as a proven model for coalition operations.

"It would be a mistake for one to look at Afghanistan and think about it as a model that would be replicated," said Rumsfeld on December 24, 2001. Indeed, coalition forces benefitted from the relatively primitive air defense environment and the lack of a well-trained, state-run military. The threat may not be as easy to overcome the next time around.





In another sense, though, Afghanistan offered convincing proof that airpower is flexible enough to take the lead in many different types of conflict. US airpower enabled Northern Alliance forces to take back control of their own country, and did it in under two months. The war on terrorism will demand action in many forms on many fronts. Afghanistan demonstrated that the United States, by committing its joint air forces, even in an uncertain tactical environment, can enable American-led forces to dominate and prevail.

“There have been battles fought in Afghanistan for centuries,” said retired Vice Adm Arthur Cebrowski, who serves now as Director of the Pentagon’s office of force transformation. “I don’t think any of them have seen the speed, results, and the speed of effect that we have here.”

In Enduring Freedom and Noble Eagle, the US joint air component offered a wide array of options which proved to be the essential framework for very different types of action. The opportunities that lie ahead depend on the nation’s making the most of air and space power without letting the dead weight of antiquated doctrine and the diversion of off-kilter debates drag down its effectiveness.

Conclusion

For America and its allies, the war on terrorism continues, at home and abroad.



Homeland security is becoming a major pillar of national security policy. The national plan has not yet been defined fully. However, events of the past year have shown that homeland security is not possible without air sovereignty. All told, Noble Eagle generated more than 30,000 sorties in less than a year. The Total Air Force stepped up to the mission of constant airborne CAPs and the need to surge for specific threats. “Fighter units that continue to have this tasking need to be properly resourced with the number of aircraft to perform the mission and to meet their other commitments,” commented outgoing 1st Air Force commander Arnold. The air sovereignty mission puts an even higher demand on AWACS personnel, stressing a force already used hard in years of expeditionary deployments. Over time, maintaining airspace sovereignty and posturing to meet advanced threats—such as cruise missiles—will become part of the Air Force’s long-range planning framework, impacting modernization, training and force structure. Homeland security is a new reality for the AEF.



A-10s Thunderbolts

Changes in military tactics and operations will be matched by long-term political and strategic change. Restoring American security is not straightforward or simple. It will require new diplomatic frameworks. It will require close cooperation with the “floating coalition” that makes success possible in a Global War on Terrorism.

It will require a sound military strategy that brings America’s advantages to bear and unsheathes the power of American airpower in joint operations.

Winning the war on terrorism depends on many victories yet to be won. The successful campaign in Afghanistan is only the first step, “the beginning of a long campaign to rid the world of terrorists,” said Bush in February 2002. The Taliban are out of business, and the next objective

is to “run down al Qaeda and the rest of the terrorists, and maybe give them a free trip to Guantanamo Bay.” The president added, “Another objective is to prevent regimes that sponsor terror from threatening America or our friends and allies with chemical, biological or nuclear weapons.” He clearly had Iraq’s Saddam Hussein in mind. Rumsfeld said that, while the response to terrorism is a different kind of war, “one thing is unchanged: America remains indomitable. Our victory will come with Americans living their lives day by day, going to work, raising their children, and building their dreams as they always have—a free and great people.” Airpower will be there all the way.

In March 2003, as initial combat operations in Afghanistan began to wind down, President Bush made good on his promise to go after a regime labled as a threat to U.S.National Security: Iraq.





THE CONCISE HISTORY OF THE USAF



Desert Triumph

Desert Triumph

By John A. Tirpak

Reprinted courtesy of the Air Force Association

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Only three weeks after launching the invasion of Iraq, coalition forces found themselves in control of most of Baghdad and battling remnants of shattered Republican Guard divisions and irregulars in the city. US-led ground forces had raced 300 miles from Kuwait to the capital, their path opened up by devastating combat airpower that had shifted back and forth between fixed strategic targets and mobile enemy forces in the field.

On April 9, US Central Command reported that Iraqi forces no longer seemed to be under any kind of central control.

With an emphasis on speed, flexibility, rapid maneuver of ground forces, surgical strikes, and information operations, Operation Iraqi Freedom (OIF) was in many ways a demonstration of the “transformational” concepts and technologies championed by the Pentagon leadership.

There are several definitive conclusions we can draw about what happened in Iraq, a few of those themes were prominent:

Desert Triumph



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- It now appears that relatively small but highly mobile ground forces can meet and defeat a larger, entrenched defender, provided the US first establishes and then ruthlessly exploits air and space dominance.
- Information dominance—achieved in large part by a fleet of spacecraft and sensor aircraft roaming the battle space at will—coupled with highly precise, real-time, informed targeting by massive numbers of aircraft, led to rapid victory on the ground.
- OIF showed that a prolonged air war as a set-piece prelude to ground action is not always necessary and that air and space power can indeed be extremely effective in helping ground forces wage urban warfare without inflicting massive collateral damage on civilians.
- Information operations—ranging from dispersal of leaflets to computer network attack—can sharply reduce the need for kinetic weapons.

Gulf War II had all the hallmarks of an “effects-based operation”—speed, precision, and effectiveness enhanced by use of minimum force but backed by the willingness to employ massive force where warranted to mold the enemy’s perception.

In targeting, weapons and aim points were selected with an eye toward producing the desired results with the least number of steps.



Soldiers wait to board C-17 at Joint Base, Balad, Iraq.

An attack on one target, for example, might be used to cripple others—such as striking a single pillar that holds up a whole building or a communications relay on which all others depend.

Most of the operational concepts employed in Iraq seemed to work quite well, and they did so in the absence of any new and untried “wonder weapon,” as in past wars.

The ground force in this war was not as large as the one used in 1991 to eject Iraqi forces from Kuwait. However, attacks from the air were more numerous and more intense than those mounted in Operation Desert Storm. On March 19 (local Baghdad time), the coalition conducted preparatory attacks against about 1,400 aim points, including strategic targets in three major cities as well as attacks on air defenses, runways, suspected missile launch sites, and command and control nodes. The main attack began March 20. Yet all this was accomplished with far fewer aircraft than were deployed in Desert Storm.

Strikes in Five

Thanks to quick action on the part of the combined air operations center in Saudi Arabia, coalition aircraft would, in some cases, strike emerging targets in as few as five minutes after detection. After the fourth day of war, air attacks shifted dramatically from fixed targets to mostly moving, fielded targets, said DOD officials.

The ground force marshaled to drive Iraq from Kuwait in 1991 totaled about 500,000 American troops. The force assembled by Gen. Tommy R. Franks, Central Command commander, to take Iraq from Saddam Hussein amounted to some 230,000 US personnel at the outset (rising to about 340,000 after three weeks). Only 125,000 of those were in Iraq itself. This ground force was arrayed against an Iraqi force initially numbering about 400,000 and ranging in skill from well-trained Special Republican Guards to untrained militia conscripted at gunpoint.

In 1991 Gen. H. Norman Schwarzkopf the coalition commander used six weeks of heavy airpower attacks to blast away half of the enemy's combat capability before ground forces even engaged. Franks, by contrast, launched his ground assault before his full air campaign. This was done in an attempt to achieve tactical surprise and thwart Saddam's forces before they could destroy oil wells and wreck port facilities.

Franks also decided to rush toward Baghdad, engaging Iraqi military when necessary but largely bypassing major cities along the way. At the same time, he used airpower to destroy the infrastructure of Saddam's



power in the capital. He aimed to quickly decapitate the regime and thus leave Iraqi troops with the unpalatable choice of disorganized resistance or outright surrender.

“The Iraqi military, as an organized defense in large combat formations, doesn’t really exist anymore,” Central Command’s air chief, USAF Lt. Gen. T. Michael Moseley told reporters on April 5. “We really do have air supremacy over this country.”

Scanning the “Kill Boxes”

The air element was directly responsible for a critical strategic goal—making sure the war did not spill over onto other countries. From the outset, combat aircraft were patrolling “kill boxes” in southern and western Iraq, searching for—and in some cases finding—theater ballistic missiles that could be used against Iran, Israel, Kuwait, Saudi Arabia, or Turkey. One F-15E crew reported definitively destroying a Scud missile launcher, a weapon expressly forbidden to Iraq under UN resolutions.

The coalition weapon of choice for targets in Baghdad was the Joint Direct Attack Munition, a munition guided by Global Positioning System satellite signals. The accuracy of the weapon was described by a bomber wing commander as “to within one bomb’s length.” (A 2,000-pound JDAM is about 12 feet long.) Thousands rained down on Baghdad, producing a spectacular show of force as regime headquarters and Saddam’s Presidential palaces went up in clouds of smoke.

The might of modern airpower was used with devastating effect against Iraqi mechanized forces massing just ahead of the Americans on the roads to Baghdad. Flushed from their defensive positions around Baghdad to meet the approaching spearhead, Iraqi armor was spotted by Joint STARS radar aircraft and quickly chewed up by Air Force



F-16 Falcon



A-10s, F-15Es, F-16s, and other coalition fighters. The preferred weapon to destroy the Republican Guard armored vehicles on the move was the A-10's fearsome 30 mm Gatling gun, which was incorporated for just such a purpose when the aircraft was designed 30 years ago. Other weapons used to pick off the Guard were the infrared-guided Maverick missile, laser guided bombs, and the Sensor Fuzed Weapon.

Rather than engaging in massive tank battles, coalition ground forces encountered mostly burning hulks on their drive north, courtesy of airpower.

Sowing Doubt, Suspicion

A major psychological campaign was also conducted, with 37 million leaflets showered down on Iraqi troops beginning more than a month in advance; in an effort to convince them they could not win and that they would be spared if they surrendered. The US also gambled that most of the Iraqi people had had enough of their leader and would welcome coalition forces as liberators. In addition, the US leadership hoped to sow doubt and suspicion within the Iraqi regime, saying that it was in touch with generals who planned to defect or surrender, always speaking of Saddam's reign. Before Operation Iraqi Freedom even began, Iraqi air defenses and command and control capabilities in southern Iraq had been substantially degraded. An Air Force expeditionary unit commander reported that B-1B bombers had been operating over Iraq for weeks prior to "G-Day" and "A-Day," the beginning of the ground and air elements of the campaign, respectively in the past tense and of a successful coalition invasion as virtually a fait accomplish.



Last fall, as tensions mounted, other American and British patrol airplanes, covering the northern and southern no-fly zones, pursued “vigorous” retaliations, one US general reported, against Iraqi air defenses and communications nodes when the Iraqis fired on coalition aircraft.

Having read the leaflets and seen that air defense sites that kept their radars on too long were promptly destroyed, air defense operators would only emit briefly, then breakdown and move to new locations, one official said.

“If they’re constantly moving, they aren’t a threat,” he said. “We are achieving the desired effect of denying them a chance to operate. It really doesn’t matter right now if we destroy them, as long as we can go wherever we want with any platform we want.”

He added that Iraqi forces had fired anti-aircraft missiles but nearly all “were unguided.”

The start of the action was characterized by extraordinary flexibility. When intelligence pinpointing the location of Saddam and his senior leadership on March 20 came to American forces, Franks ordered an attack on the location. Two USAF F-117 stealth fighters, flying silhouetted against a full moon and with no jamming or fighter support whatever, struck the target with four EGBU-27 laser guided bombs. The bombs hit just four hours after the pilots had been roused from their cots and handed imagery of the target on their way to their aircraft.

Following the four penetrating bombs were more than 40 Tomahawk Land Attack Missiles, fired from ships in the Persian Gulf and the Red Sea, completing destruction of the target both above and below ground. Even three weeks later, it was not clear whether Saddam and his lieutenants had been killed in that first raid.

US goals in Iraq were laid out by Defense Secretary Donald H. Rumsfeld in a March 21 press conference in which he listed the tasks to be performed in order of importance.



“Our goal is to defend the American people,” Rumsfeld said, “and to eliminate Iraq’s weapons of mass destruction and to liberate the Iraqi people.”

Specific Objectives

Coalition military operations were focused on a number of specific objectives, Rumsfeld said. These he listed as, first, “to end the regime of Saddam Hussein by striking with force on a scope and scale that makes clear to Iraqis that he and his regime are finished.

“Next, to identify, isolate, and eventually eliminate Iraq’s weapons of mass destruction, their delivery systems, production capabilities, and distribution networks. Third, to search for, capture, and drive out terrorists who have found safe harbor in Iraq. Fourth, to collect such intelligence as we can find related to terrorist networks in Iraq and beyond. Fifth, to collect such intelligence as we can find related to the global network of illicit weapons of mass destruction activity. Sixth, to end sanctions and to immediately deliver humanitarian relief, food, and medicine to the displaced and to the many needy Iraqi citizens. Seventh, to secure Iraq’s



F-16s during Iraq dust storm.

oil fields and resources, which belong to the Iraqi people, and which they will need to develop their country after decades of neglect by the Iraqi regime. And last, to help the Iraqi people create the conditions for a rapid transition to a representative self-government that is not a threat to its neighbors and is committed to ensuring the territorial integrity of that country.”

Two weeks later, Rumsfeld said he demanded nothing less than “unconditional surrender” of the Saddam regime.

To accomplish all this, the plan—called 1003V—had gone through many iterations and refinements over the last year, according to Gen. Richard B. Myers, Chairman of the Joint Chiefs of Staff.

Rumsfeld said the off-the-shelf plan for an invasion of Iraq—originally dubbed 1003—“was inappropriate” for the effects desired by the Bush Administration. That plan had called for more troops than the Pentagon leadership wanted to use, department officials said. It also left Saddam Hussein with too much opportunity to execute a “scorched earth” plan that would destroy Iraq’s economic viability, specifically, its oil wells and pumping capability. The US wanted to use the revenue from that oil wealth to pay for the reconstruction of Iraq and give a new government there a chance to get quickly on its feet.

Franks and his staff rebuilt 1003 several times, each time relying on fewer troops and faster action.

When it was noted that the new plan seemed to have many of the features Rumsfeld has been touting for two years—chiefly, fewer, more mobile ground troops—Rumsfeld insisted, “It’s Tommy Franks’s plan.” He added that it had been “washed through” the Joint Chiefs and regional commanders, all of whom had embraced it as “excellent.”

The plan emphasized preserving Iraq’s economic assets and civilian infrastructure and preventing civilian casualties. It appeared, according to former Secretary of State James A. Baker III, to be a blueprint to “win the peace” after winning the war.

The leaflets dropped on Iraq urged Iraqi troops not to fight for a doomed regime and instructed them on how to safely surrender when coalition troops arrived. The leaflets also warned that any Iraqi forces following orders to use chemical or biological weapons would be found and prosecuted as war criminals. Other leaflets implored Iraqis not to destroy their own oil wells, since this resource constituted their future livelihoods.



To guarantee the safety of the oil wells, Special Operations Forces moved in before hostilities began and perched near the wells to disarm any bombs planted on them. While many of the oil wells were indeed rigged with explosives, only seven of the several hundred wells in Iraq were actually blown.

“Shock and Awe”

The Pentagon leadership expected that the ferocity of air attacks on Saddam’s facilities in Baghdad and elsewhere, coupled with swift ground force movement in southern Iraq and a perceived hatred of Saddam would cause Iraqi forces to surrender en masse and welcome the coalition as liberators.



Bombers prepare to launch first strike of OIF.

Military officials placed stories with the media warning that a thunderous opening attack would “shock and awe” the enemy into believing that resistance was futile. The phrase “shock and awe” came from a 1996 white paper by Harlan K. Ullman, advocating a fierce and fast campaign of bombing and swift maneuver to “enervate” an enemy and bring about quick capitulation. The strategy might help offset reduced numbers of ground troops and other forces, Ullman wrote.

Ullman later said the bombing seen in Baghdad, while impressive, was not what he’d had in mind. AF CSAF General Moseley said, “Shock and awe has never been a term that I’ve used.”

“Did we withhold a large punch?”, asked Moseley. “We withheld some targets based on the initiation conditions, and based on where the surface forces were, but that’s the right thing to do anyway.”

Moseley said that, though relentless and devastating fire had been brought down on fielded forces and regime targets, the key goal was “to absolutely, totally minimize the collateral damage and absolutely, totally minimize the effect on the civilian population, so that as much



of this infrastructure can be returned back to the Iraqi people after the liberation so that they can get themselves as fast as possible back to a functioning society.”

So strong was the emphasis on avoiding civilian damage whenever possible that Moseley had some crews drop inert bombs—those using a guidance kit but with just a weight where the explosive should be—to achieve, through mere kinetic effect, the specific destruction wanted. He also ordered pilots to return with their bombs if they could not properly identify their targets, and many did.

“We’ve trained to this and spent a lot of time worrying about this,” Moseley said. “We are very, very sensitive to not creating a mess inside Baghdad.”

Turkish Surprise



Soldiers load C17 Globemaster during OIF.

surrounding Iraq on D-Day?” Myers asked at an April 1 Pentagon press briefing. “Well, you do it by starting the ground war first, air war second.”

Franks’s plan called for first sending in the 230,000 ground troops, followed by a flow of reinforcements. Should the fighting not go as well or swiftly as intended, new forces would continue to arrive in theater. “Should they not be needed, the flow could be turned off,” Franks said.

Myers explained that the ground force was to move first, without the prelude of an air campaign, to preserve the element of surprise.

“How do you protect tactical surprise when you have 250,000 troops



Because of the unexpected March 20 opportunity to strike Saddam and his lieutenants, G-Day was moved up one day, as was A-Day, the start of intensive air attacks on regime targets in Baghdad, Mosul, and Tikrit. Ballistic missiles—with or without weapons of mass destruction—were priority targets.

It was essential that Saddam not be allowed to launch missiles at Israel, which had pledged to retaliate if attacked, as it had not done in 1991. For this, coalition aircraft were deployed into kill boxes over southern and western Iraq, where mobile missiles had been detected previously.

Franks also deployed Patriot missile batteries with the new PAC-3 missile, which intercepted a few of the missiles that Iraqi forces managed to launch in the first few days of the conflict. It is thought that the launched missiles were either al Samoud or Soviet-made Frog weapons, smaller than the longer-ranged Scuds.

Franks's plan called for a sweeping action in the north, with tanks and mechanized infantry advancing from Turkey. When Turkey withheld permission to stage the forces or permit strike sorties to originate on its soil, the plan shifted. USAF C-17s deployed airborne forces that seized the northern



US Army Paratroopers prepare to board C-17.



USAF Security Forces member guards Air Base in Southern Iraq.

airfield of Bashur, where airlifters began bringing in vehicles and supplies to reinforce them. (This airlift included the first-ever battlefield insertion of an M1A1 tank, by C-17.) Turkey did allow overflight by US aircraft, especially badly needed aerial tankers.

US troops, in particular Special Operations Forces (SOF), joined Kurdish rebels to apply pressure on Mosul in northern Iraq. As in Afghanistan, they worked closely



with aircraft overhead, which delivered precision strikes on enemy forces. The effect was that small SOF groups, enhanced by indigenous forces and backed up by airpower, virtually substituted for a brigade of first-line troops.

In the north, American SOF elements and airpower forces attacked terrorist camps, one of which was found to harbor what appeared to be a primitive chemical/biological weapons factory.

In the west, near the Jordanian border, Special Forces took Iraq's H-2 and H-3 airfields, using them to mount more Scud-hunting raids and to serve as resupply points. Tactical C-130 transports operated from these airfields shortly after the war began, resupplying coalition troops throughout Iraq.

In the south, the advance set a blistering pace, so fast that Army and Marine units seemed to have outrun their supply lines. At several points, tip-of-the-spear units reported running low on ammunition. They were resupplied by nonstop convoys as well as combat airdrops from C-17s and C-130s.



C-17 Globemasters

After a week's fighting, the coalition ground advance slowed, causing many to speculate that it had been stopped by Iraqi resistance, had outrun its supply lines, or was too thinly spread out to be able to protect its flanks. In reality, it was preparing for the next push and allowing airpower to attack the Republican Guard elements that had moved out of Baghdad and its environs to meet the coalition ground force. Airpower quickly targeted and destroyed most of the Republican Guard.

Saddam's forces did not fight a brilliant defense. They failed to use the terrain to their advantage, leaving major bridges—instead of blowing them up—over the Tigris and Euphrates Rivers for the coalition to use. Saddam also used his least-dependable forces as his first line of defense and then put his best Republican Guard forces out in the open with no air cover.

By April 7, ground units had taken Saddam International Airport, closed off all major highway entrances and exits to the city of Baghdad, made several excursions in force through the city, and captured two of the Presidential palaces. A supplies-laden C-130 Hercules landed and took off from the airport, now renamed Baghdad International Airport.

The Republican Guard had ceased to exist as a large, coherent fighting force and was reduced to resistance in small groups, which the Pentagon characterized as “militarily insignificant.” And the US was preparing to install the first elements of a transitional government.

Iraq’s air defense system had proved ineffective. Its constituent parts were either knocked out prior to full hostilities or were moving too frequently to mount any meaningful threat. Only one coalition aircraft was shot down by enemy fire, while accidents, including friendly fire, brought down several others during the first three weeks. Many Iraqi aircraft were destroyed on the ground, and none were launched against coalition forces.

Air Force and other coalition aircraft were based at 37 locations, including the Gulf Region, Diego Garcia in the Indian Ocean, Eastern Europe (particularly Bulgaria and Romania), the UK, and Whiteman AFB, MO.

By the end of the first 21 days, fewer than 100 Americans had been killed by enemy fire.

Bombs for a Tyrant

During daylight hours on April 7, CENTCOM received information from human intelligence that put Saddam and his closest aides in a particular compound in the northwest portion of Baghdad. Officials fed the target data to a B-1B bomber, orbiting nearby. The bomber crew loaded the coordinates into four GBU-31 bunker-buster bombs equipped with GPS guidance. Within 12 minutes of the order, the bombs struck the structure, leaving a crater 60 feet deep.



CENTCOM later said it did not know if Saddam had been killed in the strike but that, if he had been present, he would have sustained more than just simple injuries. The next day, US forces reported that resistance seemed to lack any central control at all.

Real-time imagery from Predator and Global Hawk unmanned aerial vehicles patrolling over Baghdad aided close air support provided by AC-130 gunships and a range of aircraft, from fighters to bombers, using JDAMs.

“If you can give me a specific location in there, we have the means to hit it with precision,” a Pentagon official said. “And I mean, we’ll ask, ‘Which window?’ ”

Coalition leaders pointed to astonishing gains over the previous three weeks, highlighted by the jubilation in Baghdad as residents toppled statues of Saddam Hussein.

Though the war was over, the fighting was not. Officials declined to be specific about what conditions would lead them to declare victory.

For the most part, they said, the coalition’s military action would end when resistance stopped and a new Iraqi government, composed of Iraqis, had been set up.

A Pentagon official said he himself was awed by the swift results of the campaign.

“Fifteen years ago, we were starting to talk about this Revolution in Military Affairs,” he said. “We used to be bothered by the nighttime. Now we love the night—we can operate in it, and we get some protection from it. We used to be bothered by the weather. While we would like to have clear weather, if it’s cloudy or foggy or there are obscurants like smoke or haze, that’s OK, now. We can still strike with precision. We have 24/7, real-time imagery of the target. This is just unbelievable, but the proof of it is out there.”

He added, “I never thought we would be here so soon.”



A Chronology of Key Events

(All dates are Baghdad time.)

March 19. Coalition aircraft conduct strikes to prepare the battlefield; Special Operations Forces move into southern Iraq to secure border gun positions and protect oil wells.

March 20. Two USAF F-117 stealth fighters and six US warships attack leadership targets of opportunity about 5:35 a.m. in Baghdad. About 45 minutes later (10:16 p.m. EST, March 19) in Washington, D.C., President Bush announces to the American people that operations in Iraq have commenced. The Senate passes a resolution backing the operation, 99–0. Coalition ground forces move from Kuwait into Iraq at 8 p.m., marking the start of G–Day, the ground campaign.

March 21. At 9 p.m., coalition air forces commence nearly 1,000 strike sorties, marking the beginning of A–Day, the air campaign. The House passes a resolution backing military operations, 392–11. Coalition forces seize an airfield in western Iraq, advancing 100 miles into Iraq.

March 25. British forces secure the port city of Umm Qasr, opening a key route for humanitarian supplies.

March 26. USAF C-17s air-drop some 1,000 Army paratroopers and USAF personnel into northern Iraq to open a northern front and secure the airfield at Bashur.

April 3. US ground forces take Saddam International Airport, just 10 miles from Baghdad. Coalition air strikes continue to pound the Republican Guard and provide close air support for ground troops.

April 7. British forces secure Basra. US forces push into Baghdad.

April 9. Baghdad falls.

April 16. CENTCOM officials declare end of major combat action.



Even though major ground and air combat operations only lasted a month, the U.S. military would remain in Iraq for the better part of the next decade.



The Last Days in Iraq

By Amy McCullough

Reprinted courtesy of the Air Force Association

In mid-January 1991, Capt. Anthony J. Rock, an F-15C pilot assigned to the 1st Fighter Wing at Langley AFB, VA., led a flight of Eagles during the initial air campaign of Operation Desert Storm. The strike package was charged with ensuring air superiority during an attack on Talil Air Base near Nasiriyah in southern Iraq.



F-15s in line.

Capt. Russell J. Handy, a fellow Eagle pilot assigned to the same wing at Langley, took off on another sortie that day. His mission was to protect the strike package and provide a close escort for EF-111s and F-4G Weasels as they flew toward their objective 100 miles west of Baghdad.



F-16s Falcons.

This particular aircraft package also included Capt. David L. Goldfein, an F-16 pilot out of Shaw AFB, SC. As Handy broke left toward Al Asad, Goldfein headed off in the opposite direction with his eyes on yet another target.

The first night of that complicated air campaign eventually involved more than 600 aircraft and took months to map out. The intent was to dismantle Saddam Hussein's military, stop his forces from seizing Saudi Arabia, and free the Kuwaiti people.



Long, Tough Road

Operation Desert Storm's air war lasted just 43 days, but the US effort would continue for another two decades—first through 12 years of enforcing the no-fly zones over northern and southern Iraq, and culminating in December 2011 after nearly nine years of combat during Operations Iraqi Freedom and New Dawn.

Goldfein, now a lieutenant general, is commander of US Air Forces Central in Southwest Asia. Maj. Gen. Handy was the senior Air Force officer in Iraq from August 2010 until the last troops left in December 2011. Maj. Gen. Rock also spent 2011 in Iraq, leading the advisory and training mission during the USAF's final year in the country.

Not one of the three Air Force leaders ever imagined they would be working together to close out the US military mission in Iraq more than 20 years after that first air campaign. "Our first mission was to destroy the Iraqi military. Our mission 20 years later is to build the Iraqi military," said Handy, as he stood on the ramp of a C-17, minutes after it landed at Talil's Camp Adder for the last airlift flight out of Iraq.

Handy's story is not unique. More than 170,000 Americans served in Iraq at the height of operations; most served multiple tours. The operations defined a generation of airmen and left a lasting impression on countless Air Force careers.

The cumulative numbers are staggering. Since 1991, the US and coalition allies flew more than 500,000 sorties and generated 7,635 air tasking orders in the area of operations. From the fall of Baghdad in 2003, remotely piloted aircraft flew more than 415,000 hours of persistent intelligence, surveillance, and reconnaissance missions in the AOR and analysts processed over 50,000 of those images. Mobility crews moved more than two million tons of cargo and four-and-a-half million passengers, while security forces accumulated more than 183,000 hours of guard duty, said Goldfein.

"For over 20 years, Iraq has been a defining part of our professional and personal lives," said Army Gen. Martin E. Dempsey, Chairman of the Joint Chiefs of Staff, during the end-of-mission ceremony December 15.



Speaking within a heavily fortified compound at the former Sather Air Base in Baghdad, Dempsey told the assembled Airmen, soldiers, sailors, and marines—who would be, collectively, the last American combat forces out of Iraq—“The road we have traveled was long, and it was tough.”

The outcome, Defense Secretary Leon E. Panetta said at the ceremony, “was never certain, especially during the war’s darkest days.”

“To be sure, the cost was high” in “the blood and treasure of the United States and also of the Iraqi people,” he continued. Nearly 4,500 American servicemen and some 319 coalition personnel died, and more than 32,000 were injured or maimed. More than 100,000 Iraqis died in the invasion and subsequent sectarian violence that ravaged the nation. Pentagon leaders flew to Sather—named for SSgt. Scott D. Sather, the first airman to lose his life in Operation Iraqi Freedom, in April 2003—not only to end the mission in Iraq, but also to remember the thousands of lives lost.

“Those lives have not been lost in vain,” Panetta insisted. “They gave birth to an independent, free, and sovereign Iraq and because of the sacrifices made, these years of war have now yielded to a new era of opportunity.”

Smoke and fire no longer dominate the skies above Baghdad, and the morning rush hour now clogs the highways instead of military convoys. In December, service members deployed to the international zone were able to walk the rooftops of the former Ba’ath Party headquarters, for one last look at the Iraqi capital’s skyline, without worrying about snipers or rocket-propelled grenades.

Panetta and the other senior leaders participating in the departure ceremony encouraged the troops to keep their heads high as they left Iraq, knowing they were leaving behind a country that is free of Saddam’s brutal regime, able to govern and secure itself, and that could be a US ally for many years to come—a prospect even more important in light of the “Arab Spring” uprisings of 2011.



“The Iraqi Army and police have been rebuilt and they are capable of responding to threats; violence levels are down; al Qaeda has been weakened; and economic growth is expanding as well,” said Panetta.

“This progress has been sustained even as we have withdrawn nearly 150,000 US combat forces from this country. We salute the fact that Iraq is now fully responsible for directing its own path to future security and future prosperity.”

Yet its future remains uncertain.

The last US troops rolled across the border into Kuwait just after dawn on December, 18 2011 Days later a series of coordinated car bombs exploded across Baghdad, killing at least 70 people and injuring hundreds more. Less than a week later, a suicide bomber set off another car bomb near the Iraqi Interior Ministry, killing seven people and wounding 32 others.



**Airmen depart Ali Air Base Iraq,
Dec. 18, 2011**

Arguing About Everything

Though not completely unexpected, the bombings have left many to question whether a resurgence of sectarian violence will unravel the progress made over the last nine years.

Panetta warned frankly of the potential danger.

“Let me be clear: Iraq will be tested in the days ahead—by terrorism, by those who would seek to divide, by economic and social issues, by the demands of democracy itself,” he said. “The United States will be there to stand with the Iraqi people as they navigate those challenges to build a stronger and more prosperous nation.”



A small contingent of uniformed American personnel will remain in Iraq under the new mission of providing security assistance. Some 157 of them will serve there under the newly established Office of Security Cooperation-Iraq, a subordinate of the US Embassy headquartered in Baghdad. Its primary mission is to continue building Iraq's military capacity by offering basic operator training and modern equipment through the Foreign Military Sales program, explained a spokesman.



U.S. and Iraqi Officials dedicate new medical facility, Dec. 11, 2010.

It's a tall order for an organization used to operating with a much larger footprint. In early 2011, nearly 50,000 US troops and thousands of Defense Department contractors provided security, outreach, and training to the Iraqis. Now, the significantly smaller OSC-I team carries the burden of laying the foundation for the new US-Iraqi strategic security partnership.

"That is especially challenging," said Air Force Lt. Col. Mark Pearson, who is overseeing F-16 sales to Iraq within OSC-I.

"There is a negotiating culture based fundamentally upon distrust. You argue about everything, and that's not the way FMS works."

Pearson said it is "taking us a long time—it's taking me a long time—to establish the relationships to the point where they will believe what we are saying."

Active FMS cases with Iraq currently total some \$8 billion, and that doesn't include the long-awaited F-16 sale, said US Ambassador James F. Jeffrey during a roundtable discussion in Baghdad in November.

The US had already agreed in September 2011 to supply Iraq with 18 Lockheed Martin-built F-16 Block 52 aircraft. In December, the Pentagon notified Congress of a proposed sale of 18 more of the fighters, which



would bring the total Iraqi F-16 fleet to 36. Including associated support gear and services, the initial deal is worth \$4.2 billion; the follow-on has a value of \$2.3 billion.

However, the Iraqi Air Force still has a “long evolution” before it sees a fully operational squadron of F-16s, said Handy.

Lt. Gen. Anwar Hamad Amin, commander of the Iraqi Air Force, said he expects to see an F-16 operational squadron by 2016. However, he reported being pleased with the progress of 10 Iraqi officers training in the US to fly the fighter. The first of them was expected to make his first F-16 flight in January 2012.

The F-16 project “was like [a] dream for me as [an Iraqi Air Force commander],” Anwar said during a news briefing shortly before the US exodus.

Speaking alongside Handy, Anwar pledged that the F-16s would be used “only for the security of Iraq, not to target our neighbor countries.”

Keeping Faith

The news conference was staged in front of a hangar where Iraq’s growing fixed wing capabilities were displayed.

The Iraqi Air Force operates three C-130Es, 15 T-6 trainer aircraft, a number of Cessna 172s for both training and ISR missions, and some Cessna Caravan 208s. The latter are also used for pilot training, though three are armed with Hellfire missiles for operational combat use.

This year, Iraq is slated to receive the first of six new-build C-130Js, said Lt. Col. Corey Wormack, USAF deputy within OSC-I.

“They are ... very capable, modern aircraft,” said Handy. “Because we operate those same systems, by definition, that strengthens our partnership.”





Iraqi MI-17 Hip Helicopters

The Iraqi Army generally operates rotary wing assets and has 96 helicopters. It's expected to field 135 airframes by the end of 2012, said Col. Scott Alpeter, Army aviation chief for OSC-I.

Although discussions continue in Washington about Iraq's ability to defend its own airspace now that the United States has left, Handy said he has faith in Iraq's air capabilities.

"I'm very confident in not only the Iraqi Air Force's capability to operate these aircraft, but also in our willingness to continue in a long-term partnership role with the Iraqi Air Force," he said. As you know, when the Iraqi Coalition government purchases an aircraft through [FMS], they are not just purchasing an aircraft, they are purchasing a capability to operate that aircraft for the long term."

Members of the 447th Expeditionary Security Forces Squadron at Sather continued to provide around-the-clock training to the Iraqis in the final days. They taught basic skills required to secure an air base and suggested ways to make best use of limited manpower so the Iraqis could fill capability gaps after the Americans left.

The fledgling Iraqi Security Forces (ISF), which operate just one truck and one small Humvee, now control wide swaths of areas they weren't allowed to enter not so long ago. The average member of the ISF is just 17 years old.

Iraqi troops, though, are well aware of the shortcomings and many worried about what their future would entail.



“We depended on US soldiers a long time; now there is empty space and we have to take control,” said an Iraqi private. He spoke through a translator and asked that his name not be used for security reasons. “We don’t know how it’s going to go,” he said. “We would rather [the US troops] stay.”

Handy said individuals will have to determine for themselves if it was all worth it.

“Sacrifice is a very, very personal thing,” he said a few days before the last troops left Iraq.

“For me to stand up here and say a sacrifice was worth it would be putting words in the mouths of a family who may have lost a loved one.” This was something he was not willing to do, though he said Americans should rest assured that the monumental cost of war also brought significant improvements in the lives of the Iraqi people.

Surreal

“I would say there are tremendous things you can put in the ‘win’ category for our time here in Iraq. The sacrifice was huge but the opportunities are great because of that.”

Many troops were still grappling with that question, though, as they waited at an air base in Southwest Asia for their chartered flight back to the United States.

Some doubted the US really was going to leave, even as they lounged on their luggage outside the passenger terminal waiting to make their way through customs. The US rarely leaves countries where it has fought long and hard, as its continuing but invited presence in Germany, Japan, and South Korea attests.



Those reflecting on the momentous mission generally summed it up in just one word: “surreal.” They were honored to have played a role in history and happy to be leaving a sovereign and democratic Iraq behind, but many also said they knew there was more work that could have been done had the US military stayed longer.

“Six months ago, I didn’t think we would be here,” waiting to leave Iraq for good,” said CMSgt. Ward A. Hanning, who served as the Air Force’s senior enlisted advisor in Iraq since January 2011 and racked up more than 23,000 miles over the area since the beginning days of the first Gulf War. “I really thought there would be some type of political agreement” that would keep US forces in-country longer.

Such a deal was in negotiation, but ultimately faltered on the Iraqi government’s refusal to grant US troops immunity from prosecution.

On the evening of December 17, Handy, Rock, and Hanning boarded a C-17 in Kuwait headed back to Talil to pick up the last Airmen and soldiers to be airlifted out of Iraq. When the ramp opened up in Iraq, Rock stared out with a mixture of excitement and disbelief.

“This was my first target on my first day” in Desert Storm, said Rock of Talil’s Camp Adder, as he gazed out at the flight line. “You can’t make this stuff up.”

Minutes later they were strolling into the passenger terminal with pockets full of challenge coins and huge smiles on their faces.

“Anyone call for a taxi?”, shouted Rock.

“Let’s get the hell out of here,” joked Hanning.

After all 65 Airmen and 55 soldiers claimed their seats for the last flight out of Iraq on the last night of Operation New Dawn, the team of Iraqi air traffic controllers, who were trained by US Airmen under Rock’s command, radioed, “Farewell, friends.”



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