

Air Force



Commemorative Edition

General James H. Doolittle

The Air Force's Warrior-Scholar

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PROGRAM

George M. Watson, Jr.

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Picture a man who was born before the flight of the first airplane, who spent time in Alaska during its early twentieth-century gold rush, and who became a superb pugilist, holding his own against ranked professionals. This same man joined the Army Air Service during World War I and made his first solo flight after just a few hours of training. Several years later, he earned academic degrees at one of the Nation's most prestigious institutions, and, while setting all types of speed records in a multitude of aircraft, was involved in designing and testing many innovative aviation enhancements. During World War II, this same man flew the lead bomber in a flight that delivered the first retaliatory blow against the Japanese home islands. As commander of the Twelfth Air Force, he was involved in the North African campaign, striking at the Third Reich from the Mediterranean. Then, as commander of the "mighty" Eighth Air Force, he headed to England, where his fighter pilots achieved air superiority over the Luftwaffe. Lastly, in September 1945, he witnessed the Japanese surrender on the battleship *Missouri*. Following the war, he served on the boards of many private corporations and government agencies and became the director of Shell Oil Company. He received his fourth star in 1985 from President Ronald Reagan, and, three years later, the Presidential Medal of Freedom from President George H. W. Bush. This was not Walter Mitty or Forrest Gump, but a real person who lived for nearly a century. He was the United States Air Force's true Renaissance man, James H. Doolittle.

James H. Doolittle, a pioneer aviator, engineer, and scientist, whose career spanned powered flight's first century, was born in Alameda, California, on December 14, 1896. He spent his early childhood in Nome, Alaska, while his father worked as a carpenter and prospected for gold. As a teenager, Doolittle returned with his mother to California. At school he was interested more in physical activities than academics. His love of flying began in 1910, when, at the age of thirteen, he went to the first aviation meet held in the United States west of the Mississippi, at Dominguez Field, outside Los Angeles. There, Glenn Curtiss, flying a machine that he had designed and built himself, set a world speed record, with a passenger on board, of 55

miles per hour. The radical differences in the aircraft showcased at the meet really impressed young Doolittle, and the fact that they all flew. During much of his adolescence, he dedicated himself to building and testing his own glider. It never achieved airborne status but it left him with memories of the difficult nature of flying and the bruises of several failed attempts.

Doolittle soon returned to one of his more physical interests, that of boxing. Very early in life, he realized that his slight 5-foot, 4-inch stature made him the target of bullies, so he concocted a whirlwind offense. Using his quickness to strike first with a barrage of punches, he pummeled without let-up, until his larger opponent was bloodied and unable to counter. After achieving success as an amateur in the ring, Doolittle sometimes fought for money at various boxing clubs, using the name Jimmy Pierce to keep his mother from finding out because she strongly disapproved of his sport. He achieved further success, battling admirably in a noteworthy exhibition bout against the world bantamweight champion, "Kid" Williams. Doolittle would carry a reputation and a pugnacious spirit into other areas of his life.

After graduating from high school, he spent several months in Alaska, trying his luck at prospecting, hoping to strike it rich, but he returned to California empty-handed. A wiser, more mature Jimmy Doolittle registered at Los Angeles Junior College in 1915 and two years later entered the University of California School of Mines. To earn money, he worked during summers in the mines of Nevada and continued to fight professionally. His agility and toughness in the ring might well have earned him high-ranking notoriety had it not been for the entreaties of his mother and his girlfriend.

When the United States entered World War I, Doolittle did not return for his senior year in college but instead enlisted as a flying cadet in the Signal Corps Reserve. He was assigned to the School of Military Aeronautics at the University of California and took flight training at Rockwell Field in San Diego. He soloed after just seven hours and four minutes of instruction. Doolittle practiced cross-country navigation, aerobatics, and formation flying. With each step he watched his class diminish by more than half as students washed out for various deficiencies. Despite witnessing numerous accidents, many of them fatal, he retained his love of flying. After being commissioned a second lieutenant in the Signal Corps Reserve, Aviation Section, on March 11, 1918, he received a series of assignments at Camp Dick, Texas; Wright Field, Ohio; Gerstner Field, Louisiana; and Rockwell Field, California, as a flight and gunnery instructor. Doolittle maintained that he and his fellow instructors had no special training. They were taken up once, shown a maneuver, and then told to teach their students how to do it. He perfected his skills by taking extra practice flights.

Meanwhile, Doolittle's commander refused his frequent requests for an overseas assignment, and his hope for a war-zone tour was shattered by the armistice of November 1918. One compensation of the California assignment was that it stationed him near his wife, Josephine "Joe" Daniels, his high school sweetheart, whom he had married on December 24, 1917. She remained his wife for seventy-one years in a union that produced two sons, James Jr. and John.

After the war, Doolittle did not return to college. Prompted by his desire to fly and the security of a monthly paycheck, he stayed in the Air Service. A series of assignments in the Southwest followed. After a Kelly Field, Texas, tour he flew border patrol for the 90th Aero Squadron stationed at Eagle Pass, Texas. On July 1, 1920, he was transferred back to Kelly Field to the Air Service Mechanics School. The training he received there provided him the opportunity to get his hands on airplanes and engines, and he was taught by top-notch experts who sharpened his appreciation and understanding of constantly changing flying machines. His promotion to first lieutenant in the Air Service, Regular Army, decreased his chances of being cut from the service when only reserve officers were being mustered out.

After assignment to McCook Field, in Dayton, Ohio, Doolittle was able to convince the chief of the Air Service, Gen. Mason M. Patrick, to let him attempt a cross-country flight, which he planned to complete in less than a day. Before he undertook it, he planned very carefully and learned from his predecessors' mistakes. He made trial runs from Kelly Field to San Diego and from Kelly to Carlstrom Field in Arcadia, Florida, and took copious notes on the performance of his aircraft, a De Havilland DH-4B. He then consulted with the engineers at McCook about gas tank modifications and obtained a new instrument then being tested as a turn-and-bank indicator. He worked out his plans with the ground crews and had them install a pilot dehydrator, which consisted of a funnel and a tube that reached out through the bottom of the aircraft.

After a failed attempt in August 1922, he took off from Pablo Beach, Florida, on September 4. After enduring bad weather, weariness, a paucity of cockpit instrumentation, and a 30-minute fuel stop in San Antonio, Texas, he landed at Rockwell Field, California, in an elapsed time of 22 hours and 30 minutes. For this record flight, Doolittle became instantly famous and was awarded the Distinguished Flying Cross.

In 1922, he persuaded the authorities at the University of California to grant him a Bachelor of Arts degree based on his previous studies there and his grades at the Air Service Engineering School at McCook Field. In October 1923, he was placed on detached service from McCook for a period of



James H. "Jimmy" Doolittle, second from right, as a member of the flying team at Rockwell Field, California, and, below, as a second lieutenant in the U.S. Army Air Service.



two years, entered the Massachusetts Institute of Technology (MIT) for special engineering courses, and earned a Master of Science degree the following year. Doolittle had applied to the Air Service Engineering School because he believed that there ought to be more solid rapport between the aeronautical engineer and the pilot, that their capabilities ought to be combined in one person. He wanted to be that person. Doolittle had long wanted to learn the complexities of aircraft design, and he would continue this quest at MIT. Working out his Master's thesis on the amount of stress an aircraft could endure, a then largely unresearched area of engineering, he tested such aircraft as the Fokker PW-7, the De Havilland DH-4, and the Curtiss JN-1 at McCook. His thesis, "Wind Loads as Determined by the Accelerometer," which he later developed into a NACA (National Advisory Committee for Aeronautics) report, was translated into a dozen languages and widely read in Italy, Germany, France, and the United Kingdom.

After Doolittle was admitted to a doctoral program at MIT, the Army recalled him to McCook to undertake the hazardous flight testing of a new experimental Fokker fighter. Doolittle flew the aircraft in a series of difficult maneuvers at various speeds to the very limit of its structure and survived a near in-flight failure. For his efforts he received the Distinguished Flying Cross with a citation praising his "skill, initiative, courage, and endurance of the highest type." In addition, his work and resulting test data helped earn him a doctorate from MIT in 1925. That same year, he won the Schneider Trophy for testing a Curtiss R3C-2 float biplane, bettering both domestic and international competitors at an average speed of 232.573 miles per hour over a straightaway course.

At McCook, Doolittle became chief of the Flight Test Section. As such he was allowed to choose the tests he wanted to fly and got the opportunity he had long hoped for—the chance to be both pilot and engineer. At the age of twenty-eight he was considered the most highly qualified, experienced, and best educated test pilot in the United States.

During the second half of the 1920s, Doolittle pursued his interest in aeronautical science and engineering. He took several leaves of absence from the Army and headed for Latin America, where he flew many dangerous demonstration flights for various U.S. aviation companies with aircraft to sell. In addition, he worked on flight instrumentation and blind flying at Mitchel Field's Full Flight Laboratory in New York. Accidents had occurred in inclement weather because pilots could not fly by instruments or did not trust them. Doolittle believed that the problem could be mastered if improvements being made in aircraft design, flight and navigation instruments, and radio communication could be coordinated.

On September 24, 1929, he made an experimental flight using the Kollsman precision altimeter, the Sperry gyrocompass, the Sperry artificial horizon, and rudimentary radio navigation aids. The flight represented ten months of planning and was perhaps the most important aerial demonstration since that of the Wright brothers at Kitty Hawk. It did much to ensure the rapid expansion of U.S. commercial aviation, which depended upon the integration of advanced aircraft, airway developments, and the emergence of innovative avionics and instrumentation systems. Besides piloting the historic flight, Doolittle contributed much to his aircraft's engineering, continuously offering suggestions to the contractors who designed it, and helping them improve and refine their thinking. He furnished them with vital input from a "cockpit perspective."

In February 1930, Doolittle resigned from the Army Air Corps for personal financial reasons to work for Shell Petroleum Corporation. He also applied for and received a commission as a major in the Air Corps Reserve. He coordinated Shell's aviation departments in San Francisco, St. Louis, and New York, and he also kept the company in the public eye by continuing to participate in air shows and races. Doolittle's work as Shell's aviation manager in supporting the development of high-octane fuels led to the Army Air Corps' standardizing 100-octane fuel by mid-1936. When war began in Europe in 1939, the United States was the only nation capable of producing large quantities of 100-octane, or higher, fuel—up to 650,000 gallons per day—by mid-1940. The British also supported the use of high-octane fuel and imported a great deal from the United States in the prewar years. The fuel gave their aircraft a significant advantage over those of the Germans in the Battle of Britain. It can be argued that Doolittle's advocacy of high-octane fuel helped secure the survival of the United Kingdom in the summer of 1940.

Doolittle continued to keep his hand in flying. In 1932, the Granville brothers of Springfield, Massachusetts, invited him to fly their Gee Bee R-1 racer for the Thompson Trophy, which he won by attaining a record speed of 252.287 miles per hour. He considered the Gee Bee R-1 the most dangerous aircraft he had ever flown and was very concerned about its poor stability and control characteristics. Perhaps because of his experience in that competition, the thirty-six-year-old Doolittle decided to opt out of racing, stating that he did not regard its value as commensurate with its risks.

In January 1940, he was appointed president of the Institute of Aeronautical Sciences, one of the most prestigious and influential technical societies in the world. In that post, he emphasized to college students the importance of applying the best minds to solving the problems of aeronautics. But

he wanted to do more, so early in World War II, he requested recall to active duty. The commanding general of the Army Air Corps, Gen. Henry H. "Hap" Arnold, granted his request. On July 1, 1940, Doolittle returned to active duty status. He immediately went on an inspection and study trip to Great Britain. Returning stateside, he tested the new Martin B-26 Marauder and recommended that the aircraft remain in production.

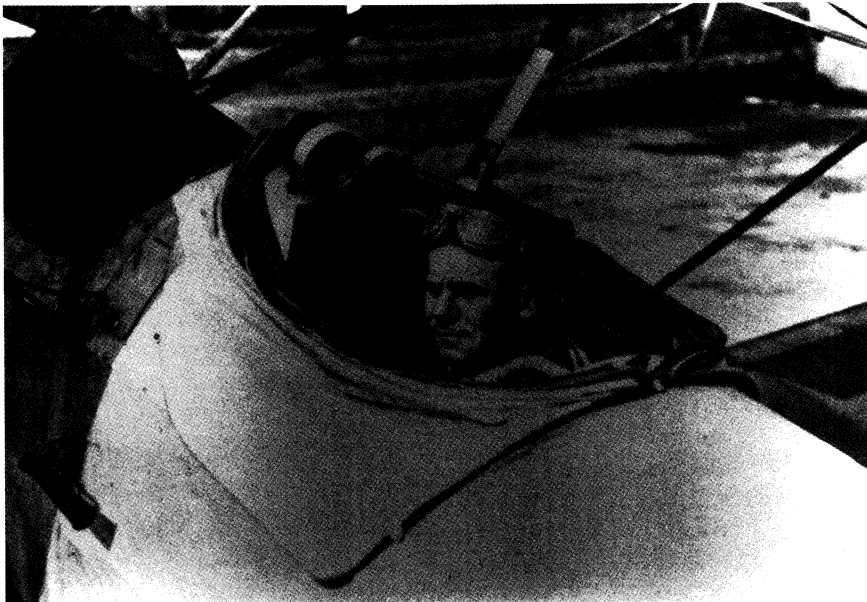
In early 1942, the United States, still reeling from the shock of Pearl Harbor and a string of Japanese conquests, needed a victory to raise morale. Indeed, a succession of Allied defeats in the Philippines, Malaya, Burma, and the Dutch East Indies allowed the Japanese to extend their empire farther westward and southward. To achieve quick success, the Navy, with the agreement of the Army Air Forces (AAF), developed a plan for Army North American B-25 Mitchell bombers to take off from the aircraft carrier *Hornet* and attack the Japanese mainland. Doolittle was selected by Arnold, who had been made the commanding general of the AAF, to direct all preparations. He set about at once supervising the training of volunteer crews and the modification of their B-25s to obtain maximum range. He also oversaw an accelerated program at Eglin Field, Florida, where Navy experts in short take-off techniques instructed the pilots. White lines on the ground marked out distances, and before concluding their training, all of the pilots had taken off twice in a 700- to 750-foot run flying a plane loaded to 31,000 pounds. Doolittle admitted that without Hap Arnold's personal interest in the project and unquestioning approval of whatever he wanted to have or do, the project would never have been able to meet its April 1942 deadline. In fact, the only issue that arose between them had to do with Doolittle's determination to convince an initially reluctant Arnold to let him lead the flight.

Doolittle's crews knew nothing about the mission until they were far out to sea, and they had never taken off from an actual carrier deck. Doolittle valued their tremendous dedication and the sacrifice they were making. He also knew that the Navy was taking an extraordinary risk as the losses of two carriers as well as cruisers and destroyers would definitely dampen U.S. naval strength in the Pacific for some time. On the morning of April 18, 1942, the carriers *Hornet* and *Enterprise* were spotted by Japanese observers, and Allied higher command was thus compelled to schedule the raid a day earlier than planned. All sixteen B-25s dropped their bombs, but as a consequence of the 150-mile extended flight path, all but one aircraft, which landed in the Soviet Union, ran out of fuel and went down in Japanese-occupied China. Of Doolittle's eighty crewmen, seventy-one survived, one died, and eight were captured. The Japanese executed four of those captured as war criminals; the others survived cruel treatment and were finally freed at



McCook Field, Ohio, where Jimmy Doolittle attended the Air Service Engineering School and became an outstanding test pilot and chief of the Flight Test Section. Below, Doolittle stands beside the Curtiss R3C-2 seaplane in which he achieved the speed record that won him the 1925 Schneider Cup.





Jimmy Doolittle at the controls of the Consolidated NY-2 in which he successfully conducted the first blind flying take-off, course following, and landing by instruments alone at Mitchel Field, New York. A canvas hood, shown folded around the cockpit, hid his view of the outside world. For his achievement he won the 1929 Harmon Trophy. Below, the Gee Bee R-1. After setting the speed record in the hard-to-handle aircraft at the 1932 Cleveland Air Races and winning the Thompson Trophy, Doolittle retired from air racing.



war's end. Most of the pilots, including Doolittle, maneuvered their way to friendly lines, but the Japanese subsequently executed many of the Chinese peasants who assisted the raiders.

While the Tokyo raid inflicted only slight physical damage, it did achieve a significant psychological effect. Japanese war leaders had been frightened and embarrassed because their army and navy had failed to prevent U.S. intrusion over the home islands. Opposition among military strategists to an attack on Midway Island was stanchied, and both the army and navy agreed with Adm. Isoroku Yamamoto, commander in chief of the Combined Fleet, who had sought to force a decisive battle with the U.S. Navy. In June 1942, Yamamoto had his opportunity at Midway, but the results were not what he had planned or hoped for. By pressing to attack the island, the Japanese overextended their line of defense and subsequently lost four large carriers, one cruiser, and 322 aircraft. These losses severely crippled the capability of Japan's naval aviation and turned the tide of the war in the Pacific. Without the Tokyo raid, that turning point might have occurred much later in the war, and because of it, Doolittle was made a brigadier general and was awarded the Medal of Honor, which he accepted for all of the men who went with him. Promotion to major general soon followed.

Doolittle was next assigned to command the 4th Bombardment Wing (Medium) of the Eighth Air Force stationed in England, but not for long. The decision had been made to invade French North Africa, and both General Arnold and Army Chief of Staff Gen. George C. Marshall wanted Doolittle to command the invasion air force—the Twelfth. By D-Day, November 8, 1942, Doolittle, who had never commanded a unit larger than a squadron, controlled a force of over 1,244 aircraft and twelve groups, with 75 percent of personnel either untrained or partially trained. Doolittle had written to Arnold about his greatest worries: first, the concentration of aircraft at a point where they could not be dispersed or adequately protected, and, second, the distances and inclement weather through which outside fighters had to fly to get to the theater. Exacerbating these problems were the unavailability of essential equipment, especially for communications, and shortages of suitable airports and experienced personnel. He noted that most of his force's preparedness problems stemmed from the rather brief period that had been devoted to organizing, planning, and training. For three months, the Army ground and air forces struggled against strong German air and ground counterattacks. These problems were not the fault of the U.S. air forces, which had been omitted from early invasion planning sessions. Then too, communication with the Royal Air Force commander, Air Marshal William Welch, had been minimal since he had opted to concentrate on protecting

shipping rather than confronting the enemy and pushing him out of North Africa. In so doing, Welch had isolated himself in his own headquarters. Lt. Gen. Dwight D. Eisenhower was not satisfied with the results and by November 1942 had brought in his own airman, Maj. Gen. Carl A. Spaatz, to remedy the air situation.

Perhaps the period between November 8, 1942, and February 18, 1943, in North Africa was best described by Doolittle in his autobiography as "a time of experimentation while we began flying missions against the enemy." He added the following:

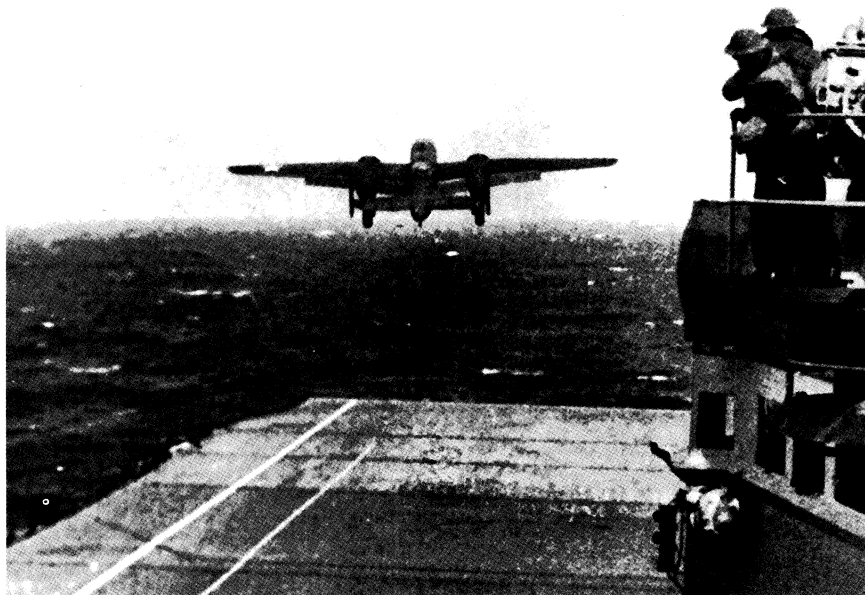
The very extent of the territory that fell to our forces in a matter of days after the initial landings created monumental problems. Many units had previously been split into small parallel units or separate entities located in England and the United States. Now those echelons were redivided. Some units were split into as many as five separate echelons divided between the States, England, North Africa, and the high seas. Within North Africa, these various echelons remained separate entities for weeks while we tried to get them transportation to join their parent units. In some cases it took six months to make a whole unit out of its various parts.

Doolittle was soon transferred again when Spaatz, as the senior AAF officer, arrived in late November and took over the North African Air Force (NAAF). Doolittle ended up on February 18, 1943, commanding the Northwest African Strategic Air Forces (NASAF). He was unhappy with his new assignment, which seemed to him like a demotion, because he believed that things had finally begun working out properly under the original organization. However, he realized that the changes were being effected far above his level of political influence within such high-level Allied gatherings as the Casablanca Conference. He accepted his situation and moved on.

Doolittle concentrated his heavy bombers against Axis logistics and supply targets. In March 1943, he shifted his bombing attacks to shipping and airlift supporting the Axis forces. Within two months, the AAF succeeded in cutting off the Germans in Tunisia. Doolittle flew at least half a dozen combat missions in this period. When the Axis powers surrendered in North Africa on May 13, 1943, Doolittle maintained that the NAAF and the Twelfth Air Force had made three significant contributions to that victory: They established complete air superiority on the African mainland; they successfully interdicted Axis supply lines by bombing ports, sinking ships, and shooting down air transports; and finally Doolittle's forces provided continuous support to the ground troops, thereby enabling them to thwart the Axis



The Tokyo raiders surround their chief, Lt. Col. James H. Doolittle (left front, side view), and Marc A. Mitscher, captain of the U.S.S. *Hornet*, prior to the launch of the sixteen-aircraft-strong North American B-25 Mitchell attack force bound for military and industrial targets on the Japanese home islands. Below, on April 18, 1942, Doolittle's plane is the first to take off from the carrier's pitching deck.





For successfully leading the daring attack, James H. Doolittle, promoted to brigadier general, receives the Medal of Honor from President Franklin D. Roosevelt, April 1942. Looking on are the Army Air Forces commander, Gen. Henry H. Arnold, Mrs. James H. Doolittle, and the Army chief of staff, Gen. George C. Marshall (photo courtesy U.S. Naval Institute). Below, the Tokyo raiders receive Distinguished Flying Crosses from General Arnold (far right, next to Doolittle), at Bolling Field, Washington, D.C., June 1942.



in conclusive land battles. When the numbers were tallied, the NAAF and the Twelfth had dropped 11,708 tons of bombs, shot down 1,304 enemy aircraft, and sunk 76 Axis ships.

After Tunisia, Doolittle directed the NASAF through Pantelleria, Sicily, and Italy. His forces bombed Rome, helping to topple the Italian dictator, Benito Mussolini, and participated in the bombing of Regensburg, which was the first strategic bombing assault against Germany from the Mediterranean. In addition, Doolittle's air bases hosted the Eighth Air Force's shuttle mission against Schweinfurt. When the Fifteenth (Strategic) Air Force was established at Foggia, Italy, in October 1943, its mission was to bomb Balkan targets and points in southern Germany that could not be reached easily from England. Doolittle and his heavy bombardment wings were transferred from the NASAF and formed the core of this new air force. As the first commander of the Fifteenth, Doolittle led eleven groups of fighters and bombers with 930 combat aircraft and over 20,000 men. He had four main objectives:

(1) to destroy the German air force in the air and on the ground, wherever it might be located within range of our aircraft;

(2) to participate in Operation Pointblank, the combined bomber offensive, against aircraft plants, ball-bearing manufacturing sites, oil refineries, munitions factories, submarine pens, and airports;

(3) to support the ground battle and attack communications facilities on the Italian mainland, along the route through the Brenner Pass, and in Austria; and

(4) to weaken the German position in the Balkans.

But before Doolittle could begin serious operations, another series of conferences between the Allies took place at Cairo and Teheran and presaged another organizational change. Besides granting Stalin's long-standing request for an attack on Germany from England through France, or Operation Overlord, the participants decided upon the establishment of a unified command in the Mediterranean under Gen. Sir Henry Maitland Wilson. In addition, General Eisenhower became supreme commander of the Allied Expeditionary Force and would command the all-out effort against Germany with Air Chief Marshal Sir Arthur Tedder as his deputy. General Spaatz was selected to move to England as head of the Strategic Air Forces, which placed him in charge of both the Eighth and the Fifteenth Air

Force commanders. He could thus better coordinate the strategic bombardment efforts against Europe. Lt. Gen. Ira C. Eaker was transferred from England to head the Mediterranean Allied Air Force, although against his wishes, and Doolittle was to take his place as head of the Eighth Air Force. Doolittle had little time to consolidate his command over the Fifteenth Air Force before being ordered to England.

During his thirteen months in the Mediterranean theater, Doolittle, like other senior American officers, had to quickly absorb the fundamentals of managing huge units, and in so doing, he refined some of the new tactics being employed within them. He encouraged his fighters to be more aggressive and to employ loose instead of close escort of bomber formations. His performance impressed the supreme allied commander, General Eisenhower.

In December 1944, General Arnold announced these changes in command, with Spaatz ordered to England and Eaker to the Mediterranean. A month later, Doolittle turned the Fifteenth Air Force over to Gen. Nathan F. Twining and assumed command of the "mighty" Eighth Air Force, the largest and most prestigious numbered air force with no fewer than 26 heavy bomber groups, 12 fighter groups, 42,000 combat aircraft, and 150,000 personnel. Doolittle realized the significance of the job he had been given. When Gen. George Patton wrote to congratulate him for his transfer to the Eighth Air Force, Doolittle responded that he was not sure such plaudits were in order. He knew that he had a bigger and more interesting job, but he was also aware that it would be more difficult than his Mediterranean experience. At the latter position, he noted, the problem was to make something out of nothing, but in England he would need an equal amount of ingenuity to utilize "almost unlimited resources." He further commented that in the Mediterranean he was not "under the guns," meaning that any modest success was appreciated, but in England miracles were anticipated. He concluded that he had been a little tardy in getting his "Miracle Department organized."

Doolittle soon changed the role of his fighters from one of escort to one of killer, allowing his fighters to go after the German fighters instead of waiting for the enemy to come to them. Doolittle considered this change of policy the most influential decision that he made during the war. He believed that if he had continued to use his fighters defensively, then the German air force would have been allowed to grow until Allied losses became prohibitive. Doolittle argued that although the change in policy produced higher immediate losses, by neutralizing the Luftwaffe, the Allies eventually reduced their own losses from six percent to six-tenths of one percent, and,



Maj. Gen. Jimmy Doolittle receives the Distinguished Service Medal from Gen. Dwight D. Eisenhower for outstanding leadership of the North African Strategic Air Forces. Below, Doolittle as a lieutenant general commanding the Eighth Air Force.





Boeing B-17 Flying Fortresses of Lt. Gen. Jimmy Doolittle's "mighty" Eighth Air Force over Hitler's Europe. Below, the big bombers' fighter escorts (from top to bottom), the Lockheed P-38 Lightning, the North American P-51 Mustang, and the Republic P-47 Thunderbolt.



most important, the Allies had succeeded in getting the Germans out of the air by D-Day. As Doolittle's fighters went in low after their German counterparts, Luftwaffe aircraft could no longer rest on their fields, take off, or land unmolested. Besides chewing up the cream of the Luftwaffe's pilots, which could not be replaced with the same degree of experience and competence, the change in policy soon gave the Allies what they had sought since the war began—air superiority over Europe. Indeed, during the early months of 1944, the Germans continued to produce aircraft, despite the Allied pounding of their aircraft factories, and reached their largest yearly production total of 25,000 in 1944. Their greatest defeat came in experienced pilot losses, which totaled over a thousand between January and April 1944. The fact that the Germans could replace their aircraft but not their skilled pilots was perhaps a tribute to Doolittle's policy of aggressively seeking out enemy fighters.

In preparation for the invasion, the Eighth Air Force's target priorities expanded to include strategic rail centers, particularly those with servicing and repair facilities used to maintain the systems in northern France, the Low Countries, and western Germany; coastal defense batteries; selected naval installations; and all airfields within a 130-mile arc of the proposed Normandy invasion. In the fifteen days before the D-Day invasion, Doolittle's Eighth Air Force attacked 52 airfields, 45 marshaling yards, and 14 bridges. Eighth Air Force fighters made sweeps against transportation targets, destroying many locomotives and rolling stock. All of this forced the Luftwaffe to withdraw to airfields farther from the coast, making enemy air resistance in the forward area weaker.

During the months following the Normandy invasion, the Eighth Air Force had plenty of encounters with the new German jet, the Me 262, which accounted for a number of bomber losses. But by April 1945, the Eighth and the other Allied air forces were able to make the Germans reach to the bottom of their manpower pool, fuel supplies, and protected airfields. With the Luftwaffe out of the skies, other Allied successes, such as the destruction of the German transportation system, including roads, bridges, and railroads, became possible. Before he left as commander of the Eighth, Doolittle had his staff statisticians complete a list of the force's accomplishments over the previous three years. They compiled some impressive figures: 701,300 tons of bombs dropped, including 531,771 on Germany. The Eighth destroyed 18,512 enemy aircraft while sustaining the loss of 4,456 bombers and 43,742 U.S. fighter pilots and bomber crews killed or missing in action.

After V-E Day and a brief respite in the States that included a reunion with his family and a series of public appearances with General Patton in

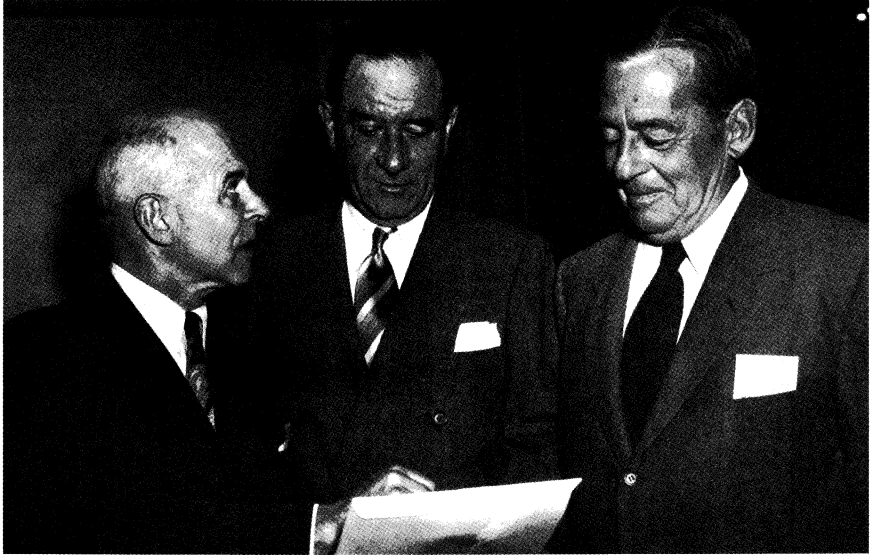
California, Doolittle moved out with his Eighth Air Force to the Pacific. He was present for the unconditional Japanese surrender on the battleship *Missouri* on September 2, 1945.

After World War II, Doolittle worked hard to promote a separate Air Force, making speeches and testifying before Congress. From October 1 to December 17, 1945, he was the guest on a number of radio programs and made eighteen appearances before civic and veterans' groups in support of an independent service. In November 1945, he testified before the Senate Military Affairs Committee and stressed unity of command, which supported the concept of independence:

I have seen the contention made that you can have effective unity of command in the field in wartime without having unity of control in peacetime. I believe this is wrong . . . When a war is over, the commands in theaters of operations are, of course, liquidated and nothing remains except the home organization. If there is no unity there, there is no unity at all. It is the form of the home organization that will control the training, the tactics, the doctrine, the thinking, and the habits of the men who we will train to fight the next war . . . If they are trained in two departments, we will have the same makeshifts and fumbblings in attempting to get a required unity of command in theaters of operations that we had at the outset of the war just past, and we will have commanders who still do not understand the two arms of the service in which they were not fundamentally trained.

Doolittle was a founder of the Air Force Association (AFA) and its first president. While officially accepting the position on January 24, 1946, he made three points concerning the AFA: first, it was to be a nonprofit organization created for the benefit of its members and the Air Force they had served; second, it would not attempt to duplicate the legislative and financial benefits that membership in veterans' organizations offered; and third, its policies would be determined by the voting members of the association.

He then headed the Secretary of War Board formed to study the officer-enlisted man relationship, which had deteriorated during World War II, and to make recommendations for its improvement to Secretary of War Robert P. Patterson. Among the board's recommendations were the elimination of the so-called caste system to minimize abuses of the authority and the prestige that go with high rank and responsibility; the encouragement of closer contact with the civilians who argued that a citizens' Army is a result of the combined interest, effort, and contributions of both the military and the pub-



Jimmy Doolittle, tireless in his services to aviation, confers with Secretary of the Air Force Harold E. Talbott and Donald W. Douglas, president of Douglas Aircraft Corporation, at the Air Force Association's Air Logistics Conference of 1954. Below, although long retired by 1985, Gen. James H. Doolittle receives his fourth star from President Ronald Reagan and Senator Barry Goldwater.



lic; and a changed selection process for officers more in line with industry, business, and government.

After resigning from the Army Air Forces, Doolittle retained his reserve status and went back to his job at Shell Oil as a vice president and director, holding the latter position until 1967. In 1947, he made a personal decision to quit active flying as a command pilot because he realized that his busy schedule prevented him from maintaining his flying skills. He subsequently closed out his logbook after thirty years with over 10,000 hours as a pilot in 265 different types of military and civilian aircraft. He retired from the Air Force Reserve as a lieutenant general in 1959, the only reserve officer to retire at that rank. In 1985, President Ronald Reagan and Senator Barry Goldwater pinned on his fourth star, promoting him to full general.

During the postwar period, Doolittle served as a member of the Joint Congressional Aviation Policy Board; as an advisor to the Committee on National Security Organization; as a member, vice chairman, and, later, chairman, of the U.S. Air Force Scientific Advisory Board (SAB); and, finally, as the chairman of the National Advisory Committee for Aeronautics (NACA) in 1956. NACA's reputation with the Air Force had declined because of its inability to anticipate the development of the gas turbine engine during the 1930s. Hoping to enhance its relationship with the military, NACA asked Doolittle to join its main committee where his strong ties with the growing Scientific Advisory Board helped bring the interests of NACA and the Air Force closer together. In the mid-1950s, as NACA became increasingly split between atmospheric traditionalists and the proponents of space flight, Doolittle looked to be a highly effective chairman to ward off possible criticism that the organization was again failing to anticipate technological change as it had with the jet engine. As NACA chairman, Doolittle worked very hard to alter dissenting attitudes. He and his engineers worked in conjunction with the military on the X-15 and the launching of the "Round Three" Dyna-Soar programs. But with the October 4, 1957, launching of Sputnik, NACA was just too small and the torch was passed to a much larger and far more heavily endowed successor, the National Air and Space Administration (NASA). Indeed, the huge \$100 million initial NASA budget soon ballooned to \$6 billion, far above the wildest dreams of earlier NACA scientists.

In addition to his NACA and SAB experience, Doolittle made several trips to Korea during the war there as a consultant for the chief of staff of the Air Force, Gen. Hoyt S. Vandenberg. Through his role as advisor to the Air Force and other government agencies while representing Shell Oil, Doolittle knew the structure and functioning of the service's ballistic missile program.

It was for this reason that he agreed to become the chairman of the board as well as the director of Space Technologies Laboratories, a division of the Thompson-Ramo-Wooldridge (TRW) Corporation. Doolittle became the consistently sought-after "wise man" and counselor on every phase of aviation and aerospace science. Prior to his retirement from Shell Oil, he and his wife, Joe, suffered a severe personal tragedy with the baffling suicide of their older son, Jim Jr., then a major in the Air Force. Despite this painful loss, they recovered and rebounded. Doolittle became a director in the Mutual of Omaha Insurance Company and served on the boards of eight of Mutual's companies, undertaking a number of assignments that coincided with his military and aviation background. His beloved Joe died on their seventy-first wedding anniversary, December 24, 1988. Honors would continue to follow him, culminating with the Presidential Medal of Freedom presented to him by President George H. W. Bush in 1988. This pioneer of aviation and man of many talents and accomplishments died peacefully in his sleep on September 27, 1993, at the age of ninety-six. The Air Force buried him with full military honors at Arlington National Cemetery in an elaborate ceremony reserved for dignitaries and top officers that included a 21-gun salute and a flyover by eleven aircraft.

Bibliographical Note

Pieces of Doolittle correspondence are scattered in various collections of personal papers. The Louis N. Ridenour papers at the University of Illinois and the Gen. Henry H. Arnold papers, the Robert P. Patterson papers, and the John Lansing Callan papers at the Library of Congress Manuscript Division represent a few of the collections that contain Doolittle documents. There are several Doolittle biographies, including a 1976 Doubleday piece, *Doolittle: a Biography*, by Thomas Lowell and Edward Jablonski, and *Jimmy Doolittle: Master of the Calculated Risk* by C. V. Glines and published by Van Nostrand in 1980. Doolittle's autobiography, *I Could Never Be So Lucky Again*, written with Carroll V. Glines and published by Bantam Books in 1991, provides an excellent self-portrait of the man and was followed closely for this piece. Finally, a superb appraisal of his aeronautical and engineering exploits can be found in the winter 1993 issue of *Air Power History*. The quarterly magazine on the occasion of Doolittle's death dedicated the entire issue "Jimmy Doolittle: An Appreciation" of seven articles to the pioneer aviator.

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