Anything, Anywhere, Anytime:

An Illustrated History of the Military Airlift Command, 1941-1991

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Military Airlift Command
Office of History

Headquarters Military Airlift Command
Scott Air Force Base, Illinois

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Dedicated

to

the men and women of the Military Airlift Command

FOREWORD

The Military Airlift Command has one of the most diverse and far-reaching missions in the United States Air Force. The organization began operation on 29 May 1941 as the Air Corps Ferrying Command with the sole purpose of delivering new aircraft from the factory to the user. Redesignated the Air Transport Command in June 1942, the command quickly evolved, overseeing the movement of men and material across intercontinental distances.

In June 1948, the Department of Defense consolidated the Air Transport Command and the Naval Air Transport Service to create the Military Air Transport Service, which became the department's single manager for airlift service. Continued expansion of the airlift mission necessitated another redesignation, and in January 1966 the Military Air Transport Service was redesignated the Military Airlift Command. The command today, despite remarkable technological innovations, has many of the same expansive responsibilities as the Air Transport Command of World War II.

In May 1991, on the occasion of the command's fiftieth anniversary, we reflect on the development of this nation's military airlift organization. The following illustrated history records the origins, evolution, and fortunes of the command and relates some important lessons about the course military airlift has taken in the service of the United States. Most significantly, it demonstrates airlift's unique capability to support a broad spectrum of foreign policy options, from humanitarian assistance to armed conflict. This illustrated history describes five decades of a quest for excellence by the command's men and women, both active and reserve. It signifies: "Proud MAC: Support America Can Always Count On."

HANSFORD T. JOHNSON
General, USAF
Commander in Chief
Military Airlift Command

PREFACE

In 1964, William H. Tunner, a longtime airlift advocate and former Military Air Transport Service commander, published his autobiography, *Over the Hump*. After reflecting on the development of military airlift over the course of his career, Tunner concluded, "I have been convinced that we can carry anything, anywhere, anytime." It is a fitting epithet, summarizing well the Military Airlift Command's contributions to the national defense.

As the command marks its fiftieth anniversary, this illustrated history describes the origins and development of the organization charged with providing airlift to the Department of Defense. Through all manner of scenarios, the command has never failed to execute its airlift mission. The Military Airlift Command has been caught up in the vortex of world events for fifty years and will remain so in the future.

Preparing this illustrated history has been a group effort of the Office of MAC History under the direction of Roger D. Launius, MAC Command Historian until October 1990. The general editor was Betty R. Kennedy. Her exemplary efforts pulled the text and illustrations together and made it a cohesive whole. Barry R. Barlow, Coy F. Cross II, Betty R. Kennedy, Captain Karen M. Koenig, Roger D. Launius, John W. Leland, Jeffrey S. Underwood, and Chief Master Sergeant Robert C. Williford all wrote sections of the history. Kathryn A. Wilcoxson provided editorial assistance while Mary Anna Kaufer lent her archival expertise in tracking stray facts and information.

Several organizations at Scott Air Force Base and elsewhere deserve credit as well. The composition section of the 1201st Field Printing Squadron should be commended for the layout of the book. The graphic and photographic sections of Detachment 1, 1361st Combat Camera Squadron provided excellent support as did the staffs of the Airlift Operations School, the Printing Management Division of Information Management, the Office of Public Affairs, the MAC Command Section, and the USAF Historical Research Center, Maxwell Air Force Base, Alabama. It was also necessary to draw upon the following for some photographs: National Air and Space Museum, Washington, DC; 1st Tactical Fighter Wing, Langley Air Force Base, Virginia; 375th Military Airlift Wing, Scott Air Force Base, Illinois; 437th Military Airlift Wing, Charleston Air Force Base, South Carolina; 2750th Air Base Wing, Wright-Patterson Air Force Base, Ohio; Warner Robins Air Logistics Center, Georgia; and Boeing, Lockheed-Georgia, and McDonnell Douglas Corporations.

In addition, specific individuals require recognition. General Hansford T. Johnson, MAC Commander in Chief, wholeheartedly approved the project. Lieutenant General Anthony J. Burshnick, MAC Vice Commander in Chief, and Major General William H. Sistrunk, MAC Chief of Staff, ensured that necessary support was forthcoming to carry it through to completion. Also deserving special mention are: General Duane H. Cassidy, Major General William E. Overacker, Brigadier General James L. Cole, Jr., Colonel Eddie L. Anderson, Colonel C.J. Wax, Lieutenant Colonel Donn P. Kegel, Lieutenant Colonel Phillip E. Lacombe, Lieutenant Colonel John S. Satterthwaite, Jr., Lieutenant Colonel Ronald J. Scott, Jr., Lieutenant Colonel Timothy L. Sisson, Lieutenant Colonel Bruce L. Sutherland, Major John L. Cirafici, Major Todd A. Fruehling, Major Christopher J. Krisinger, Chief Master Sergeant Chester I. Stephens, Sergeant Scott A. Leas, Dana Bell, Therese Bilodeau, Tim Cronen, Judy G. Endicott, Patricia A. Galeaz, Susan L. Kunz, Patricia A. Schmidt, and Ian Stern. Frederick A. Johnsen, 62d Military Airlift Wing Historian, contributed the cover photograph of a C-141, C-124, and C-130 in formation over Mt. Rainier, Washington.

Jay H. Smith
MAC Command Historian

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Brigadier General William B. Mitchell, Assistant Chief of the Air Service. A strong proponent of strategic bombing, Mitchell also understood the importance of air transportation and developed plans in World War I for the delivery of troops and supplies by parachute.

CHAPTER I

EARLY MILITARY AIR TRANSPORT

Supplying troops across vast distances has been critical to the success or failure of military campaigns throughout history. Mountains, rivers, and opposing armies have always hampered resupply efforts, but the appearance of manned hot air balloon flights in the late eighteenth century gave rise to thoughts of employing aerial transportation to overcome those difficulties. Napoleon, blocked by the British Royal Navy, dreamed of using balloons to transport his armies to England. During the siege of Paris in the Franco-Prussian War, Parisians flew balloons over the surrounding Prussian Army to maintain vital communications. Yet, flying remained somewhat unpredictable until the advent of the airplane in the twentieth century.

Aerial transportation has revolutionized modern warfare. Through airlift, it has become possible to move troops and supplies directly and rapidly into the battle zone. Nevertheless, the potential advantages of airlift were neither readily apparent to many military leaders nor initially feasible due to the technical limitations of early flying machines. As a result, the development of the United States' military airlift system followed an evolutionary course.[1]

AMERICAN PRE-WORLD WAR II AIRLIFT

One of the first American demonstrations of military airlift occurred on 9 September 1908 when Lieutenant Frank P. Lahm briefly rode as a passenger in a Wright *Flyer*. A few days later, on 12 September, Major George O. Squier, then the acting Chief Signal Officer, was taken on a flight which lasted less than ten minutes. In September 1911, Lieutenant Thomas DeWitt Milling established a world endurance record of 1 hour, 54 minutes, and 42.6 seconds when he carried two passengers. While other pilots before him had flown longer, Milling confirmed the potential of traveling by air with his three-person record.

In the succeeding years, aviation officers in the Army Signal Corps did not fail to note the airplane's commercial and military uses. They were well aware of its wartime application as demonstrated by the Europeans for reconnaissance, aerial combat, target acquisition, delivery of explosives and incendiaries, and the rapid transportation of messages and high-ranking officers. During Brigadier General John J. Pershing's Punitive Expedition into Mexico in 1916, the military primarily used airplanes for observation, aerial photography, and for transporting mail and dispatches. The Army Signal Corps' planes lacked the power and stability to carry more useful loads.[2]

The first serious use of American air power occurred during General John J. Pershing's Punitive Expedition into Mexico in 1916.

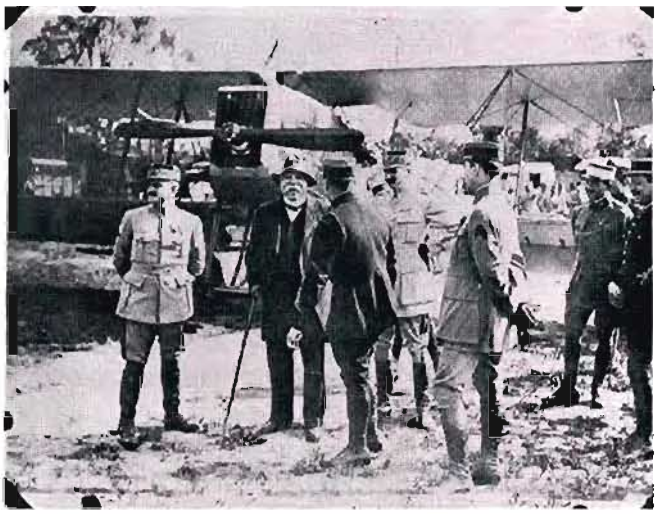
After the United States entered the First World War, the Army Signal Corps began to employ airplanes to transport personnel, cargo, and wounded pilots. In February 1918, Major Nelson E. Driver, a medical officer, and Captain William C. Ocker, Commander of Flight Training at Gerstner Field, Louisiana, modified a JN-4 *Jenny* to carry an injured pilot in a semi-reclining position in the rear cockpit.[3] The high number of crashes by student pilots in remote areas led them to this innovation. Once fliers at other airfields learned of the modification, they too converted *Jennies* into air ambulances. A subsequent order, dated 23 July 1918, directed that every military flying field in the United States would have an air ambulance.[4]

Signal Corps pilots also inaugurated the nation's first airmail service on 15 May 1918. Lieutenants George Boyle, Torrey Webb, and James C. Edgerton flew the relays of the 218-mile route from New York City to Washington, DC, in 3 hours and 20 minutes. Their load was four sacks of mail. The historic event, witnessed by President Woodrow Wilson, was somewhat marred when Lieutenant Boyle lost his way and had to land in a Maryland farmyard.

Initially, Major General Squier, Chief Signal Officer from 1917-1918, considered flying the mail as a way to increase the proficiency level of military pilots. By August, however, it was apparent that the airmail service would never flourish while subordinate to the military's wartime needs; hence, the service was transferred to the Post Office.[5]

The first recorded American demonstration of transporting troops by air occurred on 7 September

1918 when several airplanes carried 18 enlisted men from Chanute Field to nearby Champaign, Illinois.[6] Overseas in France, American pilots occasionally transported senior officers and couriers and later dropped Allied propaganda leaflets over the German lines. Brigadier General George P. Scriven, Chief Signal Officer from 1913-1917, had envisioned the former mission for airplanes in a circular entitled "The Service of Information" in 1915.[7]



During World War I, airplanes played a major role in warfare for the first time. On occasion, airplanes transported high-ranking officers.

The first effort to resupply combat troops from the air took place during the American Expeditionary Forces' Argonne Forest offensive in October 1918. Airmen from the 50th Aero Squadron dropped supplies and aided in the rescue of 550 American soldiers, later referred to as the "Lost Battalion," after they had become surrounded by German troops on 3 October.[8]

There were others in World War I who dreamed of larger airlift operations. Although Brigadier General Billy Mitchell is remembered primarily for his advocacy of an independent air force, he conceived an ambitious plan which included airdropping the First American Infantry Division behind German lines. Mitchell proposed that 1,200 Handley Page bombers (60 squadrons) could deliver the 12,000-man division. Aircraft would then resupply the force with food and ammunition. Equipped with 2,400 machine guns, the division would possess devastating firepower. Combined with frontal and aerial attacks, Mitchell believed the plan would deliver a deathblow to the German Army. On 17 October 1918, he presented his idea to General John J. Pershing, Commander of the American Expeditionary Forces. Although General Pershing gave his tentative approval, the Armistice on 11 November 1918 ended any further development of Mitchell's scheme.[9]

Built in 1918, the Handley Page was one of America's first bombers. It could also carry several hundred pounds of cargo.

After the war, Army fliers became preoccupied with creating a separate air force. Military air transportation received little consideration from commanders of either the Army Air Service or its successor, the Army Air Corps, created in 1926. Military airlift continued to evolve without sustained attention, however. The Army employed a variety of aircraft for its transport needs, sometimes purchasing only one model of a specific airplane. In the early 1920s, the Air Service used Martin bombers and old DH-4s to move equipment, supplies, and personnel. By the late 1920s, however, the Air Corps had started purchasing cargo airplanes, assigning them to the supply depots and Army air fields. When necessary, bombers still served as transports.[10] Limited funding forced the Army aviators to concentrate on their wartime mission, which was attacking the enemy. Thus, while civilian air transport matured during this period and proved its viability, the Army's senior aviators remained mostly concerned with creating a separate air force and perfecting combat tactics.[11] Accordingly, they spent much of their time demonstrating that airplanes could sink battleships, bomb targets with great accuracy, and fly distances of several hundred miles. The latter indirectly aided the air transport cause.

An organized military air transport service first appeared in June 1922, when the Army Air Service began scheduled passenger and cargo flights over the Model Airways, a nationwide air system sponsored by the government. A memo from the Office of the Chief of the Air Service indicated that Air Service officials wanted the Model Airways "to show the American public what can be done with the airplane as a carrier and to advertise American aviation." A

THE "LOST BATTALION"

A force of 550 Americans, later referred to as the "Lost Battalion," became completely surrounded by German soldiers on 3 October 1918. Pinned down in a ravine and running low on supplies, the American troops withstood German attacks and even endured Allied shelling. Although the Lost Battalion managed to release carrier pigeons, their messages contained the wrong coordinates. On 5 October, airmen from the 50th Aero Squadron attempted to drop supplies to the battalion from their DeHavilland DH-4 planes. Lacking the unit's true location, the airmen dropped most of the cargo into German trenches. Instructed not only to drop supplies but to find the Lost Battalion, the entire 50th Aero Squadron undertook the operation on 6 October, again under adverse weather conditions. The most successful effort was made by First Lieutenant Harold E. Goettler and his observer, Second Lieutenant Erwin R. Bleckley. Volunteering for a second mission, Goettler and Bleckley flew over the ravine at an altitude of only 200 feet. Their plan was to draw enough enemy fire so they could pinpoint the battalion's location. Slowly, in their bullet-riddled plane, they narrowed down the possibilities. Both, however, received fatal wounds in the process. Goettler managed to crash-land his plane near Allied lines before expiring, but he was too late to save Bleckley's life. Lieutenants Maurice Graham and James McCurdy completed what Goettler and Bleckley had started but again at some cost. A bullet hit McCurdy in the neck. Surmising what the airmen were attempting to do, the Lost Battalion laid out panel markers, which disclosed their exact positions, during the night. Finding these markers the next morning, the 50th Aero Squadron relayed the location to the ground forces which promptly rescued the Lost Battalion. For their heroic efforts to resupply and rescue the battalion, Goettler and Bleckley received the Medal of Honor.

SOURCES: J. L. Frisbee, "Valley of the Shadow," Valor (Arlington, VA: Aerospace Education Foundation, 1985), p 17; J. J. Hudson, Hostile Skies: A Combat History of the American Air Service, (New York: Syracuse University Press, 1968), pp 266-268.

First Lieutenant Harold E. Goettler.

Second Lieutenant Erwin R. Bleckley.

EARLY AEROMEDICAL EVACUATION

The First World War had highlighted the worth of air ambulances. Foreseeing a continuing need, Colonel Albert E. Truby, the Army Air Service's Chief Surgeon, requested the various flying fields to report on their local arrangements in late 1919. He discovered that none of the planes modified into air ambulances were really suitable. Truby then asked the Air Service's Engineering Division to design a plane which would accommodate a pilot, medical officer, and two patients. Several DeHavillands were subsequently modified and served as aeromedical rescue planes in the remote Southwest.

A DeHavilland DH-4A modified for aeromedical evacuation, circa 1919.

Also at this time, the Medical Research Laboratory and School for Flight Surgeons at McCook Field requested that the Army Air Service convert one of its three Curtiss Eagles into an air ambulance. Completed in 1921, the modified Curtiss Eagle could transport four litter and two ambulatory patients in an enclosed cabin. Regarding the plane as suitable for scheduled route service, Colonel Truby secured the Surgeon General's approval to transport patients from Mitchel Field, New York, to Bolling Field, Washington, DC, for treatment at Walter Reed Hospital. War Department officials, however, disapproved the plan. The final setback occurred on 28 May 1921 when the Curtiss Eagle air ambulance crashed while attempting an emergency landing during a storm, killing former Congressman Maurice Connolly and six others. The highly publicized crash effectively delayed the military's development of a regular air evacuation service for the remainder of the interwar years.

The crash, however, did not deter Colonel Truby from developing the concept of aeromedical evacuation further. He envisioned the employment of air ambulances in peacetime at Air Service stations for crash rescue work and for transporting patients from isolated stations to larger hospitals. During wartime, air ambulances would transport the seriously injured from the front to base hospitals and would also fly in emergency medical supplies. Truby advocated procuring three different types of planes: a small plane capable of landing under austere conditions; a medium-sized plane that could navigate across the country; and a large plane that could transport several patients.

Although Air Service officials generally concurred with Colonel Truby's proposal, limited funds forced them to conclude that the immediate need was to provide for the safety of flying personnel. Hence, Air Service leaders decided in June 1921 to develop a crash rescue plane; subsequently, two Cox-Klemin XA-1s were built and went into service in 1926. Reports that the British had adapted transport planes to serve as air ambulances also influenced the development of aeromedical evacuation. Thus, while the Air Service awaited the delivery of the Cox-Klemins, it experimented with modifying transport planes such as the Fokker T-2 and the Douglas C-1. Later in the 1930s, the Air Corps dedicated a Fokker YIC-14 (designated YIC-15) and four American YIC-24 to aeromedical evacuation requirements. Although the Chiefs of the Air Corps recognized the need for special aeromedical evacuation planes, the small defense budgets and the urgent requirement for attack and bomber aircraft meant that transport aircraft would fly aeromedical missions for the remainder of the interwar years.

SOURCE: R. F. Futrell, Development of Aeromedical Evacuation in the United States Air Force, 1909-1960 (Maxwell AFB, AL: Albert F. Simpson Historical Research Center, 1961), pp 4-12.

Loading a patient aboard a Cox-Klemin XA-1.

nationwide network of air routes and airfields was deemed essential to the nation's defense and the advancement of aviation, both commercial and military. To this end, Air Service pilots had gathered valuable information on nearly 3,500 landing "fields." Initially, in February 1921, a model airway linked Washington, DC, (Bolling Field) with Dayton, Ohio (McCook Field). Between 1922 and 1923, the Model Airways, as it came to be known, was expanded to include Langley, Mitchel, Fairfield, Selfridge, Chanute, Scott, Kelly, and Brooks Fields. Making 671 flights from 1922 to 1926, the airways pilots flew over 1.2 million miles, transporting more than 1,200 passengers and 62,000 pounds of high-priority cargo. Through the Model Airways the government saved several thousand dollars in express railway freight charges; savings for government travelers using the airways versus commercial transportation were far greater.

Accordingly, Air Service officials pronounced the airways program a success and, in 1925, appointed a board of officers from the control station at Fairfield Air Intermediate Depot, Ohio, to prepare regulations governing the continued air transport service. Before this could be done, however, Congress reorganized the Army Air Service into the Army Air Corps in 1926. Along with the Air Mail and the Air Commerce Acts of 1925 and 1926, respectively, the Air Corps Act took government agencies out of aviation activities that private enterprise could provide. In the process, Congress disbanded the Model Airways, and regularly scheduled military air transport service disappeared.[12]

Further development of America's military air transportation system proceeded slowly over the next several years. In part, this pace reflected the isolationist and antiwar atmosphere of the 1920s. These popular sentiments forced Army Air Corps fliers to emphasize the defensive capabilities of military aircraft. Furthermore, the small defense budgets forced the military establishment to reduce its planned airplane purchases and concentrate on low-cost measures.[13] The lack of funds prevented Air Corps officials from prepositioning men and supplies at every flying field airplanes would use to defend the United States. Therefore, the Army Air Corps tried to prove that their limited number of combat airplanes, which were dispersed around the nation's borders, could rapidly concentrate on either coast to repel any invader. To respond quickly to a threatened area, the Army Air Corps needed aerial transportation to move the supplies and personnel supporting these planes at their new locations. The combat units could not afford to wait for their support elements to arrive by rail or road. The Air Service/Air Corps maneuvers of 1925 and 1927 essentially confirmed these views.

Following the 1927 maneuvers, Air Corps officials agreed with the recommendation of Lieutenant Colonel Clarence C. Culver, Commandant of the Air Corps Tactical School, that the next maneuver should demonstrate the feasibility of

In the 1920s, the Army Air Service began a Model Airways to transport government officials and high-priority cargo between airfields. These air routes would be critical to the nation's defense.

AIRWAYS SYSTEM
1923

supplying deployed Air Corps troops by air. To this end, during the 1928 aerial operations exhibitions, 14 bombers airlifted 73,721 pounds of equipment and personnel. This success led to the recommendation that transport planes be employed to facilitate supply and transportation requirements. The next three maneuvers increasingly employed air transports to move supplies and personnel, including the injured. During the 1930 maneuvers, Major Henry H. "Hap" Arnold, the provisional wing supply officer, used one Douglas C-1, three Fokker C-2As, and one Keystone LB-7 aircraft to move 36,548 pounds of cargo. That requirement was massive for its time; the cargo took 36 missions. During the 1931 maneuvers, air transports, a collection of some 48 planes of 9 different models, supplied food, medical, and personal equipment items for 1,400 troops as they covered a dozen states over a 15-day period. The maneuvers affirmed that Air Corps units could be sustained by air.[14]

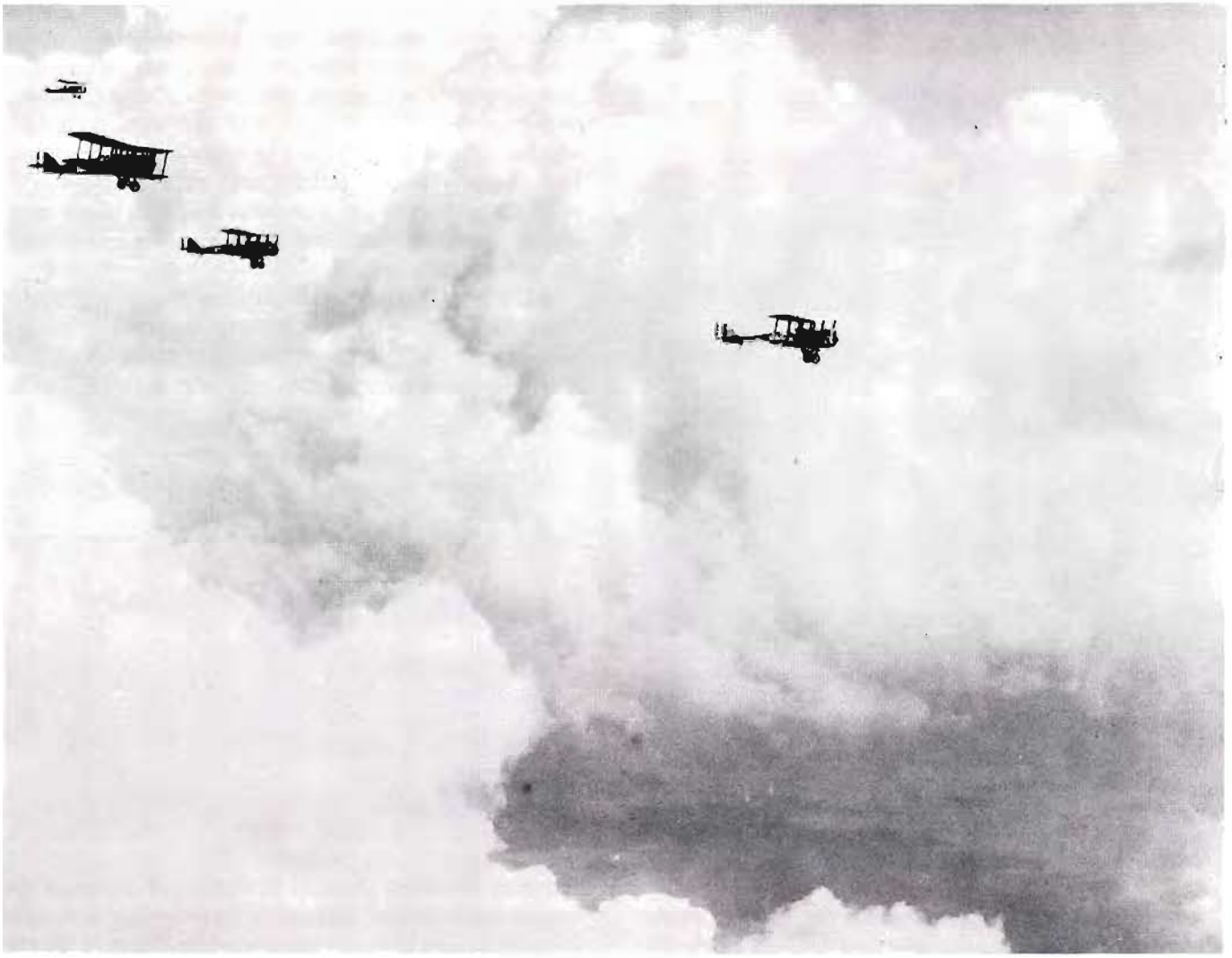
Accordingly, at the 1931 Army Engineering Supply Conference, Major Hugh J. Knerr, Chief of the Field Service Section of the Materiel Division, proposed the creation of a new air cargo system. Knerr believed the division and its four geographical air depots should each receive two cargo planes. The Army Air Corps subsequently purchased four Bellanca YIC-14s that had been adapted for cargo hauling. The Air Corps assigned one plane and one enlisted pilot to each of its four air depots, and early in 1932, Major Knerr inaugurated a local Air Transport Supply Service at each depot. At the Army Engineering Supply Conference that fall, Major Knerr and Lieutenant Colonel Albert L. Sneed, Commander of the Fairfield Air Depot, pushed the concept of airlift further.[15] Knerr

explained the purpose behind the Air Transport Supply Service:

> If an Air Force is tied to rail heads and its services of supply dependent upon motor transportation, its mobility is that of the flat car and truck. The ideal situation is one wherein the Air Force is maintained and accomplishes all of its transportation by air.[16]

He suggested the creation of a transport group, headquartered at Wright Field, Ohio, and a squadron at every air depot in the United States. Knerr had learned the importance of air mobility four years earlier when the 2d Bombardment Group under his command had conducted experiments in moving by air. With War Department planners emphasizing mobility for land and air forces, military leaders were inclined to go along with a more formal organization for air transport assets. Major Knerr's Field Service Section had already calculated that an air force of 9,000 men

One of the largest displays of air power before World War II was the 1931 Air Corps maneuvers, held at the Fairfield Air Depot Reservation, Ohio, between 15 and 30 May.



Air maneuvers.

in support of a field army of a million troops would require 210 cargo airplanes, each capable of transporting 3,000 pounds or 1.5 tons.[17] Based upon this wartime need, a rudimentary transport group in peacetime was in order.

The Douglas C-1 was the first of a new series of cargo-personnel transports. The two pilots sat side by side in an open cockpit while the passengers rode in a cabin that could accommodate eight.

Major Hugh Knerr was responsible for creating an Air Transport Supply Service at each of the four air depots in 1932.

Major General Benjamin D. Foulois, Chief of the Air Corps, approved Knerr's suggestion in November 1932, and the Air Corps created the 1st Air Transport Group (Provisional) under the Air Corps' Materiel Division. Commanded by Major Knerr, the group consisted of four transport squadrons located at the Sacramento Air Depot, California; the San Antonio Air Depot, Texas; the Fairfield Air Depot, Ohio; and the Middletown Air Depot, Pennsylvania. Using enlisted men as pilots and whatever planes were available, Knerr moved engines, parts, and other equipment between the depots and area airfields. The four new squadrons also provided air transport support for exercises and maneuvers.[18]

THE AIRMAIL DISASTER

The pressing need for military aircraft specifically designed to carry cargo came to the public's attention in February 1934 in a most unusual way. Presented with evidence that airmail contracts had been improperly awarded during Herbert Hoover's Administration, President Franklin D. Roosevelt canceled all airmail contracts and ordered the Army Air Corps to fly the mail. Lacking both transport planes and a trained pilot force, Major General Foulois made the best of a bad situation. He instructed his pilots to carry the mail in pursuit, observation, and bombing airplanes. Encountering terrible winter weather, a number of the Army's airmail fliers died in crashes. The ensuing public outcry and political pressures forced the Roosevelt Administration to issue new civilian contracts and take the Army Air Corps out of the airmail business.[19]

The airmail fiasco highlighted problems within the Army Air Corps and prompted the Army to reorganize the corps for more effective operations. The reorganization consolidated offensive aviation forces

In 1934, President Franklin D. Roosevelt canceled the commercial airmail contracts because of apparent favoritism and directed the Army Air Corps to fly the mail.

into a single striking force, General Headquarters (GHQ) Air Force, which was placed under the command of Major General Frank M. Andrews. Separate from that was the Air Corps, which handled training and supply functions. Recognizing the need for more modern transport planes, the Air Corps obtained a new Douglas DC-2 for testing purposes in 1935. The following year, it purchased twenty Douglas transports, designated C-33 and C-34. The original Douglas DC-2 became Andrews' command plane, and the other twenty were distributed between the GHQ Air Force stations and the Air Corps depots.[20]

Small fiscal budgets prevented the Air Corps from keeping a complete inventory of parts and equipment at every Army airfield; however, the transport squadrons provided a solution. The Materiel Division planners believed that maintaining a small inventory at each airfield and then relying upon airplanes to move needed supplies would be less expensive than stocking a full inventory at every station. The transport squadrons proved the validity of this idea, and in June 1935, the four provisional transport squadrons became Regular Army units. Not until May 1937, however, did the Army formally organize the 10th Transport Group under the command of Major Hugh A. Bivins. Activated on 8 June 1937 and headquartered at Patterson Field, Ohio, each of the 10th Transport Group's five squadrons consisted of one or two officers and about 50 enlisted pilots.

Brigadier General Augustine W. Robins, Chief of the Materiel Division from January 1935 to January 1939, and Brigadier General Hap Arnold, now the Assistant Chief of the Air Corps, wanted to purchase modern transports for these units because they needed to move the "personnel of tactical units at the same rate of speed as the planes with which the tactical units were equipped." Furthermore, when not engaged in tactical movements, the transport planes were of "inestimable value" in distributing supplies.[21] A staff study completed by the Plans Division in the Office of the Chief of the Air Corps in 1936 substantiated these conclusions. The study recommended the continued employment of an air transportation service during peacetime because the airlift organization would still provide "training and development which can be rapidly expanded in an emergency, as well as augment the movement of personnel and supplies of tactical units in peace maneuvers."[22]

Air Corps planners intended to expand the 10th Transport Group and create another five-squadron group under GHQ Air Force. One of the squadrons would be stationed at Panama and another at Hawaii. The remaining three squadrons would be broken into flights and dispersed among the GHQ Air Force stations in the United States. Essentially, the Air Corps' planners wanted to create two air transport organizations: the 10th Transport Group for logistical

The Douglas XC-32 transport at Langley Field, Virginia, April 1936.

The Douglas C-33 moving field equipment.

support and the GHQ Air Force squadrons for tactical support. Brigadier General Robins, however, voiced objections to spreading the few transport planes between that many airfields. He suggested to Major General Oscar Westover, who had replaced Foulois as Chief of the Air Corps in 1935, that all Army transport planes should be consolidated under the 10th Transport Group. Foreshadowing later arguments for centralizing airlift activities, Robins maintained that the airplanes could be dispatched to fulfill any request from the Army Air Corps or General Headquarters Air Force; the rest of the time they could be used to good advantage to haul supplies. If consolidated under one command, he argued, these aircraft would be used most efficiently. General Westover, however, rejected Robins' suggestion, and GHQ Air Force not only kept its own transport aircraft but continued to have access to the 10th Transport Group's aircraft. Whenever General Headquarters Air Force's air transportation requirements exceeded the capacity of its own planes, the 10th Transport Group provided support.[23] Consolidation of the air transport aircraft under one command would not take place until many years later.

Obtaining a sufficient number of transportation aircraft presented an even more pressing problem for staff officers in the Army Air Corps. The Office of the Chief of the Air Corps determined that the Army needed a total of 149 transport planes: 63 for GHQ Air Force; 50 for the Materiel Division; and 36 for the air bases. In December 1936, Brigadier General Arnold tried to convince the Army General Staff and the War Department to purchase more transport aircraft. However, Secretary of War Harry Woodring disapproved Arnold's request in August 1937, saying that he saw no reason "for buying any transports due to their high price." Secretary Woodring allowed the Army Air Corps to purchase only 36 transports in 1938 and none in 1939. Thirty-two of the new planes, which were Douglas C-39s (DC-2s with DC-3 tails), went to the 10th Transport Group. Three other C-39s were assigned to General Headquarters Air Force. As an economy measure, Woodring directed the Army Air Corps to meet its pressing air transport requirements by converting old bombers. With the money saved, Woodring purchased new twin-engine B-18 bombers—not the four-engine B-17s the Army fliers wanted.[24]

Brigadier General Augustine W. Robins, Chief of the Air Corps' Materiel Division from 1935-1939, wanted to keep all Army air transports under a single organization.

The Douglas-built C-39 could accommodate up to 16 passengers and was a variant of the C-32.

Through maneuvers conducted in the northeastern United States during May 1938, the Army Air Corps demonstrated its ability to deploy rapidly to a threatened area. In what was a particularly impressive display for the time, Brigadier General Delos C. Emmons, who commanded GHQ Air Force's First Wing, quickly moved 42 planes and 945 men from their stations in California to unfamiliar airfields in New England. This transcontinental deployment succeeded because General Emmons had 16 converted bombers available for shuttling men and equipment. Even though the planes required eight trips to complete the move, the potential for rapid deployment had been well proven. The lesson was not lost on senior Air Corps leaders as tensions increased overseas in Europe.[26]

WORLD WAR II AND AID TO ALLIES

With the German invasion of Poland in September 1939, the start of World War II brought great changes in American military air transportation. Rapid German victories and the defeat of France in 1940 left only Great Britain to face the Nazi menace in Western Europe. Protected by the English Channel and the valiant effort of the Royal Air Force (RAF) during the Battle of Britain, the British withstood German air attacks. However, the only means available to the British for striking directly at Nazi Germany was aerial bombardment. Desperately needing bombers to carry out their air assault on Germany, the British looked to the United States' aircraft industry as a source of supply, and the administration of President Franklin D. Roosevelt supported Britain's efforts to obtain bombers.

Neutrality legislation passed by Congress during the 1930s prevented the United States from supplying weapons to belligerents, but the Roosevelt Administration secured congressional support to allow the British to purchase American-made munitions if they transported them in their own ships on a "cash and carry" basis. Soon, however, the British ran short of money to pay for the weapons, and President Roosevelt responded by obtaining the passage of the Lend-Lease Act in March 1941. This new legislation allowed the United States to supply Great Britain with the weapons needed to continue the fight against Germany.

Flying the airplanes to Great Britain offered the quickest method of delivering them across the North Atlantic; airplanes that lacked the range to make the long flight went by ship. Before the Lend-Lease Act, American officials used an awkward procedure to transport the planes to Europe. Under the cash-and-carry legislation, the factories hired civilian pilots to fly the planes from the West Coast, where most of the factories were located, to Montreal, Canada. From there, civilian pilots employed by the British Atlantic Ferrying Organization (ATFERO) flew the planes to Newfoundland, and then the final 2,100 miles across the North Atlantic to Scotland. This procedure

reduced delivery times from three months to only ten days, but the British had difficulty finding pilots who were willing to ferry the planes. The lack of civilian pilots forced them to withdraw RAF pilots from combat.

In April 1941, after the passage of the Lend-Lease legislation, General Arnold, now in command of the Air Corps, suggested using Air Corps pilots to ferry the planes. The British readily accepted his proposal. On 28 May 1941, President Roosevelt directed the Secretary of War, Henry L. Stimson, to take responsibility for deliveries to Newfoundland; however, American military pilots lacked the authorization to fly the aircraft across the Atlantic. The following day, Colonel Robert Olds of the Plans Division, Office of the Chief of the Air Corps, received verbal orders to organize the ferrying service, and the Air Corps Ferrying Command (ACFC) was officially constituted as of 29 May 1941. Its mission included the movement of aircraft and the maintenance of "such special air ferry service [or air transport service] as may be required to meet specific situations." This broad charter allowed the Air Corps Ferrying Command to extend its operations around the world and authorized the creation of a regular military air transport system between the United States and Great Britain. From 6 June until 7 December 1941, the command ferried approximately 1,350 aircraft to American Allies. Over 90 percent of the trips to the British in Canada were from factories on the West Coast or on the Atlantic seaboard.[26]

Growing cooperation between Great Britain and the United States also necessitated an American air transport service for diplomatic mail and personnel. Using the second part of its charter, the Air Corps Ferrying Command inaugurated the trans-Atlantic military air transport service on 1 July 1941 when Lieutenant Colonel Caleb V. Haynes flew a modified B-24 from Washington, DC, to Scotland, via Montreal and Newfoundland. As the number of flights between Great Britain and the United States increased, the British respectfully referred to this service as the "Arnold Line." By the end of the summer, ACFC was routinely operating six round trips over the North Atlantic every month. This effort continued unabated until the harsh winter weather set in.[27]

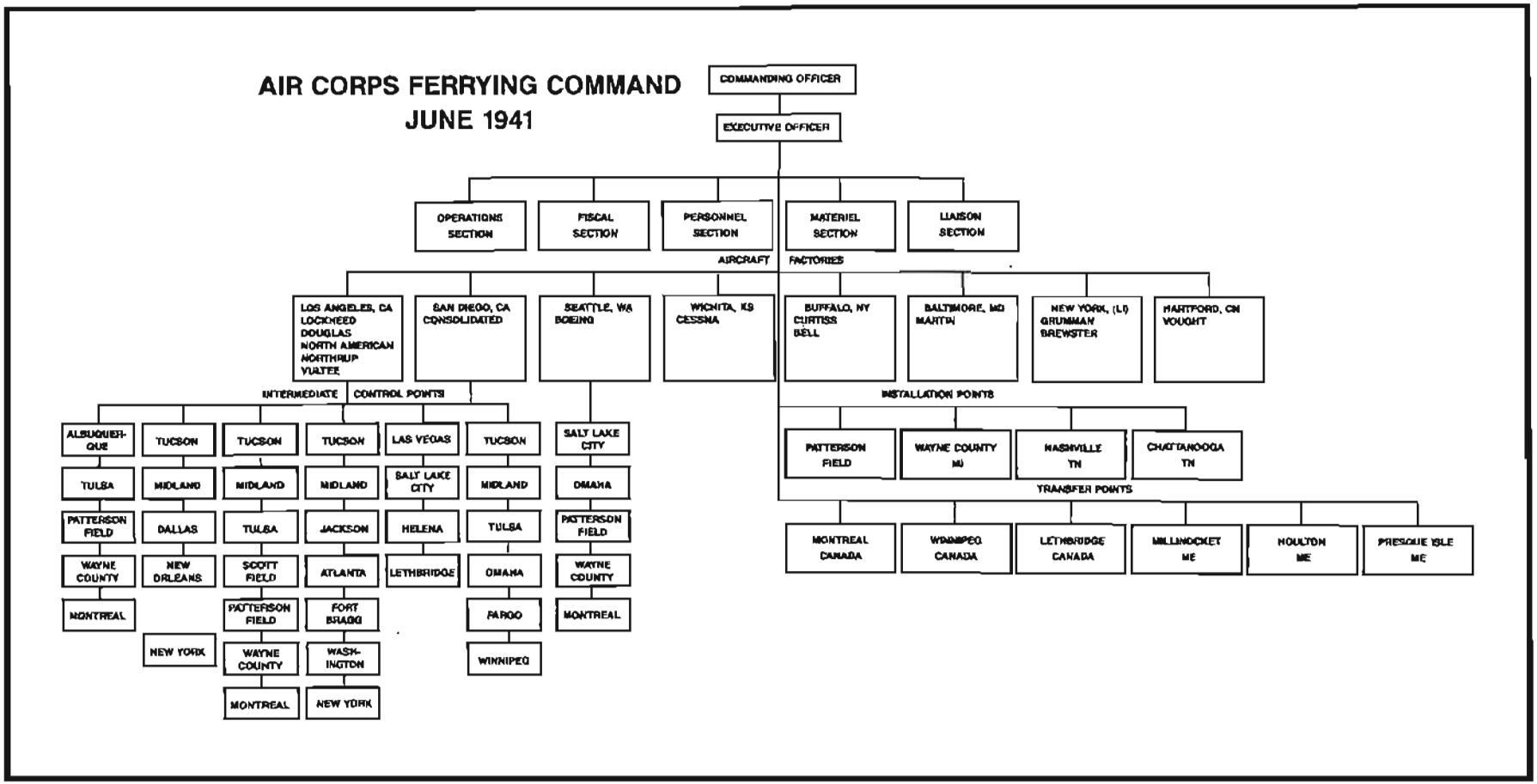
To allow American military aircrews to ferry Lend-Lease aircraft outside the Western Hemisphere, President Roosevelt authorized the Air Corps Ferrying Command on 24 November 1941 to deliver planes "to such other places and in such manner as may be necessary to carry out the lendlease program." Although implicit before this time, President Roosevelt, with this decision, formally gave the ACFC a global mission. On 30 December 1941, the Office of the Chief of the Air Corps reorganized the command to reflect its expanded role. Two subordinate units were created under its Headquarters: the Domestic Division and the Foreign Division.[28]

THE DEVELOPMENT OF AN AIR TRANSPORT NETWORK

Even before Roosevelt's authorization, the Air Corps Ferrying Command was heavily involved in surveying and equipping air routes to Alaska, Australia, Africa, India, and Great Britain to ensure that Lend-Lease aircraft reached the Allies in an efficient and safe manner.[29] For instance, during the middle of 1941, fighting in the Mediterranean increased Britain's aircraft requirements for that theater beyond all expectation. When the Germans attacked the Soviet Union on 22 June 1941, the movement of aircraft into that region was even more important. To support the Allied effort, ACFC leaders established an air transport route over the South Atlantic as a means to rush Lend-Lease supplies to the beleaguered Russians through the Persian Corridor. This was a much more significant accomplishment than the establishment of the North Atlantic route because some 10,000 miles separated Miami, Florida, and Cairo, Egypt, in contrast to the relatively short 2,100 miles separating Canada and Scotland.[30]

A major step forward in the development of this route system was a historic flight in September 1941 when two modified B-24s carried American diplomat Averell Harriman and his staff to Moscow to discuss Lend-Lease procedures with the Soviets. The planes first transported Harriman to Scotland, and from there, they flew a 3,150-mile circular route to Moscow. Then, the two airplanes returned to Washington over different routes. Major Alva L. Harvey took his B-24 home by way of the Middle East, India, Singapore, Darwin, Port Moresby, Wake Island, and Hawaii. Lieutenant Louis T. Reichers took his plane to Cairo, across Central Africa and the South Atlantic to South America. Following the coast northward, Reichers passed through the Caribbean to Florida. The pioneering efforts of these two fliers paid dividends when the worldwide scope of the war soon forced the Air Corps Ferrying Command to expand its ferrying and air transport services over the South Atlantic and across Africa to the Middle East. Later, cooperation from the government of Brazil made possible the establishment of airfields along the South Atlantic route.[31]

The South Atlantic route was enormously important to the Air Corps Ferrying Command prior to formal American entry into World War II. Although contract ferrying operations had begun earlier, ACFC officially opened the route on 14 November 1941. The ferrying missions to the Middle East began in southern Florida and extended through the Caribbean and Antilles Islands to Natal, on the easternmost portion of the Brazilian coast, a distance of some 4,000 miles. From there the flight across the South Atlantic was about 1,800 miles at its narrowest point, but upon


AIR CORPS FERRYING COMMAND
JUNE 1941
COMMANDING OFFICER
EXECUTIVE OFFICER
OPERATIONS SECTION
FISCAL SECTION
PERSONNEL SECTION
MATERIEL SECTION
LIAISON SECTION
AIRCRAFT
FACTORIES
LOS ANGELES, CA LOCKHEED DOUGLAS NORTH AMERICAN NORTHRUP VULTEE
SAN DIEGO, CA CONSOLIDATED
SEATTLE, WA BOEING
WICHITA, KS CESSNA
BUFFALO, NY CURTISS BELL
BALTIMORE, MD MARTIN
NEW YORK, (LI) GRUMMAN BREWSTER
HARTFORD, CN VOUGHT
INTERMEDIATE CONTROL POINTS
INSTALLATION POINTS
ALBUQUER-QUE
TULSA
PATTERSON FIELD
WAYNE COUNTY
MONTREAL
TUCSON
MIDLAND
DALLAS
NEW ORLEANS
NEW YORK
TUCSON
MIDLAND
TULSA
SCOTT FIELD
PATTERSON FIELD
WAYNE COUNTY
MONTREAL
TUCSON
MIDLAND
JACKSON
ATLANTA
FORT BRAGG
WASH-INGTON
NEW YORK
LAS VEGAS
SALT LAKE CITY
HELENA
LETHBRIDGE
TUCSON
MIDLAND
TULSA
OMAHA
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WINNIPEG
SALT LAKE CITY
OMAHA
PATTERSON FIELD
WAYNE COUNTY
MONTREAL
PATTERSON FIELD
WAYNE COUNTY MI
NASHVILLE TN
CHATTANOOGA TN
TRANSFER POINTS
MONTREAL CANADA
WINNIPEG CANADA
LETHBRIDGE CANADA
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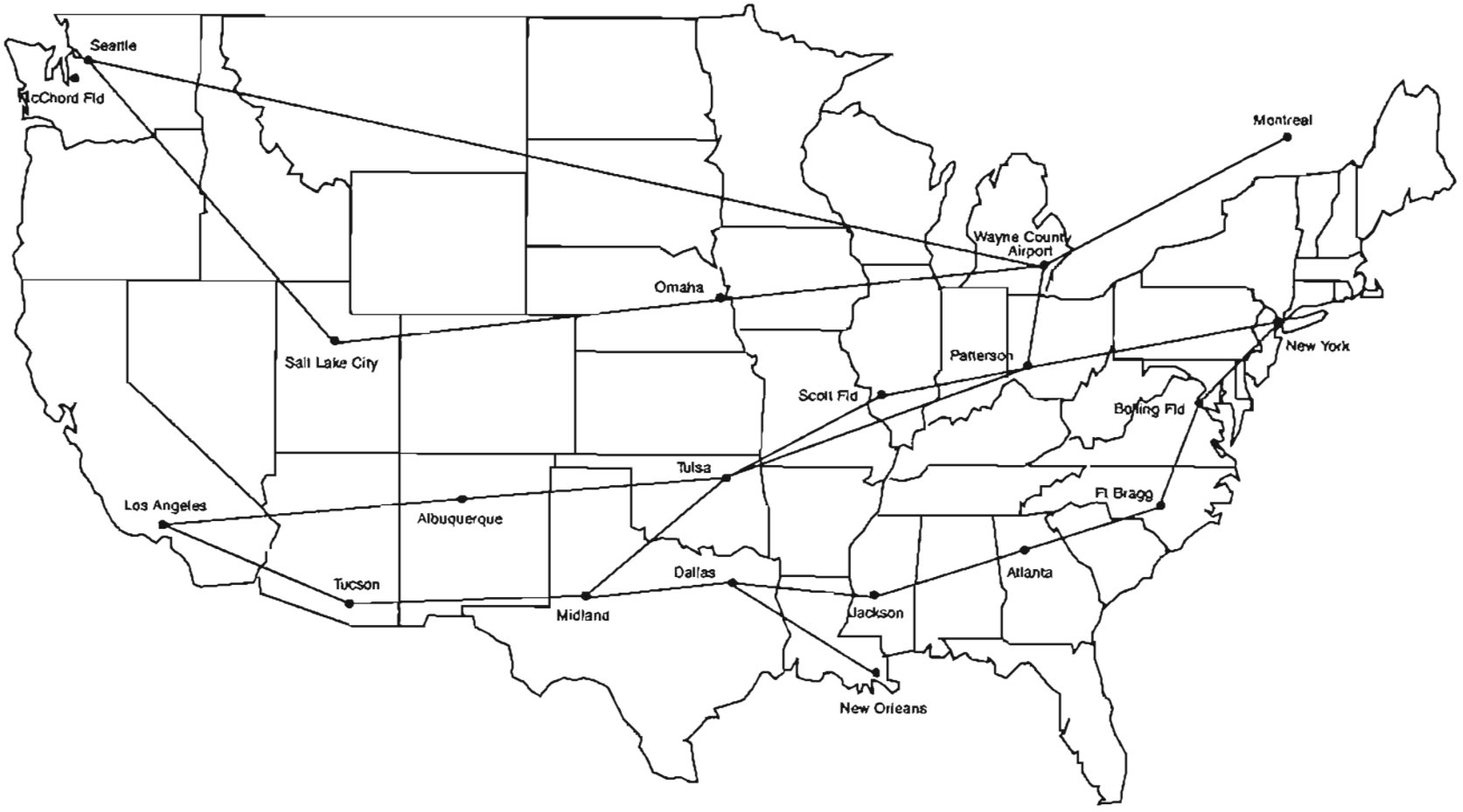
HOULTON ME
PRESQUE ISLE ME



EARLY AIR CORPS FERRYING COMMAND ROUTES
JUNE 1941

A squadron of P-40s await delivery to the Soviets via the Alaskan route. The command was heavily involved in ferrying aircraft to the Allies as part of the Lend-Lease program.

reaching Africa ACFC pilots could stop at any number of places before continuing on to Cairo or the Soviet Union. A major advantage of the route was the year-round flying weather although the tropical jungles of the Amazon and the stormy weather of some parts of the Caribbean presented their own unique dangers. In addition, most of the flight pattern was inside territory controlled either by Brazil or Great Britain.[32]

The route was especially critical following Pearl Harbor when President Roosevelt ordered the immediate reinforcement of the Philippine Air Force. With Japan cutting off the Pacific route, the ACFC used the South Atlantic route to rush some 80 B-17 and LB-30 bomber aircraft to the Philippines. Designated Project X, the assignment was the first major foreign ferrying operation of the war and the first overseas movement of tactical units.[33]

With the opening of the South Atlantic route, the Air Corps Ferrying Command began assigning control, communications, and weather personnel at bases along the way. These airmen became responsible for dispatching all United States military aircraft, regardless of the command to which they were assigned; transmitting arrival and departure reports; providing fueling and maintenance facilities; arranging quarters and food for transient crews; collecting and forwarding intelligence and other information needed by the aircrews; and exercising general administrative control.[34] During the war years, these responsibilities grew to a level unimagined by the command's leaders. The worldwide nature of ACFC's commitments ensured the command's involvement in several specialized service functions which would remain part of its operations for many years. Accordingly, after the war, the Air Weather Service, the Air Photographic and Charting Service (which became the Aerospace Audiovisual Service), and the Army Airways Communications System for long-range communications were assigned to the Air Transport Command. This development also led to the command assuming housekeeping functions at far-flung bases throughout the world.[36]

AIR CORPS FERRYING COMMAND AND CONTRACT AIRLIFT

Although the Air Corps Ferrying Command had the authority to operate a worldwide air transportation system by the end of 1941, it lacked the necessary resources to meet the Allied demands for aircraft. The leaders of ACFC were convinced that the command was stretched to the breaking point in operating the

A Soviet red star replaced the Army Air Forces' white star on Lend-Lease aircraft.

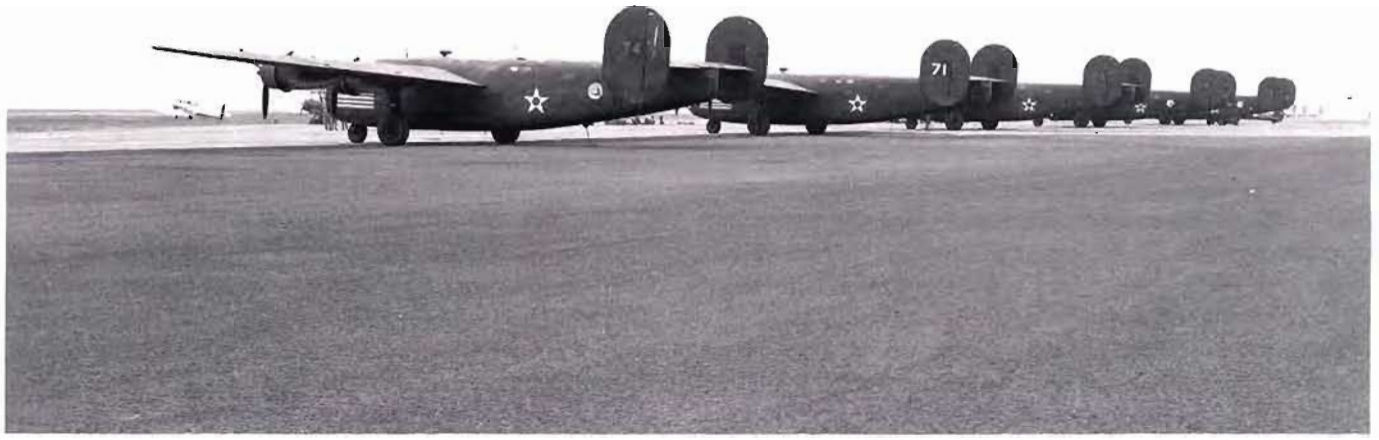
North Atlantic route and, therefore, proposed using civilian contractors to fly the South Atlantic ferrying missions. Colonel Olds agreed to a contract with Atlantic Airways, Ltd., a Pan American Airways subsidiary, to fly ferrying missions to Africa along the South Atlantic route. This was a reasonable decision because it tapped the rich experience of Pan American in Latin America. The firm, operating there for more than 12 years, knew local government authorities and understood how to get the necessary support. Atlantic Airways provided American pilots, and the British supplied navigators on the first missions. The first flight left Miami on 21 June 1941.

By the first part of August 1941, Pan American had created three subsidiaries to handle ferrying operations. The most important of these was Pan American Air Ferries, Inc., which actually flew the missions; the other two were essentially support organizations for the ferrying company. It should be added, however, that it took several months for Pan American to begin operating smoothly. By the time the Japanese attacked Pearl Harbor, Pan American Air Ferries had delivered only 12 aircraft, all transports for use in North Africa. Deliveries increased every month thereafter, and by the end of 1942, Pan American aircrews had delivered about 460 aircraft to the Middle or Far East over the South Atlantic route.[36]

Inextricably linking ACFC and civilian airlines was the quest for more modern and efficient aircraft, especially those with a sufficiently long range to travel intercontinental distances. For example, in early December 1941, the command had only 11 four-engine planes. The airlines possessed just over 400 transports. To meet the critical shortage of military transport aircraft after the attack on Pearl Harbor, Roosevelt signed an executive order on 13 December directing the Secretary of War to take possession of any portion of any civilian airline needed for the war effort. Accordingly, twin-engined transports such as the DC-3 (C-47 and C-53 variants), which made up the bulk of the civilian airline fleet, were incorporated into ACFC's operations. They were serviceable aircraft and became, along with the C-46s, C-54s, and C-87s, the military's air transport workhorses.

Pan American Airways, Transcontinental, and Western Air quickly signed contracts to provide aircraft ferrying and air transport services over numerous worldwide routes, primarily in the first year using civilian versions of the C-47 aircraft. Eventually, every major airline provided some type of contract service.[37] At first, the civilian airlines handled most of the military's air transportation needs because they had the airplanes and pilots. Although many of the airlines' 2,600 pilots were Army reservists, the Army could not call them up for active duty without disrupting the vital air transportation system. Initially in 1942, the airlines provided almost 88 percent of the air transportation, but by 1945 the military planes and crews were providing 81 percent.[38]

Terminus for Air Corps Ferrying Command transatlantic operations at Bolling Field in Washington, DC, October 1941.



B-24 aircraft, used in transatlantic operations, lined up at Bolling Field.

REORGANIZING TO MEET THE WARTIME CHALLENGE

Army aviation underwent a major reorganization in June 1941. The General Staff established the Army Air Forces (AAF) and named General Arnold its chief. Within the AAF, the General Staff created two subordinate commands: the Air Force Combat Command (AFCC), those units formerly comprising the GHQ Air Force; and the Air Corps, which controlled all other AAF functions.[39] Not considered a combat command, the Air Corps Ferrying Command remained part of the Office of the Chief of the Air Corps until March 1942. On 9 March to effect a better division of responsibilities between the Army Air Forces and the other War Department agencies, the War Department established three Army branches—Army Ground Forces, Army Air Forces, and Services of Supply. Included in this realignment was the elimination of the Office of the Chief of the Air Corps. This left the ACFC, now termed the Ferrying Command,[40] directly subordinate to General Arnold, the commanding general of the Army Air Forces. Nevertheless, the Ferrying Command continued to grow and overlap with other units. In particular, the Ferrying Command duplicated the duties of the Air Service Command, which had been created to meet the increasing requirements for the supply and maintenance of Army aircraft.[41] To solve the problem, General Arnold assigned the responsibility for transporting aviation technical supplies to bases or units within the Western Hemisphere to the Air Service Command in late March 1942. That command had the additional duty of creating transport squadrons capable of delivering airborne infantry, glider troops, and parachute troops. Arnold assigned to the Ferrying Command the mission of operating, "either directly or by contract, all transport lines extending beyond the Western Hemisphere," but in time only military personnel served with the Ferrying Command outside the United States.[42]

More important and perhaps without intention, General Arnold's decision essentially separated military air transport operations into either troop carrier operations or logistics operations. His decision mirrored the prewar organization which placed "tactical transport" airplanes under the GHQ Air Force and logistical transport airplanes under the Materiel Division. This was a watershed in a doctrinal issue that has been present in questions of airlift since that time: the definitions and dichotomies of strategic and tactical airlift. Strategic airlift has long been defined as "the continuous or sustained air movement of units, personnel, and materiel between area commands; between the Continental United States (CONUS) and overseas areas; within an area command when directed." Strategic airlift, therefore, can be broadly termed as the logistical movement of troops and material and their resupply over intercontinental routes.[43] These resources, General Arnold and the senior leadership of the Army Air Forces understood, must be organized into a single command with worldwide responsibilities. The mission of the Ferrying Command and its successors represented the logical development of these doctrinal ideals.

General Hap Arnold had used his authority to establish a rudimentary air transport capability in the Army Air Corps. This force later was institutionalized as the Air Transport Command in June 1942.

Tactical airlift was a different issue, however. It has been defined as those forces:

> organized, equipped, and trained to move combat forces and sustaining material under widely varying situations ranging from small movements in battle to large movements over long distances. Tactical or theater airlift is the employment of airlift within a theater to support combat operations; it includes airborne assaults, airdrop resupply, and logistical support between theater bases.[44]

Since tactical airlift was viewed as a combat resource in a manner that logistical airlift never had been, it was assigned to the air component of the theater commands, not to a single command with a global mission. The interconnection of these two differing approaches toward airlift was not resolved until many years after World War II with the 1983 incorporation of the last remaining airlift forces into a single command, the Military Airlift Command.

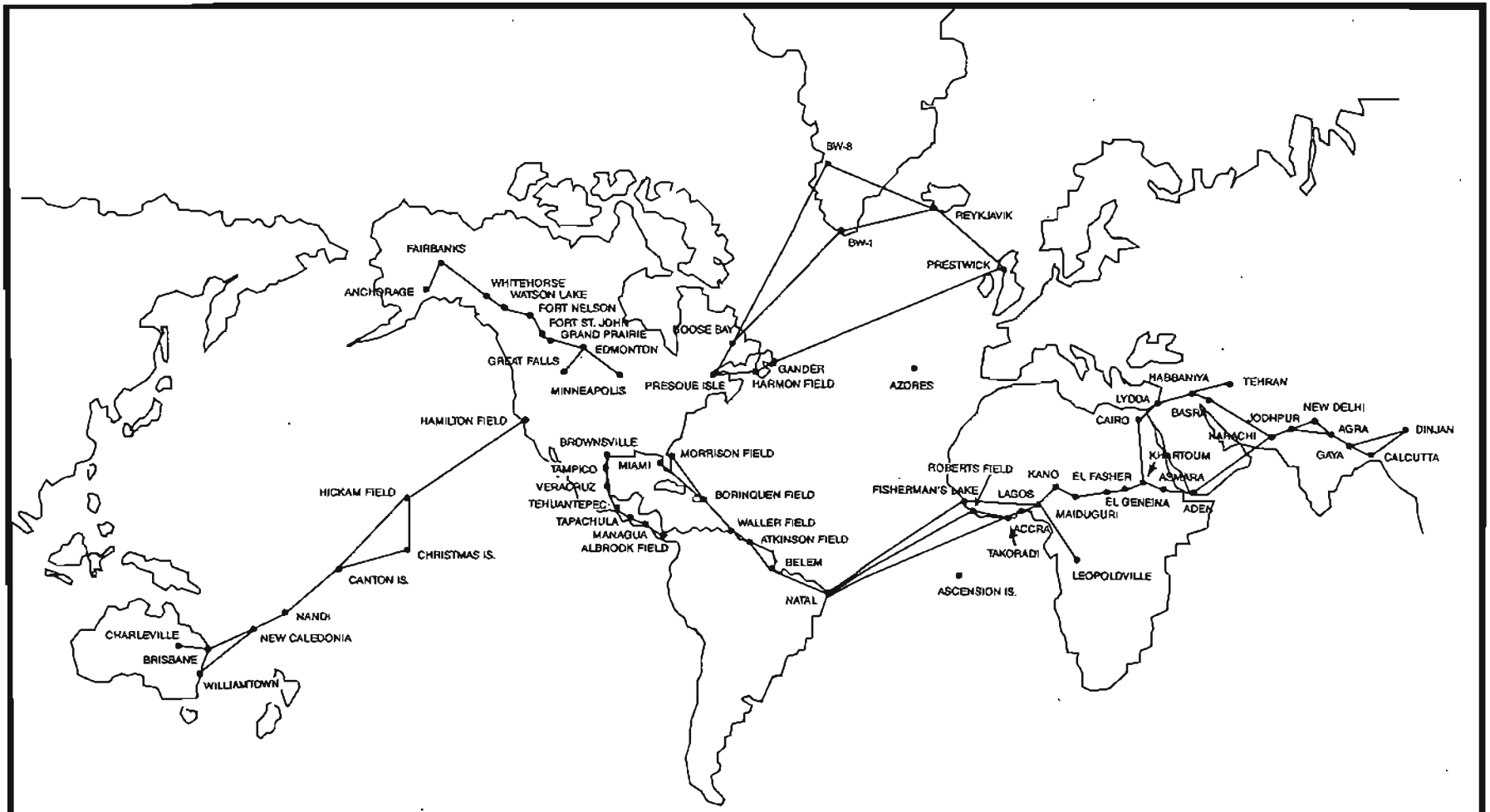
This factionalism proved burdensome for Ferrying Command personnel on numerous occasions during World War II. As the command expanded its operations, problems arose from the traditional concept that a theater commander controlled all resources within his area. Since a Ferrying Command route might pass through several theaters, the command's aircraft were often viewed as additional theater assets and subjected to redirection. Faced with critical airlift shortages, theater commanders understandably diverted scheduled Ferrying Command flights for their own needs. This caused havoc with the efficient operation of the total air transport system. In June 1942, the War Department formally directed the theater commanders to refrain from diverting the transports, but the practice, although diminished, continued throughout the war.[45]

CREATION OF THE AIR TRANSPORT COMMAND

Despite the new organizational arrangement of March 1942, the Ferrying Command and the Air Service Command still duplicated too many functions. In addition, the United States Navy had created its own Naval Air Transport Service (NATS) on 12 December 1941 to provide logistic airlift for the Navy's fleets and far-flung bases. L. Welch Pogue, Chairman of the Civil Aeronautics Board, recommended that General Arnold create a new command, separate from the Army and Navy, to control military air transportation. At the very least, Pogue believed, all air transportation within the Army should be consolidated under a single command. Pogue suggested in a memorandum in the spring of 1942:

> It would constitute a great step forward if the air transport services of the Army could be consolidated and placed under one command, provided all other commands and branches of the Army were required to present their demands for services of the airline organizations to such a unified Air Force Transport Command and to abide by its decisions.[46]

Taking the problem under consideration in June 1942, General Arnold concluded that the responsibility for air transportation must be assigned to "permit the most efficient utilization of aircraft, facilities and personnel by the elimination of dual responsibility and duplication of services." He also believed that the Army Air Forces had to "provide transport operations by military personnel, rather than by civilians under contract, on routes that enter combat areas or are likely to become combat areas."[47] Motivated by these considerations, General Arnold issued AAF General Orders Number 8 on 20 June



PRINCIPAL FOREIGN TRANSPORT AND FERRYING ROUTES
JUNE 1942

1942, creating both the Air Transport Command (ATC) and the Troop Carrier Command. Effective 1 July, the Air Transport Command received the following responsibilities:

> A. The ferrying of all aircraft within the United States and to destinations outside the United States as directed by the Commanding General, AAF.
> B. The transportation by air of personnel, materiel, and mail for all War Department agencies, except those served by Troop Carrier units.
> C. The control, operation, and maintenance of establishments and facilities on air routes outside the United States which were under the control of the Commanding General, AAF.[48]

General Arnold's recommended course of action limited the Air Service Command to continental operations and allowed ATC to handle all other air transport save that reserved for support of theater combat forces. In addition, to the Troop Carrier Command went the responsibility of providing air transportation for parachute troops, airborne infantry, and glider units; and for conducting local air transport missions within the theaters of operation. Colonel Harold L. George, who had assumed command of the Ferrying Command in April 1942, became ATC's first commander, a post he held until the end of the war.[49]

The Navy, never interested in any plans for unification of airlift forces, continued to operate the Naval Air Transport Service as its own long-range airlift organization throughout the war. The Air Transport Command and Army Air Forces staffs studied the question of duplicated effort by ATC and NATS and presented their findings to the Joint Chiefs of Staff repeatedly during the early 1940s, without results. In early 1944, however, the Joint Chiefs agreed that NATS would restrict its operations to serving the naval establishment. To monitor duplication, the Joint Chiefs of Staff created the Joint Army-Navy Air Transport Committee (JANATC).[50] Because of the decisions made by General Arnold, the Joint Chiefs of Staff, and the Navy, consolidating all military air transportation under a single command would not be achieved until many years later.

The Ferrying Command and its predecessor ACFC had existed as a separate entity for only 55 weeks, but during that time it compiled an impressive record. Besides pioneering the global military airways, pilots ferried 13,513 aircraft to final domestic destinations and 638 airplanes to final foreign destinations. Additionally, the Ferrying Command transported 1,920 tons of cargo, mail, and passengers before the reorganization.[51]

CONCLUSION

Despite several false starts, the United States possessed a rudimentary military airlift service when it entered the Second World War. Although the Air Corps Ferrying Command existed for only 13 months, it created a strong base for the expansion of the wartime Air Transport Command. Growing from an organization comprised of two officers and a civilian secretary in May 1941 to a force of 11,000 by the time of ATC's activation, the command also demonstrated an exemplary level of service. Its pilots had ferried over 14,000 aircraft. All of this was but a prelude to the remarkable development of airlift during the Second World War, when the value of airlift became apparent.

Chinese troops disembark after being airlifted by the Air Transport Command to Chihkiang, China, during the "Rooster Movement" to stall the Japanese drive, April-May 1945. In 21 days, ATC's India-China Division moved 25,799 troops and 2,206 animals.

CHAPTER II

MILITARY AIR TRANSPORTATION IN WORLD WAR II

American usage of military air transportation before the Second World War consisted primarily of demonstrations of airlift's potential. During World War II, military airlift grew into a vital aspect of American air power. The necessity of fighting a mechanized, global war forced the nation to create an extensive military air transport system that stretched around the world. Because of the vast distances involved, the speed at which war resources could be transported became essential to the war effort. In this environment, there arose within the American military structure two distinct divisions: logistical airlift, or air transport, to move critically needed personnel and supplies over intercontinental distances and tactical airlift to support combat operations in the theater areas. The nation's budding airline industry joined with the Air Transport Command to perform the former task with the latter airlift remaining under the control of the theater air force commanders.

Especially within its first year, the Air Transport Command, headquartered at Gravelly Point, Virginia,[1] underwent several organizational changes, adjusting as best it could to its massive growth in resources and span of control. In four years of war, the command's ferrying operations delivered 282,537 aircraft; its air transport operations, both military and contract carriers, flew over 8.5 billion passenger- and 2.7 billion ton-miles.[2] Among the billions of miles flown, one air transport operation—the "Hump" Airlift—ranked as the command's most significant accomplishment. A lesser but equally noteworthy air transport activity was ATC's support of Operation FRANTIC in the Soviet Union. Although not part of ATC's mission responsibilities, troop carrier, or tactical, airlift fully demonstrated its potential, especially during Operations OVERLORD and MARKET-GARDEN. Their inclusion provides historical background in light of the subsequent reassignment of troop carrier and tactical airlift assets to the Military Air Transport Service and Military Airlift Command. For this same reason, a discussion of special operations during World War II closes this chapter.

ORGANIZATIONAL STRUCTURE AND MISSION OF ATC

At the time of its redesignation as the Air Transport Command on 20 June 1942, the command's mission had evolved from a limited one of ferrying aircraft for the British—from American factories to transfer points near the eastern seaboard—to one of ferrying aircraft to American and Allied forces wherever located. In addition, the command's air transport service had expanded from the singular task of moving to the United Kingdom a few special passengers and mail to an airlift system which transported personnel and supplies to Australia, Egypt, and the eastern fringes of India.[3] The Air Transport Command's area of operation would continue to grow throughout the war years, eventually reaching almost every part of the world.

Specifically, the Army Air Forces' 20 June order made ATC responsible for:

> 1. the ferrying of all aircraft within the United States and to overseas locations as tasked
> 2. the transportation by air of personnel, material, and mail for all War Department agencies, excluding troop carrier units
> 3. and the control, operation, and maintenance of AAF facilities along overseas air routes.

The order further directed ATC to "utilize to the fullest extent possible, the services, facilities, and personnel of the civil air carriers."[4]

Additionally, on 1 July, ATC assumed the air freight service of the Contract Air Cargo Division from the Air Service Command, a predecessor of the present-day Air Force Logistics Command. This required ATC to provide for the airlift of critical logistical supplies to support the rest of the Army Air Forces. Airplane engines and parts were among the most frequently transported items. A July War Department circular also gave the command the authority to prioritize the movement of passengers and cargo, which had formerly been assigned to the Transportation Service of the Services of Supply. This responsibility included transporting strategic raw materials[5] such as mica, tantalite, and quartz crystals to the United States as determined by the War Production Board and the Board of Economic Warfare. Clarification of aeromedical evacuation responsibilities between the theater areas and the Air Transport Command occurred on 28 August when, at the request of the Air Surgeon's office, Headquarters Army Air Forces directed ATC to make aircraft available for evacuating casualties to the United States. These evacuations were to be part of routine air transport movements with no aircraft specifically dedicated to aeromedical purposes. By the end of the war, ATC planes had moved approximately 339,000 casualties.[6]

Initially, as stipulated by the 20 June order, ATC established two major subordinate units that roughly corresponded to the command's primary mission

responsibilities: the Ferrying Division for the delivery of aircraft and the Air Transportation Division for the shipment of resources to the theaters. The divisions' functions were to coordinate the command's activities. At the time of the redesignation, the command was already in the process of reorganizing its units and had received approval to form five independent foreign wings to manage aircraft over the various routes.

Headquarters Army Air Forces had designated the wings the 23d through the 27th AAF Ferrying Wings. Air Transport Command officials believed the numbered designations might inadvertently, through a typographical error, result in the shipment of cargo or personnel to the wrong theater. Accordingly on 5 July, the wings were renamed after the geographical areas they served. Since these units had been activated before the divisions and given extensive responsibilities for ATC operations, their wing commanders tended to exercise autonomous control in their respective areas although later directives tempered their authority somewhat. Each of these wings was also strikingly different from conventional AAF units, resembling instead an airline system with far-flung stops and support facilities.[7]

Upon the establishment of the five wings, the functions and resources of the Domestic and Foreign Wings of the old Ferrying Command were merged with the Ferrying Division. Colonel William H. Tunner, Commander of the Domestic Wing since its activation, assumed command of the division. At the time of its inception, the Air Transportation Division consisted of the Contract Air Cargo Division, formerly under the Air Service Command. Colonel Robert J. Smith, previously vice president of Braniff Airlines, headed the Air Transportation Division. Later, in March 1943, the Domestic Transportation Division would replace the Air Transportation Division. Many of its functions had already been assigned to Headquarters ATC. The Domestic Transportation Division oversaw flight and ground crew personnel training and the domestic air transportation service which was performed by civil carriers under contract until 1944. In light of the administrative difficulties involved in overseeing thirteen different carriers, ATC officials decided to militarize the domestic transport service gradually throughout the summer and fall of 1944. Officially redesignated "military air transport" with the abbreviation of MAT, the new MAT service was at first a joint responsibility of the Ferrying and Domestic Transportation Divisions. But dual control proved difficult, and the Domestic Transportation Division became a wing of the Ferrying Division on 1 November 1944.[8]

Growing demands for its ferrying and transport services forced ATC to expand its routes and operations throughout the war. Shipping supplies around the southern tip of Africa by sea took a long time, and beginning in 1942 the Allied forces in the Middle East, India, Burma, and China increasingly relied upon aerial transportation for critically needed items. The air routes between the United States and these areas grew accordingly. New airfields constructed in Morocco opened another connection with Great Britain to complement the North Atlantic route. When winter weather closed the North Atlantic route, the planes were then ferried over the South Atlantic route to Africa or on to Britain.

The Air Transport Command formed new wings wherever needed. Between October 1942 and December 1943, the command added four more wings. The Alaskan Wing, established in October 1942 at Edmonton, Alberta, took over the Northwest route to Alaska, previously a Ferrying Division responsibility. The wing ferried aircraft for delivery to the Soviet Union and provided air transportation for military activities in Canada and Alaska.

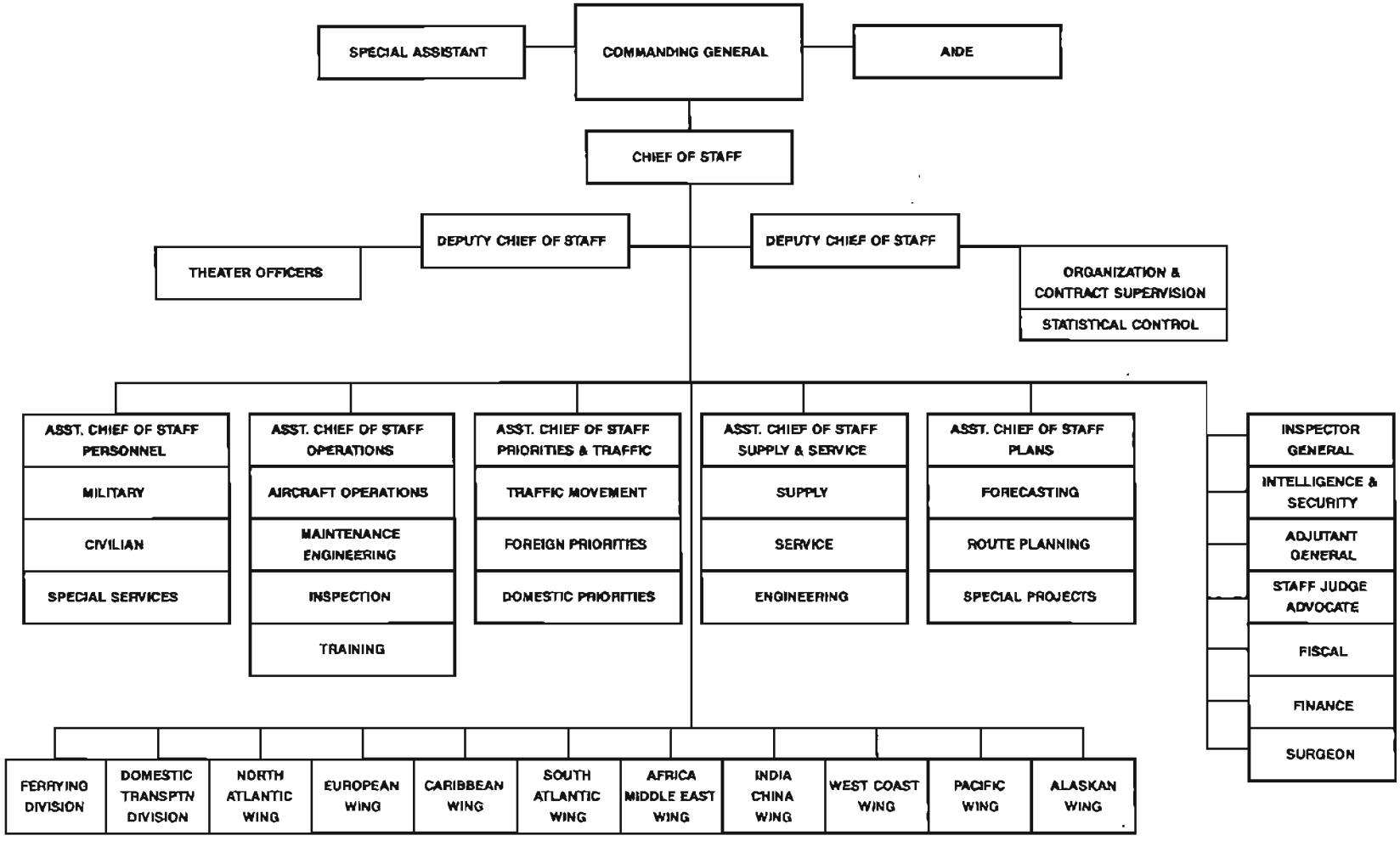
On 1 December 1942, the India-China Wing was activated and assumed from the 10th Air Force the responsibility for resupplying the Chinese over the Himalayan Mountains. The wing would become one of the command's largest. As war activities increased in the Pacific, there followed more requests for air transport and ferrying services. In January 1943, ATC renamed the South Pacific Wing the West Coast Wing and established a new Pacific Wing at Hickam Field, Hawaii, to manage the route between that base and Australia. Prior to this, ATC had little control beyond Hamilton Field, California, over the air route spanning the Pacific Ocean. Conflicting orders issued by the two wings, however, highlighted the need for a single manager. Thus, the Pacific Wing absorbed the West Coast Wing five months later.

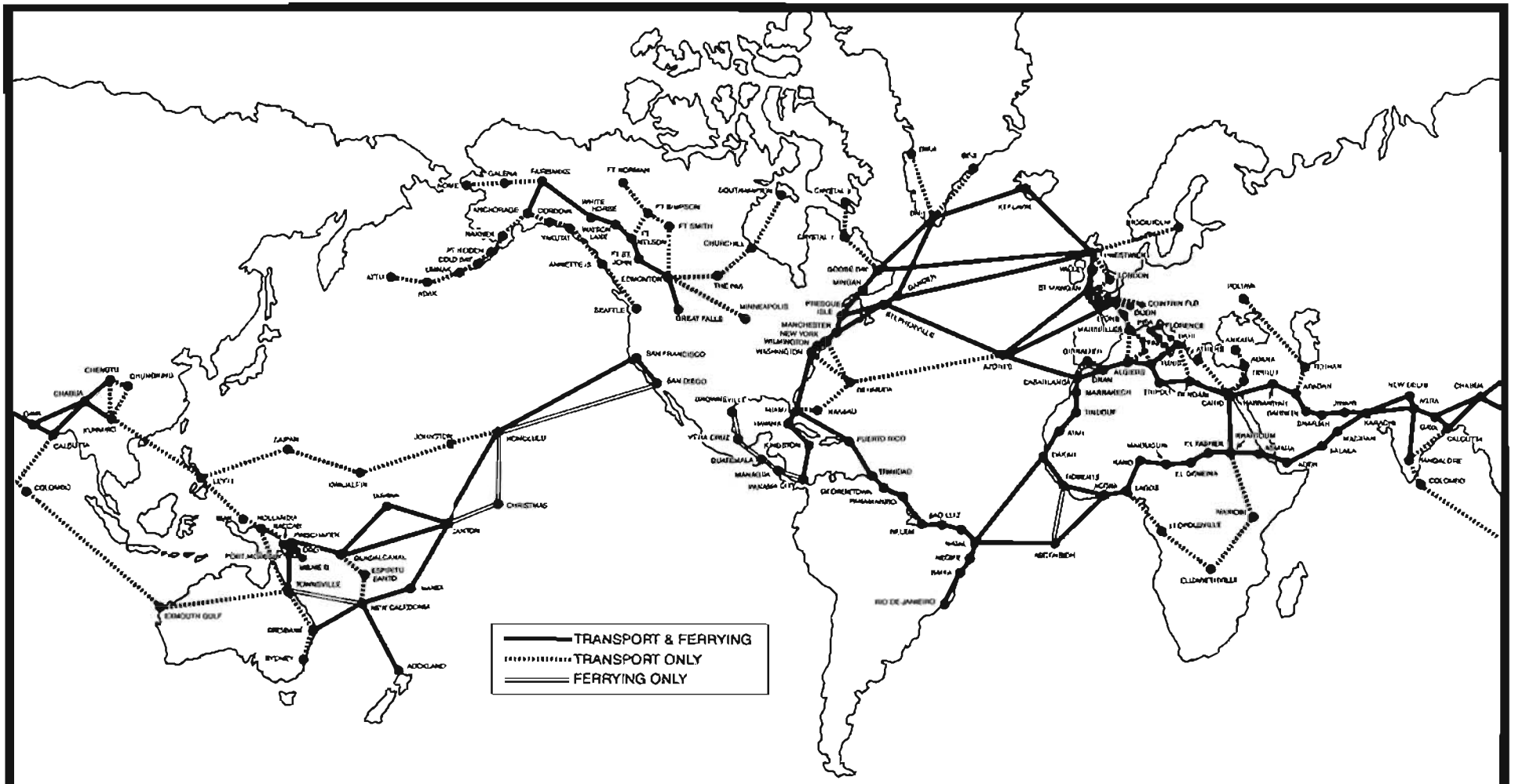
Anticipating the invasion of Europe, ATC formed the European Wing at Prestwick, Scotland, on 14 January 1943 but soon moved the wing's headquarters to London. From there, aircraft could also depart for Africa—a distinct advantage because after the invasion of North Africa in November 1942 Allied forces required substantial numbers of replacement aircraft, supplies, and personnel. Allied activities in Africa eventually caused the Africa-Middle East Wing to split along the lines of its two sectors, forming the North African and Central African Wings in December 1943.

Essentially wherever the Allied forces took back territory from the Axis forces, ATC followed, extending its air logistics and ferrying services. For example, Allied victories in the Mediterranean Theater of Operations allowed ATC to take over routes in that theater. On 7 March 1944, ATC inaugurated service between Africa and Naples. After the Normandy invasion, this route provided a link between ATC's North African and European units.

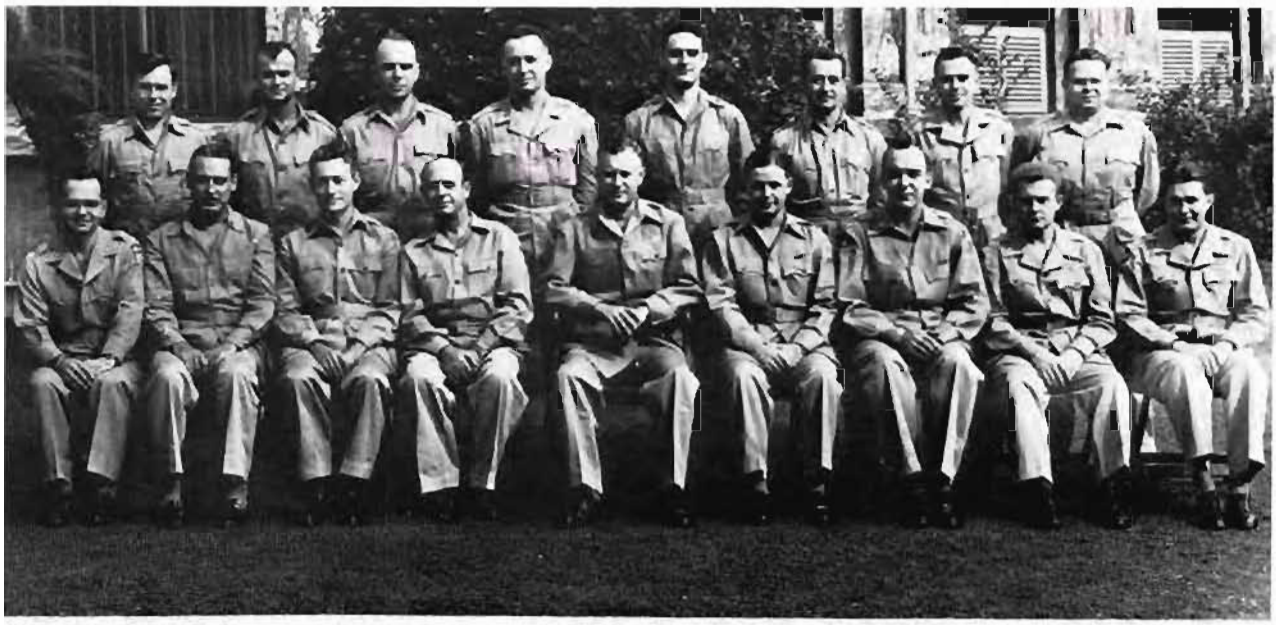
By the summer of 1944, the overseas wings had become so large that two of the wings—India-China

THE AIR TRANSPORT COMMAND
MAY 1943





AIR TRANSPORT COMMAND ROUTES
DECEMBER 1944



HEADQUARTERS, INDIA-CHINA DIVISION, ATC

COMMANDING GENERAL AND STAFF

CALCUTTA, INDIA AUGUST 1945

Headquarters India-China Division. By the end of World War II, the division was one of the Air Transport Command's largest field units.

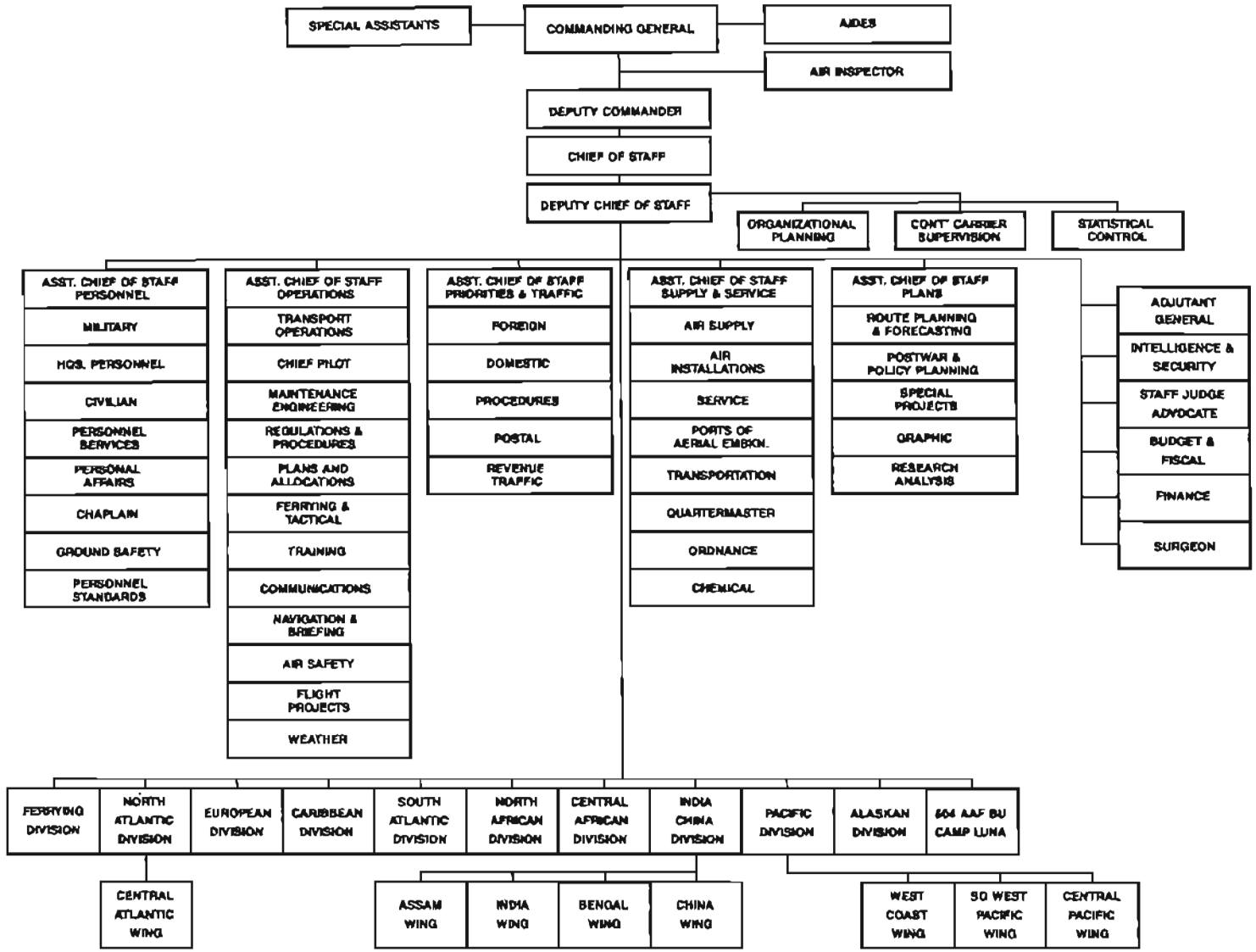
and North Atlantic—exceeded the personnel strength of an infantry division. Moreover, the European Wing with over 7,500 personnel was expected to grow considerably as a result of the Normandy invasion. Accordingly, on 27 June 1944, ATC inaugurated a major reorganization of its units, redesignating the nine existing wings as divisions and forming intermediate wing headquarters from the sectors of old. By the end of the war, in August 1945, there were eight foreign divisions and one domestic division.[9]

FINDING PERSONNEL

During World War II, the Air Transport Command's personnel strengths reflected the command's enormous airlift responsibilities. As the command expanded, it had to rely more and more upon civilians to augment its military workforce. When ATC began operations in June 1942, the command had a military force of about 11,500. During the next 12 months, it grew to over 74,000, and by October 1944, the command's military strength had more than doubled to over 151,000. Reflecting the end of hostilities, ATC's personnel strength peaked in August 1945 with 41,705 officers, 167,596 airmen, and 104,677 civilians assigned.[10]

Acquiring sufficient numbers of personnel, especially in the technical fields, remained a problem throughout the war years. Shortages included skilled mechanics, radio operators, traffic controllers, and civil engineers. The command also needed experts who knew how to run an air transport system. Above all, the Air Transport Command had to have a large pilot force. Following the Japanese attack on Pearl Harbor, the command immediately gave up 79 of its 316 pilots for the build-up of forces in the Pacific. The remaining number was totally inadequate for projected operations. Naturally, at that time, the commercial airline industry had the largest pool outside the Army Air Forces, approximately 2,600 pilots, many of whom had been trained in the military and were reservists. Some of these individuals were called up but to mobilize them *en masse* would have crippled the commercial airlines' ability to contribute to the war effort. Even so, by the end of 1942, 1,372 civilian

THE AIR TRANSPORT COMMAND
MAY 1945



pilots had been commissioned and assigned to ATC, usually at a salary of $3,600 annually. Still lacking enough pilots, the Air Transport Command inaugurated a program to recruit women pilots.

Going over an engine. The command's air transport mission required a sizeable workforce of skilled technicians.

Beginning late in 1942, however, AAF training programs, primarily Flying Training Command and Technical Training Command, were graduating enough military pilots to fill the ranks of ATC. These training programs also brought in all other types of specialties needed to support the command's vast airlift mission. Nevertheless, the command still faced an enormous task of providing transitional and operational training. Although, initially, ATC had relied heavily upon the airlines to transition newly graduated pilots, aircrews, and support personnel into transport operations, the command had taken over most of these training duties by the end of 1943, essentially reorganizing, streamlining, and eliminating the unnecessary aspects of a very unwieldy training program.[11]

As part of the reorganization plan approved by General Arnold for the Air Transport Command in March 1942, key leaders in the commercial air transportation industry were sought by ATC to rapidly build up its air transportation expertise. One of these "civilians in uniform" was Cyrus R. Smith, a giant in commercial aviation. Founder and head of American Airlines, Smith was commissioned with the rank of colonel and made ATC's executive officer in 1942 at the personal request of General Arnold. Thereafter, he assumed the positions of chief of staff and deputy commander, attaining the rank of major general. His background and experience at American Airlines served the command well. Others recruited from the aviation industry included Thomas O. Hardin of United Aircraft Company; George Gardner, operations manager of Northwest Airlines; Jack Jaynes of the Civil Aeronautics Administration; James G. Flynn, Jr., superintendent of transcontinental operations for American Airlines; and Harold Harris and Douglas Campbell, both vice-presidents of Pan American-Grace Airways.[12]

With pilots in short supply, ATC drafted commercial pilots to perform flight testing for the Lockheed C-69 transport, which later became the C-121 Constellation.

One of the key wartime leaders of ATC was Brigadier General C. R. Smith. The ATC passenger waiting room at La Guardia Field, September 1943. Left to right: Lieutenant Colonel Joseph S. Stewart, Assistant Air Surgeon, ATC; Colonel Malcolm C. Grow, Eighth Air Force Surgeon; Lieutenant Colonel Willis H. Proctor, Commander 26th Transportation Group, La Guardia Airport, NY; Brigadier General C. R. Smith; and Lieutenant Colonel Allan. A. Barrie, Assistant Chief Aircraft Operation Division, ATC.

WASP: WOMEN AIRFORCE SERVICE PILOTS

"CAN YOU USE A GOOD UPSTAIRS MAID WITH 800 FLYING HOURS?" wrote Katherine Landry in a December 1944 telegram to her family when she learned that the Women Airforce Service Pilots program was ending.

Although the Soviet Union and Germany had used women pilots almost from the beginning of the war, the official view in the United States about employing women as military pilots proved to be somewhat different. For one, General "Hap" Arnold, Commander of the Army Air Forces, rejected proposals throughout 1941 to employ women for aircraft-ferrying operations. He argued that "the use of women pilots serves no military purpose in a country which has adequate manpower at this time." However, when it became apparent in 1942 that there would be a pilot shortage, General Arnold put into effect almost simultaneously two plans: one proposed by Nancy Harkness Love and the other by Jacqueline Cochran, both experienced pilots.

For females who could fly already, the Air Transport Command activated the Women's Auxiliary Ferrying Squadron (WAFS) in September 1942 at New Castle, Delaware, under Love's command. For women who had no prior flying experience, the Flying Training Command established the Women's Flying Training Detachment under Cochran's leadership at Ellington Field, Texas.

The original standards and conditions for the women who were already pilots were rigorous. The Air Transport Command, given responsibility for managing the program, set the minimum requirements for women who already held licenses and immediately became WAFS as: 21-35 years of age, American citizenship, high school diploma, commercial pilot license with 200 hp rating, not less than 500 hours of logged and certified flying time, and cross-country flying experience.

Candidates, who first had to pass through the Training Detachment before receiving their pilot rating, had to meet the same physical and mental standards and to endure the same strenuous training as the male cadets. While physical strength was seldom a factor, they underwent examinations for night vision, airsickness, respiratory ailments, and anoxemia. Females surpassed males on most mental tests because the women cadets usually had more education.

The Air Transport Command soon grouped its women pilots into four squadrons—one remained at New Castle and the others went to Dallas, Texas; Romulus, Michigan; and Long Beach, California. The Training Detachment moved to Sweetwater, Texas. Later, on 5 August 1943, the Training Detachment and the WAFS merged into one organization known as the WASPs—Women's Airforce Service Pilots.

WASPs Joanne Trebtoske and Marjorie Logan checking over their route, Romulus Army Air Field, Michigan.

The female pilots assigned to ATC successfully demonstrated their proficiency in ferrying aircraft, and the command increased their responsibilities to include towing targets, ferrying bombers, simulated strafing, radio control flying, and basic and instrument instruction. One assignment in particular exemplified the progress of the WASP program. On 15 August 1943, Nancy Love and Betty Gillies became the first women pilots to fly the four-engine B-17 on ferrying operations within the United States, a mission far beyond the original scope of the program.

Despite the general lack of support from higher echelons, criticism from their male counterparts, and often deplorable working conditions, the overall performance of the WASP personnel was remarkable. During the life of the program, the total cost for training a female candidate amounted to

$12,000, roughly equivalent to that of training a male. The overall rate of elimination from training for women cadets averaged 35.9 percent; for the men, 35.6 percent. The WASP total accident rate stood at .06 per one thousand hours or one fatal accident per 16,667 hours flown; fatalities for male pilots during the same period averaged .062 per one thousand hours.

In 1944, General Arnold decided to end the WASP program. Conditions of war had changed in the Allies' favor, and more male pilots had become available for duty. At the farewell ceremony on 20 December 1944, Arnold expressed his gratitude: "Every WASP who has contributed to the training and the operation of the Air Force has filled a vital and necessary place in the jigsaw pattern of victory."

After the war, General Arnold tried but never succeeded in obtaining congressional approval for the militarization of the WASP. This lack of recognition meant that these women, who had served their country so faithfully, had no rights or veterans benefits, no reserve status, and no insurance benefits for survivors. Finally, over thirty years later in 1979, Congress enacted legislation admitting WASPs to retroactive military status, thereby bestowing belated recognition and official thanks upon the women who had served their nation so admirably.

Approximately 25,000 women had applied for admission to the WASP training program, 1,830 gained admission, and 1,074 completed the course and received an assignment. Female pilots flew 9,227,261 miles and delivered 12,652 aircraft during the course of the program.

SOURCES: V. Moolman, The Epic of Flight: Women Aloft, Time-Life Books, p 154; Lieutenant Colonel A. R. Johnson, "The WASP of World War II," in Aerospace Historian, Summer-Fall 1970, pp 80, 82; E. McDargh, "Mama was a WASP," in Off Duty, November 1982, p 24; History of the Women Pilots in the Ferrying Division, ATC (Washington, DC: Intelligence and Security Section, Historical Unit, 1945), Appendices Number 1 and Number 2.

Nancy Love, left, and Betty Gillies, pilot and copilot, were the first women to ferry the Boeing B-17 bomber.

ACQUIRING AIRCRAFT

Another major challenge in building an efficient Air Transport Command involved the acquisition of aircraft resources.[13] When the United States entered the war, the only four-engine transports available were modified B-24 *Liberator* bombers, called the C-87; the Boeing C-75 *Stratoliner*; and two types of seaplanes. And these were available only in small numbers. Air Transport Command officials faced brighter prospects with two-engine transports, for the Douglas DC-3 was in extensive service with all the major commercial carriers. Moreover, its production line was in full operation, and President Roosevelt had just signed an executive order on 13 December 1941, directing Secretary of War Henry Stimson to take possession of the civil aviation industry as needed for the war effort.

Three military versions of the DC-3—the C-47 *Skytrain*, C-53 *Skytrooper*, and C-84—saw extensive service with the Air Transport Command throughout the war. These DC-3s, with the C-47s being the most numerous, provided the command with a medium-range transport initially capable of airlifting 27 troops or 2.5 tons. At the peak of operations in August 1945, ATC possessed 3,090 transports with over 40 percent or 1,341 aircraft being DC-3s. This aircraft was one of the most successful transport types and served the command in a variety of ways for nearly thirty years.[14]

In addition, the Air Transport Command procured the two-engine Curtiss-Wright C-46 *Commando*. Not available in large numbers until 1943, the C-46 was a disappointment. The hydraulic and fuel systems had serious problems. Its fuselage leaked in the rain because its joints were poorly sealed. As a result, corrosion problems existed far beyond expectations. The Curtiss-Wright Corporation could, however, deliver C-46s in mass quantity. The plane also possessed greater range, speed, and cargo-carrying capability (5 tons) than the early C-47 models. It could accommodate 40 troops, or several jeeps, or 2 light tanks. Accordingly, the C-46 became one of the workhorses of the ATC fleet. A total of 247 were in ATC service at the end of 1943, 762 by June 1945.[15]

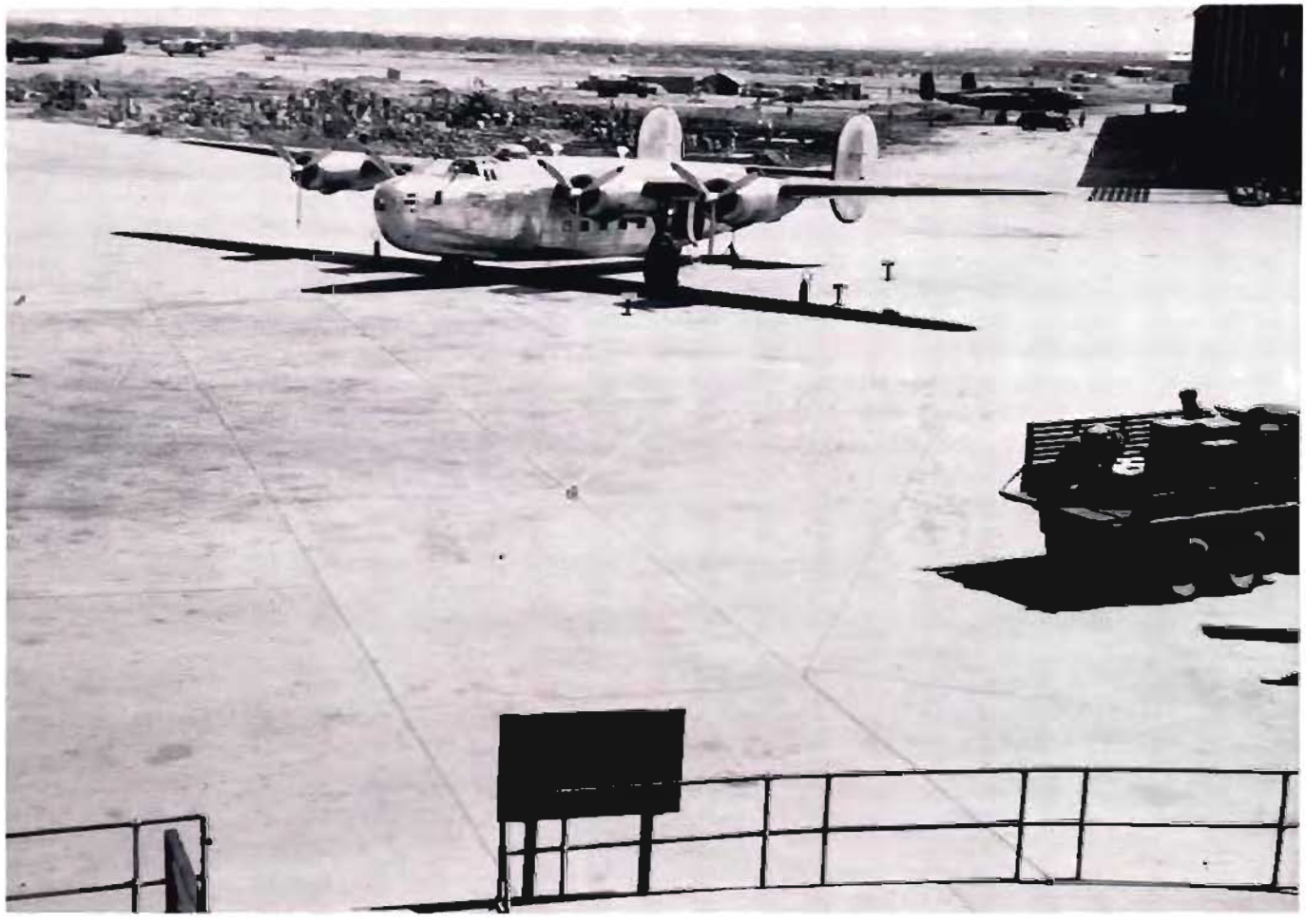
Two other principal transports sustained the activities of ATC during World War II. The first was the military version of the Douglas DC-4, the C-54 *Skymaster*, which proved to be an excellent long-range, heavy airlifter and remained in the command's inventory until 1973. Although something of a gamble, since it existed only in prototype form at the time of Pearl Harbor, the C-54's four-engine design, 6- to 7-ton capacity, and 2,500-mile range made it an especially useful transport. Beginning air transport service in 1942, ATC had 839 *Skymasters* in operation by August 1945.[16] The Air Transport Command also used the Convair C-87 *Liberator Express* since the beginning of ACFC operations. The

Alerted C-46 pilots line up their aircraft for take off, Misamari, India, February 1945.

C-87, to include the C-109 and the LB-30 variants, was essentially a B-24 bomber modified for air transport work. Although the four-engine C-87 had good range, its cargo capacity was small because of its bomber origins and the resultant weight-balancing problems. It could only carry 20 persons and between 3 to 5 tons—no jeeps. The most C-87s ATC ever possessed was 308, and this occurred in January 1945. Better suited to the command's air transport needs, C-54s largely replaced the C-87s, and by 1947, the C-87 had been phased out due to its obsolescence.[17]

Besides these major transport aircraft, the Air Transport Command had a sizeable assortment of other aircraft types that ranged from one- and two-engine utility planes to tactical bombers and fighters to trainer, liaison, and observation aircraft. By war's end, this collection numbered 615 aircraft. Together with the 3,090 major transport aircraft, the Air Transport Command possessed the "World's Largest Airlines." The ATC fleet was valued at over $780 million.[18]

One of the finest transports ever designed, the C-54 was the military version of the DC-4, New Delhi, India.



The C-87 was a modified B-24 bomber, Karachi, India.

THE C-47

When the Douglas Aircraft Company's DC-3 made its maiden flight on 17 December 1935, few, if any, of the spectators could have perceived the significance of the event for aviation history. Engineers had originally designed the plane as a luxury sleeper with seven upper and seven lower berths, but they soon realized that by removing the berths they could fit three rows of seven seats each into the fuselage. The DC-3 became an immediate success as a commercial airliner.

The Army Air Forces first acquired a military version of the DC-3 in 1941, designated it the C-47 Skytrain, and deployed it in every combat area of World War II. Other military variants of the DC-3 included the series C-48 through C-53, the C-68, C-117, and the experimental glider, XCG-17. Frequently, the designation C-47 was used for all of these types.

Flying such missions as air logistics, troop transport, airdrop, rescue, reconnaissance, glider towing, navigator training, and special operations, the C-47, nicknamed the "Gooney Bird," soon became the backbone of the Army Air Forces' air transport capability. Among the first type of aircraft the Air Corps Ferrying Command delivered to Great Britain in 1942, C-47s also played a significant role that same year in the early stages of the Hump Airlift over the Himalayas. The C-47 proved itself to be a workhorse airlifter by serving well in virtually all operations requiring air mobility. Several troop carrier units acquired the C-47 in 1942 and used it in major airborne operations of the war. For example, it served as the principle troop carrier in the first large-scale Allied airborne invasion, dropping 4,381 paratroopers and supplies over Sicily on 10 July 1943, and C-47s airdropped more than 60,000 troops and equipment behind German lines during the first 50 hours of the D-Day invasion at Normandy.

Following World War II, the United States government declared many of its C-47s surplus and sold them to civil operators or foreign governments. Other C-47s continued as the mainstay of the Air Force airlift fleet. The Military Air Transport Service had 239 of these aircraft in its inventory on 1 June 1948. The United States Air Forces in Europe, moreover, relied upon them during the first months of the Berlin Airlift. By the end of July, 105 C-47s were supplying Berlin; although at that time, they already were being phased out and being replaced by aircraft with larger payloads.

The Korean War presented another opportunity in which the troop carrier features of the C-47 were engaged to resupply United Nations forces and to evacuate wounded troops. During one notable action, C-47s flew 4,689 casualties out in five days from a battle area surrounded by Chinese troops in the Chosin Reservoir area of North Korea.

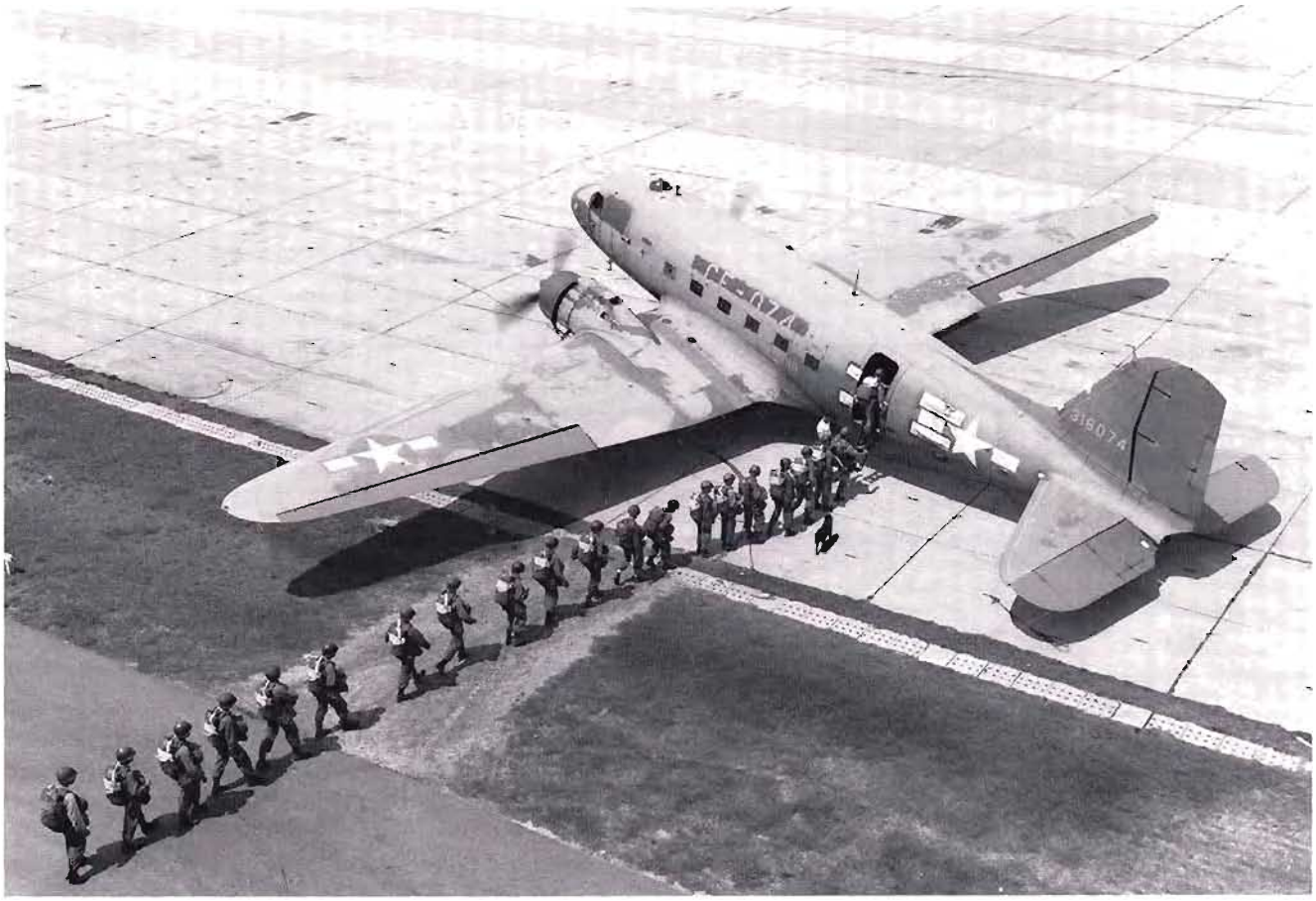
C-47s were used successfully in Vietnam in the early 1960s as a general air transport and in 1965 were converted effectively to gunships. Armed with the new 7.62mm minigun capable of firing 6,000 rounds per minute, the AC-47 gunship, known as "Puff the Magic Dragon," effectively suppressed enemy ground forces. The Air Force retired the AC-47 from service in Southeast Asia in 1969; the cargo version of the C-47 was also inactivated that same year.

Originally built more than fifty-five years ago, the DC-3 never fulfilled its intended purpose of serving as a luxury sleeper. However, the engineers who conceived those first plans could never have imagined the resounding success the aircraft has experienced as the C-47 variant, which is still in service with several air forces around the world.

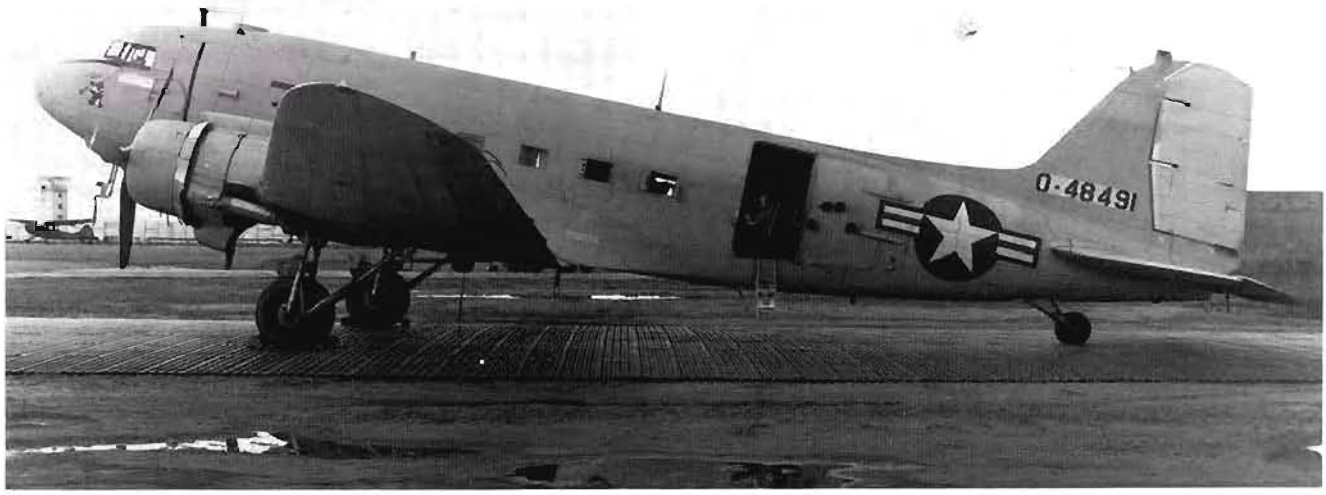
SPECIFICATIONS

Length:	*64'4"*
Height:	*16'10"*
Wing Span:	*95'0"*
Speed:	*230 mph (200 knots)*
Engine:	*2 P&W R-1830/ 1,200 hp*
Range:	*Beyond 2,000 miles*
Load:	*3.8 tons/or 27 passengers*
Crew:	*3*
Maximum Gross Weight:	*33,000 lbs.*

SOURCES: Douglas News, "Douglas DC-3," March 1958; F.G. Swanborough, United States Military Aircraft since 1909 (London: Putnam, 1963), p 224.



Paratroopers from Fort Benning, Georgia, board a C-47 for a practice jump, 1946. The C-47 was both a superb cargo and troop carrier aircraft.



An AC-47 gunship at Bien Hoa Air Base, South Vietnam, 1965. The C-47 has been modified for many different jobs over its long Air Force career.

SUMMARY OF TRANSPORT ACCIDENT RECORD*
1942-1945

*Major Accidents***	*1,229*	
Major Accident Rate	*18.63*	*per 100,000 flying hours*
Aircraft Lost	*688*	
Fatalities-Passenger	*942*	
Fatalities-Crew	*1,165*	
Fatal Accident Rate	*5.57*	*per 100,000 flying hours*

**Over 60 percent of the command's transport accidents and fatalities occurred on the Hump Airlift route.*

***Serious injury or death to passengers, aircrews, or ground personnel, or major damage to aircraft.*

RELIANCE UPON CIVIL CARRIERS

Especially early in the war, the Air Transport Command did not have sufficient resources to accomplish its diverse mission. Although Army Air Forces and command officials had envisioned a fully militarized organization as the ideal from the beginning, and while military personnel increasingly rendered overseas airlift services from 1943 on, the use of contract services continued until the end of the war. Virtually all of the commercial carriers operating in 1941 had some piece of the airlift pie during the war. The original agreements allowed the government to purchase the airlines' aircraft and equipment and then operate them using civilian pilots and support personnel. These contracts often called for specific services, such as operation of a scheduled service between San Francisco and Hickam Field, Hawaii, by Trans World Airlines, to move military passengers and cargo. Pan American was even directed in its contract to make runway improvements and construct housing for personnel and equipment over the route under its jurisdiction.

Beginning early in 1943, however, the War Department began to change its strategy and adopted "on-call" contracts which bound the airlines to render any service to the government within the general limits of the carrier's capabilities. Before, the contracts specified the exact type of service to be rendered. While ATC did not write these agreements, it established the airlift requirements and had a supervisory responsibility. The new provisions also allowed the contracting officer from the Materiel Division to delegate his day-to-day oversight responsibilities to ATC while still retaining final authority for the administration of the contracts.

Still later, by the end of 1944, the military had taken over all domestic transport services performed by the commercials. Certainly the difficulty of coordinating and working with several different airline companies influenced the decision to gradually phase out contract operations, first overseas and then in the domestic air transport services. A completely militarized system greatly improved airlift's flexibility and responsiveness. For example, it allowed aircraft and personnel to be allocated as needed, enabled the establishment of an integrated communications system, and standardized aircraft types, enhancing aircrew training and scheduling and maintenance operations. The military's use of the civil carriers had been one of necessity. The relationship, although beneficial to both, had its moments of friction.[19] As a measure of the command's reliance on civil air carriers, nearly 88 percent of the transport work managed by ATC was performed under contract by commercial airlines during 1942. In 1943 this rate dropped to 68 percent, and by the end of the next year it had fallen to 33 percent. At the end of the war, ATC's military forces were operating all but 19 percent of the air transport missions.[20]

THE HUMP AIRLIFT TO CHINA, 1942-1945

During World War II, the Air Transport Command provided critical support to Allied forces around the world, but nowhere did this support reach the size of the "Hump" Airlift over the Himalaya Mountains in the China-Burma-India (CBI) Theater. In February 1942, President Roosevelt's commitment to aid the Chinese in their fight against more than a million Imperial Japanese troops precipitated the most extensive airlift ever undertaken by the United States.

Resupplying forces in China had tremendous significance both for the war effort and future airlift doctrine. For much of the war, the air route over the Himalayas formed the only link between the outside world and Major General Claire L. Chennault's Fourteenth Air Force; General Joseph W. Stilwell's

mission to China; and Generalissimo Chiang Kai-shek's Chinese National Army. This air route provided the logistical support necessary for the defense of China. Air Transport Command aircrews involved in the Hump Airlift, the nickname given to the several hundred mile aerial pipeline, made 167,285 trips to China, delivering almost 740,000 tons of war material. Of that amount, over 75 percent was delivered in the last year of operation and included moving entire armies from India and Burma to the battlefronts of China. Over the course of the airlift, ATC would record 701 major accidents, losing 460 aircraft and 792 men. Of these, enemy action destroyed 7 aircraft and killed 13 airmen. Against this background, the airlifters accomplished their mission, and by the end of the war, the Hump Airlift was operating with business-like precision, largely due to the direction of Brigadier General William H. Tunner.[21]

The story of the Hump Airlift really began in 1937, when the Japanese first invaded China. The Chinese resisted and employed a scorched earth strategy of trading territory for time as they pleaded with the western Allies for military assistance. American aid came in the form of Lend-Lease supplies and the American Volunteer Group, better known as the "Flying Tigers," under the command of Chennault.[22]

Unable to provide China with as much assistance as he initially wished, President Roosevelt knew the United States needed to keep China in the war. Chinese troops were tying up large numbers of Japanese forces which would have been employed elsewhere. It became critical, therefore, that Allied forces in China receive sufficient supplies to fight a holding action against the Axis troops. Japan, on the other hand, remained intent on defeating China rapidly. The Japanese high command determined that Allied aid to China must end and moved to close the supply lines running through Burma. In late December 1941, Japan invaded this British colony, gaining control by April 1942. The Japanese victory virtually cut off China from the outside world, or so it seemed.[23]

Even before the loss of Burma, General Arnold had recommended to the President that an air route from India to China be developed because of the difficulty of sustaining ground supply lines. He worked to ensure this capability and encouraged the contracting of the China National Aviation Corporation (CNAC), a company jointly owned by Pan American World Airways and the Chinese government, to supply those forces in China. This corporation had pioneered an air route between India and China over the Himalayas in the 1930s, but it lacked sufficient resources to support the Allied effort. As a result, the Army Air Forces' Tenth Air Force, headquartered in India, was given responsibility for the operation, and on 8 April 1942, Colonel William D. Old made the first military flight over the Hump.[24]

Starting as a mere trickle, in April and May 1942, the first two months of the operation, the Americans delivered 196 tons and CNAC delivered 112. With the beginning of the monsoon season in June, however, the traffic declined drastically; that month the Tenth Air Force delivered 29.6 tons and CNAC none. The airlift increased slowly throughout the rest of 1942, and by November, the two organizations were delivering over 1,000 tons per month.[25]

The small amount of material flown to China was not enough. Generalissimo Chiang Kai-shek insisted that the tonnage be increased immediately to over 10,000 tons per month. However, the Tenth Air Force could not meet his demands. It lacked sufficient aircraft and personnel to exceed the November tonnage. Furthermore, the weather, terrain, and interference from Japanese fighters made operations difficult. The poor maintenance facilities in the theater kept many transport aircraft grounded with malfunctions. Analyzing the situation, several logistics officials noted that General Joseph Stilwell, the Army ground commander, and Brigadier General Clayton L. Bissell, the Tenth Air Force commander, as well as Bissell's chief of staff, all displayed a certain hesitancy about conducting the Hump Airlift. Together with the harsh physical conditions, these factors had combined to restrict Hump operations at the onset.[26]

Whatever the reasons for failure, General Arnold's staff began studying alternatives. As a result, on 21 October 1942, the Air Transport Command was directed to accept responsibility for the Hump operation. This directive implied that the Tenth Air Force had improperly used its transport assets. Moreover, because ATC was exclusively organized to handle air transportation and aircraft ferrying, it was better qualified for the assignment rather than an organization focused on tactical operations. Colonel C. R. Smith insisted that ATC have complete autonomy to run the airlift in the theater, and this was given. Interestingly, in light of the Military Airlift Command's subsequent specified command status, ATC conducted the operation under the supervision of the Army Air Forces commanding general.[27]

Effective 1 December 1942, the Tenth Air Force transferred the units involved in the airlift to ATC's India-China Wing, under the command of Colonel Edward H. Alexander. Although one of Stilwell's staff officers, Alexander had previously been executive officer of the Air Corps Ferrying Command and understood military airlift operations.[28]

To the men who served in the India-China Wing, the resupply missions over the Hump were just as difficult and dangerous as the strategic bombing missions in Europe. Out of the steaming, tropical valleys of India's Assam Province, the airlift crews flew fully-loaded transports northeastward over the Himalayas into southwestern China. They usually landed at the principal American airdrome at

A C-46 flying over the Hump, the Himalayas between India and China.

Kunming.[29] If aircrews took a direct flight path over the Hump, they could make the flight in some four hours at a maximum altitude of about 16,000 feet during optimum weather conditions.[30] This route, however, necessitated flying over northwestern Burma, territory patrolled by Japanese fighters. To avoid them, many aircraft commanders detoured to the north, flying a distance of 720 miles and crossing the Hump at the northwestern end, where its *lowest* peaks reached 16,000 feet. But over this route, aircrews had to operate at altitudes approaching 20,000 feet, a formidable task given the limitations of the aircraft.[31]

In addition to mountain peaks and Japanese fighters, weather conditions made the Hump the most treacherous military airlift route flown during the war. For six months out of the year, Hump aircrews contended with monsoons that drenched the countryside, created turbulence, and made operations practically impossible. So extreme was the weather that at first the Japanese did not consider the airlift a threat to their China offensive and ignored the flights. As the airlift became more successful, enemy fighter patrols regularly attacked the unarmed transports. However, on one occasion, a C-47 pilot actually scored a victory over a Japanese *Zero*.[32] Later in the war, aircrews gained some measure of protection when two search and rescue designated C-47s were armed with .30 caliber machine guns. But they were no match for the adversary.[33]

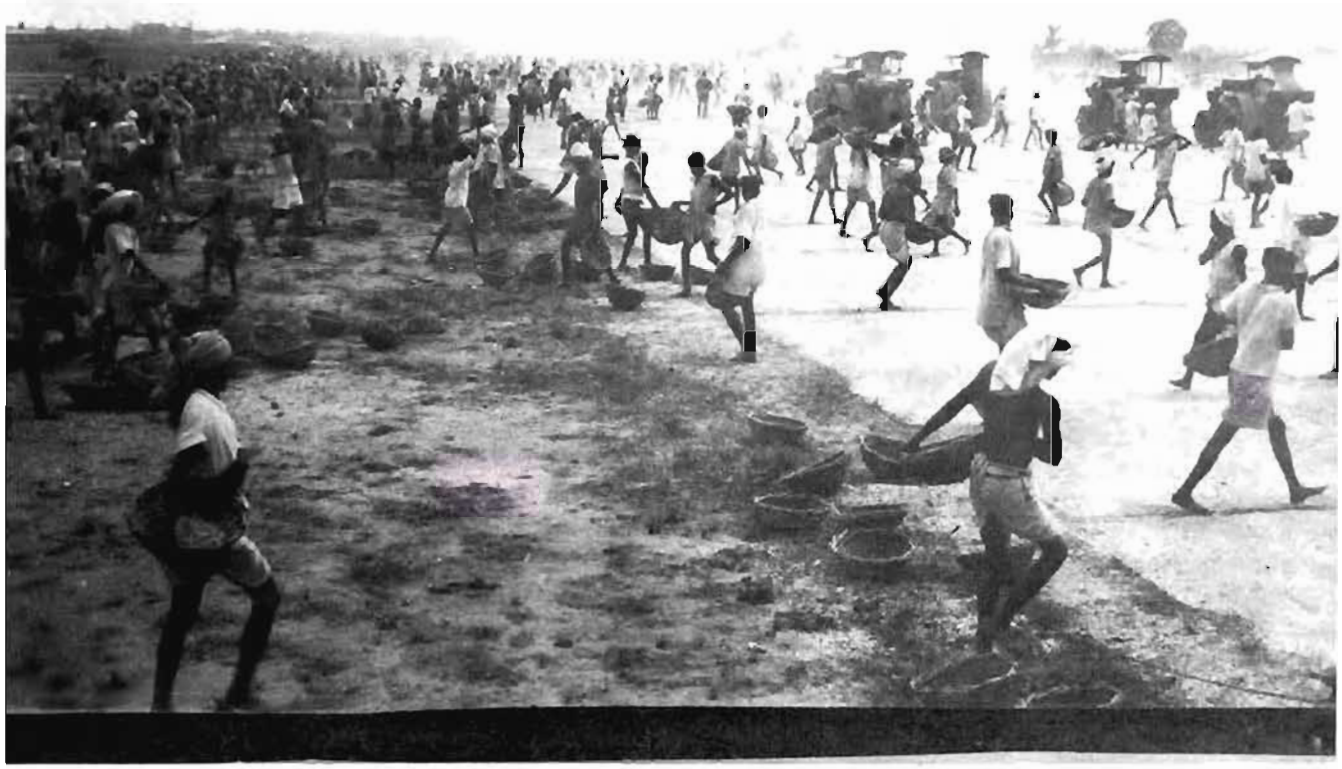
The pivotal event in the history of the Hump Airlift occurred at the Trident Conference in May 1943. Originally called to set a date for the invasion of Europe, the conferees, under Roosevelt's urging, expanded the agenda to include formulating a unified policy for Asia. A month earlier, General Chennault had visited Washington with a plan for an aggressive air campaign against the Japanese in China. He tried to convince the President and the Joint Chiefs of Staff that his proposal would bring victory in Asia. The success of such a campaign, however, rested on the ability of ATC to increase the amount of war material

it carried over the Hump. Chiang Kai-shek also favored the plan, and for political reasons, President Roosevelt supported Chennault's plan, engineering its adoption at the Trident Conference. Afterward, the President directed ATC to increase its cargo deliveries to 5,000 tons by July, 7,500 tons by August, and 10,000 tons per month by September 1943. Although designated officially PROJECT 7, Colonel Alexander called it the "July-September Objective," and later "The 10,000 Ton Objective." Already overworked, airmen assigned to the Hump operation had less refined names for it.[34]

To meet this new requirement, the commanders of the India-China Wing, Colonel Alexander and his successors, Colonel Thomas Hardin and Brigadier General Earl S. Hoag, received more aircraft, personnel, and other resources. The President also directed the reassignment of some material, equipment, and personnel from road building to airfield construction in the CBI Theater. Consequently, the India-China Wing staff oversaw the construction of several new airdromes on both sides of the Himalayas. By the end of the war, ATC had 13 bases in India and 6 in China, a marked expansion from when Hump pilots shuttled between only a couple of airfields in 1942. In the remote regions of Asia, this accomplishment was nothing less than phenomenal. Since heavy equipment was at a premium, thousands of local laborers chipped large rocks into gravel by hand, carried it to the runway site in baskets or oxcarts, and then graded the field manually using hand-operated rollers. At one airfield on the Yangtze River, China, more than 100,000 people labored to build a 6,000-foot runway. While not spectacular, these bumpy and rocky strips were quite serviceable.[35]

Despite terrific expectations and exertions, ATC failed to meet the goals set by President Roosevelt. Poor morale played an important part in this failure. Virtually every unit commander commented on this problem. First, the climate of India made the operation perilous. Private Lloyd S. Gray, a mechanic assigned to an airdrome at Dum-Dooma, India, wrote in his war diary that India's heat was virtually unbearable, remarking, "Kipling's line 'Mad dogs and Englishmen go out in the mid-day sun' really means something to me now."[36]

Primitive working and living conditions also sapped morale. Eric Sevareid, who covered the CBI Theater for the CBS Radio Network, visited a Hump base at Chabua, India. There, he found absolutely



Thousands of civilians labored building airfields for the Hump Airlift.

none of the amenities of life.[37] When "luxuries" became available, even though rationed, they became the highlight of the day. Private Gray reported on 21 September 1943 that Post Exchange items had just arrived, and he and everyone else at the base had stood in line for the privilege of buying the limit: one towel, a package of peppermint wafers, two packages of gum, one bar of soap, one tube of toothpaste, a container of shaving cream, a bottle of ink, one Liberty Magazine, and a box of tissues.[38]

In addition, grisly accidents, such as the one that occurred on 11 October 1943, also had lingering effects on troop morale. On this occasion, a C-47 exploded just after takeoff, killing the entire crew. Loaded with fuel the plane disappeared in a big puff of smoke. The pilot had almost refused to fly the plane because he did not think it had been loaded properly. Later, Gray wrote that, because of the accident, "Morale is at an all time low here. The new men especially are practically refusing to fly." But the airlift continued. Private Gray probably summarized most of his comrades' feelings when he wrote, "I don't want to go, but duty is duty. If I had wanted to win the war from behind a desk I would have stayed in the States."[39]

Disgust over corruption further damaged the airlifters' morale. The supplies that they brought into China at such high cost were being siphoned off by unscrupulous Chinese leaders. For instance, the second son of the Governor of Yunnan led a smuggling ring, and the Chinese Fifth Army commander received about $6,000 per day to support his army. Not a penny went to the troops.[40] Aircrews also believed they carried too many low-priority items[41] for use by rear echelon units rather than real war material needed on the front lines.

Nevertheless, the airmen displayed pride in their mission. Units and aircrews competed to see who could carry the most cargo, fly the most sorties, have the fewest accidents, and squeeze the most flying hours out of an aircraft. The Hump aircrews even adopted the characterization of one unimpressed observer who wrote that they were "living like dogs and flying like fiends." They often flew as much as 165 hours per month, pursuing the 650-hour requirement for rotation back to the United States. Many airmen developed a slightly morbid sense of humor about their work. Hump pilots joked about flying over the aluminum-plated trail where comrades had crashed. Recalling the lack of respect they had received from fighter pilots, one Hump veteran proudly noted that while fighter planes were armed with six .50-caliber machine guns, they flew with only a pistol and a Tommy gun.[42]

Slowly, with the India-China Wing's more effective organization and greater support from the Army Air Forces, the Hump Airlift totals began to rise during the latter part of 1943. The airlifters did not meet the 10,000-ton objective on schedule, but in December 1943 they surpassed it, only four months late. President Roosevelt recognized this achievement the next month when he awarded the India-China Wing a special unit citation, the first time an airlift organization had been honored in this manner.[43]

Working and living conditions were harsh in the China-Burma-India Theater.

Over half of the command's transport accidents and fatalities occurred on the Hump Airlift. Aircrews aptly referred to the air route as the "aluminum-plated trail."

These tonnage increases, unfortunately, came with heavy losses in both men and equipment. Between June and December 1943, there were 153 major aircraft accidents resulting in 168 crew fatalities. Brigadier General Cyrus R. Smith, then ATC Chief of Staff, assessed the situation accordingly:

> We are paying for it in men and planes. The kids here are flying over their head—at night and in daytime and they bust up for reasons that sometimes seem silly. They are not silly, however, for we are asking boys to do what would be most difficult for men to accomplish; with the experience level here we are going to pay dearly for the tonnage moved across the Hump . . . . With the men available, there is nothing else to do.[44]

To ensure pilot competency, ATC instituted more stringent flight checks, with only modest success, and increased flight safety. With increased awareness, pilots refused to take off until certain maintenance or loading procedures that had been omitted were corrected.

The wing also inaugurated a more aggressive search and rescue operation to bring in crews who had abandoned their lost aircraft. Located at Assam, India, the search and rescue unit contributed greatly. Its personnel brought out of the mountains and jungles 75 percent of all crash survivors.[45] The unit saved famed reporter Eric Sevareid as well. On 2 August 1943, he boarded a cargo-laden C-46 with 16 other passengers. Enroute from Chabua, India, to Kunming, China, an engine failure forced the crew and passengers to bail out over some of the roughest terrain. The only fatality occurred when the copilot's parachute caught on the tail section. A search and rescue crew spotted the survivors in the jungle, but the harsh terrain prevented an immediate rescue. The rescue crew dropped emergency supplies to the stranded group. Since several of the survivors needed medical attention, Colonel Donald Flickinger, a physician, and two enlisted personnel parachuted to assist them. A British patrol eventually escorted them out of the jungle. All told, the party took two weeks to return to civilization.[46]

The tonnage of material flown across the Hump continued to rise throughout 1944 as the wing received more personnel and aircraft. In June the India-China Wing delivered over 15,000 tons, and by November the figure had risen to 34,914 tons per month. To support this rate, a transport aircraft took off for China on an average of once every three minutes. During 1944, the wing was redesignated a division, and the commanders changed twice. Brigadier General Alexander replaced Brigadier General Hoag in March 1944, and on 3 September 1944, Brigadier General Tunner replaced Alexander. As Commander of the India-China Division, Tunner had a two-fold mission: increase tonnage while decreasing accidents.[47]

Tunner, a superb administrator, initiated several improvements to the airlift system. First, he acquired additional personnel and aircraft. His command grew from 369 to 722 aircraft and from 26,322 to 84,664 personnel between August 1944 and August 1945.[48] Still, he sought to demonstrate the need for more personnel by using civilians and, at least in India, elephants to help load aircraft.[49]

Second, Tunner and his staff instituted a comprehensive safety program. They prepared a statistical tracking procedure to determine the causes of aircraft failures, the airfields where the most accidents took place, the type of weather involved, the model of aircraft most prone to accidents, and maintenance deficiencies. The information gathered, coupled with more rigorous flight checks, aircrew physicals, and an efficient safety awareness program, proved most useful in combating accidents. The major accident rate decreased from .34 per 1,000 flying hours in August 1944 to .15 by August 1945, a 55 percent decrease.[50]

The Air Transport Command pioneered the use of Production Line Maintenance during the Hump, Kurmitola, India, August 1945.

Third, General Tunner improved aircraft reliability while decreasing maintenance time by introducing Production Line Maintenance (PLM). This procedure required an aircraft to be towed through seven different stations. At each station, crews performed specific maintenance operations. To make the PLM work, each base specialized in one type of aircraft. Consequently, repair operations were more efficient.[51]

Each of Tunner's actions increased tonnage and decreased accidents. The Hump Airlift delivered 44,098 tons in January 1945; by July this had been increased to 71,042 tons. Meanwhile, the accident rate dropped from 23 accidents and 36 fatalities in January to only 8 accidents and 11 fatalities in the last full month of the war. After the end of hostilities in August 1945, Hump operations declined swiftly; dropping to 53,315 tons in August and 1,429 tons in November, the month it ended.[52]

Unquestionably this airlift made it possible for China to continue its resistance against the Japanese. It demonstrated the viability of using large-scale airlift operations to deliver war material and combat troops. Between 1942 and 1945, 81 percent of all supplies entering China came via the Hump. Without these supplies, the Chinese defenders would have been unable to continue the fight. As a result, the Japanese Imperial Army was forced to maintain 1.2 million troops on the Chinese mainland. Had it achieved a quick victory there, Japan could have left a small occupation force in China and moved the remainder of its forces to the Pacific, making the island-hopping campaigns more costly than they were.[53]

The Hump Airlift also influenced the development of American foreign policy. Researchers preparing the Strategic Bombing Survey following the war duly recognized its importance:

> The major significance, for the future, of all air operations in CBI was the development of air transport operations. During the first year of the war, the magnitude to which air transport operations could be developed was not appreciated. However, the terrain of Burma and China and the absence of land lines of communication forced all agencies in the theater to turn to the airplane—initially as an afterthought and an emergency last-chance measure. The inherent flexibility of air power permitted it, without adequate preplanning, to meet the exigencies of the various situations. Air transport operations expanded beyond the wildest prediction of 1942—expanded because it was the one agency which could succeed.[54]

AIRLIFT TO THE SOVIET UNION: OPERATION FRANTIC

Although by no means as substantial as the Hump Airlift, Operation FRANTIC ranked as one of the Air Transport Command's more significant operations. During World War II, Air Transport Command personnel flew numerous missions into the Soviet Union carrying mail and passengers as well as delivering Lend-Lease assistance.[55] The command, however, experienced the greatest freedom during the summer of 1944 when it transported men and supplies between Teheran, Iran, and American bases inside the Soviet Union in support of the Eastern Command and the FRANTIC operation.[56] As Allied strategic bombing techniques improved, Germany moved important factories farther east, out of the range of Allied bombers stationed in Great Britain and Italy. Strategic planners, however, proposed a way to extend the bombers' ranges by "shuttle-bombing" German industrial targets. Using this procedure, American bomber pilots could take off from their bases in the West, bomb German targets beyond the point of safe return, and then land at bases in the Soviet Union. On 2 February 1944, Stalin approved the American plan.[57]

Immediately thereafter, the United States Strategic Air Forces in Europe established the Eastern Command under the code name FRANTIC to carry out these shuttle-bombing raids. The American-Soviet agreement specified that American naval ships, unloading at Archangel, would carry most of the supplies needed to build bases in the Ukraine, near Kiev, and at Poltava, Mirgorod, and Piryatin. Additionally, according to the terms agreed upon, the Air Transport Command would fly 42 round-trip missions between Teheran and the Kiev area to help initiate the operation and then provide two support flights weekly.[58] American military leaders, realizing perhaps for the first time the value of logistical airlift in an operational mission, included provisions for air transport in their original plans.

American officials had insisted on and received Soviet permission to establish communications facilities for aircraft control and for communications with the FRANTIC bases. Before this agreement, all foreign flights into the Soviet Union carried a Russian navigator and radio operator, and the Soviets controlled all ground communications. The two sides compromised when the Americans agreed that the Soviets could station a representative at all communications centers with access to all messages. One participant noted that they were able to operate without any difficulty since the Soviet soldiers did not share Moscow's suspicions.[59]

Mission Eleven,[60] ATC's initial support of FRANTIC, planned for 42 flights to airlift 250 officers and men plus 65,000 to 70,000 pounds of signal equipment from the United Kingdom to Russian air bases. This mission was to be completed prior to 30 April 1944. The Air Transport Command moved 450 men, but only 36,000 pounds of cargo by an extended deadline of 5 June 1944.[61] These men and supplies were at Poltava in time to greet Lieutenant General Ira Eaker, Commander of the Mediterranean Allied Air Forces, and his flight of 129 B-17s after making the first shuttle mission: the bombardment of the rail yards at Debreczen, Hungary, on 2 June.[62] Ambassador Averell Harriman wrote an enthusiastic note to President Roosevelt describing the event and reported that "our men and [the] Russians have been working together in real harmony for [the] past six months."[63] Brigadier General John R. Deane, military attache to the Soviet Union, considered it a high point in American-Soviet relations.[64]

By mid-August 1944, the Red Army had overrun most of the original 16 targets selected for Operation FRANTIC, and the question of continuing the American bases in the Soviet Union arose. General Hap Arnold and other proponents of strategic bombing still wanted the Soviets to furnish additional bases closer to the front, but Soviet leaders were not overly receptive. Arnold wrote that without these bases the American bombing offensive would suffer a senseless setback. He asserted that the Allied air forces could inflict the death blow against Germany, thereby ending the war within months and that the Soviet Union should not deny the Allied effort this early victory.[65] The ever-suspicious Stalin, however, did not agree and indicated that he wanted American forces off Soviet soil.

Nevertheless, American officials pressed to retain them. On 29 August, Deane and Harriman presented letters to the Soviets stating that the Americans would reduce the Eastern Command to one base at Poltava and 300 caretaker personnel in preparation for the winter. The letters noted that this base could serve as a springboard to resume the shuttle-bombing missions in the spring of 1945, if that proved desirable.[66] On 7 October 1944, the Russians approved the winter arrangements.[67]

The Air Transport Command supported the withdrawal, which began in early October 1944, and continued to fly supply and emergency missions for the remaining caretaker personnel.[68] Allied advances into Germany during the winter of 1944-1945 ended any further shuttle-bombing missions. The last Americans left the FRANTIC base at Poltava via ATC transports on 23 June 1945.

This relatively small operation demonstrated the widespread and unique aspects of ATC's activities during the war. Virtually every major mission, in addition to transporting the required cargo and passengers, also held significant foreign policy considerations. Certainly, in the cases of both the Hump Airlift and Operation FRANTIC, the Air

Transport Command aided the interests of the United States' Allied foreign relations. By the middle of World War II, it was apparent to some policy makers that airlift in the form of specific missions could play an important role in the diplomatic arena of the United States.

TROOP CARRIER COMMAND

German successes with aerial assault and resupply operations during their invasions of Denmark and Norway in April 1940 significantly influenced American military strategy and the future development of air transportation. During the summer of that year, the Army organized its first paratroop assault forces and began to plan for airborne operations.[69] The successful German aerial invasion of Crete with paratroopers, gliders, and airlandings in May 1941 added further impetus for the United States to build up its own airborne forces. In part to support this activity, Army Air Forces leaders created in January 1941 the 50th Transport Wing, which included the old 10th Transport Group and five new groups. The wing, however, could hardly support the Army's airborne mission at that early stage: its pilots needed training in airborne operations, and its planes were not adapted for this task. The 50th also lacked the proper equipment.

With inadequate resources, the 50th Transport Wing could not support the Army's goal of creating a viable airborne assault force. In November 1941, for instance, the wing participated in the Army's famous Louisiana maneuvers in which ill-equipped troops used broom handles to emulate machine guns and jeeps to simulate tanks. Airdrops had been planned, but the 50th had barely improved its readiness in this area. The wing had difficulty providing 39 airplanes for the airborne segment. With these airplanes, however, the Army did make its first airdrop of more than one company of paratroopers at one time.

Flying Fortresses peel off to land at Poltava in the Soviet Union after completing the first "shuttle-bombing" mission of Operation FRANTIC.

Senior Lieutenant Michols Holovars of the Red Air Force, left, and Lieutenant George Call talking beneath the chin turret of Call's B-17 just after his 19th mission (note bombs painted on the aircraft's nose).

After the Japanese attack on Pearl Harbor, the Army hurriedly expanded its airborne combat forces. The Army created two new divisions by splitting the 82d Motorized Division into the 82d and 101st Airborne Divisions. The Army's Airborne Command, created in March 1942, assumed responsibility for these new divisions.[70]

To support the new airborne units, Army Air Forces commanders restructured their tactical transportation units. On 30 April 1942, Headquarters AAF transferred the 50th Transport Wing and its tactical training functions to a new organization, the Air Transport Command,[71] whose subordinate units provided theater or tactical airlift to the theater air component commanders. When Arnold issued General Orders Number 8 on 20 June 1942, he renamed the Air Transport Command the I Troop Carrier Command to better describe its mission. Accordingly, the 50th became redesignated the 50th Troop Carrier Wing. The restructured Ferrying Command then took the Air Transport Command name and kept it until 1948.[72]

Throughout the war, the Allies conducted 14 major airborne operations.[73] In the Mediterranean and Europe, airborne troops participated in the invasions of North Africa, Sicily, Italy, Normandy, and Southern France. There was also MARKET-GARDEN, the assault on bridges in Holland. In the Pacific, airborne troops were employed against Japanese forces in New Guinea and the Philippines. Airborne units fighting in the China-Burma-India Theater supported the invasion of Burma and major assault operations in India.[74]

The use of airborne forces centered upon the doctrine of attack *en masse*. Lieutenant General James M. Gavin, a major architect of airborne assault and a commander of the 82d Airborne Division, believed such troops needed to be delivered as a single concentrated force. While small pockets of airborne troops could achieve limited tactical gains, a large force could impose decisive results. Once the troop carrier units had enough aircraft and pilots, they could move thousands of paratroopers to a specific location. From the standard drop altitude of less than 600 feet, a group of C-47s, usually 36 to 45 aircraft, could deliver a battalion-size force in two minutes, a regiment in ten. This capability allowed the 14 major airborne operations of World War II to adopt General Gavin's idea. Normally, airborne troops were given a mission objective some 5 to 15 miles to the enemy's rear or flank. From there, the lightly armed airborne forces could inflict serious damage upon the enemy, greatly assisting the advance of ground units who would then relieve them.[75]

These principles of airborne doctrine were rigorously tested on two critical occasions. The first was D-Day, 6 June 1944, when Allied forces invaded Normandy. Known as Operation OVERLORD, the invasion depended upon airborne operations behind the German lines for success. Airborne forces had to capture and hold key positions until the amphibious forces could fight their way inland from the beaches. If the airborne troops failed, German reinforcements would push the invaders back into the English Channel.[76] The second was Operation MARKET-GARDEN, the Allied attempt to thrust through the Netherlands and capture the bridge spanning the Rhine River. Although the troop carrier mission was not a responsibility of the Air Transport Command at this time, many of the command's subsequent units, like the 436th and 437th Military Airlift Wings, would trace their historical lineage to the troop carrier groups involved in OVERLORD and MARKET-GARDEN. Both of the following airborne operations are discussed from a troop carrier perspective.[77]

TROOP CARRIER AIRLIFT IN OPERATION OVERLORD

OVERLORD plans called for the IX Troop Carrier Command, assigned to the Ninth Air Force in the European Theater of Operations, to transport the American 82d and 101st Airborne Divisions to Normandy. On the night of 5-6 June 1944, the IX Troop Carrier Command assembled more than 900 airplanes, mostly C-47s, and about 100 gliders to insert the two divisions.[78] The airlift units participating in this operation included the 61st, 314th, 436th, and 437th Troop Carrier Groups. Under the cover of darkness, these units would transport 13,000 American paratroopers and their supplies to six drop zones behind Utah Beach, the code name given to one of the four amphibious landing areas on the Normandy Coast.[79]

Final preparations. Operation OVERLORD, June 1944.

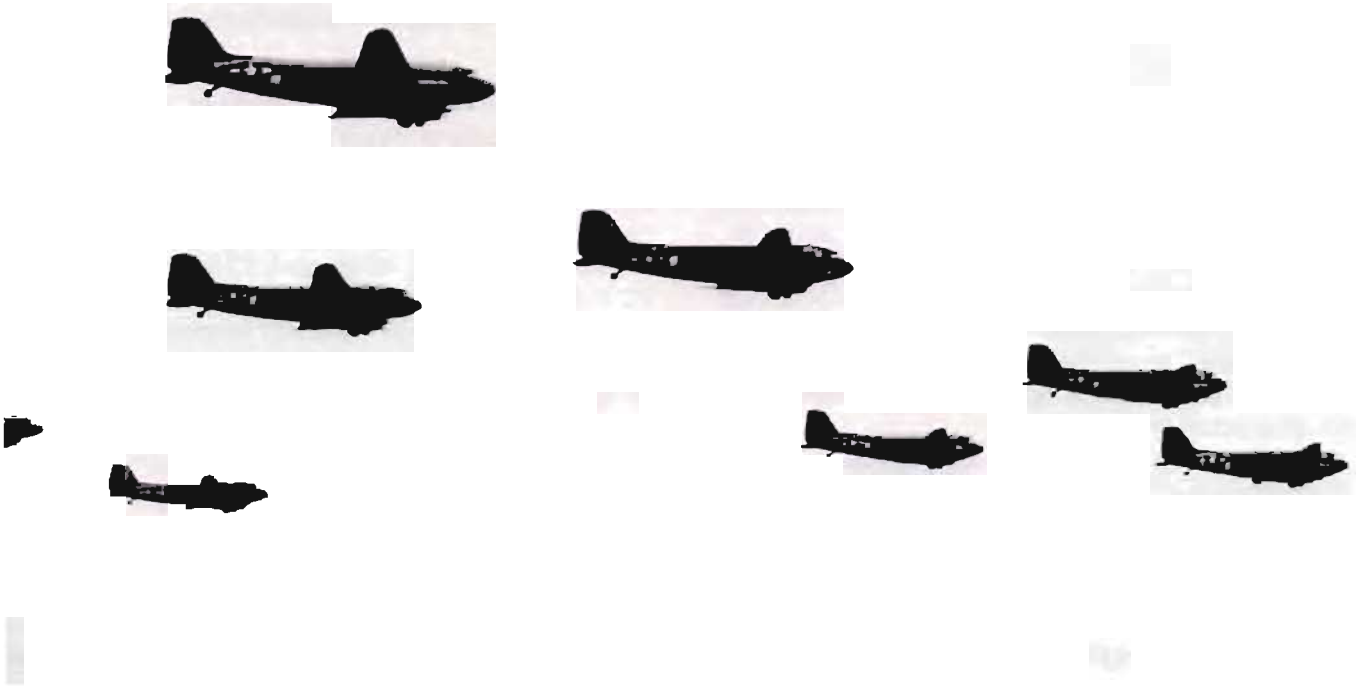
Taking off from numerous airfields throughout the English countryside, the troop carrier C-47s assembled as a massive aerial fleet and crossed the

English Channel without incident. The pilots had to fly across the Channel at 500 feet to avoid the German radar. Then, between 0115 and 0200 hours on 6 June, each formation climbed to 1,500 feet to ascertain their location over the coast. Once the pilots knew their position, they descended to 700 feet and began their approach runs.[80] Unfortunately, the troop carrier pilots encountered many difficulties after reaching the French coast. Although the first aircraft surprised the German defenders, the Germans quickly recovered. Heavy anti-aircraft fire disrupted the formations that followed. Weather conditions further hampered the operation as clouds and fog obscured the drop zones.[81]

Major General Matthew B. Ridgway, first 82d Airborne Division and then later XVIII Airborne Corps Commander, remembered how peaceful the French countryside looked until his C-47 encountered a thick cloud bank. The well-ordered formations broke up in the rough weather, and hopes for dropping the paratroopers *en masse* disappeared. Pathfinder units had been inserted ahead of the main formations to set up navigational aids, but the weather affected their mission as well. As a result, only 10 percent of the airborne forces made their assigned drop zones. Between 25 and 30 percent of the paratroopers came down within a mile of their drop zone, another 15 to 20 percent landed some one to two miles away.[82]

Scattered over a wide area, the airborne troops had difficulty locating their units, a situation made worse by the hedgerows honeycombing Normandy. By the end of D-Day, only 2,500 of the 6,600 men of the 101st Airborne were under unified command. Although unintended, this wide dispersion confused the Germans, but the fighting power of the airborne troops was dissipated. Nevertheless, the small and often mixed units of the 82d and 101st Airborne Divisions proceeded with their mission objectives. Resolutely led, the paratroopers captured the major exits from Utah. Gaining control of these avenues of approach was critical to the Allied invasion forces. If held, the Germans could not counter-attack the assault forces on the beaches.[83]

D-Day airborne operations also included night glider assaults. Fearing the effect of German anti-aircraft fire, Allied planners, over the objection of troop carrier and airborne commanders, decided to tow the gliders to Normandy under the cover of darkness. On the first glider mission, named CHICAGO, 39 gliders carried artillery equipment for the paratroopers.



Douglas C-47 transports of the 76th and 86th Troop Carrier Squadrons winging their way to their assigned drop zones with loads of paratroopers.

IX Troop Carrier Command transports discharging emergencies supplies over the Cherbourg Peninsula, June 1944.

Although unhampered by weather, the glider pilots had trouble finding their landing zones in the dark and often struck unexpected obstacles. Most crashed, and only six of them landed at the proper zone. The second mission, called DETROIT, ran afoul of bad weather, which scattered the gliders. These pilots also encountered the same problems with night landings as did the CHICAGO mission, and barely half made safe landings. Nevertheless, the DETROIT glider assault still provided the lightly-armed paratroopers with vital artillery fire power.

The IX Troop Carrier Command conducted four more glider missions in support of the invasion. Two daylight glider missions, KEOKUK and ELMIRA, took place on D-Day. The last two, named GALVESTON and HACKENSACK, occurred the following day. Flown during daylight hours, all had greater success than the previous night missions. Based upon these last operations, the Army Air Forces concluded that daylight glider missions were far more accurate and incurred fewer landing accidents.[84]

On the second day of the invasion, Allied aircraft flew two parachute resupply missions. During the first mission, FREEPORT, 148 airplanes airdropped 156 tons of supplies to the 82d Airborne Division. Sixteen tons, however, fell into German hands. The second mission, MEMPHIS, employed 118 aircraft to drop 200 tons to the 101st Airborne Division. The 101st's commander, however, had not requested resupply, and the airdrop came as a complete surprise. Since no preparations had been made, it was difficult to recover. How much the Germans captured was unknown because nobody knew how much the 101st had received. During MEMPHIS, 35 troop carriers had sustained damage from ground fire.[85]

Despite problems, these airborne missions contributed to the overall success of OVERLORD, confirming their place in future military plans. Not only had the feasibility of large-scale airborne operations been proven but also the aerial resupply of airborne troops. Although night operations could be conducted, daylight parachute and glider assaults provided greater

accuracy. However, daylight operations faced increased risk from anti-aircraft fire. Day or night, successful airborne operations required air superiority, good communications between the airborne forces and the troop carriers, and, perhaps above all, favorable weather.[86]

Towing a glider load of "Yank" airborne infantry troops.

TROOP CARRIER AIRLIFT IN OPERATION MARKET-GARDEN

One of the largest and most daring operations of World War II was MARKET-GARDEN, the Allied airborne invasion of Holland in September 1944. This dramatic plan involved notably the 61st, 435th, 436th, 437th, and 438th Troop Carrier Groups. On 10 September 1944, General Dwight D. Eisenhower, who had recently taken command of all Allied ground operations on the European continent, agreed to a bold plan by British Field Marshall Bernard Montgomery to turn the German northern flank by dropping three airborne divisions behind German lines to clear a 60-mile-long narrow corridor from Holland's southern border to Arnhem, on the Rhine River. The British Second Army would then rush up the corridor and cross the Rhine into Germany's heartland. The plan depended on airborne forces capturing several key bridges, primarily the bridge across the Rhine River at Arnhem.[87]

The ambitious MARKET-GARDEN plan called for the airlift of 35,000 troops and support equipment from England on three consecutive days. These forces came from the First Allied Airborne Army which included the American 82d and 101st Airborne

Operation MARKET-GARDEN, September 1944.

Divisions. More than 20,000 men, 500 vehicles, 330 artillery pieces, and 590 tons of equipment were to be delivered the first day, 17 September 1944. The movement staged from 24 American and British bases and involved some 4,700 Allied aircraft on D-Day, including bombers to soften up German positions, fighters for escort and flak suppression, 2,000 troop-carrying planes (mostly C-47s), and some 600 gliders. The troop carriers and gliders took 2 hours and 15 minutes to get off the ground.[68]

Although the first airdrops were satisfactory, on successive days both the ground and airborne segments began to bog down. The paratroopers were unable to take and hold all of the tactical objectives, especially several of the critical bridges. By nightfall on 19 September, the Allies controlled only a narrow 35-mile-long corridor between Eindhoven and Nijmegan, Holland. Moreover, the British Second Army was stalled by fierce German resistance. The Arnhem bridge was still intact, but the Germans had a battalion of the British First Airborne Division cut off and outnumbered. The desperate plight of the British at Arnhem prompted the RAF to launch an aerial resupply mission in impossible weather with disastrous results—only 41 of the 386 tons dropped were recovered. A day later, a resupply attempt by 61 troop carrier aircraft fell victim to German fighters, resulting in the destruction of 13 planes. Another 53 transports launched by the British also ran into fighters and heavy antiaircraft flak with the loss of 10 aircraft.[69]

The boldest venture of the operation was airlifting a Polish Parachute Brigade. Troop carrier pilots took off with about 1,500 Polish troops, but only 1,000 were able to jump at Arnhem because of strong winds. And those that did were carried to the wrong bank of the Rhine. Too few and too late to help the British, the Polish paratroopers suffered heavy losses.

Supply-laden Consolidated B-24s releasing their loads during Operation MARKET-GARDEN, 18 September 1944.

Waves of paratroopers dotted the skies above while livestock grazed alongside gliders near Grave, Holland, 23 September 1944.

Missions scheduled for the following day had to be canceled due to bad weather. The situation was compounded by flooding caused by ruptured dikes and haze that covered much of Holland.

On Saturday, the weather permitted the airlift of 3,300 reinforcements and supplies to the two American airborne divisions. Aerial resupply of the British, however, was more difficult due to the small 1,000-foot diameter area they held. As a consequence, less than 10 percent of the 291 tons dropped actually reached the British.

After a week of unsuccessful attempts, Field Marshal Montgomery ordered the withdrawal of all Allied forces to the south of the Rhine, thereby abandoning the primary objective of MARKET-GARDEN. Ironically, the same harsh weather that had played such a key role in the defeat of the British saved them in the end from total annihilation, permitting them and the trapped Polish forces to slip away undetected.

Begun with such high hopes, MARKET-GARDEN ended in devastating failure. In just nine days, one-third of the 35,000 men were lost. Of the 11,853 casualties, 9,333 were either killed or missing. The number of Allied casualties approximated the number lost during the famous D-Day invasion at Normandy the previous June. Eighty-seven fighters and bombers as well as 153 troop carrier aircraft were destroyed; another 1,265 sustained damage. Many reasons were offered; each had played a part. Harsh weather hampered resupply and support efforts. Intelligence reports underestimated the Germans. There were deficiencies in communications, air support, resupply, and combat qualification of glider pilots. Nor had the Allies been able to interdict German troop and supply movements.[90]

AIRLIFT SUPPORT OF SPECIAL OPERATIONS

A final aspect of airlift in World War II as it relates to the future missions of the Military Airlift Command was the support given to special operations. The Air Transport Command, troop carrier, and other airlift organizations provided airlift for a wide variety of special operations. The most common was the clandestine single-ship airdrop or airland operation

conducted in every theater of the war. These were often used to insert or extract special operations teams or agents and to resupply small guerrilla bands or insurgents behind enemy lines. These missions have been highlighted in many films, novels, and historical works. One of the best examples of airlift's role, Operation CARPETBAGGER, was designed to resupply insurgent bands in France and the low countries during the months leading up to the invasion at Normandy.

Assigned to the VIII Air Force Composite Command in March 1944, the 36th and 406th Bombardment Squadrons were tasked to perform CARPETBAGGER under the direction of the 801st Bombardment Group (Heavy) (Provisional). In May, two more squadrons, the 788th and 850th Bombardment Squadrons, were added to the mission, raising the aircraft allocated to the operation to more than 40 B-24s. The B-24s had been modified for clandestine cargo operations. In August 1944, the organizational structure changed completely; the 492d Bombardment Group assumed the CARPETBAGGER mission from the inactivated 801st. The 856th, 857th, 822th, and 859th took over from the four squadrons. Eighth Air Force also assigned C-47s to the 492d to facilitate the operation.[91]

The first CARPETBAGGER mission occurred on the night of 4-5 January 1944, even before the organizational apparatus was in place. By 1 March, a total of 29 resupply missions had been completed. CARPETBAGGER missions operated regularly until the end of the war but had peaked in July 1944 as Allied forces fought their way out of the Normandy countryside. During that month, CARPETBAGGER missions totaled 397, dropping 4,680 containers, 2,909 packages, 1,378 bundles of leaflets, and 62 personnel. By the end of the year, CARPETBAGGER pilots had flown 1,860 sorties, delivering 20,495 containers and 111,174 packages. In addition, this operation inserted more than 1,000 agents into enemy territory.[92]

Airlift supporting special operations also included activities designed to demoralize the enemy. Psychological operations involved leaflet drops,

Clandestine airlift missions preceded the Normandy invasion, May 1944.

electronic jamming, and broadcasting. Leaflet drops began in August 1943 over France. Although the Eighth Air Force also used other bomber units, a special leaflet squadron, the 422d Bombardment Squadron, handled most of the drops. By the time of the Normandy invasion, this unit had dispersed 599 million leaflets. When its operations ended on 9 May 1945, the 422d Bombardment Squadron had flown 2,334 sorties and airdropped about 1.76 billion leaflets, losing only 3 aircraft and sustaining 16 fatalities.[93]

There were other notable types of special airlift operations as well, among them emergency evacuations and glider insertions. Airlift units accomplished numerous emergency evacuations of both large and small numbers of Allied personnel. The best example was the extended April 1944-April 1945 evacuation of Allies from behind enemy lines in the Balkans. During that period, covert airlift missions moved about 19,000 people. The 60th Troop Carrier Group executed half of these missions using C-47s.

Glider insertions also were common covert activities. For instance, in Operation MANHOLE on 23 February 1944, three C-47s from the 62d Troop Carrier Group assisted the infiltration effort of a Soviet military mission into enemy-held Yugoslavia by towing the Soviet personnel and equipment in three CG-4A *Waco* gliders which then made safe landings.[94]

Certainly the most celebrated special air operation unit of World War II was the 1st Air Commando Group, activated on 29 March 1944 in India, to support Wingate's Raiders, guerrilla forces operating in Burma behind Japanese lines. Possessing a composite force of fighter, bomber, and transport aircraft with the necessary logistics and support trail, the 1st Air Commando Group provided material and other support to ground forces in covert operations until the Japanese surrendered. With a force of some 600 experienced Army Air Forces personnel, the 1st Air Commando Group operated about 30 P-51 fighters, 13 C-47 and 12 C-64 transports, 150 CG-4A *Waco* gliders, 75 training gliders, 100 liaison and observation aircraft, 12 B-25 bombers, and 6 YR-4 helicopters.[95]

CONCLUSION

Wartime operations firmly established the validity of dedicating aircraft for logistical supply and troop deployments. As Major General Robert M. Webster, ATC Commander from 1946-1947, related to a National War College class in 1947, the United States had entered World War II "with only the basic types of military aircraft, the bomber and the fighter." Remarking further, Webster stated:

> I feel that we have come out of that war with an additional type, the transport plane, and that we should think in terms of bomber-fighter-transport—since they are all equally important—and they must be properly balanced to each other if we are to be prepared to conduct successful war operations.[96]

The Air Transport Command and other airlift organizations had proven this throughout World War II, responding to the needs of the moment in a myriad of ways and in a variety of situations to deliver cargo and passengers where and when they were required. The war years had also shown the necessity of consolidating duplicative airlift functions as well as the value of drawing upon the commercial airline industry. After the war, military airlift underwent organizational refinement to accommodate the airlift lessons of World War II.

Airlifters rejoice at the news that the Berlin Blockade ended on 12 May 1949. Airmen greet a Navy crew upon their return to Rhein-Main Air Base. Several naval air transport squadrons were merged with the Air Transport Command on 1 June 1948 to create the Military Air Transport Service and flew under USAF control during the Berlin Airlift.

CHAPTER III

DEMOBILIZATION AND COLD WAR, 1945-1953

The Air Transport Command had built an impressive system for moving people and cargo during World War II; the command's transports had crossed the Atlantic every 13 minutes, the Pacific every 37 minutes in July 1945.[1] However, when peace finally came, ATC joined other military elements in a rapid demobilization. While Americans had willingly heeded the call to arms, they had no intention of remaining overseas once the war ended. Isolationism had the potential, so it appeared in 1945, to become once again an important objective of the United States' foreign policy, just as it had been in the 1920s and early 1930s. Even those national officials who were committed to ensuring that the United States played a central leadership role in the world did not agree that a large standing military was necessary. After all, "the Bomb" had finally ended World War II in the Pacific, and its holocaustic potential would deter future aggressors at a moderate cost to the United States government.[2]

It seemed like a time for the nation's military forces to go home, back to civilian life. Americans, however, would discover that the world remained a dangerous place. Some former enemies were becoming friends, while one former ally began looking very much like an adversary.

POSTWAR ORGANIZATION AND MISSION

Victory in Europe meant a shift in emphasis for the Air Transport Command, but not less work. When Germany surrendered on 7 May 1945, the Army Air Forces transferred some forces to the Pacific but sent most of its people and resources home. Air Transport Command personnel, however, had to delay their own homecoming to assist with the troop and equipment withdrawals. From May through mid-September 1945, ATC participated in the "Green" (troops) and "White" (aircraft) Projects—as the demobilization and transfer of men and equipment from Europe and the Mediterranean theaters were called—returning more than 250,000 personnel and 5,900 aircraft.[3]

The Japanese surrender in August 1945 following the atomic bomb attacks meant an even larger mission for ATC—moving occupational forces into Japan. To execute this assignment, known as "Special Mission Number 75," ATC pulled 154 C-54s from scheduled Pacific Division operations and placed them on standby for the deployment. The command diverted another 95 C-54s from points as far away as North Africa and the North Atlantic ("Purple Project") and rushed them to Okinawa, where they joined aircraft from the India-China pipeline and the United States. These few hundred transports as well as another 360 B-24 bombers, used as cargo aircraft, made Special Mission Number 75 one of the greatest concentrations of troop carrier airlift.[4]

Movement of the occupational forces began on 30 August, and by 12 September 1945, when the mission was completed, ATC aircrews had made 1,367 flights between Tokyo and Okinawa, airlifting 39,928 troops and 8,202 tons of material. This included 7,589 Allied prisoners of war and internees taken out of Japan. The aircrews supporting this operation flew 11,535,198 ton-miles in 16 days. Although poor coordination hampered the effort, the Pacific Division's Commanding General, Major General William Ord Ryan, called it "the greatest single undertaking of its kind in the history of this Division and possibly of ATC."[5]

Following the Japanese surrender, the United States began the usual process of dismantling its military forces. At the end of August 1945, General Hap Arnold approved ATC's plan for reductions. The command's troop strength, which had peaked at 209,201 military personnel and 104,667 civilians that August, would drop to 80,000 military by July 1946. Route mileage would shrink from 180,000 to 80,000 miles, and service to some 300 stations would stop. Finally, the air transport fleet was expected to decrease from more than 2,700 planes to less than 650 during the next four years. ATC achieved these reductions fairly easily; it declared all nonstrategic intratheater services to be the responsibility of theater commanders, turning over the resources dedicated to this mission. This would leave the Air Transport Command with not more than 400 C-54s and 250 twin-engine aircraft. Starting in September 1945, ATC began declaring the bulk of its C-54 fleet as surplus.[6]

The impact of the cuts in personnel and aircraft resources was actually greater than the numbers might imply. Generally, units released personnel on the basis of length of service; hence, those with the most expertise were replaced with what Major General St. Clair Streett of the Continental Air Force characterized as "a potpourri of warm bodies." He warned General Arnold in October 1945 that "we will have soon reached a point, if it has not been reached, at which the Army Air Forces can no longer be considered anything more than a symbolic instrument of National Defense."[7]

The Air Transport Command had finished the war with one domestic and eight overseas divisions. A year later, there were three left in operation—Atlantic, Pacific, and European—as a series of changes deleted

Departing Casablanca, Morocco, 1945. At the end of World War II, the Air Transport Command began moving troops back to the United States under the "Green Project."

many of the wartime management organizations. The Ferrying Division, which took over the Alaskan Division, was renamed the Continental Division, which in turn was absorbed by the Atlantic Division. The Atlantic also incorporated what remained of the North Atlantic, South Atlantic, and Caribbean Divisions. The Hump operations of the India-China Division ended in November 1945, and by early 1946, the unit was split between the Pacific and North African Divisions. Later, the North African area of responsibility became part of the European Division.[8]

The postwar military structure was not simply a matter of creating a miniature version of what had existed during the war. Many inefficient operating methods had been tolerated under the pressure of combat demands. The Air Transport Command's senior officers were concerned about the organization's peacetime role. The ATC mission, as stated in October 1945, involved ferrying Army Air Forces aircraft, both within the United States and to other destinations; transporting personnel, material, and mail for the entire War Department; evacuating the sick and wounded from theater areas and within the United States; and providing operational and replacement training for its personnel, except medical specialties.[9]

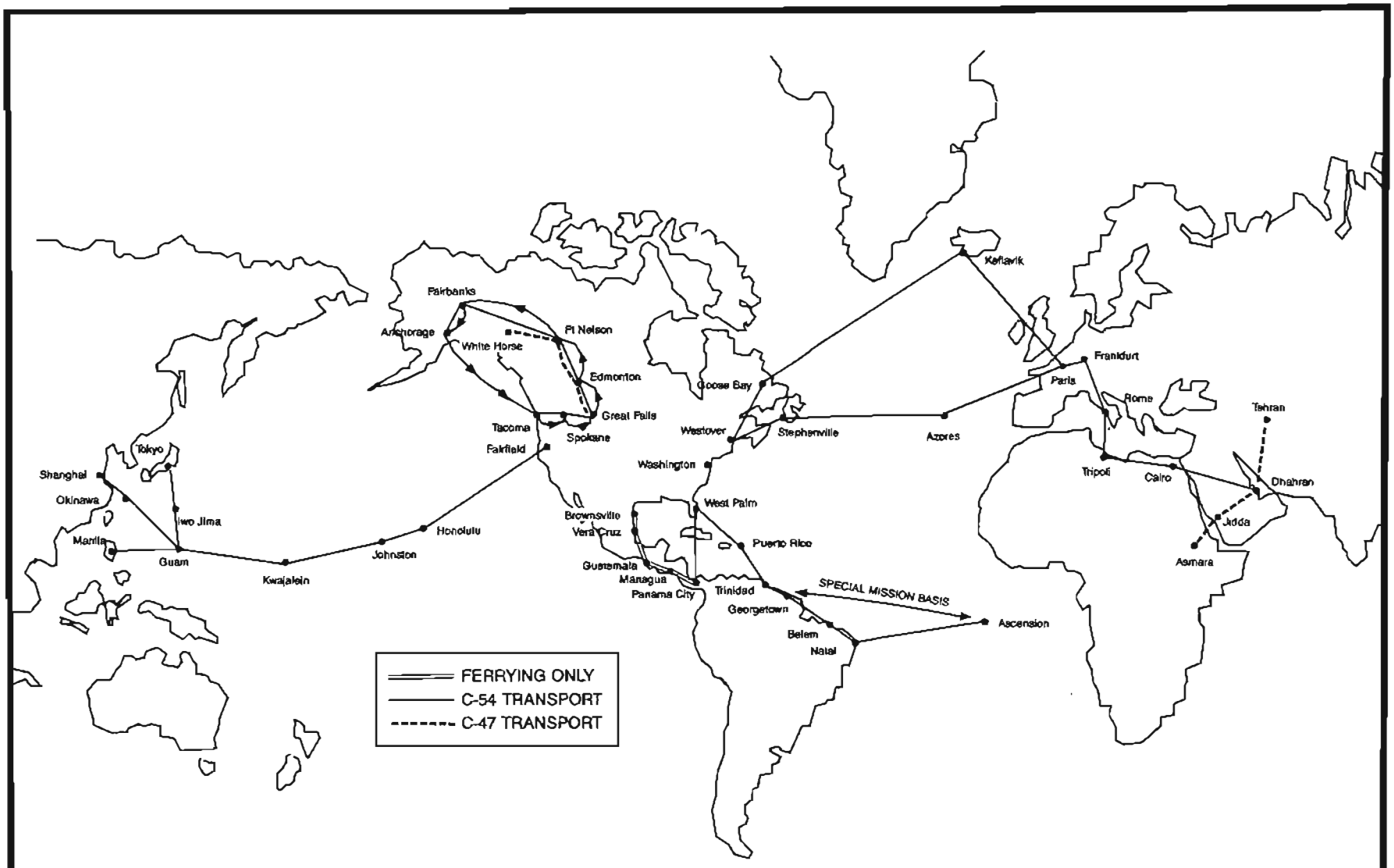
In the postwar setting, it seemed a foregone conclusion that troop carrier airlift would remain a theater responsibility as it had been in World War II. When the United States Strategic Air Forces in Europe was redesignated the United States Air Forces in Europe (USAFE) on 16 August 1945, one of its components was the European Air Transport Service with a subordinate troop carrier wing. On the other

HOME BOUND AIR LINES: all types of aircraft were pressed into service to transport personnel home, in this case a B-17 from the 483d Bomb Group, Fifteenth Air Force.

side of the world, the United States Army Strategic Air Forces in the Pacific was inactivated and the Far East Air Forces (FEAF) was redesignated the Pacific Air Command (PACOM) on 6 December 1945. Headquarters PACOM assumed jurisdiction over all Army Air Forces units except those belonging to the Air Transport Command. But PACOM's five Pacific air forces had a variety of air units, including two troop carrier groups.[10]

Fortunately, ATC had some highly-placed advocates who made sure the command was not completely disbanded. When General Hap Arnold was preparing to pass command of the Army Air Forces to General Carl Spaatz, he asked American Airlines executive C.R. Smith for advice on the best structure for ATC. Cyrus Rowlett Smith had finished the war as ATC's Deputy Commander.[11]

General Arnold valued Smith's opinion, based on his civilian and military experience. They spent an hour together the morning of 26 November 1945 discussing the composition and duties of the Air Transport Command in a peacetime setting. According to Smith, Arnold strongly favored ATC remaining a separate Army Air Forces command, reporting directly to the Chief of Staff. General Arnold further advocated establishing a transcontinental military airway, equipped with the latest navigation and landing devices. The airway would serve as a ferry route and laboratory for studying air navigation. Smith said it was unclear whether Arnold wanted ATC or some other Army agency to manage the airway. General Arnold also wanted ATC to install airway facilities and operate a route connecting Iceland, Greenland, Northern Canada, Alaska, and Okinawa. In his view, ATC should command arctic weather services as well. Most significantly, General Arnold reemphasized that civil air transport was an integral part of the United States' air power. Military plans should include a requirement to rapidly move 36,000 troops, using 1,000 airplanes. Under this concept, the



AIR TRANSPORT COMMAND ROUTES
JUNE 1947

Air Transport Command's contribution would be 200 aircraft with the airlines supplying 800 planes.[12]

Major General C. R. Smith and Brigadier General William H. Tunner during World War II.

Smith was obviously proud of ATC's wartime accomplishments and asserted the command had the potential to be an even better airlift organization. Recounting his session with General Arnold to Lieutenant General Harold George, Smith beat ATC's drum:

> Army, through Air Transport Command, should be the preeminent air line operators in the world, better than any other military establishment and better than any airline organization. This is possible, on account of lack of civil restrictions [upon the military], availability of equipment and the military necessity of always being ready on a highly skilled basis.[13]

On 6 December 1945, eleven days after talking to Smith, Arnold wrote a "Dear Tooey" letter to his successor, offering General Spaatz advice on a variety of topics. While the letter emphasized the need to obtain and maintain autonomy for the Army Air Forces, its main thrust was airlift. In words that would seem prophetic, General Arnold stressed the difficulty of deploying and establishing air forces in combat areas. "During times of peace," he wrote, "we are apt to retain our combat units and sacrifice the essentials to their successful deployment and immediate operation. We must retain our bases and our means of deployment." Arnold then urged Spaatz to preserve essential airlift capability for future crises since it appeared that the nation's forces would be pulling back from forward locations overseas. Without airlift, Arnold reasoned, the nation could find itself in serious trouble in future confrontations.[14]

Clearly, the Air Transport Command's strategic value had impressed Arnold. His perspective as a member of the Joint Chiefs of Staff and the Combined Chiefs of Staff made him declare that "an essential component of American air power is an integrated autonomous single Air Transport Command, reporting *directly* to the Commanding General, Army Air Forces."[15] He believed that ATC was critical to the Army Air Forces. The broader value was to foster and retain an autonomous air force. Most importantly, however, such a force would further the United States' national aviation policy.

Arnold also told Spaatz that ATC during peacetime would need to operate a regular air transport service between bases as well as serve other government agencies.

> The operation of these services will give us well-trained officers and men experienced in world-wide, all-weather flying. It will give us an opportunity to develop and to test new equipment, communications facilities and other airway aids. More important, the scope of the operations I visualize would be such as to present unusual opportunities for collecting general international intelligence. This potential has never been fully realized.[16]

Although General Arnold clearly expected the civil airlines to carry on the American preeminence in aviation during peacetime, he felt the military should take the leadership role in developing routes, equipment, techniques, and procedures. This would result in technical developments in long-range aircraft. Arnold further advised Spaatz on potential ATC responsibilities: air transport service from the United States to and between overseas bases in different command areas; a transcontinental air route linking the major military terminals together, "equipped with the latest devices and gadgets for experimentation and testing, and utilized for the development of more advanced operating practices;" domestic passenger and cargo service between depots and other military installations; and a modest aircraft ferrying capability. General Arnold also recommended establishing air service between the United States and all Latin American capitals. This would be useful "should a mutual assistance pact with our Latin American neighbors be consummated." It could also serve as a vehicle to sell American methods and equipment while at the same time standardize air practices in the hemisphere.[17]

Above all, General Arnold realized that without a rapid deployment capability inherent in ATC, the deterring forces of the Army Air Forces were hollow. He stressed planning for emergency overseas deployment. Arnold thought that together ATC and

the civil air carriers should be able to move the equivalent of one Army corps and its essential equipment from the United States to its farthest deployment base within 72 hours. "It would appear reasonable to assume," he told General Spaatz, "that the civil air carriers should provide a large share of the required lift."[18]

The Air Transport Command seemed to be the logical organization to assume responsibility for overseas activities when theater, base command, and other high-level War Department commands were dissolved as the military demobilized. General Arnold, for instance, expected ATC to retain the senior base or area command in Iceland, the Azores, and Brazil. This would allow tactical units to move freely from base to base while ATC did the "housekeeping" and supervised their air movements. He thought, however, that combat units in Alaska and Hawaii should remain under the command of an air force agency with a combat mission. In these cases, ATC's role was a supporting one.[19]

Finally, in closing, General Arnold passed on to Spaatz his "strong personal conviction" that in time of war the authority of the theater commander in his area of responsibility was "paramount." He noted, however, that the Air Transport Command had been an "exempted" agency during World War II, operating into and through these theaters. He recommended continuing this policy, since that organization's mission extended into and beyond all theaters to a global scope. Its autonomy from theater commanders, he added, would help provide General Spaatz an overarching view of the support provided to combat units.[20]

THE QUESTION OF THE TECHNICAL SERVICES

As the United States demobilized, concern also arose over how best to organize the technical fields of communications, weather, flight control, and flying safety. Organizational control of these resources was a long-standing problem. The 1937 Subcommittee of the Air Corps Technical Committee had recommended establishing under a single manager an Army Airways Control System, which would control meteorological, airways, and airfield support both within the United States and in overseas possessions. Major General Oscar Westover, head of the Air Corps, expressed concern in April 1937 that there was insufficient coordination of air traffic, both military and civilian, to make the skies safe. The result was the establishment of the Army Airways Communications System (AACS) on 15 November 1938. From the beginning, this organization tied together the communications facilities, navigational aids, and weather stations of an increasingly air-minded military. In 1939, responsibility for air traffic control was added to the AACS mission. The demand for air traffic control services expanded even further as the United States began delivering aircraft to the British during the Lend-Lease program.[21]

When Headquarters Army Air Forces was established in 1941, it originally planned to organize separate commands for weather and communications. This decision was based on a faulty premise that the Army Air Forces headquarters could handle both policymaking and directing operations. As a result, the headquarters created subordinate divisions within its Directorate of Technical Services for communications, weather, traffic control and regulation, photography, and technical inspection. The wartime expansion of the air arm, however, demanded closer attention to air traffic control, especially in coordination with the growing civilian air traffic. Moreover, the Battle of Britain had showed the importance of electronic communications. Air operations, more than others, relied on accurate weather forecasts for worldwide locations. Producing maps from aerial photographs was still in its infancy at a time when the demand for accurate maps was expanding. These functions served the entire Army Air Forces and extended beyond command lines of authority. Therefore, the reasoning was sound that these technical resources be kept under a single authority.[22]

But consolidating the technical support activities at Headquarters Army Air Forces was not particularly efficient. In late March 1943, General Arnold directed his staff to stop directing operational units and concentrate, instead, on providing clear-cut policy to subordinate commands. He then abolished the Directorate of Technical Services.[23] A Flight Control Command was activated on 29 March 1943, and in the next two months it activated the Weather Wing[24] at Asheville, North Carolina, and the new Army Airways Communications System Wing. The Flight Control Command also took over some functions of the Directorate of Flying Safety as well as responsibilities from the Directorate of Civil Airways, especially in the Zone of the Interior (Continental United States). For a brief period during the summer of 1943, the AACS overseas regions were assigned either to ATC or the theater commands. By July 1943, however, the Weather Wing was redesignated the Army Air Forces Weather Wing, and it and the AACS Wing were assigned to Headquarters AAF as direct reporting units. They operated under the Assistant Chief of the Air Staff for Operations, Commitments, and Requirements for the next two years. In April 1944, the Army Airways Communications System Wing was redesignated the Army Airways Communications System.[25]

While the Weather Wing at Asheville controlled all Army Air Forces weather units, it had virtually no authority over those assigned to combat theaters. To

remedy this situation, in July 1945, the Weather Wing was redesignated Headquarters AAF Weather Service (AAFWS). At this same time, the Weather Division in Washington, DC, was abolished, and its members were reassigned to AAFWS Headquarters at Asheville. The new chief of the AAF Weather Service reported directly to General Arnold, advising him on all questions related to weather.[26]

Regarding air rescue, responsibility had traditionally been divided very simply: the nearest Air Corps base handled accidents on land while the Navy responded to those at sea. Within the Army Air Forces, air-sea rescue was considered a command asset and, therefore, did not require a separate headquarters. Accordingly, responsibility for rescue moved in and out of Headquarters AAF throughout the war years, ending up under the Assistant Chief of the Air Staff for Operations, Commitments, and Requirements, Lieutenant General Hoyt S. Vandenberg.[27]

At Vandenberg's urging, in February 1946, Headquarters AAF appointed a committee to study the implications of transferring AACS, weather, rescue, flying safety, and aero chart service from the headquarters to the Air Transport Command. The committee, headed by Brigadier General F. L. Ankenbrandt, had two weeks to complete its recommendations, including the action papers to make it happen. Army Air Forces officials were unsure about transferring Flying Safety and Aero Chart Service to ATC, but asked the committee to proceed as if they would go. The committee was also told to consider whether other functions or services might logically be made part of ATC.[28]

On 13 March 1946, orders from Headquarters Army Air Forces redesignated AAF Weather Service the Air Weather Service, the Army Airways Communications System the Air Communications Service (redesignated in September Airways and Air Communications Service) and established the Flying Safety Service, Flight Services, Air Rescue Service, and the Aeronautical Chart Service. All of these activities were then assigned to the Air Transport Command. This was based in part on the recognition that ATC was the only flying command in the Army Air Forces with a global mission. The infrastructure, therefore, was in place to support these technical service functions. The assigning order gave ATC a new headquarters structure, but stated "to avoid confusion, its history will be continuous with that of the present Air Transport Command."[29] Two of the technical services were subsequently removed from ATC's jurisdiction: the Flying Safety Service was assigned to Headquarters AAF as a direct reporting organization in November 1946 and the Aeronautical Chart Service was transferred to the Strategic Air Command in May 1947.[30]

When these technical services joined the Air Transport Command in 1946, the original plans called for creating an additional organization—the Air Transport Service (ATS) Headquarters which would administer the transport and ferry system. It would operate on the same level as the other services, which held status comparable to numbered air forces. Although the War Department directed the command to establish this Air Transport Service before 1 July 1946, with the intention that it should take over the responsibilities and functions of the existing Air Transport Command, it was not created until 1947. Personnel shortages seemed to be the main obstacle, but in the interim, ATC Headquarters continued to perform as the equivalent of both a higher and a lower headquarters.[31] This arrangement seemed to work and saved money and manpower. As one ATC official explained:

> It is realized that the structure of the Command does not adhere too closely to that of other commands of a comparable size in the Air Force. However, due to the type of mission, the Air Transport Command has based its organizational

A typical Flight Service Center during the latter 1940s. This one was located at Olmstead Air Force Base, Pennsylvania.

> structure on a "Systems" concept. The systems concept gives the Command the necessary flexibility and mobility to transfer personnel and equipment from one area of responsibility to another in case of an emergency or to meet any passing strategic requirement and still preserve the Command channels essential to efficient operation.[32]

The technical services kept a high degree of autonomy throughout 1946, with minimum interference from Headquarters ATC. Other than coordinating changes in policy and plans that might affect their missions, the services were on their own.[33]

An Airways and Air Communications Service radar control center, 1952.

REDEFINING THE MISSION OF ATC

In May 1946, the War Department published Circular Number 138 on the War Department Reorganization to provide guidance concerning the pending changes. One of its appendices described the functions of the subordinate commands of the Army Air Forces, including the new Strategic Air Command, Air Defense Command, and Tactical Air Command. The last entry in the appendix pertained to the Air Transport Command and was especially brief, considering the command's range of responsibilities. It read, in total:

> Air Transport Command.—Provides and operates for the Army on a global scale the following services: Air Transport, airways communications, weather, aircraft accident prevention, air search and rescue, and aeronautical charts for the Air Forces and for such other Government agencies as may be directed by higher authority.[34]

Regulations issued in June 1946, however, mitigated the command's expansive mission by defining ATC's transport operations as purely "supplementary" to those of the civilian air carriers. The Air Transport Command would maintain liaison with the civil airlines, unless the subject under discussion was technical, in which case it might belong to the Air Materiel Command, which managed research, development, acquisition, and maintenance. The troop carrier mission was specifically withheld from ATC, and command and control of aircraft moving over ATC routes was carefully defined to exempt tactical missions. In December 1946, when ATC was limited to supervising aircraft ferrying to and from points outside the United States, domestic ferrying officially dropped out of the command's mission statement. The reductions in the command's responsibilities for intratheater transportation and local transportation overseas were driven by its severe manpower shortages. As one source put it, ATC was so shorthanded "it could hardly provide necessary air lift from and to the Zone of Interior [Continental United States], much less all the miscellaneous air transportation involved in theater operations."[35] By December 1946, despite the addition of the technical services, the Air Transport Command's personnel strength had declined to 42,090 military and 17,590 civilians.[36]

Shortly after the technical services were assigned to ATC, suggestions to reorganize them as well as the whole command surfaced. One proposal advocated consolidating Air Transport Command, Airways and Air Communications Service, and Air Weather Service functions under a single headquarters unit for each theater area. The ATC Commander, Major General Robert M. Webster, disagreed. In the first place, he argued, it would be ineffective because theater commanders opposed the idea. More important, he said, it represented a radical departure from the war-tested organization. Changes should not be made for peacetime efficiency and economy, he contended; airlift resources had to be organized for the fight.[37]

With ATC hard-pressed to find enough qualified personnel, this proposal went no further. For example, the command had few mechanics, and the addition

of the communications and weather services had meant ATC also inherited more personnel shortages. Demobilization of those weather and communications specialists with the longest service, hence, the most experience, left a gap that could not be filled for as long as 8 to 10 months. The Pacific theater commander protested that without more communications and weather personnel, it would have to cease all flying operations by 1 May 1946. Headquarters ATC addressed the shortages of communications, weather, and other technical skills through special accelerated training programs and civilian contract courses, conducted primarily by the Philco Radio Corporation and the Federal Telegraph and Radio Corporation. Even so, some bases were forced to operate part-time.[38]

Thus, ATC was caught in a dilemma after acquiring the technical services. The military air transport requirements in Europe and North Africa were shrinking with the conclusion of the war and could either be eliminated or turned over to theater agencies. There were, however, irreducible minimums for all the supporting functions, such as communications, weather, flight control, rescue, safety, and charting, that remained as long as there was any air transport activity. In addition, ATC had the job of providing these services to American civil air carriers until they established their own. That ATC provided these services to the airlines was more than a safety issue; it was a matter of securing world markets and keeping America strong and competitive.[39]

As an extension of the United States' foreign policy, ATC also aided other nations in developing and operating civil airports. Keflavik International Airport, Iceland, was put under a contract supervised by ATC. The command assisted the Portuguese government in operating airports in the Azores and ran Dhahran airport in Saudi Arabia. At this same time, ATC was pulling back from overseas commitments. While ATC turned over Casablanca and Dakar to the French early in 1947, Roberts Field in Liberia was a different situation. Although there was no military reason for Americans to remain at Roberts, Pan American and Firestone Rubber, which had tremendous investments in Liberia, needed the field. But the Liberians were unable to maintain the field. The State Department protested, maintaining the closure would shut the United States out of long-term air rights in that part of the world. Thus, ATC continued to operate the field while the State Department worked on an arrangement whereby Pan American would run the field, with support from Firestone and the Liberian government. Roberts Field eventually became a contractor-operated airfield.[40]

All of these drawdowns, reorganizations, and changes made for a dynamic situation at Headquarters Air Transport Command between 1945 and 1948.

Khartoum, Sudan. The Air Transport Command began to draw down its farflung operations soon after the conclusion of World War II.

Lajes Field, Azores, 1951.

The command's personnel strength decreased from more than 313,000 located worldwide in 1945 to less than 57,000 in 1948. Its aircraft inventory fell from a maximum of 3,705 in 1945 to under 1,000 three years later.[41] The frequency and extent of base support, air transport, technical services, and other activities declined accordingly.

CONSOLIDATION OF AIRLIFT: THE BIRTH OF MATS

After Pearl Harbor, the Navy had organized its own Naval Air Transport Service (NATS), and throughout the war years both the Army's ATC and the Navy's NATS operated extensive airlift systems independently. With peace, however, Congress and other government officials began questioning the need to maintain two airlift services that were overlapping. In May 1946, the Joint Chiefs of Staff asked the Joint Army-Navy Air Transport Committee (JANATC) to work with the Joint Logistics Committee to produce a draft agreement delineating the respective responsibilities of the two transport services. The committee ultimately recommended a temporary joint task force, with the goal of withdrawing the Navy from all land-based air transport activities and having ATC pick up all overseas routes of "common interest." Lieutenant General George soon found that the Navy and Army Air Forces leaders could not agree on which routes were common interest, something that was essential to defining the interim joint task force's areas for cooperation. Headquarters NATS representatives insisted that the Navy need not turn over responsibility for operating a route of common interest to ATC if the Army Air Forces used contract carriers on the route. In 1946, Lieutenant General George wrote to the Assistant Secretary of War for Air, Kenneth C. Royall, stating that he expected the Navy to make high demands for air transport services just so it could claim nonsupport from ATC and maintain its NATS airlift structure permanently. George suggested that the only way to deal with this was to have the War Department, rather than any of its service components, determine the strategic air transport requirements for both the Army and the Navy and then assign the total mission to the Army Air Forces.[42]

The Army Air Forces got nowhere with consolidation until civilian leaders directed the military services to organize the air transport mission under a single command. The issue became part of the give and take surrounding the legislation that created a separate, independent United States Air Force. The National Security Act of 1947 originally went to Congress at the end of February 1947 in draft form. By the time it became law on 26 July, it incorporated a number of changes which later provided the core areas for disagreement among the military services. While the Act itself did not specifically address airlift, Executive Order 9877, signed the same day, did spell out the functions of the armed forces. The Air Force received four major missions: strategic bombardment, air support of land forces, air defense, and air transport. Setting the stage for subsequent developments, the Air Force would provide air transport services to the armed forces except those the Navy deemed "necessary for internal administration and for air transport over routes of sole interest to naval forces where the requirements cannot be met by normal air transport facilities."[43]

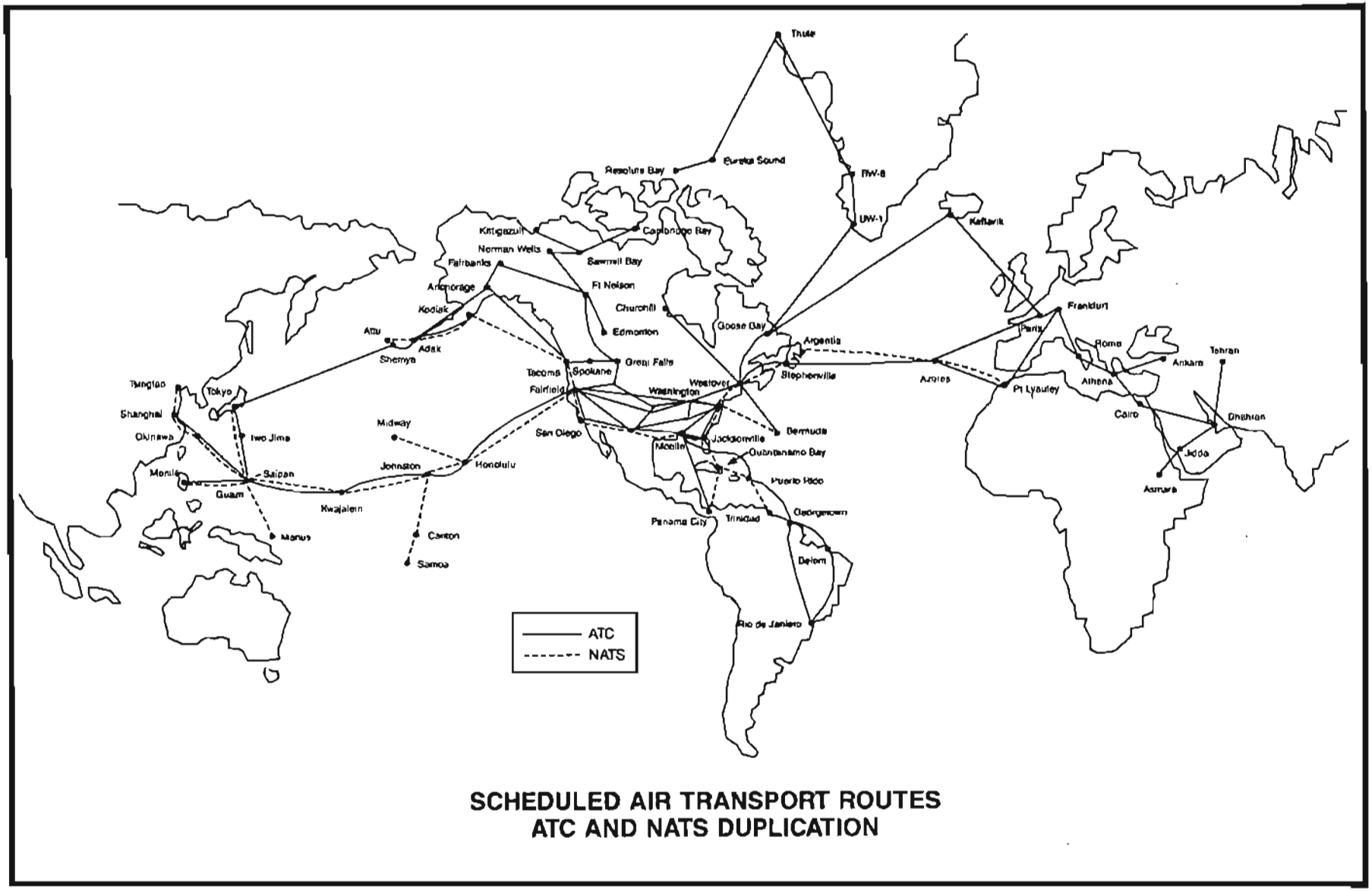
On 18 July 1947, President Harry Truman established a temporary Air Policy Commission "to make an objective inquiry into national aviation policies and problems," and to assist him in formulating an integrated national aviation policy. The tasking went beyond the military, encompassing all aspects of aviation in the country. The President's Air Policy Commission—also known as the Finletter Commission—held formal hearings between September and early December 1947.[44] It would be difficult to find air power experts the Finletter Commission neglected to interview. Besides the heads of aircraft corporations and government aviation agencies, the commission heard from General F. Trubee Davison, the former Assistant Secretary of War for Air; Colonel Thomas O. Hardin, Air Transport Command, who was formerly the Chairman of the Air Safety Board; Vice Admiral Emory S. Land (Retired), President of the Air Transport Association of America; Air Force Chief of Staff General Carl Spaatz; and Air Force Secretary W. Stuart Symington. Major General Laurence S. Kuter, who had coauthored the basic plan for the organization and employment of air power in World War II as a member of the War Department

Major General Laurence S. Kuter, MATS Commander, and Rear Admiral John P. Whitney, MATS Vice-Commander (left and right center) and members of the joint Navy-Air Force Working Group and advisors who organized the Military Air Transport Service.

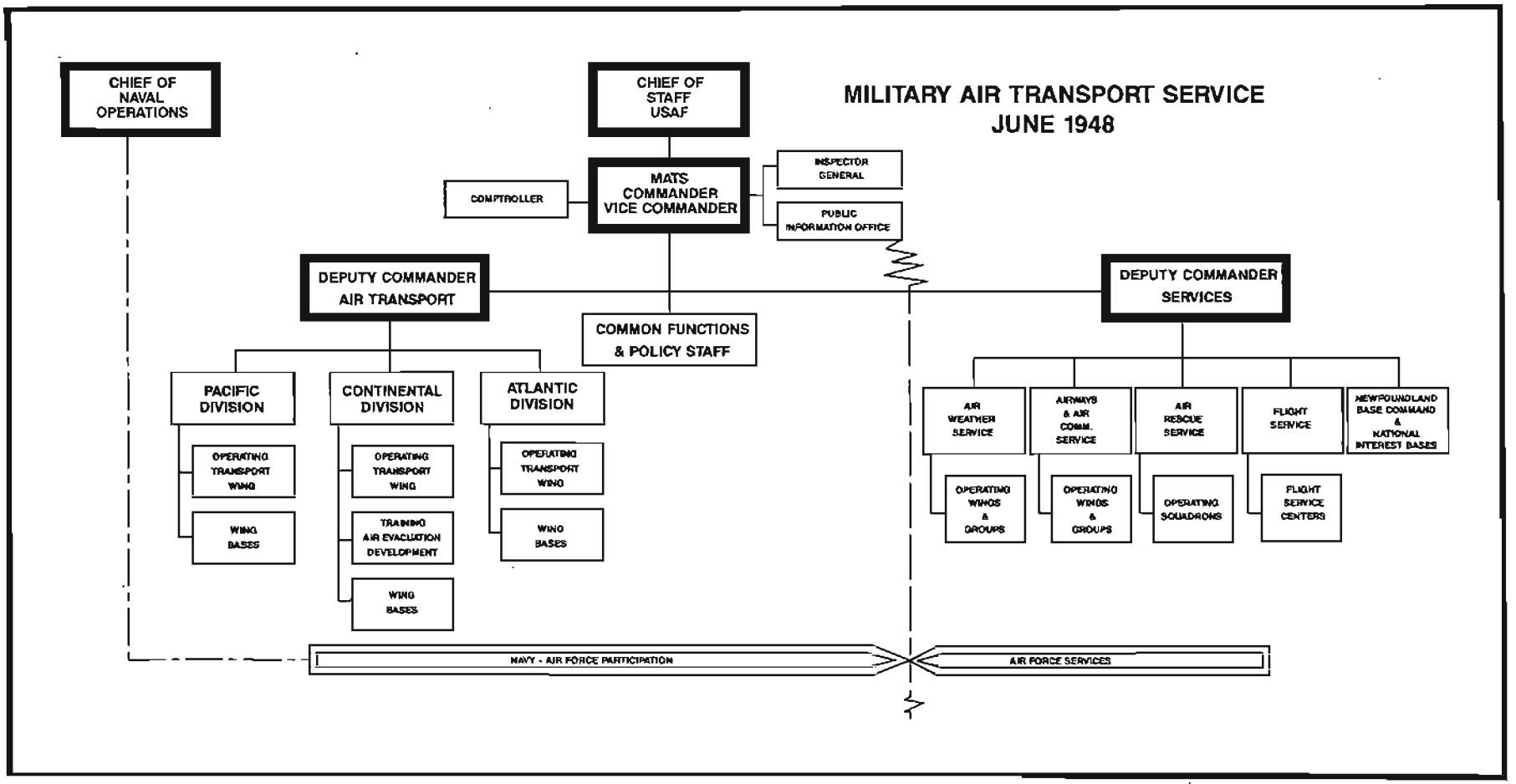
General Staff, also spoke to the commission. In addition to his wartime experience, General Kuter was the United States Representative to the International Civil Aviation Organization since September 1946.[46]

The Finletter Commission addressed military and commercial transport services in a single section of its report. It noted that ATC had 22,000 personnel and 366 aircraft which flew an average of 10 million ton-miles each month. On the other hand, NATS had 6,300 people and 84 aircraft, averaging 8 million ton-miles a month. In addition, ATC provided 66,138 miles of regularly-scheduled routes while NATS operated over 41,918 miles. For fiscal year 1948, these two military airlift organizations transported about the same amount of freight as all "certificated" United States commercial carriers combined, and about one-eighth as many passengers. "Many of these services," the commission reported, "are duplicating." The commission revealed that estimates by the military establishment indicated both ATC and NATS, to include the commercial aircraft, would be unable to meet the nation's wartime needs. "For this," the commission's report stated, "we must increase our commercial fleet."[46]

At this point, the military was not the only group with scattered transportation resources. The report also disclosed that the United States did not yet have a single agency to consider transportation policy for the nation, and that several agencies dealing with transportation were located in the Department of Commerce. Those functions in Commerce included the Civil Aeronautics Administration, the Inland Waterways Corporation, the transportation activities of the Bureau of Foreign and Domestic Commerce, the Weather Bureau, and the Coast and Geodetic Survey. The Finletter Commission recommended creating a Department of Civil Aviation within the Department of Commerce, which would later be upgraded to a Department of Transportation.[47] The commission also noted that the military planned to "take over, as they did in World War II, as much of the civilian lines, domestic and international, as circumstances permit" and suggested the preparation of prior agreements to specify what equipment and services the airlines



SCHEDULED AIR TRANSPORT ROUTES
ATC AND NATS DUPLICATION


MILITARY AIR TRANSPORT SERVICE
JUNE 1948
CHIEF OF NAVAL OPERATIONS
CHIEF OF STAFF USAF
COMPTROLLER
MATS COMMANDER VICE COMMANDER
INSPECTOR GENERAL
PUBLIC INFORMATION OFFICE
DEPUTY COMMANDER AIR TRANSPORT
DEPUTY COMMANDER SERVICES
COMMON FUNCTIONS & POLICY STAFF
PACIFIC DIVISION
CONTINENTAL DIVISION
ATLANTIC DIVISION
OPERATING TRANSPORT WING
WING BASES
OPERATING TRANSPORT WING
TRAINING AIR EVACUATION DEVELOPMENT
WING BASES
OPERATING TRANSPORT WING
WING BASES
AIR WEATHER SERVICE
AIRWAYS & AIR COMM. SERVICE
AIR RESCUE SERVICE
FLIGHT SERVICE
NEWFOUNDLAND BASE COMMAND & NATIONAL INTEREST BASES
OPERATING WINGS & GROUPS
OPERATING WINGS & GROUPS
OPERATING SQUADRONS
FLIGHT SERVICE CENTERS
NAVY - AIR FORCE PARTICIPATION
AIR FORCE SERVICES

would furnish to ATC.[48] When the Finletter Commission submitted its final report at the end of December 1947, among its most significant recommendations was the creation of a single military air transport service.[49]

Based upon the President's Finletter Commission, the new Secretary of Defense, James V. Forrestal, told the services to decide how—not whether—to consolidate air transport. From January through March 1948, Air Force and Navy working groups discussed consolidating air transport responsibilities. With agreements in general principle, the debate moved to higher levels between late March and early May 1948, as the specifics were decided. The Navy was particularly reluctant to give up its transport assets, but Air Force Secretary Symington consistently carried topics of disagreement to Defense Secretary Forrestal for resolution. Accordingly, on 3 May 1948, Forrestal signed a memorandum that created the Military Air Transport Service (MATS) as the single organization to manage strategic airlift operations. This new command, which began operations 1June 1948, took over all ATC assets.[50] The Naval Air Transport Service gave up fewer resources; 446 officers and 2,372 enlisted personnel from three Navy squadrons, which flew C-47s and C-54s, went to MATS effective 1 July 1948. Other transport squadrons dedicated solely for fleet support remained a part of the Navy. No naval air facilities transferred to MATS, and the Navy only considered the aircraft "on loan," liable to recall at any time. A rear admiral became the deputy commander of MATS, while another rear admiral commanded MATS' Pacific Division. To the extent that Air Force and Navy forces were incorporated into a single command, MATS represented the first attempt at "jointness" within the Department of Defense. The Military Air Transport Service also included three technical organizations that had been part of ATC since March 1946: the Air Weather Service, the Air Rescue Service, and the Airways and Air Communications Service.[51]

The consolidation of strategic airlift came none too soon. Less than a month after the Military Air Transport Service was created, the Soviet Union blockaded land and water routes to West Berlin, and the United States and her Allies inaugurated what would become a historic airlift to resupply the city. The Military Air Transport Service and its airlift structure would face a difficult test.[52]

An Allied C-54 bringing supplies into Tempelhof Airport captivated the attention of these children amidst the rubble of a blockaded Berlin.

HELPING HANDS TO BERLIN

In the closing days of the war, American forces waited on the Elbe River while the Russians captured Berlin. The Americans joined them in occupying Berlin on 2 July 1945, when the first American troops landed at Tempelhof Central Airport in battle-scarred C-47s flown in from Halle, Germany, by the 301st Troop Carrier Squadron. Eventually, the victorious Allies divided Germany and Berlin into four zones, one each for France, Great Britain, the United States, and the Soviet Union.[53]

Relations with the Russian Allies were so good at this early stage that the 301st Troop Carrier Squadron put on an airshow at Tempelhof the end of August 1945. Nine C-47s from the unit reenacted their wartime performance over Holland, dropping paratroopers of the 82d Airborne Division and releasing three gliders in a show witnessed by the Russian Commander, Marshal Georgi K. Zhukov, and his staff.[54]

Soon, however, relations between the United States and the Soviet Union began to decline, and jointly-occupied Berlin offered the Soviets an ideal opportunity. In early 1948, the Soviets began exploiting the vulnerability of the western Allies' position in Berlin by stopping coal deliveries to their sectors of the city. A larger crisis arose in April 1948 when the Soviets restricted rail traffic into Berlin in a "mini-blockade" to protest a proposed West German state. The western Allies responded with the "little airlift" as local transport aircraft, mostly C-47s, carried enough supplies into Berlin to overcome the short-lived blockade. All of this portended the blockade and airlift that followed between June 1948 and September 1949.[55]

When the western Allies did not end their efforts to establish an independent West German state, the Soviets on 24 June cut off all food supplies and electricity to Berlin, making the excuse that it was the result of "technical difficulties."[56]

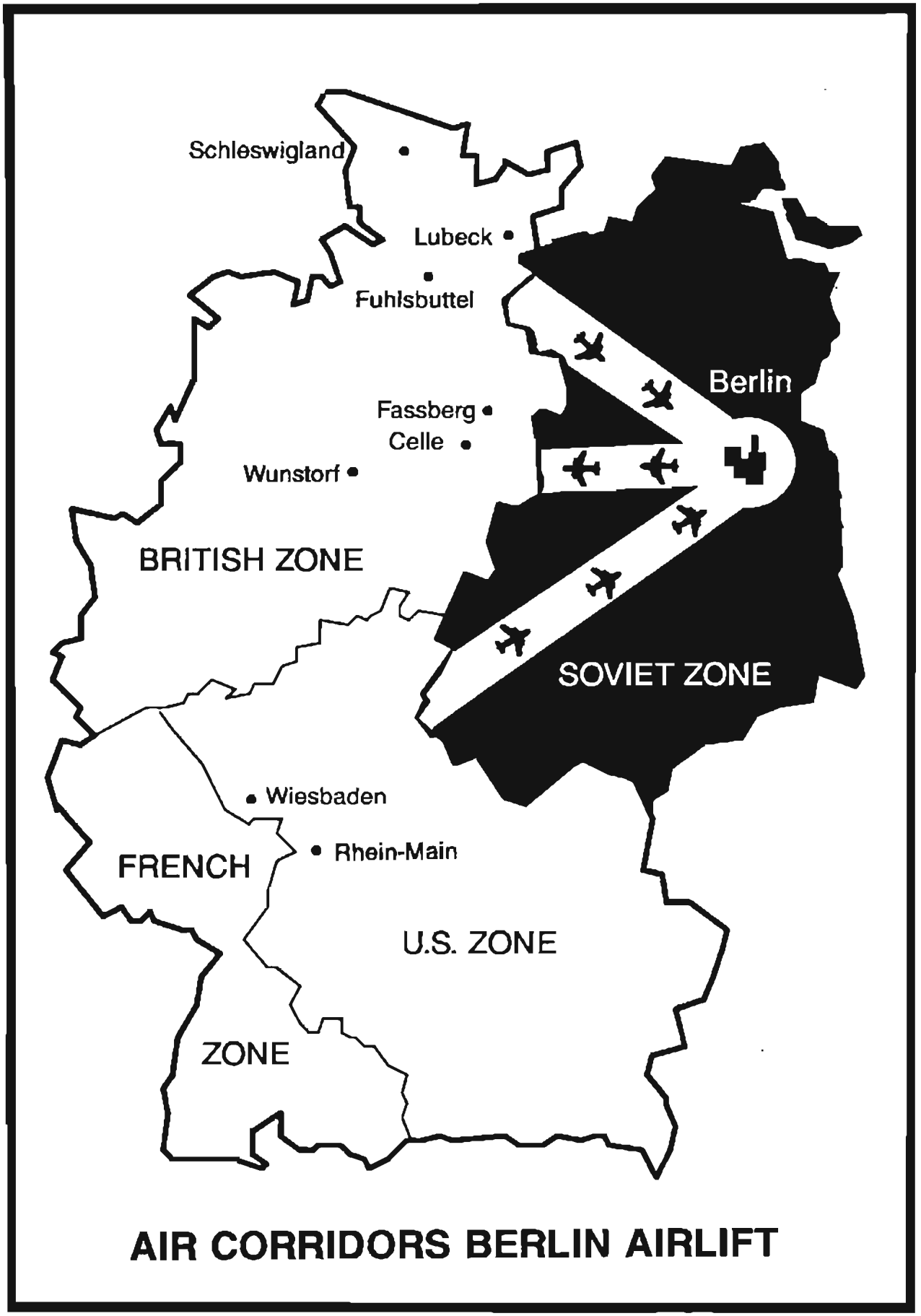
From the Soviet perspective, blockading Berlin represented a means to assert itself as the world power. All the alternatives open to the western Allies appeared inadequate. If they remained in Berlin, they would be unable to supply their sectors of the city. If they tried to force a supply convoy through the Soviet occupation zone, war could result. But the Soviets did not believe the western powers would risk war, and if they did, world opinion would label them responsible for a third world war. Moreover, Soviet officials assumed that they had sufficient forces in the area to quickly repulse any military force. Finally, the Soviets, as well as many western observers, postulated that air transports could not meet the needs of two million Berliners for 4,500 tons of coal and food every day. The Soviet Union concluded that the Allies could never win this confrontation.[57]

General Lucius D. Clay, the American commander in Germany, and several other leaders immediately anticipated using aircraft to overcome the blockade. Clay ordered Lieutenant General Curtis E. LeMay, Commander of United States Air Forces in Europe, to organize his fleet of C-47 transports into an airlift to resupply Berlin. LeMay placed Brigadier General Joseph Smith in charge, and Smith began the first airlift flights using the 102 C-47s and two of the newer C-54 aircraft of the 60th and 61st Troop Carrier Groups on 26 June 1948. The British also furnished *Dakota* (C-47) transports. That first day, American crews flew in 80 tons of milk, flour, medicine, and other high-priority cargo on 32 C-47 flights. Thereafter, daily runs from Wiesbaden and Rhein-Main Air Bases to Tempelhof Field occurred.[58] Operation VITTLES, as the airlift was called, at first only resupplied American forces stationed in the city. Later, President Truman expanded the airlift to include necessary food, medicine, fuel, and clothing for all Berliners.[59]

Within a month, the airlift was proving successful but not spectacular. Originally, General Clay had estimated that the city needed 4,500 tons of supplies daily. A month into the operation, however, Americans were moving only around 1,000 tons per day, the British about 750 tons more. To achieve the minimum tonnage required, General Clay expanded the operation, pushing personnel and aircraft resources to their limits. Although the airlift was a USAFE operation, the Air Force also brought in the resources and expertise of the Military Air Transport Service. Major General William H. Tunner, an airlift expert of proven ability and a senior official in MATS, was called in to take over the operation. He headed the multinational Combined Airlift Task Force (CATF), formed in October 1948 largely from C-47 and later C-54 transport units as well as Navy R5D aircraft and personnel assigned to MATS. Through the CATF, the British and Americans merged their efforts; RAF Air Commodore J. W. F. Merer served as Tunner's deputy.[60]

Though not in direct control of the airlift, Headquarters Military Air Transport Service was very much involved. The command trained replacement aircrews, moved aircraft, furnished transatlantic airlift, and coordinated maintenance, all the time trying to find enough planes to continue supporting its "regular" customers. The Air Force directed, through contracts, that the commercial air carriers pick up the trans-Atlantic load. In addition, MATS established a Replacement Training Unit at Great Falls Air Force Base, Montana.[61]

Major General Tunner adapted the lessons learned while operating the Hump Airlift in World War II to beleaguered Berlin, always reminding the world that the seemingly impossible had been done before. Mass strategic airlift was already a proven commodity by



AIR CORRIDORS BERLIN AIRLIFT

the time of the Berlin Airlift. He expanded the number of bases dedicated to the airlift, exchanged the small C-47s for the larger C-54 transports, increased the number of aircraft and personnel assigned, streamlined the size and complexity of the airlift support system, and, most important, greatly enhanced efficiency through a number of management innovations.[62] Tunner emphasized using all 1,440 minutes of the day for the airlift. He envisioned an airplane landing every minute. Although this was impossible, it indicated the degree of proficiency he sought. He settled for the more practical rate of one every three minutes that his predecessor had established. This rate, he noted, "provided the ideal cadence of operations with the control equipment available at the time." He explained, "At three-minute intervals, this meant 480 landings at, say, Tempelhof, in a twenty-four-hour period. The planes that came in had to go out again, of course, and with the take-off interval also set at three minutes, this meant that a plane either landed or took off every 90 seconds." In an understatement, he noted, "There was little time wasted sitting at the ends of the runways."[63]

Assigned to the British base at Fassberg, coal-hauling C-54s unload in Berlin. Much of the cargo delivered during the Berlin Airlift was coal used for heating and producing electricity.

The Allied effort came together to establish the Berlin Airlift as an operation that could continue indefinitely. Milestones along the way reflected the airlift's overall success. On 7 July 1948, during the command of General Smith and before the arrival of the C-54s, tonnage exceeded 1,000 tons delivered per day. This was especially important when compared with the seemingly insurmountable goal of 10,000 tons per month for the Hump Airlift. The airlift set another record of 1,918 tons on 30 July 1948. But that record was broken the following day, and almost every other until winter set in. The harsh weather did not end the airlift, and by 5 November the total amount of life-sustaining commodities delivered had reached 300,000 tons.[64]

Tonnage records climaxed with the "Easter Parade" on 16 April 1949. Wanting to stretch the potential of the airlift force and to send a message to the Soviet Union that the blockade would not succeed, Tunner ordered a maximum effort for 24 hours. His goal was one completed mission every minute of the day. At this time, the daily average was around 8,000 tons. Although aircrews failed to meet Tunner's Easter Parade goal, they did complete 1,398 missions, delivering 12,941 tons and flying 78,954,500 miles with no accidents or injuries. During this intensive effort, aircraft landed in Berlin at an average of 63-second intervals. Colonel William Bunker, an Army transportation officer, put it into perspective when he told Tunner, "You guys have hauled the equivalent of six hundred cars of coal into Berlin today. Have you ever seen a fifty-car coal train? Well, you've just equaled twelve of them."[65]

From the beginning of Operation VITTLES, American diplomats had worked feverishly to resolve the blockade, at first with little success. The Soviets were convinced the airlift would fail and that the western Allies would vacate the city. The airlift's accomplishment during the winter of 1948-49, however, eroded Soviet resolve. After months of negotiation, on 4 May 1949, officials from both sides announced that the blockade would end on 12 May. As promised, the Soviets reopened the rail lines and highways from the West into Berlin. Fearing the Soviets might reinstate the blockade after the inactivation of the Combined Airlift Task Force, General Clay continued the operation through the summer, stockpiling food and coal supply reserves. At 2030 hours, 30 September 1949, the last plane arrived at Tempelhof. It was the 279,114th flight to Berlin, and its cargo brought the total amount flown into the city to 2,324,257 tons: 67 percent coal, 24 percent food, and 9 percent miscellaneous supplies. A seldom-mentioned aspect of the Berlin Airlift was the westward traffic; 83,045 tons of cargo were flown out of Berlin. This cargo consisted of Berlin-manufactured goods, part of an effort to build up the shattered economy of the once-great city. On 30 July 1949, the western Allies announced that Operation VITTLES would officially end on 31 October. The headquarters of the Combined Airlift Task Force was inactivated on 1 September 1949, and by 31 October the phase-out was virtually completed.[66]

The Berlin Airlift carried a high price tag. Even though the safety record of Operation VITTLES was good, the percentages caught up with the airmen

An aerial view of Tempelhof Airport; the landing approach to this field was quite difficult, between rows of apartments.

Ground crews unload flour at Tempelhof. Virtually all cargo was hand loaded during the Berlin Airlift.

during the 109,288,502 air miles flown. By August 1949, there had been 27 accidents in the Berlin area. Twenty-one of these were at Tempelhof, three at Gatow in the British sector, two at Tegel in the French sector, and one 50 miles west of Berlin. Although there are some discrepancies in the number of personnel reported to have lost their lives, one reliable source states that 31 Americans, 28 British, and 7 German ground-handling personnel were killed.[67]

The Berlin Airlift was significant for many reasons. In foreign relations, it demonstrated the United States' resolve to meet a Cold War challenge. America's Allies around the world regarded the airlift as a triumph of will. It also impressed the Soviet Union. At no time in their history prior to 1948 could the Soviets have mounted such an extensive operation. The airlift affected Air Force doctrine as well. It showed, for example, that virtually any amount of cargo could be moved anywhere in the world, if proper support were available. The airlift provided valuable experience in operational techniques, air traffic control, and in aircraft maintenance and reconditioning. Furthermore, as the editor of *Air Force* magazine reflected in September 1948, "For the first time in history, the United States is employing its Air Force as a diplomatic weapon."[68] The Berlin Airlift proved what has been confirmed many times since: airlift is a more flexible tool for executing national policy than either fighter or bomber aircraft.

The last VITTLES flight, a C-54, departed from Rhein-Main on 30 September 1949. Sister ships overhead celebrated the occasion.

EXERCISE SWARMER

In the period between the end of the Berlin Airlift and the start of the Korean War in mid-1950, one exercise—SWARMER—stands out. The exercise, held 24 April through 8 May 1950 in North and South Carolina and Virginia, involved units that had trained individually but never together. It began with paratroopers seizing an airhead, expanding it to allow transports to land with reinforcing troops, and then maintaining resupply of the troops surrounded by hostile forces. The exercise called for all-weather capability and assumed air superiority, but not air supremacy.[69]

SWARMER was an exercise with a motive. There were many who believed the traditional invasion via beachheads was obsolete because of the atomic bomb. Airheads, however, could be chosen with more flexibility.[70] Lieutenant General Kuter, MATS Commander, had high expectations and contended SWARMER would change MATS' operating practices. He apparently talked several times with Lieutenant General Lauris Norstad, the maneuver commander who would become acting vice chief of staff for the Air Force, to make sure the exercise achieved the desired goals.[71] Headquarters USAF proposed that MATS provide 100 C-54s for SWARMER, with both Air Force and Navy components of the command participating.[72] On D-Day, 28 April 1950, MATS moved 7,265 troops into the exercise area, airdropping nearly 4,000 of them.[73]

Lessons learned during the airlift were abundant. For the first time, the new C-119 transport supported a major equipment delivery when it carried fully-loaded 2 and 1/2-ton trucks. Novel for the times, Army personnel drove the equipment off to the front after the C-119s landed. It took an average of seven minutes to unload the trucks. Even with its long airlift experience, "combat loading" was new to MATS. Since planning had been based on denser, nontactical loads, more missions had to be added as the exercise unfolded. Then, as now, oversized cargo was limited by the availability of larger aircraft. Jeeps sometimes were substituted for 2 and 1/2-ton trucks, since they could be carried by C-54s or C-74s. The lack of trained port units to handle unloading caused additional

problems. Army commanders were not happy about the prospect of their combat troops pausing to unload airplanes. The solution was to establish something similar to the Navy's "beachmaster," who coordinated the entire logistics effort during an amphibious landing. Aeromedical evacuation was an afterthought in SWARMER—a fact attributed to the Berlin Airlift, where there were no casualties to evacuate, and to a general lack of Air Force experience with medical issues.[74]

As a result of this exercise, General Norstad recommended that the Army and Air Force each create permanent tactical organizations to command the types of forces used in SWARMER. Norstad was adamant that the utilization of air transports had to improve. He noted, "there is at least the basis for suspicion that the tactics and technique are developments for the use of horse-drawn vehicles, early motor vehicles, and the train and the ship."[75] A few weeks after SWARMER, the Air Force declared it would create a new tactical air force—the Ninth Air Force—to replace the provisional headquarters that had formerly only commanded units during maneuvers. The Ninth would have troop carrier and fighter wings trained to work with paratroopers and air-transported troops. The new numbered air force's commander was Brigadier General W. R. Wolfinbarger, who had commanded the Air Task Force in SWARMER. Wolfinbarger concluded that a principal benefit to come out of SWARMER was maximizing the role of airlift in modern warfare:

> From the Air Task Force point of view, the highlight [sic] of the Exercise was the integration of Troop Carrier and Strategic Air Transport elements into a single Air Transport Force. It demonstrated to my complete satisfaction that Troop Carrier and Air Transport concepts are capable of successful combination and that the two elements, when jointly employed, logically and successfully complement each other in this type of an operation.[76]

These lessons foreshadowed the consolidation of strategic and tactical airlift under a single command, something that would be started in the late 1950s but not completed until the 1970s.

AIRLIFT AND THE KOREAN CONFLICT

Most histories of the Air Force stress that when the orders came to airlift troops and supplies to Korea, a force seasoned by the lessons of World War II and the Berlin Airlift responded.[77] However, when the Combined Airlift Task Force finished the Berlin Airlift in the fall of 1949, the transport fleet was in rough shape. The demanding flying conditions and seepage of coal dust and flour into aircraft seams required the fleet to undergo extensive rehabilitations. Flying hours were reduced to minimum levels. The Air Force and Military Air Transport Service were again shrinking to a core from which they planned to expand in wartime. Between the conclusion of World War II and June 1950, more than three quarters of the airlift capability of the command had been demobilized, mothballed, or placed in the reserves.[78]

By the spring of 1950, the training to support the concept of an expandable military force was still inadequate. Experienced reserve officers were leaving at a rapid rate, and MATS' active flying force was largely inexperienced. Adding to this situation, a heavy transport training unit (HTTU) was set up and started training its first C-97A class on 16 January 1950, but most of the graduates went to the Strategic Air Command to fly bombers. And in late May, a medium transport training unit (MTTU) for C-54 aircrews was just getting started at Great Falls Air Force Base, Montana, graduating 12 aircraft commanders on 24 June 1950. The next day, at 0400 hours, the North Koreans invaded South Korea.[79]

The United States was completely unprepared for the North Korean attack. Its forward military forces had been drawn down, and the nation had neither the strategic nor the tactical airlift capability to recover quickly. During the first eight months, only outstanding efforts in all of the combat arms, coupled with considerable luck, prevented Allied troops from being pushed off the Korean peninsula.

The Military Air Transport Service was responsible for providing the strategic airlift necessary to sustain the war effort in Korea. Unfortunately, MATS was ill-equipped for the task at hand. It was symbolic, perhaps, that the first American aircraft lost in the Korean War was not a fighter or a bomber but a MATS C-54 supporting the United States Korean Military Advisory Group. The C-54, grounded at Kimpo Airfield near Seoul because of a damaged wing, was destroyed on the first day of the war by two Yak fighters strafing the field.[80] It represented the state of an airlift system which a few years before had sustained the two million inhabitants of Berlin.

Hours after the North Korean attack upon South Korean ground forces, the Air Force directed MATS to support the air movement of two Strategic Air Command medium bomb wings to bases in the Pacific theater. The Military Air Transport Service alerted personnel to provide en route support for the bombers and diverted additional transports from two of its three divisions to carry SAC personnel and cargo to the Far East.[81]

The ferocity of the North Korean attack overwhelmed South Korean defenses. The Americans needed to evacuate nonessential personnel and, accordingly, the word to leave came at midnight the night of 26 June. The evacuation began at dawn 27

The first aircraft destroyed in the Korean Conflict was this MATS C-54 aircraft assigned to the Pacific Division, 25 June 1950.

June. General Douglas MacArthur's staff initially told Headquarters Far East Air Forces that only 375 persons required transportation and that almost all would depart from Kimpo. Then, the American Embassy and the Korean Military Assistance Group (KMAG) decided to release all nonessential personnel. To "expedite" the airlift, they divided the evacuees between Kimpo and a small field at Suwon, 20 miles south of Seoul. The United Nations Commission on Korea added to the passenger load when the commission decided to relocate in Japan. Communication between Japan and the Korean airfields was unreliable, so pilots returning to Japan would report how many passengers remained in Korea, and more planes would be dispatched. Although there were tense moments as those left behind wondered if the plane taking off would be the last, 748 made it out of Korea before midnight. By 29 June, aircrews had flown 851 persons to Japan.[82]

If MATS' C-54s were Berlin-worn, the real limiting factor for Korea was the number of aircrews. There were only enough men to achieve an aircraft utilization rate of 2 and 1/2 hours per day. The war was 30 hours flying time away from the United States for a C-54 via the shortest route—the Great Circle—and 34 hours by the more practical mid-Pacific route. Fortunately, the airlines were manned for high utilization rates. During the 75 days it took to recall and train personnel, the civilian airlines operated 66 aircraft under contract, flying an average of 10 hours per day.[83] Orvis M. Nelson's Transocean Air Lines, a supplemental carrier, was the first commercial airline to fly Korean airlift missions for MATS. On 30 June 1950, Transocean made its first flight, a planeload of 3.5in bazooka rockets. As a measure of MATS' dependence on its commercial contractors, Transocean used seven DC-4s, the commercial version of the C-54, to handle nearly 14 percent of the entire Korean strategic airlift. Nelson's airline hauled more than 20,000 military passengers and 9.6 million pounds of cargo on 673 flights. During Korean airlift operations, civil air carriers flew more than 40 percent of the missions on the United States-Japan shuttle.[84]

Airlift operations during Korea were divided. Strategic airlift, which went from the United States to Japan, was the responsibility of the Military Air Transport Service's Pacific Division, based at Hickam Air Force Base, Hawaii, and commanded by Navy Rear Admiral William G. Tomlinson. The Pacific Division had previously assumed the strategic airlift assets and functions of the Pacific Air Command on 1 June 1949, to eliminate duplication in the theater.[85] Since the Pacific Division had fewer than 60 of the modern C-54 transports at the start of the war, Lieutenant General Kuter directed that the other divisions provide Korean airlift operations with additional aircraft and crews. In July 1950, MATS' Continental Division added another 40 C-54s while two troop carrier groups from the Tactical Air Command also augmented this airlift force. Additionally, Kuter placed under the Pacific

Since it could not satisfy all strategic airlift requirements, MATS received assistance from such Allies as the Royal Canadian Air Force, whose Douglas North Stars, a version of the C-54, flew missions between McChord Air Force Base, Washington, and Japan.

MATS INTERNATIONAL ROUTES
KOREAN WAR

Division's operational control United States civil air carriers, a squadron of Royal Canadian Air Force aircraft, elements of Canadian Pacific Airlines, and a flight of Belgian aircraft.[86]

The trans-Pacific airlift had to be augmented by a second, intratheater airlift between Japan and Korea. The Military Air Transport Service's Deputy Commander, Major General William H. Tunner, was once again called upon. Headquarters USAF assigned him to organize for FEAF a Combat Cargo Command (Provisional) on 10 September 1950. This unit handled all kinds of airlift, including airlanding supplies and troops and airdropping combat troops, equipment, and supplies.[87]

Within nine days of its creation, the Combat Cargo Command was flying men and supplies to Inchon. Air Force cargo-handling teams, another Tunner innovation, speeded unloading. Return flights provided aeromedical evacuation for casualties, carrying them from the beachhead to hospitals in Japan.[88]

Rearward-facing seats in the C-97 made the long flight between the West Coast and Japan especially tiring.

A MATS C-54 on the ground during the war at Kimpo, near Seoul, South Korea.

A significant example of the Combat Cargo Command's theater airlift mission was the aerial resupply of the 1st Marine Division at the Chosin Reservoir deep in North Korea. The Inchon landing in September 1950 had demoralized North Korean troops, and United Nations forces had advanced northward until late in the year when they stopped near the Yalu River separating Korea from China. Then a counterattack by both North Korean and Chinese forces began. The Chosin Reservoir campaign was one of the most savage of these operations, pitting about 15,000 Allied troops against a combined force of an estimated 120,000 Chinese and North Koreans. The enemy's assault began on 27 November 1950, and within days many Allied forces were cut off from the South. United Nations forces conducted an orderly withdrawal which continued until 9 December when a relief column from Hungnam reached them.[89] During this operation, airlift offered the only reliable means of supply. Tunner quoted in his autobiography a handwritten note he received at that time from his liaison officer at Chosin:

> The situation at and near Chosin Reservoir is critical. We must exert every possible effort to airdrop supplies and ammunition into that area in order to get the 1st Marine Division out or we will be lost.
>
> There are already between 900 and 1000 casualties that urgently need air evacuation now. If we don't get them out, they won't get out . . . . There are roughly ten Chinese Red divisions closing in on the area. In a few more days it will be too late. The roads to this area are cut in a number of places and everyone will have to fight his way out.[90]

The first aid to reach the Marines was 25 tons of ammunition airdropped on 28 November by 16 C-47s. The next day, 16 C-47s dropped 35 tons and 15 C-119s another 80 tons of ammunition. By 1 December, the Combat Cargo Command had dedicated all of its C-119s to the Chosin resupply effort. The Marines hacked out a rough airstrip early in December. Thereafter, C-47s made 221 landings to bring in 273 tons of supplies and take out over 4,600 wounded. In all, the Combat Cargo Command delivered about 2,000 tons to the Marines. By the end of the Chosin Reservoir operation, losses on both sides were enormous. Marine casualties were 8,741—751 were killed in action—while the Army sustained 2,600. Enemy losses were estimated at 37,500. By

Keeping the strategic airlift fleet properly maintained challenged aircraft specialists during the first months of the Korean Conflict.

Although tactical airlift in Korea at first relied on the C-47, the C-119 soon became the primary airlifter and contributed significantly to the airdrop mission.

contrast, at the bloody battle of Tarawa in World War II, American casualties numbered fewer than 2,300 with the same size force. Without airlift support, the losses at Chosin might have been much higher.[91]

For the remainder of the Korean War, intratheater airlift was employed in a similar manner. Tunner's Combat Cargo Command performed a variety of missions including airdrop and airland in combat environments, logistical airlift in areas where the threat of enemy action was not great, and, increasingly, aeromedical airlift of sick and wounded.

The Military Air Transport Service's aerial cargo delivery from the United States to Japan began on a modest scale—only 2.5 tons per day—but rose to an average of 106 tons daily. By the time of the truce on 27 July 1953, MATS had airlifted 214,000 passengers and 80,000 tons of cargo to Japan, using C-47s, C-54s, C-97s, C-119s, and C-124s.[92] Within the combat area, the Combat Cargo Command and its successor, the 315th Air Division, managed an airlift fleet that averaged 210 aircraft. Together, the theater and strategic airlift systems flew 210,343 sorties and carried 391,763 tons of cargo, over 2.6 million passengers, and more than 310,000 patients. They airdropped 15,000 tons of supplies and equipment, often in situations were it was impossible to bring supplies in any other way. During the course of the war, MATS transported 43,196 Korean war casualties to the United States for further hospitalization or specialized medical treatment.[93]

The Berlin Airlift was not a combat operation; its lessons were more managerial in nature. On the other hand, the Korean Conflict taught some difficult lessons about conducting modern combat airlift. Tactics, organizational structure, operations planning, and a myriad of other issues of a more subtle nature were elucidated as a result of the Korean experience. As with the Berlin crisis, American military airlift, especially tactical airlift, emerged from the conflict with its reputation enhanced by its many successes. Following Korea, however, the military was once again neglected. The concept of nuclear deterrence, combined with emphasis on air defense and tactical fighters, left little room for the aerial resupply of troops.[94]

The C-97 Stratofreighter first entered the MATS inventory in 1947.

Nicknamed "Old Shaky," MATS acquired its first C-124 Globemaster in 1950, and it quickly became the mainstay of the strategic airlift fleet.

THE CIVIL RESERVE AIR FLEET

One of the lessons learned during World War II and confirmed in Korea was that the nation could not maintain enough airlift capability in its military to respond to wartime requirements. This provided the genesis for the inauguration of the Civil Reserve Air Fleet (CRAF), a partnership between the commercial airlines and military airlift to ensure that sufficient airlift was available for deployments in the event of contingencies or wars. This concept was developed during the latter 1940s after both government and civilian airline officials realized that they had been overly optimistic about the volume of passenger traffic to expect after the war. Throughout World War II, the commercial carriers had found it nearly impossible to obtain airplanes or employees. As soon as the war ended, the airlines hired large numbers of people, ordered new airplanes, and extended their routes. In short, they over-extended. While the commercial carriers were laying out money for expansion, there were unforeseen cost increases, reductions in passenger fares from both competition and regulation, and declines in mail rates and volume. The public, moreover, was dissatisfied because of a perceived "lack of dependability" and frightened by a series of dramatic aircraft accidents. Strikes and airplane groundings also complicated the airlines' financial woes.[95]

By the end of June 1947, domestic trunk lines in the United States were showing an operating loss of $22 million for the fiscal year. Government officials expressed concern about the airlines' ability to augment the military as a reserve. "As a potential military auxiliary, the air lines must be kept strong and healthy," the Finletter Commission reported, adding "They are not in such a condition at the present time."[96]

The Finletter Commission also explored the nation's need for air cargo augmentation in the event of war. Were more commercial cargo lines needed and were subsidies necessary to stimulate cargo capability in the country? While there seemed to be enough airlines carrying cargo already, they needed to become more self-sufficient. The commissioners maintained that the only valid reason for subsidizing commercial cargo airlift was to develop a fleet of aircraft that would act as a "pool" for military emergencies.

AEROMEDICAL EVACUATION AND AIR RESCUE

In July 1945, the War Department issued a policy statement for the postwar aeromedical evacuation system. In brief, the statement reaffirmed the Air Transport Command's responsibility for intertheater aeromedical evacuations but specifically barred the command from managing intratheater aeromedical airlift. The 3 May 1948 memorandum that established the Military Air Transport Service essentially confirmed this policy when it directed that MATS develop an aeromedical evacuation system within the confines of its mission. In May 1949, the Joint Chiefs of Staff tasked the Air Force, as the overall manager for airlift, to establish aeromedical evacuation systems for both the Air Force and the Army. That September, following a Defense Department staff study, Secretary of Defense Louis A. Johnson announced that the transportation of armed services' patients would be accomplished by aircraft whenever available. The scarcity of medical personnel and the decline in the death rate when aeromedical airlift was used in World War II strongly influenced the decision. Accordingly, within its limits, MATS began to develop a comprehensive aeromedical evacuation system. Combat aeromedical evacuations, however, continued to be a responsibility of tactical air forces through troop carrier organizations. During the Korean Conflict, aeromedical evacuations were conducted as a back-haul mission by returning transports, similar to World War II operations. In all, about 354,869 patients were airlifted to medical facilities: 311,673 in the theater and 43,196 to the United States. While the Pace-Finletter Agreements of 1952 sorted out the aeromedical evacuation responsibilities between the Air Force and the Army, the division between Air Force theater and strategic aeromedical airlift systems would remain until the consolidation of the worldwide aeromedical evacuation mission under the Military Airlift Command in 1975.

The 3d Air Rescue Squadron and later the 3d Air Rescue Group, based in Japan, provided rescue coverage for United Nations forces in Korea. These units flew Boeing SB-29s and SB-17s with airborne lifeboats, Grumman SA-16 Albatrosses, Sikorsky H-5 helicopters, and Consolidated Vultee L-5 Sentinels. The rescue mission in Korea was both conventional and unconventional. Under the former, rescuemen escorted bombers on air strikes,

Loading patients aboard a C-54 in Korea for the trip to hospitals in Japan, 1951.

The Air Rescue Service became part of the Air Transport Command in 1946. The SA-16 seaplane and the H-5 helicopter saw extensive service in Korea and other areas around the world during the late 1940s and early 1950s.

intercepted signals from distressed aircraft, and recovered airmen who had ejected over the sea. Under the latter, they transported wounded personnel from the front, delivered and picked up United Nations agents working behind enemy lines, and rescued airmen who went down in enemy territory. While rescuemen had performed unconventional assignments during World War II, such missions became the norm during Korea. The Air Rescue Service accomplished a number of "firsts" in Korea. The air rescue crews were the first to use helicopters under enemy fire. The 3d's helicopters were the first forced down by enemy action as well as the first downed in enemy territory. On 12 October 1950, during a United Nations push north of Seoul, air rescue paramedics were also the first to administer blood plasma in flight. This mission was one of the more heroic, requiring the pilot, First Lieutenant David C. McDaniels, to fly over 60 miles into enemy-held territory. Whereupon Captain John C. Schumate, a paramedic, sprinted 200 yards to the plane wreck, extracted the injured Royal Air Force pilot, and carried him to the waiting helicopter—all under heavy small arms fire. On another occasion, 15-16 February 1951, when American soldiers were surrounded by the enemy at Chipyong-ni, 20 miles east of Seoul, six H-5 crews from the 3d's Detachment 1 endured small arms fire to evacuate 52 critically wounded soldiers, one or two at a time, and bring in needed medical supplies. This effort, as well as the air support from C-119s, enabled the troops to hold out until United Nations forces could link up with them. All told, the Air Rescue Service in Korea recovered 9,680 military personnel, 996 from behind enemy lines.

SOURCES: Background paper, B. R. Kennedy, Office of MAC History, "Consolidation of Aeromedical Evacuation Assets," 4 April 1989; R. F. Futrell, The United States Air Force in Korea, 1950-1953 (Washington, DC: Office of Air Force History, 1983 edition), pp 585, 593; J. L. Vandegrift, Jr., A History of the Air Rescue Service (Winter Park, FL: Rollins Press, 1959), pp 76-85.

Although the military services could buy transport aircraft the same way they bought combat aircraft, the commission recommended keeping the Air Transport Command small so that the civilian cargo fleet could expand, aided by subsidies.[97]

Nearly three years after the Finletter Commission delivered its findings, a more specific study was conducted concerning wartime airlift requirements. The study was performed by the Committee on Wartime Airlift Requirements and Capabilities, appointed by the Chairman of the National Security Resources Board in response to a request by the Under Secretary of the Air Force. This committee, chaired by James H. Douglas, and therefore called the Douglas Commission, recommended establishing a three-tiered reserve of four-engined transports in the civil airlines. First, the committee members stated that by the end of June 1951, airlines would have the equivalent of 350 C-54 airplanes that could be converted to extended military operations within 48 hours. Second, by December 1951, another 400 C-54 equivalents would become available to augment the military within 48 hours. Finally, the commission recommended designating another 100 C-54 equivalents, to include training crews and modifying the aircraft's range for Europe. These 100 aircraft would augment the military system temporarily, responding to emergencies and then returning to the

A Seaboard and Western DC-4 under government contract at Haneda, Japan. Other original CRAF members included: Alaska Airlines, American Airlines, Arabian - American Oil Company, Aviation Capital, Braniff Airways, California Central, California Eastern, Capital Airlines, Chicago & Southern, Civil Aeronautics Administration, Delta Airlines, Eastern Airlines, Flying Tiger Line, Frontier Airlines, Kaman Aircraft Corporation, National Airlines, Northwest Airlines, Ocean Air Tradeways, Pacific Northern, Pan American World, Pan American - Grace, Resort Airlines, Salem Engineering Company, Transocean Airlines, Trans World Airlines, Twentieth Century, United Airlines, U.S. Overseas, Waterman, and Western Airlines.

airlines.[98] The Douglas Committee recognized that the required military modifications, making the aircraft heavier, would increase the operating expense of commercial airlines. The committee calculated what the added costs would be and suggested that the military pay the difference.[99]

The Douglas Committee also took stock of the "certificated" civil airlines' current and projected four-engined assets. It concluded that the First Line Reserve of 350 C-54 equivalents available by 1 July 1951 would constitute 48 percent of the industry's four-engine capacity. A total of 400 equivalent aircraft by the first of January 1952 would make up about half of the expected civil four-engine fleet. A hundred airplanes in the Second Line Reserve represented another 15 percent of the civil four-engine capacity. While the committee compared lift capacity to the military's C-54 aircraft, it cautioned that its figures were not precise. They would aid in planning the "military reserve and (in) estimating airline capacity for civil services," but further study would be necessary, taking into account factors like permissible military overload.[100]

In 1951, the Douglas Commission's report became the basis for organizing the commercial carriers to augment the military airlift system. The Department of Defense and the Department of Commerce jointly approved the basic concept late in

UNITED STATES CERTIFICATED AIRLINES' FOUR-ENGINE AIRCRAFT 1950-1952

	Number of Aircraft	*Performance Ratio to C-54*	*C-54 Equivalents*
On-Hand, 31 October 1950			
Douglas DC-4	*223*	*1.0*	*223*
Douglas DC-6	*117*	*1.5*	*176*
Lockheed Constellation	*98*	*1.5*	*147*
Boeing Stratocruiser	*45*	*2.5*	*115*
Boeing Stratoliner	*7*	*0.6*	*4*
Total	*490*	-	*665*
On Order for Delivery in Year Ending 1 July 1951			
Douglas DC-6	*3*	*1.5*	*5*
Douglas DC-6A or B	*15*	*2.0*	*30*
Lockheed Constellation	*22*	*1.5*	*33*
Total	*40*	-	*68*
On Order for Delivery in Year Ending 1 July 1952			
Douglas DC-6A or B	*43*	*2.0*	*86*
Lockheed Super-Constellation	*14*	*2.5*	*35*
Total	*57*	-	*121*

SOURCE: "Report on Utilization of Airlines for Wartime Airlift and Proposals to Aid Expansion of the Civil Air Fleet," (Washington, DC: Executive Office of the President, National Security Resources Board, 6 December 1950), p 15.

the year, calling it the Civil Reserve Air Fleet. Headquarters MATS worked with the Department of Commerce and the civil airlines planning how to incorporate 300 four-engine airplanes into MATS' operations following the declaration of a national emergency.[101]

In 1952, the CRAF program was instituted. First, it was managed by the Defense Air Transportation Administration (DATA), under the leadership of Ray W. Ireland, an ex-ATC general and former airline official. This agency's mode of operation was quite simple: upon receiving from the Defense Department the latest approved airlift requirements for any contingency operation, DATA distributed them as equitably as possible among the various commercial carriers pledged to CRAF. Headquarters MATS then worked these requests with DATA and the commercial carriers. Fully mobilized, CRAF participants were expected to airlift 95 percent of the passengers and 35 percent of the cargo required by overseas theaters. The CRAF program has been an important element of defense airlift planning since its inauguration. Except during the recent Middle East crisis, Operation DESERT SHIELD, there was never a need to activate the CRAF, for the airlines have always made aircraft available when crises and contingency operations required more airlift than the military was able to provide.[102]

An Overseas National DC-4 loading at Hickam Air Force Base, Hawaii, 1951.

OPERATION MAGIC CARPET

In late August 1952, during the space of four days, 13 C-54 aircraft from the Military Air Transport Service's Atlantic Division flew 75 missions, airlifting 3,763 Moslem pilgrims stranded in Beirut, Lebanon, to Jeddah, Saudi Arabia. Jeddah was the nearest airport to the holy city of Mecca. The United States State Department agreed to help the Lebanese government when an unusually large number of pilgrims swamped the international airport at Beirut. The operation was nicknamed "Hajji Baba," but was also called "Al Hajj" and "Magic Carpet." Brigadier General Wentworth Goss, formerly the Military Air Transport Service Chief of Staff, served as the task force commander. He consolidated into a single airlift force resources from the 41st Air Transport Squadron based at Tripoli and the 86th Air Transport Squadron at Rhein-Main Air Base, Federal Republic of Germany. Within 24 hours of notification, crews were moving the first pilgrims to Saudi Arabia. The airlift was extended twice, more than doubling the original estimate of between 1,000-1,500 passengers. The 41st flew a daily aircraft utilization rate of just over 13 hours while the 86th rate approached 12 hours per plane. This diplomatic mission did much to restore America's standing in the Middle East, which had been diminished by the United States' position on the Palestine issue.

SOURCE: E. Gillespie, Mercy—or Humanitarian—Airlifts by MATS (Scott AFB, IL: Military Air Transport Service Historical Division, 1960); letter, 1603d Air Transport Wing Commander to 1602d Air Transport Wing Commander, "Report of Operation 'Hajji Baba,'" 5 September 1952.

Pilgrims board a MATS C-54 for the flight to Jeddah, Saudi Arabia.

CONCLUSION

Following World War II, the military in general and the Military Air Transport Service in particular learned some valuable lessons. Strategic airlift had been consolidated in the military, at least on paper, and had proved its worth as a diplomatic tool in Berlin and as a combat force in Korea. At the same time, the drawdown in resources and the search for an optimum organizational structure for airlift forces continued to challenge both the command and the Air Force.

From 1957-1972, this building at Scott Air Force Base, Illinois, served as the headquarters for the Military Air Transport Service, later the Military Airlift Command.

CHAPTER IV

THE INTERLUDE, 1953-1964

During the period before Vietnam, the Military Air Transport Service with its mission of military airlift became an increasingly important element of the national defense posture. This was largely due to a series of Cold War crises that began in the mid-1950s and required immediate military action short of nuclear confrontation. As the Military Air Transport Service rose to meet its tasking, it gradually acquired a combat airlift mission in addition to its air logistics responsibilities. None of this, however, was discernible in 1953.

In the post-Korean environment, the Military Air Transport Service found itself under serious attack by the commercial air carriers who had secured favorable support from congressional leaders. Two government reports, in particular, fueled the ensuing debate over the proper role and function of military airlift. In the end, the controversy brought fundamental changes to MATS. Most significantly, it substantiated the need for military airlift, strengthening the command's peacetime and wartime missions. At the same time, the commercial carriers, through the Civil Reserve Air Fleet Program, assumed a greater portion of the government's airlift business. The debate also resulted in an extensive aircraft modernization program for MATS.

THE SETTING

The Military Air Transport Service emerged from the Korean Conflict aware of its shortcomings as well as the growing importance of strategic airlift. During the initial stages of the war, the command had found itself hard-pressed to surge to a six-hour-a-day aircraft utilization rate from a confining peacetime rate of 2.5 hours. Clearly, the peacetime training program had reduced the number of pilots, navigators, mechanics, and ground support personnel below the level where the airlift system could respond effectively. Augmented with commercial airlift, MATS recovered and went on to prove the then logistical role of strategic airlift as an essential element of military operations.

In the post-Korean setting, the Military Air Transport Service, a major Air Force command comprised of over 104,000 personnel and some 1,300 aircraft, was responsible for maintaining an air transport capability to meet national emergencies and provide domestic and foreign transportation for the Department of Defense and other governmental agencies. This included flying special airlift support missions for the Tactical Air Command and the Strategic Air Command, performing aeromedical evacuations, training transport crews, and ferrying aircraft. The command's three divisions—Atlantic, Continental, and Pacific—discharged most of the transport responsibilities, primarily utilizing C-47, C-54 (R5D, Navy designation), C-74, C-97, C-118 (R6D), and C-124 (R7V) aircraft. In light of the nation's almost total reliance upon nuclear weapons to deter wars and conflicts, airlifting the Strategic Air Command's supplies, relief aircrews, and ground support personnel was the premier mission of MATS during this period. In addition, six[1] subordinate service organizations—Air Weather Service, Air Rescue Service, Airways and Air Communications Service, Air Photographic and Charting Service, Flight Service, and Air Resupply and Communications Service—fulfilled the missions indicated by their names. One other direct-reporting unit—the 1254th Air Transport Group (Special Missions)—had the distinction of flying the President and Vice President of the United States, high-ranking government officials, and foreign dignitaries.[2] Thus, the command's mission responsibilities made it a global organization in outlook, and the continued presence of Navy air transport elements in its structure gave the command a joint-service character as well.

CIVIL AIR POLICY—HOOVER COMMISSION

As the airlift activities of the Korean Conflict wound down, the Military Air Transport Service found itself embroiled in a life-threatening debate with segments of the commercial aviation industry and members of Congress over the role of military air transport in peace and war. To many, the command's strategic airlift system of fixed routes simply appeared to belong more appropriately to private enterprise, especially when MATS' pilots flew the same routes used by the commercial carriers. Intense competition among scheduled and supplemental[3] carriers in the uncertain airline market had brought the issue to a climax. Moreover, the timing was favorable for the airline industry since there was great public interest in reducing the size as well as the expenditures of the federal government. Two government reports—the Air Coordinating Committee[4] report on *Civil Air Policy* and the Hoover Commission[5] findings—had considerable influence on the airlift debate as well.

Requested by President Dwight D. Eisenhower in September 1953, the Air Coordinating Committee report was undertaken by Robert Murray, Jr., Under Secretary of Commerce for Transportation and Chairman of the Air Coordinating Committee. President Eisenhower empowered Murray to review

Loading a Thor missile aboard a C-133 Cargomaster, MATS' "Atomic Age" transport. The entire MATS organization—airlift, Air Weather Service, Air Rescue Service, and Air Photographic and Charting Service—participated in the astronaut and missile programs.

A C-124 Globemaster flew the final leg, returning the Mercury space capsule to Cape Canaveral, 14 September 1961.

Unloading a Gemini-Titan II booster at Patrick Air Force Base, Florida.

the United States' aviation policy with the intention of preparing a statement for his approval. He further directed Murray to consult with the airline industry, aviation organizations, and local governmental authorities.

President Eisenhower, however, did not endorse the report when it was completed in May 1954. Instead, he regarded it as useful for evaluating future airlift policy issues. Those who advocated more government business for the airlines viewed the *Civil Air Policy* document as bolstering their cause, misquoting that "the government should, to the greatest extent practicable, adjust its use of air transportation so as to use existing unutilized capacity of United States air carriers." In singling out this phrase, they ignored the report's comments on the military's and the post office's extensive use of commercial airlines for the government's business. Additionally, they disregarded the statement that "a government agency must often base its decisions on factors in addition to business economies." Adding to the deliberate misinterpretations was the report's failure to define "unutilized capacity." This allowed those who sought more government business to take the phrase as an official policy statement in their favor.[8]

The Hoover Commission reports of 1955 followed the Air Coordinating Committee report. The commission's recommendations definitely helped the cause of those interest groups seeking a larger share of the government's transportation business. But since the spirit of the Hoover Commission was to reduce government expenditures and its ever-growing bureaucracy, it also assisted officials in the Defense Department who wanted to consolidate all military airlift under one organization, namely the Military Air Transport Service.

Regarding the latter, the commission proposed that "MATS should become, in fact, the real logistics air arm of the Department of Defense by the elimination of separate transport-type air activities by other commands, with complete responsibility to all of the services being integrated into the one organization."[9] Ever since the 1948 consolidation of the Air Force's Air Transport Command and the Navy's Naval Air Transport Service to form the Military Air Transport Service, a sizeable portion of the military's air transport aircraft had remained outside of MATS' control. For instance, there existed in the Navy the Fleet Logistic Air Wings and the commercial contract "QUICKTRANS." Likewise, the Air Materiel Command had a "LOGAIR" or logistics airlift operation. Other Air Force and Army commands also designated a portion of their assigned aircraft to perform independent air transport operations for their organizations.

Nevertheless, the Hoover Commission in its *Report on Transportation* seemed to support the airline industry more than the military when it recommended:

> . . . the level of MATS' peacetime operations be limited to that necessary to maintain the minimum war readiness of the command. The peacetime operations of the integrated service should be restricted, and realistically limited, to air transportation of persons and cargo carefully evaluated as to necessity for such transportation, and only after all forms of commercial carriers have handled traffic appropriate and properly assignable to their service. Failure to accomplish this means a continuing and expanding military socialism over all air transportation and extending down into the other forms of commercial transportation.[8]

Although the report's recommendations appeared contradictory, the ambiguities were the result of a zealous desire to achieve sound management practices in the federal government. The commission consistently rendered its decisions based upon cost-effectiveness. It favored consolidation of all military air transport activities under MATS because it would eliminate duplicative air transport services and, hence, save the government money. The commission regarded commercial participation as beneficial because the government would realize further savings as it improved efficiency. Yet, this approach failed to consider what effect the recommendations would have on the military and the airline industry. Like the *Civil Air Policy*, the *Report on Transportation* added to, rather than resolved the airlift debate.

Influencing the air transport issues in the *Report on Transportation* was another Hoover Commission report on *Business Enterprises*. This report had as one of its recommendations that the Defense Department operate its air transport functions on a revolving fund or industrial fund basis.[9] The beginnings of the industrial fund dated to 1949 when the National Security Act Amendments of 1949 incorporated the recommendations of the first Hoover Commission (1949) and a Hoover Commission task force, headed by Ferdinand Eberstadt and Wilfred J. McNeil. The act authorized the Secretary of Defense to establish "working capital funds" for industrial or commercial-type activities which provided common services within the Department of Defense. While the Air Force had established the Air Force Industrial Fund in July 1950 to manage its industrially funded services, air transport activities had continued to operate on a non-industrial basis.[10] In order to incorporate air transport functions under an industrial fund management system, the various government agencies would have to allocate money from their own budgets to pay for the airlift whereas before the service was simply provided without linking it to cost accounting. Since major corporations used industrial funds successfully, it was only natural that the 1955 Hoover Commission renewed this earlier recommendation.

AIRLIFT SERVICE INDUSTRIAL FUND—SINGLE MANAGER ASSIGNMENT

Over the course of several years, the Eisenhower Administration, Department of Defense, Army, Air Force, MATS, Congress, and the airline industry would come to a consensus on the role of military air transport in peace and war. Divergent views on airlift and the need to accommodate the foreign and domestic policies of the Eisenhower Administration made it a most difficult task. Responding to the powerful Hoover Commission and the wishes of the President, Congress took up the air transport issue in the spring of 1956 during the House appropriation hearings for 1957.[11] Defense and Air Force officials, however, were already pondering the recommendations of the Hoover Commission. In fact, in December 1955, Headquarters United States Air Force informed Lieutenant General Joseph Smith, MATS Commander from 1951-1958, that the Defense Department was seriously considering industrial funding for the Military Air Transport Service, and in January 1956, Secretary of Defense Charles Wilson further indicated his intention of making MATS the single manager for airlift services.[12] In order to adopt this funding concept, the Defense Department, the Air Force, and the other services needed to resolve the internal debate[13] over consolidating military air transport activities. Otherwise, it would be virtually impossible to implement the industrial fund concept. Thus, the two issues were intertwined and brought massive changes to the Military Air Transport Service.

Initially, in 1949, Major General Laurence S. Kuter, MATS Commander from 1948-1951, spoke against industrial funding even though it would result in the consolidation of more air transport operations under the command, a measure he vigorously advocated. Major General Kuter argued that industrial funding would erode the command's wartime readiness through its emphasis on economical uses of peacetime airlift. It was a view held by most of the MATS staff. But by 1955, the command's senior leaders had accepted the inevitability of industrial funding. They were well aware of the great national concern over government practices, as evidenced by the Hoover Commission recommendations and several congressional reports. Additionally, the Defense Department's Comptroller, Wilfred J. McNeil, had openly stated that the military services should budget and pay for their airlift requirements; McNeil's position had largely determined the issue of industrial funding for MATS.[14]

Following through with its intentions, the Department of Defense issued on 7 December 1956 Directive 5160.2, for the "Single Manager Assignment for Airlift Service." The directive consolidated into a single military agency "all transport type aircraft engaged in scheduled point-to-point service or aircraft whose operations are susceptible of such scheduling, and such organizational and other transport aircraft as may be specifically designated by the Secretary of Defense."[15] The directive charged the Secretary of the Air Force—designated the single manager for airlift service—to establish and organize as a major component of the Air Force a single manager operating agency for airlift service. The Military Air Transport Service was designated that agency, and MATS Commander Lieutenant General Joseph Smith became the first executive director for airlift service upon the approval of the Terms of Reference document.

The directive further required that the airlift service be managed on an industrial fund basis. Accordingly, the Military Air Transport Service began operating its airlift service under the industrial fund concept when it inaugurated the airlift service industrial fund (ASIF) on 1 July 1958, after completing a six-month test. To provide ASIF with initial capital, Congress had appropriated $75 million. Required to manage the fund on a break-even basis, MATS used the initial funding to cover its airlift expenses until it received reimbursement, usually within three to four months. These payments, in turn, allowed MATS to fulfill more airlift requests. In this way, the fund's capital revolved, and Congress no longer needed to approve appropriations each year for air transport operations.[16]

Although originally voicing their displeasure with industrial funding, the MATS staff became convinced of the fund's value within the first year of operation. The command's ASIF managers noted in their annual report that the fund had "substantially improved the efficiency of airlift management," saving millions of dollars through the increased use of long-term contracts as well as meeting for the first time all of the airlift requests of the Army, Navy, and Air Force. Moreover, ASIF forced airlift users to judiciously oversee funds allocated for airlift. Before, the military services and other government agencies had not concerned themselves with costs.[17] The succeeding years confirmed these benefits. The fund's business-like footing encouraged economy, and its central management provided the Defense Department the flexibility to meet ever-changing military airlift requests immediately.

As the single manager agency, the Military Air Transport Service provided airlift services for all Department of Defense agencies; procured all commercial airlift; oversaw training programs; and ensured airlift's war preparedness. Although it was clearly the intent of the Defense Department that Directive 5160.2 eliminate the need for any other airlift service, expressly requiring the service secretaries to "abolish any organizational unit or part

When MATS acquired troop carrier C-124s from the Tactical Air Command, the command became responsible for resupplying the scientific stations in the Antarctica, Operation DEEP FREEZE.

thereof performing functions which duplicate those assigned to the Agency," the Terms of Reference agreements between the services were not as far reaching.[18] Nevertheless, the directive expanded the Military Air Transport Service's operations considerably.

In addition to those transport assets already assigned to MATS, the command gained, under the terms of the agreement with the Tactical Air Command, jurisdiction of Larson (Washington) and Donaldson (South Carolina) Air Force Bases and the 62d and 63d Troop Carrier Wings (Heavy). From the Far East Air Forces (redesignated Pacific Air Forces on 1 July 1957), MATS assumed responsibility for the intertheater airlift missions of the 374th Troop Carrier Wing, taking over the 6th and 22d Troop Carrier Squadrons as the wing was inactivated. Besides the transfer of all transport aircraft of the Naval components of MATS, the command acquired all four-engine aircraft of the Navy's Fleet Logistic Air Wings, except those assigned to the Atlantic and Pacific fleets; administrative airlift; and water-based transport activities. In all, the Military Air Transport Service gained approximately 160 transport aircraft as it underwent a reorganization in the months following the directive.[19]

Accordingly, on 1 July 1958, MATS redesignated its Atlantic Division as the Eastern Transport Air Force (EASTAF) and consolidated its Pacific and Continental Divisions into the Western Transport Air Force (WESTAF). This action streamlined MATS's air transport operations by assigning all of its strategic aircraft to two organizations.[20] At the time that WESTAF was activated at Travis Air Force Base, California, MATS assumed jurisdiction of the base from the Strategic Air Command.[21] Although part of a larger plan to relocate, consolidate, or eliminate certain headquarters organizations throughout the Air Force, MATS' headquarters also moved during this period from Andrews Air Force Base, Maryland, to Scott Air Force Base, Illinois, effective 15 January 1958.[22] The Military Air Transport Service's assumption of the single manager for airlift service responsibilities was one more step towards the eventual consolidation of all airlift activities under one command. Consolidating strategic airlift assets under MATS, however, would enable the commercial airlines to rally against a single organization.

MATS BASES/INSTALLATIONS
1953-1964

Aeronautical Chart & Information Center MO	*31 Jul 59 - 30 Jun 72*
*Andrews AFB MD**	*1 Aug 52 - 1 Oct 57*
Boca Raton AFF FL	*14 Aug 52 - 25 Jan 60*
Bolling AFB, Washington DC	*1 Aug 52 - 1 Oct 57*
*Charleston AFB SC**	*1 Mar 55 - present*
Donaldson AFB SC	*1 Jul 57 - 24 Jan 64*
Dover AFB DE	*1 Apr 52 - present*
Eleusis Field, Greece	*1 Nov 44 - 1954*
Great Falls AFB MT	*1 Jan 44 - 1 Feb 54*
*Grenier Field NH**	*1 Jul 53 - 1 Nov 55*
*Hickam AFB HI**	*1 Jun 49 - 1 Apr 55*
*Hunter AFB GA**	*1 Apr 53 - 1 Jul 67*
Johnston Island AFB, Johnston Island	*1945 - 1 Apr 55*
Keflavik Airport, Iceland	*23 May 51 - 1 Jul 62*
Lajes Field, Azores	*Jan 44 - present*
Kindley AFB, Bermuda	*23 Jun 44 - 1 Jul 70*
Larson AFB WA	*1 Jul 57 - 31 Dec 59*
Lockheed Air Terminal CA	*1941 - 1 Mar 54*
Lookout Mountain AFS CA	*1 Apr 58 - 19 Oct 70*
*McGuire AFB NJ**	*1 Jul 54 - present*
Mountain Home AFB ID	*24 Jan 51 - 1 May 53*
Orlando AFB FL	*1 Jul 53 - 1 Jul 68*
Scott AFB IL	*1 Oct 57 - present*
*Travis AFB CA**	*1 Jul 58 - present*
Washington National Airport VA	*13 Mar 44 - 1 Oct 57*
Westover AFB MA	*1 Feb 46 - 1 Apr 55*
West Palm Beach IAP FL	*16 Sep 51 - 26 Jun 62*

**Indicates prior control*

Command and control of the single manager airlift system, early 1960s.

MILITARY AIRLIFT DEBATED

Concurrent to the actions surrounding the implementation of Directive 5160.2 was the congressional debate over the mission and size of military airlift resources. Congressional interest had been sparked by the controversial nature of the Hoover Commission recommendations. By the mid-1950s, representatives for the airlines had found support among influential Congressmen, to include Representatives Daniel Flood (D-PA), Chet Holifield (D-CA) and Senators Dennis Chavez (D-NM), W. Stuart Symington (D-MO), John Sparkman (D-AL), and A. S. "Mike" Monroney (D-OK). Beginning early in 1956, the extensive hearings examined all facets of military airlift and had a profound impact on the operations of the Military Air Transport Service as well as its successor the Military Airlift Command.

For instance, during a special House Defense Appropriations Subcommittee hearing, Congressman Flood focused the discussions on the Army's request for predesignated airlift and the Hoover Commission's recommendations on MATS. As the hearings progressed, the Air Force found itself being pressed on the size and utilization of the military air transport function. Congressman Jamie Whitten (D-MS) succinctly told the assembled: "I want to say again I recognize fully we need MATS. The question is: How much MATS?" The Flood subcommittee hearings resulted in the House Appropriations Committee Report of 1956 requiring the Air Force to ensure its actions enabled the civilian airlines to maintain a sound financial standing, essentially adopting the interpretation of the commercial airlines on the Air Coordinating Committee report of 1954.[23]

In 1957, during the House appropriations discussions on the defense budget, Flood referred to MATS as a "billion dollar boondoggle" based upon his survey of the scheduled airlines' unutilized capacities for the previous year. The Senate Appropriations Committee hearings, led by Senator Symington, resulted in a congressional budget directive that United States civil carriers assume 40 percent of the passenger and 20 percent of the cargo requirements of MATS during fiscal year 1958. In issuing this directive, Congress had largely incorporated an Air Transportation Association proposal. With this legislation, the debate over military airlift shifted primarily to one between Congress and the Department of Defense. Certainly, the post-Korean Conflict emphasis on austerity measures, the security afforded by atomic weapons, the public perceptions that the federal government was wasteful and not doing enough to promote the nation's industrial might all worked to the advantage of the commercial carriers and to the detriment of those advocating being prepared for war in peacetime.[24]

Allegations by several of the small airline carriers in Representative Holifield's district that the Defense Department had failed to adhere to the 40-20 provision prompted a new round of hearings in January and February 1958. Piquing Holifield's interest was the airline industry's wholehearted opposition to the Air Force's experimental "bailment" program.[25] Holifield regarded the bailment program as further evidence that the Defense Department had problems managing its air transport activities. In his hearings, he sought to review policies, procedures, and operations regarding air cargo and passenger transportation. These hearings also included substantial discussions on the Civil Reserve Air Fleet program. Again the size and scope of MATS' transport operations came under direct fire from the airline officials appearing before the subcommittee.

Speaking for the scheduled airlines, Air Transport Association President Stuart Tipton presented a plan for a national airlift program. He advocated a force, composed of military and civil aircraft, which would be capable of fulfilling war requirements. If the Defense Department, he asserted, depended upon the civil carriers more in peacetime then they would be ready to shoulder a larger share of the wartime requirements; it would also reduce the federal government's expenditures for transportation. To implement this policy, Tipton advanced an elaborate eight-step process which essentially limited MATS to those airlift missions that required specialized transport aircraft for outsize or exceptionally heavy cargo, unusual security measures, or direct support of tactical combat units.

The Defense Department designated Dudley Sharp, the Assistant Secretary of the Air Force for Material, as its lead witness, and his remarks summarize best the military's response. Sharp explained that the military's air transport forces had to achieve a state of trained readiness as well as maintain a peacetime rate of operation to ensure an instant response capability. They also required the means to expand to the projected wartime aircraft utilization rate. Furthermore, the Defense Department intended to use the military air transport system to reduce its peacetime airlift costs. It viewed civil air transport resources as augmenting assets and planned to utilize them in peacetime to the "maximum practicable extent," as long as this was consistent with airlift requirements and the efficient and cost-effective employment of military resources. During emergencies, the Defense Department would call upon civil air transports based upon their availability and the airlift needs at the time. While the Defense Department had no intention of ignoring the tremendous capabilities of the civil air carriers, Sharp very firmly asserted the nation's requirement for an in-being military air transport force which the civil air transport carriers would complement as the situation arose for their services. Sharp hammered home this point when he stated that the military had certain minimum requirements, which he termed as "hard-core airlift needs," of such "crucial importance at the outset of war that reliance for their fulfillment upon anything but a seasoned, properly equipped, disciplined military force such as MATS would be the height of national folly." For these reasons, Sharp rejected the national airlift program's suggestion that civil airlift was equivalent to military airlift and could, therefore, replace the military airlift system.

Upon the conclusion of the extensive Holifield hearings, the subcommittee noted it found some validity in each side's claim: that the civil carriers were motivated by profit making and that the military was building an airlift empire. Congressman Holifield advised that the subcommittee make its recommendations on the basis of what would best serve national defense. While the subcommittee

The senior MATS staff and top officials from the airlines and Air Transport Association met in November 1958 to discuss ways to establish a closer working partnership.

tended to agree with the air carriers that MATS' peacetime airlift by-product had become an end in itself, it also understood that the Military Air Transport Service needed to exist as a well-trained airlift force. The ensuing 22 recommendations required each side in the airlift debate to make adjustments, with MATS having to change the most. A careful reading of the findings confirms the importance of the Holifield hearings, for the recommendations laid the groundwork for the first national airlift policy statement. In general terms, the subcommittee stipulated that the Military Air Transport Service concentrate on the outsize or unusual missions, what became termed the "hard-core" requirements, while leaving the passenger and conventional cargo business to the commercial carriers. At the same time, the subcommittee recognized the obsolescence of MATS' transport fleet and directed its modernization.[26]

There were two other airlift hearings in 1958. Championing the interests of the supplemental carriers, Senator Monroney, chairman of the Commerce Committee's Aviation Subcommittee, held hearings which generally reinforced the recommendations of the Holifield subcommittee.[27] Conversely, Representative L. Mendel Rivers (D-SC) in a special subcommittee investigation of the House Armed Services Committee, went against the prevailing mood in Congress, taking issue with his colleagues who wanted the government to subsidize the commercial aviation industry at the expense of military airlift's preparedness. As a result, the Rivers subcommittee effectively stated for the record the need for military airlift and advocated an aircraft modernization program for MATS.[28]

Despite this strong endorsement for military airlift, the debate was far from over. Both Appropriations Committees sought to address what appeared to be the Defense Department's flagrant disregard for congressional directives by failing to comply fully with the 40-20 provision. Congressmen Flood, Chavez, Symington, Monroney, and Sparkman were instrumental in getting a specific portion of the Defense Department's appropriations set aside for commercial airlift. In the end, the Defense Appropriations Act for fiscal year 1959 required the

DOD to ensure that $80 million of MATS' funding go for procuring commercial airlift.[29]

During the Defense appropriations hearings for fiscal year 1960, Senator Monroney sought support to increase commercial airlift expenditures to $150 million. He was angered that the Military Air Transport Service had only spent $71 million the previous year. Ultimately, the Senate Appropriations Committee recommended an increase of $100 million. That the airlift debate was becoming less anti-military was evident by the actions of Senators Strom Thurmond (D/R-SC), Howard Cannon (D-NV), and Barry Goldwater (R-AZ). They worked to reduce the amount to $70 million, asserting mandated commercial buys would weaken MATS which, in turn, would affect the nation's defense responsiveness. As a result, Congress compromised on $85 million, firmly establishing the directive of the previous year.[30]

Primarily, the need to respond instantaneously to national security interests, as demonstrated by the dual crises of Lebanon and Taiwan, changed the congressional climate. Air Force Deputy Chief of Staff General Curtis LeMay candidly told Congress during the 1958 Rivers hearings that actions in Lebanon:

> . . . had been directed prior to a public announcement of the United States' intentions. Without an effective inbeing military air transport force, the Air Force could not have responded in this manner. Where the security of the free world is suddenly threatened, we cannot wait for the acquisition of commercial airlift.[31]

While commercial augmentation was not needed for the Lebanon crisis, cargo bound for the Pacific backlogged at Travis Air Force Base, California, during the Taiwan crisis. Although MATS sought commercial augmentation for the Pacific, the airlines did not fully support the request, either submitting high bids or refusing to participate altogether since it was during the height of the vacation season.[32]

During the Lebanon Crisis of 1958, MATS responded quickly, moving American troops from Germany to Turkey and Lebanon.

In 1960, the airlift debate focused more on the military's mobility preparedness when Army Chief of Staff General Lyman Lemnitzer complained that the Joint Chiefs of Staff failed to support the Army's airlift requirements. General Lemnitzer's statements got the attention of Representative Carl Vinson (D-GA), the House Armed Services Committee chairman. Vinson promptly tasked Congressman Rivers to head a special subcommittee to look into the Army's specific claims as well as all airlift for defense purposes. The Rivers subcommittee disclosed that more airlift was needed to meet national defense requirements. Moreover, the subcommittee found that Joint Chiefs of Staff war plans had allocated almost all of MATS' airlift capacity against Strategic Air Command and Tactical Air Command requirements, leaving the Army, Navy, and Marine Corps to depend upon the Civil Reserve Air Fleet, which would not be immediately available. Clearly, the recent international crises substantiated the Army's advocacy of a flexible response strategy with its inherent demand for dedicated airlift resources. As a result, the Rivers subcommittee firmly upheld the need for the Military Air Transport Service, specifically referring to the command as a weapon system. The subcommittee also proposed changing the command's designation to the Military Airlift Command to more adequately reflect the command's mission responsibilities as well as advocated an extensive aircraft modernization program. On the other hand, the subcommittee just as strongly supported a viable Civil Reserve Air Fleet program and offered several recommendations to strengthen that program.[33]

As important as the Rivers subcommittee hearings were for military airlift, it would take presidential authority to bring the airlift debate to a close. Based upon the 1958 Holifield recommendation for a new presidentially-directed study, President Eisenhower had asked Defense Secretary Neil McElroy to examine MATS' peacetime and wartime responsibilities. Completed in February 1960, the report, entitled *The Role of Military Air Transport Service in Peace and War*, contained nine *Presidentially Approved Courses of Action*, the first national statement on airlift. Essentially the nine provisions directed that commercial carriers, through the Civil Reserve Air Fleet program, would augment the military's need for airlift; MATS, in turn, would provide the "hard-core" airlift. The Military Air Transport Service was to reduce its regularly scheduled, fixed routes, "consistent with assured commercial airlift capability at reasonable cost, and consistent with economical and efficient use, including realistic training." At the same time, the provisions required MATS to procure its commercial airlift through negotiation, recognizing, like the Rivers subcommittee, that competitive bidding was more harmful than beneficial. Competitive bidding had indirectly prevented the addition of more modern aircraft to the Civil Reserve Air Fleet program. The provisions further stipulated that MATS would undergo modernization to fulfill its military requirements and proposed joint civil-military development of a long-range, turbine-powered cargo aircraft.[34] The latter joint aircraft venture, however, never came about. But in 1963, the Military Air Transport Service improved its reliance upon the Civil Reserve Air Fleet program when it developed, in conjunction with the civil carriers, procedures to call up these assets in stages based upon national emergencies.[35] Thus, the nine *Presidentially Approved Courses of Action* ended the airlift debate and provided the framework for defining civil and military airlift responsibilities for the next 27 years, until President Ronald Reagan promulgated a revised National Airlift Policy statement in June 1987.

FLEXIBLE RESPONSE AND MILITARY AIRLIFT

The Military Air Transport Service's response to world crises in the Middle East, Far East, Africa, Europe, and nearby Cuba were also powerful statements on the need for military airlift. Congressman Rivers and others outside the defense establishment had not failed to note the growing reliance upon military airlift. One of the first demonstrations occurred in the fall of 1956 when MATS was called upon to transport a United Nations police force after Egypt had provoked an international incident by nationalizing the Suez Canal that July. Initially, British and French troops took over the canal but were soon replaced by United Nations forces as a peaceful resolution was sought. In this operation, the United Nations chartered MATS aircraft to fly 585 Colombian soldiers and 17.5 tons of cargo from Colombia to the staging base near Naples, Italy, and 891 Indian troops and 137.5 tons of cargo from Agra, India, to Beirut, Lebanon. Chartered Swiss and Canadian planes then moved the forces forward to the canal. Adding to the significance of the short-notice movement was the fact that MATS was heavily committed at this time to Operation SAFE HAVEN, the airlift of Hungarian refugees. The command's airlift managers also faced a challenge in India, where there had been little military air traffic since World War II. Additionally, MATS had to stage maintenance personnel and parts for the C-124s involved in the United Nations airlift at Dhahran, Saudi Arabia.[36]

On 14 July 1958, after a coup in Iraq spilled over into Lebanon, President Camille Chamoun asked the United States for military assistance. Within 24 hours, a battalion of Marines made an amphibious landing near Beirut, and over the next few days United States Air Forces in Europe and MATS transport aircraft moved an Army task force from Germany to Lebanon

in support of Operation BLUE BAT. Within the first two months of the crisis, MATS aircraft had airlifted 5,500 passengers and 5,500 tons of cargo on 314 missions, almost all of the passengers and nearly a third of the cargo within the first ten days.[37]

Concurrent with the crisis in Lebanon was the threat of a Communist invasion of the Chinese Nationalist-held islands of Quemony and Matsu, possibly progressing to a takeover of Taiwan itself. Chinese Communists had begun shelling Little Quemoy on 23 August. Relying primarily on its C-118, C-121, and C-124 aircraft, MATS began to airlift a Composite Air Strike Force of the Tactical Air Command within six days of the Chinese Communists' display of aggression. Between 8 and 11 September, MATS C-124s moved an Air Defense Command squadron of F-104 *Starfighters*.[38] The crisis clearly underscored military airlift's ability to project forces rapidly.

Again in July 1960, when the Congo erupted in civil war following its independence from Belgium, military airlift was needed to support United Nations peacekeeping efforts in that region. Although the United States had urged the United Nations to develop its own organic or chartered airlift capability, this was never really achieved. For three and a half years, the Military Air Transport Service dedicated a substantial portion of its air transport fleet to fly the Congo Airlift missions, also known as Operation NEW TAPE. Aircrews and other support personnel were assigned to the airlift on extended temporary duty. This arrangement made it impossible to maintain continuity and experience levels; it was a lesson MATS would relearn in Vietnam. During the Congo Airlift, MATS aircrews primarily flew supply and troop rotation missions, usually into Leopoldville and Elizabethville. Generally, due to the difficulty of obtaining clearance for aircraft based in or transiting France, MATS drew upon its C-124, later C-135, resources at stateside bases and at Royal Air Force Alconbury, United Kingdom. The command also used its C-133s for some of the heavy cargo movements. For instance, in January 1963, three C-133s moved armored personnel carriers, weighing 65 tons each, from Stuttgart, West Germany, to Elizabethville. By January 1964, when the airlift concluded, MATS had flown 2,128 NEW TAPE missions, transporting 63,798 personnel and 18,593 tons of cargo.[39]

In August 1961, the NATO powers responded with a display of force as the Berlin Wall went up. The Military Air Transport Service supported the deployment of a Composite Air Strike Force between 4 and 7 September and the build-up of forces by airlifting nearly 10,000 troops and some 2,380 tons of cargo between 31 October and 27 November. Also in November, MATS moved F-104s to Germany.[40]

The Cuban Missile Crisis in October 1962 likewise demonstrated that the Military Air Transport Service had to sustain a high level of war preparedness for the command would be one of the first units called upon. For instance on 17 October, MATS airlifted 800 tons of ammunition and support equipment to military bases in Florida to support the Composite Air Strike Forces of the Tactical Air Command. Four days later, on 21 October, MATS, drawing upon both its EASTAF and WESTAF resources, began to transport 2,203 Marines and 1,073 tons of equipment of the First Marine Division from El Toro Marine Corps Station, California, to Guantanamo Naval Air Station, Cuba. These actions occurred before President Kennedy's announcement of the naval blockade against Cuba on 22 October. Another major movement commenced on 23 October when MATS transported another group of 581 Marines and 1,372 tons of cargo from George Air Force Base, California, to Cherry Point, North Carolina. Again MATS relied upon its C-124, C-133, and C-135 aircraft. Additionally between 24 October and 2 November, MATS C-124 aircrews conducted intensive day and night formation flying to ensure enough qualified crews in the event of an airborne operation in Cuba. During this crisis, a combined Tactical Air Command and Military Air Transport Service airlift force moved 10,500 passengers and 7,500 tons of cargo; MATS lost one aircraft, a C-135. The rapid response and need for airlift during the Cuban Missile Crisis confirmed the evolutionary developments of the last few years, namely that airlift was more than a logistical resupply system. The command was a full-fledged member of the nation's flexible response strategy.[41]

During this period before Vietnam, the Military Air Transport Service also participated in a number of humanitarian missions. Of these, four were especially

Swedish troops boarding a MATS C-124 flight bound for Kamina, Congo Republic.

noteworthy. In Operation LITTLE SWITCH, MATS aircraft and aeromedical personnel returned 149 repatriated Korean War prisoners to freedom between April and May 1953. Between August and October 1953, in Operation BIG SWITCH, the Military Air Transport Service transported another 505 repatriated American soldiers from Communist prisoner-of-war camps. Although the first LITTLE SWITCH missions had special arrangements, MATS transported most of the former prisoners from the Pacific theater to Travis Air Force Base, California, aboard scheduled aeromedical flights.[42]

Airlift of Marines to the Naval Air Station at Guantanamo Bay, Cuba, October 1962.

Returning repatriated American soldiers from prisoner-of-war camps, Operation BIG SWITCH, Tokyo, Japan. Most of the former POWs returned aboard scheduled aeromedical evacuation missions.

In June and July 1954, at the request of the French government, MATS evacuated 509 French Foreign Legion soldiers from Tokyo, Japan, to Orly, France, and Oran, Algeria. The airlift from Saigon to Tokyo was the responsibility of the Far East Air Forces. Almost all of the legionaries had received injuries at Dien Bien Phu against Communist forces in then French Indo-China. All three of MATS' divisions took part in this operation named WOUNDED WARRIOR. Although the airlift was minor in numbers transported, it was historic from the standpoint of distance traveled, more than 14,000 miles[43]

WOUNDED WARRIORS—French legionnaires—received refreshments from French-speaking volunteers at Hickam Air Force Base, Hawaii, en route to France and Algeria.

Following President Eisenhower's decision to allow a group of 15,000 Hungarian refugees to come to the United States, MATS began Operation SAFE HAVEN. It was one of the largest operations for the command since the Berlin Airlift. On December 11, 1956, just two days after the President's announcement, the first SAFE HAVEN mission got underway as a C-118 with 50 refugees aboard took off from Munich, West Germany, bound for McGuire Air Force Base, New Jersey. Thereafter, the airlift settled into a pattern of eight flights a day from Munich. Bad weather over the North Atlantic route during the winter months, however, had disrupted plans to station relief crews at Prestwick, Scotland, forcing the aircraft to fly with double crews. In all, between December 1956 and June 1957, the command's Atlantic Division transported 10,184 Hungarian refugees and oversaw the airlift of an additional 4,170 refugees by commercial carriers under government contract. Of significance, the SAFE HAVEN operation had followed on the heels of the Suez Canal crisis. Remarking on the events, Lieutenant General Smith, MATS Commander, noted:

> Once again, the need for a combat-ready transport command trained to divert its activities quickly in the event of any emergency has been emphasized. The additional burdens imposed by these two airlifts taxed MATS resources. But the day-to-day routine, and oftentimes unglamorous mission of transporting personnel . . . and priority cargo, still was accomplished with surprisingly little interruption in scheduling.

SAFE HAVEN also showed the world the level of commitment the United States would provide to oppressed people.[44]

The many natural disaster relief missions in this period underscored further the expanding role of the Military Air Transport Service. The command's aircraft and aircrews flew literally throughout the world delivering relief supplies, sometimes on more than one occasion, to victims in Greece, England, the Netherlands, Algeria, Haiti, France, Iran, Japan, Morocco, Brazil, Chile, Kenya, Egypt, Cambodia, Honduras, Tanganyika, Colombia, Guam, Libya, Spain, Turkey, Azores, Yugoslavia, Trinidad, Costa Rica, Pakistan, Guadaloupe, Tunisia, Somali, and on the home front to California, Hawaii, and Alaska.[45] Like the contingency operations, these missions did much to assure the world that the United States would respond in difficult times. Truly, America's leaders had come to depend upon airlift as an instrument of foreign policy.

Hungarian refugees board a MATS flight bound for the United States and freedom during Operation SAFE HAVEN.

Amigos Airlift, June 1960. After a series of earthquakes and tidal waves rocked Chile, MATS C-118 and C-124 aircraft transported 851 tons of relief supplies, including two complete 400-bed field hospitals, and evacuated 1,020 people.

MEETING MOBILITY REQUIREMENTS

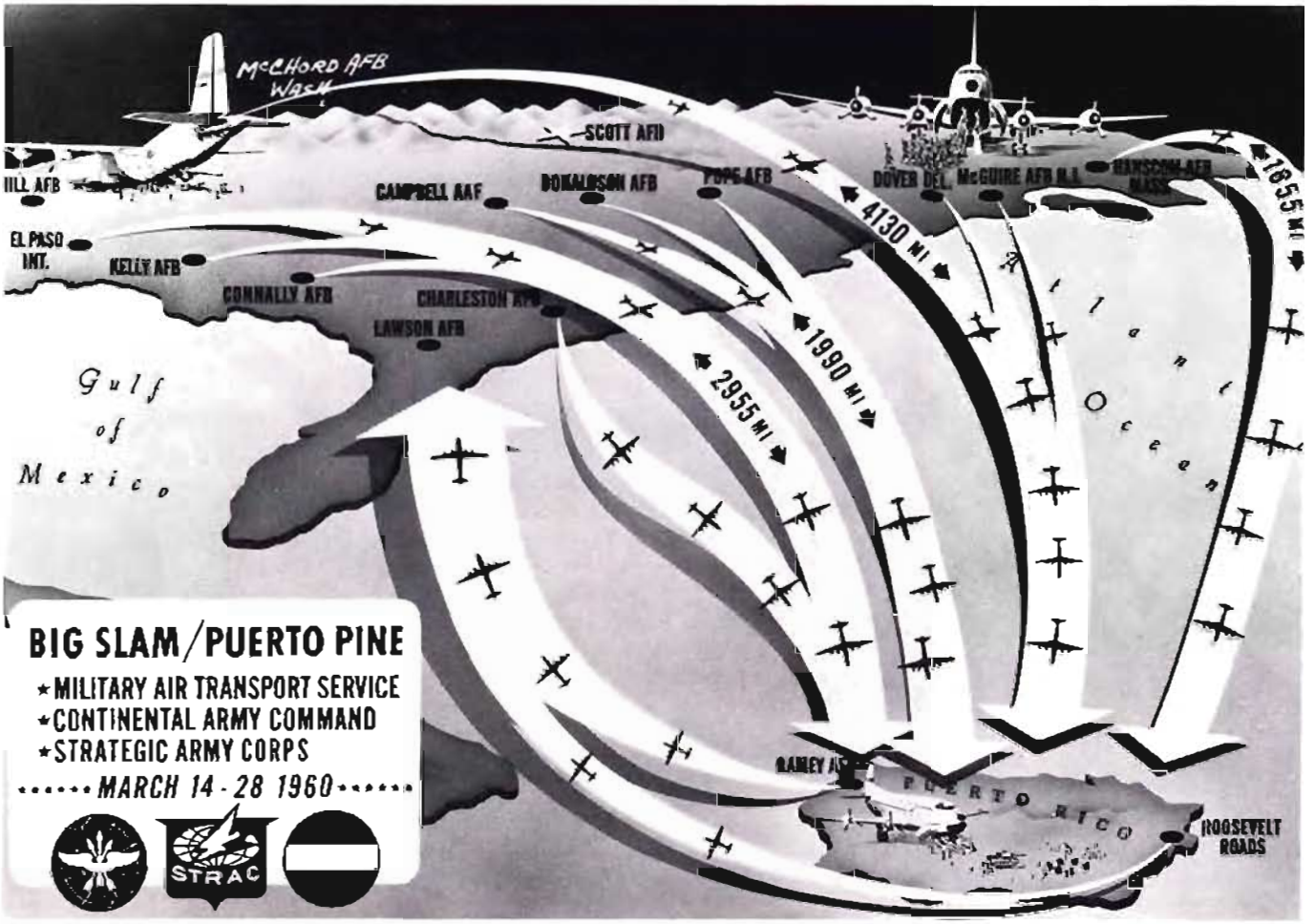
Exercises also confirmed the United States' growing reliance upon military airlift to support its combat forces. Conceived at the height of the airlift debate, the BIG SLAM/PUERTO PINE exercise in March 1960 further served to silence those who sought to eliminate the Military Air Transport Service. The exercise was designed to test MATS' ability to surge to and sustain its wartime aircraft utilization rate as well as determine if MATS could transport a large Army force from the continental United States to respond to an overseas contingency. If judged on the completion of the tasking, the exercise was a huge success. Although the Military Air Transport Service did move 29,095 troops and 10,949 tons of cargo, it did so flying 1,263 sorties for a total of 50,496 flying hours, used half of MATS' transport fleet and 32,000 personnel, and required over a year of detailed planning to include massive prepositioning of spares, equipment, and personnel. BIG SLAM showed the total potential of military airlift, of which air logistics was but one aspect. The exercise also plainly disclosed the growing obsolescence of MATS' transport fleet.[46] Newspaper reporters did not fail to note that commercial jets could have flown to Puerto Rico faster than MATS' aging force of C-124s.

Seeking to remedy the shortcomings of BIG SLAM, the Department of Defense continued its joint Army-Air Force mobility exercises[47] in the succeeding years. In Exercise LONG PASS, 1961, the military sought to test its ability to deploy elements of the Strategic Army Command outside the Western Hemisphere over a considerable distance—7,400 miles. In this exercise, the Military Air Transport Service participated with the Tactical Air Command and an overseas theater under a unified command for the first time. The exercise plan required MATS to

MATS C-124s on the ramp at Roosevelt Roads Naval Station, Puertio Rico, await the arrival of Strategic Army Corps troops and equipment during Exercise BIG SLAM/PUERTO PINE, March 1960.

airlift one Army infantry battle group of the 4th Infantry Division from Fort Lewis, Washington, along with supporting units from two other stateside locations as well as two Tactical Air Command F-100 squadrons (Composite Air Strike Forces) to Clark Air Base in the Philippines. In all, the Military Air Transport Service airlifted to Clark 1,679 personnel and 1,394 tons of equipment; most of the missions met the specified closure time. Exercise LONG THRUST was to have complemented the LONG PASS exercise in the Pacific by testing the military's ability to move forces rapidly to Europe. Cold War tensions, however, forced the cancellation of this exercise at the last moment.[48]

In 1962, the GREAT SHELF/TAGPO exercise essentially repeated the scenario of the LONG PASS exercise, although several hundred more troops were airlifted.[49] But in 1963, during Exercise BIG LIFT, airlift was called upon to transport a full Army division overseas for the first time. The Military Air Transport Service moved the 2d Armored Division to Germany within an impressive 63 hours and 5 minutes. In



Exercise BIG SLAM/PUERTO PINE was, at that time, the largest strategic airlift of combat forces from the continential United States to an overseas area.

Giant MATS C-133 Cargomasters, then the largest cargo-carrying aircraft in the free world, flew heavy equipment and supplies to Clark Air Base in the Philippines during LONG PASS, the longest transpacific air mobility exercise to date.

summary, MATS airlifted a total of 15,377 personnel and 444.2 tons of equipment during BIG LIFT.[60]

This exercise was surpassed in 1964 when 100,000 participants gathered for Exercise DESERT STRIKE, the largest Army-Air Force exercise since World War II. During DESERT STRIKE, the Military Air Transport Service rose to the task of airlifting the 101st Airborne Division to include some 7,200 tons of cargo from Fort Campbell, Kentucky, to the Mojave Desert in California and back within a two-week period. The sun, sand, and wind posed a real threat to the mock war. Airlift totals for the deployment and redeployment phases were impressive: 21,494 troops, 16,190.9 tons of cargo, 1,315 sorties, and 22,510.4 flying hours. To accomplish this, MATS used its old reliable C-124, new C-130, howitzer-hauling C-133, and all-jet C-135 aircraft.[61] These exercises did much to improve the command's war preparedness. They also highlighted the great need for modern transport aircraft, for the division's tanks were transported to and from the maneuver area by rail since they were too heavy to airlift.

During Exercise BIG LIFT, MATS operated a 5,600 mile "Air Bridge" to Europe. The 1963 exercise dramatically illustrated the United States' growing reliance upon airlift for rapidly projecting combat forces where needed.

AIRLIFT MODERNIZATION

Besides working out the relationship between military and civilian air transportation agencies, the extensive congressional airlift hearings also determined what kind of transport aircraft the military would procure. Prior to this congressional direction, the Military Air Transport Service in the early 1950s had hoped to replace its aging World War II fleet with two types of turboprop aircraft: a pure cargo aircraft capable of carrying 50 tons a distance of 3,500 miles and a passenger-cargo aircraft capable of transporting 15 tons or 100 passengers as needed over the same distance. The requirement for 3,500 miles was based on the realization that many en route air bases would in all probability not be available in wartime.[52] But as the mission of the Military Air Transport Service evolved to include combat airlift, command officials advocated procuring jet aircraft.

Although Congressman Flood had raised the aircraft issue during the 1956 House Defense Subcommittee hearings, no congressional directive was forthcoming until 1958 when the Holifield subcommittee recommended that the Military Air Transport Service concentrate on airlifting outsize and special cargo, leaving the passenger and conventional cargo business to the commercial carriers. Consistent with this division of airlift, the subcommittee also stipulated that the Air Force take action to modernize the MATS fleet by procuring a large, long-range cargo aircraft.[53]

Congressman L. Mendel Rivers in his subcommittee investigations of 1958 also expressed great displeasure at the Air Force's air transport modernization program. Rivers proposed jet aircraft as the ideal for MATS so that it could keep up with the strike forces it was supposed to support. At a minimum, the Rivers subcommittee advocated procuring DC-8, B-707, C-133, and/or C-130B aircraft.[54] Accordingly, Congress in the military appropriations for 1959 directed the Air Force to modernize its military air transports.[55]

Responding to the congressional recommendations, Defense Department officials stated their concurrence on modernizing airlift, provided it was not placed ahead of other military programs. Demonstrating their commitment, they disclosed on-going plans to retire MATS' piston-powered C-54 *Skymaster* and C-97 *Stratofreighter* aircraft and to introduce the C-133 *Cargomaster*. Military Air Transport Service and Air Force planners also studied future airlift requirements and recommended acquiring Lockheed's C-130B *Hercules* and a "swing-tail"[56] jet cargo aircraft to complement the C-133, envisioning then the C-135 *Stratolifter* as a swing-tail aircraft. They also proposed developing a cargo jet for the 1966-1970 time period, and this became the C-141 *Starlifter*.[57]

The Douglas C-133 Cargomaster remained in the MATS/MAC fleet until 1971.

C-135 STRATOLIFTER AND C-130 HERCULES

Pressed by Congress to address the immediate need for more military airlift, the Air Force procured the C-135A/B and C-130E aircraft as an interim measure until the arrival of the C-141 in the mid 1960s. The C-135 Stratolifter was a military version of the Boeing 707 commercial jet. First configured for the Strategic Air Command as an aerial tanker (KC-135), it was then adapted to air transport requirements. The arrangement was never ideal. The aircraft's side-loading door was but one example of the lack of military features. Nevertheless, the Military Air Transport Service was eager to have this aircraft. In June 1961, the Military Air Transport Service received its first Stratolifter when General Joe W. Kelly, MATS Commander, flew the swept-wing jet from Boeing Field, Washington, to McGuire AFB, New Jersey, where it was assigned to EASTAF's 1611th Air Transport Wing. The command acquired 15 A-model and 30 B-model C-135s, which were essentially identical except for the engines.

Delivery of the C-135 marked a milestone in the development of strategic airlift. Prior to the C-135, the Military Air Transport Service had operated only propeller-driven aircraft. The Stratolifter, capable of nonstop, over-ocean range, flew at twice the speed and altitude of the rest of the MATS transport fleet. It could also carry three times as much cargo. In its brief heyday, the Stratolifter established a number of time, distance, payload, and speed records. During Exercise LONG THRUST II in 1962, the C-135 set an unofficial time and distance record by flying 5,160 miles nonstop from the United States to Germany in 10 hours and 10 minutes. Later, C-135s completed the fastest transatlantic troop rotation in history, airlifting one Army unit from Kansas to Germany and returning another unit to Fort Lewis, Washington, in 45 hours and 30 minutes. The Stratolifter's jet speed and extensive range also made a major contribution during the Cuban Missile Crisis and Operation NEW TAPE, the Congo Airlift. With the C-135, the Military Air Transport Service vastly improved its ability to project combat forces around the world.

The C-130 Hercules was originally designed for the Tactical Air Command as a short-range assault transport to support the Army's airborne operations. The Military Air Transport Service planned to use the C-130 as a medium transport aircraft. Although the E model, which had a longer range and more payload, could serve as a strategic or tactical airlifter, it was still not very suitable for long-range operations, largely due to seating accommodations and excessive noise and

The first of 45 C-135 Stratolifter jet transports being rolled out from the Boeing plant at Renton, Washington.

vibrations in the cargo compartment. And while the C-130E's speed and payload improved upon the capability of the C-119 and C-123, the aircraft it was designed to replace, its 18- to 23-ton carrying capacity could not compete with MATS' older C-97, C-121, and C-124 transports. Military Air Transport Service aircrews did find the Super Hercules rugged and dependable for theater operations where its airborne, short-field landing, and straight-in, truck-bed, rear-loading capabilities were especially needed. As an interim strategic transporter, the C-130E gave MATS the capability to traverse the Atlantic Ocean nonstop and cross the Pacific with one refueling stop. Deliveries of the first C-130Es commenced in August 1962 with the first aircraft assigned to the 1608th Air Transport Wing at Charleston AFB, South Carolina.

SPECIFICATIONS

	C-135	C-130
Power Plant:	four J57-P-59W turbojet (A model) four TF33-P-5 turbofan (B model)	four Allison turboprop T56-A-9 (A), T56-A-7 (B/E), T56-A-15 (H)
Wingspan:	130' 10"	132' 7"
Length:	134' 6"	97' 9"
Height:	38' 4"	38' 3"
Speed:	464 TAS	280 TAS, 300 (H)
Range:	beyond 5,000 miles	2,000 to 2,356 (H) miles
Gross Weight:	272,000 lbs (A), 275,500 (B)	122,900 lbs (A), 133,700 lbs (B) 153,700 lbs (E/H)
Operating Weight:	85,000 lbs (A), 131,000 lbs (B)	71,000 lbs (A), 78,000 lbs (B) 83,000 lbs (E), 84,000 lbs (H)
Allowable Cabin Load:		31,200 lbs (A), 34,900 lbs (B), 45,700 lbs (E), 44,700 lbs (H)
Accommodation:	up to 126 troops	up to 92 troops or 74 litter patients

SOURCES: History of the Military Air Transport Service, 1 January-30 June 1961 (Scott AFB, IL: Directorate of Information, Historical Division, 1962), p 244; History of the Military Air Transport Service, 1 January-30 June 1962 (Scott AFB, IL: Directorate of Information, Historical Services and Research Division, 1963), pp 34, 50-53; History of the Military Air Transport Service, 1 July 1962-30 June 1963 (Scott AFB, IL: Directorate of Information, Historical Services and Research Division, 1964), pp 40, 122, 123, 262-265, 270, 271.

The Lockheed C-130 Hercules proved to be a versatile airlifter.

During follow-up hearings in 1959, however, the Holifield subcommittee listened to an airlift plan presented by the head of the new Federal Aviation Administration, Elwood R. Quesada, a retired Air Force general and former Lockheed executive. Quesada advocated building an "air merchant marine" with government-guaranteed loans. The plan called for developing a new fleet of all-cargo transports which would form the commercially-operated National Air Cargo Fleet. In effect, the National Air Cargo Fleet would disestablish the Civil Reserve Air Fleet and greatly reduce the Military Air Transport Service as it purportedly answered the Army's request for more airlift, namely enough to move an entire division. According to Quesada, MATS would airlift only the purely military or "hard core" items and provide air transportation for emergency war plans, leaving the National Air Cargo Fleet to move everything else. He found support for his plan from retired Army Generals James Gavin and S. L. A. Marshall, the supplemental carriers, academicians, organized labor, and a group of liberal democrats to include the influential Monroney and Symington. Key Defense Department officials had even implied that they would back Quesada's joint civil-military cargo transport development program.[58]

In these same hearings, the Air Force unveiled what action it would take to ensure its compliance with the Holifield recommendations. The Air Force agreed to restrict MATS' aircraft daily utilization rate to five hours and limit the command's peacetime airlift capacity to its 1959 level. The Air Force also required the Military Air Transport Service to retire older transports as it gained new aircraft and to spend as much in 1960 as it had in 1959 on commercial airlift.[59] Despite the favorable support from the Rivers subcommittee investigation, the military still needed to satisfy congressional recommendations, and Quesada's plan with its substantial supporters posed a serious challenge to military airlift. Given the situation, the military wisely pursued a course of compromise.

Quesada's plan, which proposed the procurement of a totally new cargo aircraft, threw the 1960 budget process into disarray. Introduced after the Defense Department had already presented the President's budget to Congress for enactment, Congress was left with the task of discussing the merits of the plan before the Eisenhower Administration had even sanctioned it. The initial support for the plan caused Congress to reject the administration's funding request to proceed with the modernization of MATS' strategic airlift force. The Air Force had asked originally for 10 new jet transports, similar to the commercial Douglas DC-8 or Boeing 707 aircraft. Called C-jets by the military, they were to be larger and faster than the swing-tail Canadian CL-44, which Quesada advocated.

In 1960, the airlift modernization program overcame this setback when the airlift debate during the Rivers subcommittee hearings centered on a more pressing issue—mobility requirements. The Army used the hearings to advance their position of preparing for a non-nuclear conflict, and airlift played a decisive role in the Army's advocacy of a flexible response strategy. As early as 1951, the Army had asked the Air Force to support a tactical airborne assault force of two and two-thirds divisions and the deployment of one other division to any point on the globe. During Senate hearings in 1956, General James Gavin and Major General Earle Wheeler had told Senator Symington's committee that Army requirements called for strategic airlift to transport two divisions simultaneously. Tonnage requirements per division were placed at 5,000 for movement to established facilities and at 11,000 for austere locations. Airlift for the former was estimated as requiring 272 C-133-type aircraft. In addition, the Army required airlift support to move and sustain the divisions within the theater of operation.

The Army's claims that Admiral Arthur Radford, Chairman of the Joint Chiefs of Staff, was unresponsive is somewhat understandable given the fact that Radford[60] had briefed the House Appropriations Committee that the airlift of one Army division with 30 days of supplies within 24 hours would require 1,800 C-124 *Globemasters*. Capable of carrying nearly 40 tons, the C-124 was then the best cargo-hauling aircraft in the Air Force's inventory. In 1960, MATS possessed a mere 300 *Globemasters*.[61]

While Army leaders were willing to concede that sealift and prepositioning equipment overseas would be required as well, they recognized that only airlift provided them timely responsiveness—a crucial element at the onset of hostilities. Moreover during the heat of battle, Army commanders lacked the capability to move forces and equipment rapidly within the theater area. The Army's arguments for airlift support as well as world events essentially validated the need for more airlift capability. Based upon these grave deficiencies, the Rivers subcommittee set out to resolve the airlift shortfall.

In discussing what airlift assets to procure, Army officials indicated during the hearings that they mainly thought in terms of an aircraft that could perform numerous battlefield tasks. The Rivers subcommittee found the Army unwilling to accept an aircraft capable of only strategic airlift. The Army was, however, agreeable to procuring a modified C-130 *Hercules* with increased range. Viewing the airlift problem differently, MATS Commander General William Tunner proposed a modernization program of 45 swing-tail jets to support the Strategic Air Command, 49 other swing-tail aircraft as an interim solution, 50 C-133s for outsize requirements, and 188 jet aircraft—the C-141—for future civil-military cargo

transport operations. Tunner placed his modernization program at $2 billion. Despite a commitment to modernization, Air Force and Defense Department representatives clearly opposed procuring so many new transports. But the Military Air Transport Service's senior staff maintained the command needed an aircraft that included improved performance and reliability features; the command held to its course of developing the future C-141.[62]

Faced with these service differences, the Rivers subcommittee forged a compromise that also took into consideration prior congressional directives on modernizing military airlift. Congressman Rivers asked the House Appropriations Committee to approve $337 million for 50 C-130Es and 50 modified jets. While the House Appropriations Committee sought to reduce Rivers' request by $100 million as it revived the Quesada plan and gave the procurement of the C-130s priority, the Senate Appropriations Committee attempted to redress the military's neglect of airlift. Congress subsequently passed Public Law 86-601 on 1 July 1960 allocating $310.7 million for airlift, specifically $140 million for C-130Es, $60 million for modified jets, and the remainder for C-130Bs and the C-141 development program. In the conference report, Congress further stipulated that the Military Air Transport Service use its jet aircraft for both the Army's and the Air Force's airlift requirements.[63] The lasting value of the Rivers subcommittee hearings was to convince all of the great need for more military airlift capability.

By 1960, MATS' airlift mission had evolved from solely supporting the nuclear forces of the Strategic Air Command and the fighters and bombers of the Tactical Air Command to include deploying Army and Navy combat forces worldwide and maintaining an aerial resupply system. John F. Kennedy had made the airlift issue part of his presidential campaign and spoke of the need to obtain "additional air transport mobility—and obtaining it now" in his State of the Union address in January 1961. Kennedy also disclosed that the United States defense policy would adopt a flexible response strategy versus swift and massive nuclear retaliation. Rapid mobility became a key element of the Kennedy Administration's posture of deterring the full spectrum of warfare.[64] Support for MATS' airlift modernization program had never been more certain.

Incorporating President Kennedy's new defense strategies, Secretary of Defense Robert S. McNamara secured several changes in the airlift modernization program. He asked Congress to increase the procurement of the longer range C-130Es from 50 to 99; sanctioned the modification of 17 KC-135 tankers under production into transport configurations; requested the purchase of 13 other C-135s for a total of 30; and proposed the development of a modern, long-range cargo aircraft, the C-141. The new national security posture had made an interim modernization program for the Military Air Transport Service of utmost importance. The command would use the new C-130 and C-135 aircraft to fill the void until the arrival of the C-141. President Kennedy inaugurated the C-141 program on 13 March 1961 when he announced the Lockheed Company as the winner of the design competition. Less than three years later, on 17 December 1963, the C-141 *Starlifter* soared.[65]

MATS ACQUIRES COMBAT AIRLIFT MISSION

As national leaders came to endorse the flexible response concept, they acknowledged a shortage in airlift assets. Increasingly, the Military Air Transport Service found itself tasked to support contingency operations, often at short notice. Airlift, in this period, evolved from a purely air transport function to one of providing combat airlift. World crises and the White-Lemnitzer Agreement of March 1960 had essentially brought about these changes for MATS. Ever since the Military Air Transport Service had gained troop carrier assets in 1957, the command had the means to support the Army's tactical requirements for airdrops although MATS had eliminated formation training. Despite the precise statements in MATS Regulation 23-1 (15 April 1959) that troop carrier operations included "airdrop supply" and "airborne operations," the command initially used its troop carrier aircraft for logistical resupply missions. The main exceptions were the 1,100 hours devoted monthly to joint airborne training and MATS' support of Operation DEEP FREEZE, the twice-yearly resupply by airdrop of the United States' scientific stations in the Antarctic.[66]

In August 1960, based upon its experiences in Operation NEW TAPE, the Congo Airlift, Headquarters MATS requested a revised mission directive to Air Force Regulation 23-17. In effect, the Military Air Transport Service wanted a directive that would acknowledge the need to establish and maintain equipment, manpower, and supplies, enabling the command to perform a global mobility mission. As MATS awaited approval, it issued, in the interim, a mobility manual for executing contingency operations. Finally published in February 1961, the new Air Force regulation incorporated the mobility requirement in the command's mission statement; these were the first steps towards official recognition of the Military Air Transport Service's combat airlift mission.[67]

Aware of the changing environment and the increased emphasis on airdrop and airborne[68] operations, the Military Air Transport Service sought to improve its ability to deliver troops and supplies to forward areas when it issued a directive in January 1961 requiring all of its C-124 units to qualify in the computed air release point (CARP) aerial delivery

C-141 STARLIFTER

In 1959, the Air Force selected for development what would eventually become the C-141 Starlifter. Working closely with the Army, the C-141 was designed as a medium transport "work horse" to carry all but two percent of an airborne division's equipment a distance of 5,500 nautical miles at speeds up to 500 mph. Although the C-141 revolutionized MATS' airlift system, it simply represented current, not advanced, technology. The initial A model had a shorter fuselage than the C-133 or DC-8F. With a maximum payload of 34 tons, the C-141A ranked below the Boeing 707-300's 44.9 tons and the Douglas DC-8F's 38.7 tons; its cruising speed was also below these airlift types by 35 and 64 mph, respectively. Moreover, the C-141's maximum range fully loaded was some 500 miles less than the B-707 or the DC-8. Nor did the aircraft possess outsize cargo capability like the C-133 or C-124. At a time when the military transports were saddled with speeds of under 400 mph, the military was willing to trade cargo-carrying capability for responsiveness. In comparing the C-141 against the performance features of the commercial B-707 and DC-8 aircraft, the Air Force was willing to accept less than ideal range, speed, and ton-carrying capability in order to transport more oversize cargo. What the military got was a fast cargo plane with troop-carrying and airdrop capabilities, using current technology of the late 1950s and early 1960s—no more, no less.

Bolstered by the recommendation of the powerful Rivers subcommittee to procure a new medium transport, the C-141 program progressed at a rapid pace. By May 1960, the aircraft's specific operational requirement document, SOR 182, was published, and by July Congress had passed Public Law 86-601, providing initial funding for the program. In December 1960, the Air Force released the request for proposal with Boeing, Douglas, Convair, and Lockheed expressing interest. Indicating the national importance ascribed to the new airlifter, President John F. Kennedy assumed the honors of announcing Lockheed as the winner of the design competition for its "Super Hercules" in March 1961. Less than three years later on 17 December 1963, the C-141 Starlifter made its maiden flight. The C-141 began operational missions in April 1965 when General Howell M. Estes, Jr., MATS Commander, delivered the first aircraft to the 1501st Air Transport Wing at Travis AFB, California.

Of significance, the Starlifter was procured under the novel "concurrent acquisition and test" concept versus developing prototype aircraft. Under this philosophy, the C-141 entered the operational force prior to the completion of the Category II Test Program. The rationale behind the concurrent concept was to have a weapon system become productive sooner; testing a new aircraft in the operational environment would also, many believed, enhance the evaluation process of the various systems. The pressing needs of the Southeast Asia Conflict also made this new philosophy attractive. Although the Military Air Transport Service received the C-141 at least two to three years earlier under this method, it also strained the aircraft's planned logistics support and led to a series of modification projects to correct many deficiencies. These included structural, avionic, landing gear, flight control, aerial delivery system, and air conditioning problems. By the time the command received the last of the 284 Starlifters in February 1968, the C-141's "deficiencies" had faded as a concern. The plane's performance during Vietnam ended any further criticism.

As the C-141 entered the operational environment, it became apparent that although the aircraft's cargo compartment was frequently fully loaded, the aircraft had not reached its maximum cargo-carrying capability. To realize the C-141's full potential, the Air Force funded a modification program for the entire fleet, then 270 aircraft, which would stretch the C-141's fuselage 23.3 feet and add an inflight refueling capability. Lockheed delivered the first modified C-141B to the Military Airlift Command in December 1979, the last in June 1982. The modification gave MAC the equivalent of 90 additional C-141As. Initiated in 1985 with a projected completion date in 1996, a center wing modification program will extend the C-141's service life by another 15,000 to 45,000 flying hours.

SPECIFICATIONS

Power Plant:	*4 Pratt & Whitney TF33-P-7 turbofans*
Wingspan:	*159' 11"*
Length:	*168' 3.5"*
Height:	*39' 3"*
Speed:	*425 TAS*
Range:	*2,170 nautical miles, unlimited w/AR*
Max Gross Weight:	*323,000 lbs*
Operating Weight:	*150,000 lbs cargo or 160,781 lbs troops*
Allowable Cabin Load:	*68,725 lbs*
Accommodation:	*up to 200 fully equipped troops, 155 paratroops, or 103 litter patients*

SOURCES: Walter L. Kraus and Jose M. Matheson, C-141 Starlifter (Scott AFB, IL: Office of MAC History, 1973), pp 1, 2, 69, 73, 110, 111, 163-367, 384, 399, 410; History of the Military Airlift Command, 1 January-31 December 1983 (Scott AFB, IL: Office of MAC History, 1983), pp 15, 349, 350; History of the Military Airlift Command, 1 January-31 December 1989 (Scott AFB, IL: Office of MAC History, 1990), p 388.

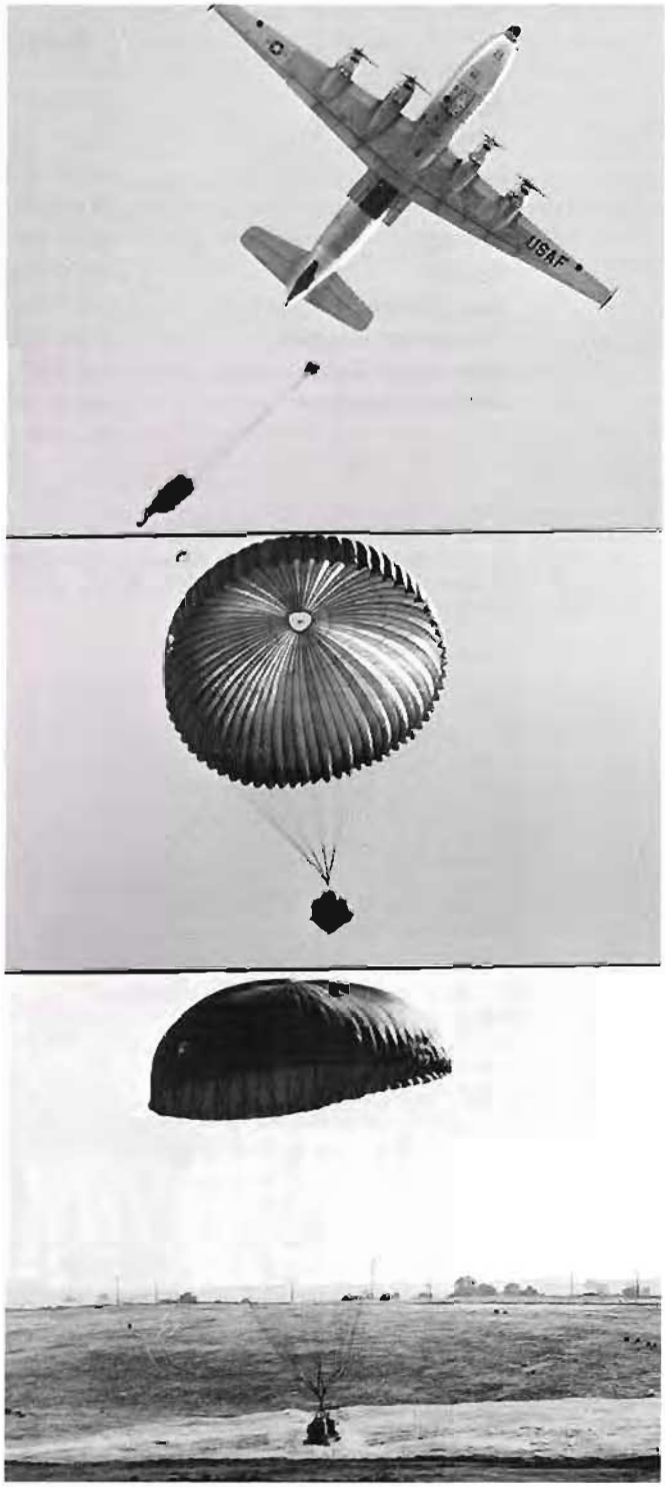
The first C-141 Starlifter entered the MATS fleet at Tinker Air Force Base, Oklahoma, 19 October 1964. Able to move the Army's troops and equipment anywhere in the world, the new jet gave the United States an instant response capability when it began operational missions in April 1965.

procedures. Motivating its aircrews to this end, the command initiated annual competitions in April 1962.[69] In this first event, seven troop carrier and air transport wings flew their C-124s in day and night formations, testing their accuracy in airdropping paratroopers and cargo. The competition underscored the need for MATS aircrews to participate in more realistic aerial delivery training.

The command, however, soon received more explicit tasking. In May 1962, following planning discussion held at Headquarters Commander in Chief Atlantic (CINCLANT) in December 1961 over the types of aircraft to be used for airdrop requirements, Headquarters United States Air Force directed MATS to develop a formation flying capability for C-124 aircrews. Military Air Transport Service troop carrier units were to become fully qualified in formation flying by March 1963 with the air transport wings to follow thereafter. A few months later, CINCLANT's massive airdrop plans for the Cuban missile crisis led to an accelerated training program.[70]

Accordingly, based upon this new guidance from higher headquarters, the Military Air Transport Service issued its own regulation changes on 20 July 1962 which incorporated airdrop of personnel and cargo in mission statements of both troop carrier and air transport units, specifically stating the directive applied to C-124A, C-124C, and the new interim C-130E aircraft. Highlighting the command's relative inexperience in aerial delivery, the new change further stipulated that "Operations of this type will employ delivery by single ship or by three-ship element formation techniques."[71] When Headquarters United States Air Force issued a revised mission statement for MATS in July 1963, Air Force Regulation 23-17 defined airlift to include the "aerial delivery of troops, equipment, and supplies." It also directed that MATS would train and equip its airlift forces in "all airlift tasks, consistent with the capabilities of the aircraft assigned." In addition, it stipulated that the command's airlift forces be mobile and flexible. In May 1964, the regulation was amended, replacing the words "aerial delivery" with the more specific "airborne assault and airborne operations."[72]

In actuality, the regulation recognized a de facto situation. In 1957, MATS had gained troop carrier aircraft and aircrews capable of performing airdrop missions but had generally used them for the command's logistical resupply mission. Given the present airlift shortage and the fact that the command now possessed the C-130E and would soon have the C-141 also capable of airdrop/airborne operations, it was only natural that the Military Air Transport Service assume the full spectrum of airlift operations. Use of these aircraft, however, for both theater and intertheater operations clearly eroded the time-honored distinctions between the strategic and tactical airlift missions.



Aerial delivery of a 1,000 pound container during the third CARP RODEO competition, 1964.

Related to these significant mission developments were Headquarters MATS' efforts to redesignate its units and congressional attempts to rename the Military Air Transport Service. In October 1961, Lieutenant General Joe W. Kelly, MATS Commander from 1960-1964, clearly understood the tremendous challenges facing the Military Air Transport Service when he remarked:

Combat airlift operations increasingly became part of MATS' mission responsibilities during the 1960s.

> The increased emphasis on limited war capability, the Presidential Approved Courses of Action, and the language of MATS' modernization legislation all point to a reorientation of MATS' activity from a predominantly scheduled operation to a posture responsive to the requirement for rapid global deployment of limited war forces as well as the requirements of general war.[73]

Lieutenant General Kelly also recognized that this reorientation had made the command's unit designation of "troop carrier" and "air transport" inconsistent and confusing, especially when both employed the C-124 aircraft. Moreover, the command's unit designations for its air forces were not in line with the other combat commands. In February 1962, Kelly requested Air Force approval of a plan to redesignate and reorganize MATS' transport air forces, wings, and squadrons to numbered air forces, combat airlift wings, and combat airlift squadrons, respectively. At the time of the command's request, the Air Force was in the process of eliminating unnecessary organizational layering and consolidating duplicative functions. Thus, in April, the Military Air Transport Service received a favorable reply and proceeded with plans to effect the organizational changes by 1 July 1962. On 14 June, Headquarters MATS issued a command-wide announcement. The Military Air Transport Service's two major sub-commands—Eastern and Western Transport Air Forces—were to be redesignated the 7th and 11th Air Forces, respectively. At this same time, the air transport and troop carrier wings, groups, and squadrons under these air forces would become combat airlift designated units. The reorganization would standardize MATS' combat airlift units,

Congressman L. Mendel Rivers, left, in conversation with MATS Commander Lieutenant General William H. Tunner, Suzanne Tunner, and Air Force Chief of Staff General Thomas D. White on the occasion of General Tunner's retirement in May 1960. Rivers remained throughout his political career one of the strongest advocates of military airlift.

enhancing flexibility and responsiveness. It would also inaugurate the "double deputy" system in the combat airlift wings, whereby the wing commanders would have deputy commanders for operations and materiel. However, in light of congressional efforts to redesignate and reorganize the Military Air Transport Service, the Air Force reconsidered its approval and issued a letter of revocation on 28 June.[74]

Congressmen L. Mendel Rivers (D-SC), Melvin Price (D-IL), Durward G. Hall (R-MO), and William G. Bray (R-IN) had introduced bills in June 1962 which attempted to strengthen MATS' single manager charter by proposing greater centralization of airlift forces. The bills also sought to rename the command the Military Airlift Command in recognition of the Defense Department's growing reliance upon airlift to deliver troops and equipment to areas of conflict. In effect, the name change would acknowledge that MATS was a major Air Force command on the same level as the Strategic Air Command and the Tactical Air Command. By January 1963, the Air Force had formulated its position on the proposed legislation. Although Headquarters Air Force supported consolidating strategic airlift assets further, it clearly stipulated the exemption of assault airlift, the airlift mission assigned to the Tactical Air Command. More importantly, the Air Force opposed the redesignation of MATS to include the assumption of specified command status as unnecessary. Undaunted, Representatives Rivers, Price, and Hall reintroduced the measure during the 1963 session and eventually secured its passage in 1965.[75]

As a result of the Air Force's support for consolidating airlift responsibilities, as well as a requirement to reduce personnel overseas,[76] the Military Air Transport Service gained the 322d Air Division in April 1964 from the United States Air Forces in Europe. At this time, MATS discontinued the 1602d Air Transport Wing at Chateaurox Air Station, France, merging the wing's assets with the 322d's at Chateaurox, except for the 317th Troop Carrier Wing, which went to the Tactical Air Command. Responsibilities for theater aeromedical evacuation also transferred to MATS at this time. The consolidation extended EASTAF's area of responsibility from the North Pole to the tip of Africa. Airlift to the region was provided by one MATS C-124 rotational squadron based at Rhein-Main Air Base, Federal Republic of Germany, and by two Tactical Air Command C-130 rotational squadrons at Evreux, France. Through this reorganization the Military Air Transport Service, via its 322d Air Division, became the central air transport planning and execution agent for the United States Air Forces in Europe. In the Pacific, resistance by Pacific Air Forces officials prevented the consolidation of the 315th Air Division with the 1503d Air Transport Wing although MATS did extend its airlift operations in the region.[77] The consolidation of all strategic and tactical airlift resources under a single command awaited fruition in the post-Vietnam setting as the Air Force sorted out the lessons of that conflict.

CONCLUSION

By the early 1960s, several international crises had clearly demonstrated the compelling need for military airlift. These events set in motion the Military Air Transport Service's evolution from an air transport service to a combat airlift force. The great national debate over airlift and the resulting policy statement sorted out, defined, formulated, and promulgated the course military and civilian airlift would follow for the next decades. On the one hand, it brought new aircraft and massive changes to the Military Air Transport Service; on the other, it caused the military and commercial carriers to regard each other as essential for national defense. Having validated the worth of military airlift during the period's various crises, the command could face the trials of the Vietnam period with confidence. The airlift challenges of Vietnam would bring to the forefront the thorny issue of organizational control of strategic and tactical airlift resources.

A CH-43 helicopter crew got a good look at the first C-5 Galaxy to fly into Tan Son Nhut Air Base, Vietnam, August 1971.

CHAPTER V

THE VIETNAM ERA, 1964-1973

The experiences of the Vietnam Conflict, 1964-1973,[1] helped to create the modern Military Airlift Command and continued to shape airlift issues to the present day. When the nation began the military build-up in Southeast Asia in the early 1960s, the Military Air Transport Service was predominately a piston-driven force, saddled with limitations in speed and range. During Vietnam, MATS acquired jet aircraft and gained official acceptance as a combat organization when the Air Force redesignated the command the Military Airlift Command. The new jet transports greatly heightened the command's ability to support strategic deployments. These changes ushered in a new era for military airlift. Although the command still supported the nuclear strike forces of the Strategic Air Command, there was increasing emphasis on deploying, redeploying, and supporting the United States Army's conventional combat forces. The Southeast Asia Conflict further confirmed the necessity of the command's logistical support airlift, aeromedical evacuation, rescue and recovery, weather information, and photographic coverage missions. Even before the Vietnam War, farsighted leaders in and out of the defense establishment already envisioned an airlift organization responsible for all military airlift. Although this vision did not become a reality until the immediate postwar period, the consolidation of all airlift within the Military Airlift Command was almost assured as the Vietnam Conflict ended.

STRATEGIC AIRLIFT IN VIETNAM

Even though airlift played an important role in Vietnam before 1964, this was the year the Military Air Transport Service became heavily involved. The command's primary task throughout the war was to provide intertheater or strategic airlift, the movement

Supporting the Strategic Air Command. MAC crews unload a Minuteman II from a C-141 at Grand Forks Air Force Base, North Dakota.

CHANGING ROLES, MISSIONS, AND NAMES

As early as 1960, L. Mendel Rivers, South Carolina Representative and Chairman of the House Armed Services Committee, suggested renaming the Military Air Transport Service to more accurately reflect the function of the command as it changed from a supportive to an active combat role. In 1961, MATS Commander Lieutenant General Joe W. Kelly suggested unifying all strategic USAF airlift forces within the command and eliminating the differences in numbers of crews per aircraft, numbers of aircraft per unit, and daily hours of utilization of aircraft between troop carrier and air transport airlift. Headquarters USAF at first approved Kelly's suggestion but later decided that the cost and inconvenience of the changes outweighed the advantages.

In June 1962, Congressman Rivers proposed a bill which would redesignate MATS as the Military Airlift Command; establish the Military Airlift Command as a specified command of the Joint Chiefs of Staff; and consolidate all strategic airlift resources within MAC. Rivers' measure and three similar ones that followed all failed to gain Congressional approval. But Rivers and several supporters persisted, and Congress finally passed a bill, in 1965, changing the Military Air Transport Service name to the Military Airlift Command, effective 1 January 1966. The new law, however, did not mention specified command status.

After the 1965 measure passed, Headquarters USAF gave MATS permission to change the name of the command and to rename the subordinate units to better reflect their mission. Units of the Air Force Reserve received the same functional designations as the equivalent active duty units. The basic mission responsibilities of the command remained the same: airlift, weather, rescue, and photographic and charting service for the Department of Defense. Subtle changes in attitude toward airlift were slowly evolving, however.

The August 1964 edition of Air Force Manual (AFM) 1-1, United States Air Force Basic Doctrine, discussed airlift as a distinct Air Force mission for the first time. The manual allowed each major command to produce a supplement that described its specific mission. General Howell M. Estes, Jr., MATS Commander, summed up the command's airlift philosophy in a letter accompanying MATS' draft of AFM 2-21, Airlift Doctrine: "the current mission statement for the Military Air Transport Service directs the maintenance of a military airlift system necessary to perform all airlift tasks." He continued, "MATS activities include operating across the entire spectrum of airlift from airdrop missions to intercontinental logistic support. Its daily tasks go far beyond the strategic and tactical roles." General Estes concluded, "Therefore, I have directed the drafters of this manual to evaluate all aspects of airlift operations in order to project airlift doctrine as an entity."

The draft suggested a consolidation of all airlift: "Permanent organizational fragmentation of this resource in any manner decreases its optimum efficiency and effectiveness." Furthermore, "The organization of airlift forces includes a centrally directed command and control system with decentralized operational command to insure orderly and timely application of airlift resources in all methods of employment." The proposal considered certain elements of airlift to be essential, including: "airlift aircraft with long-range as well as intermediate range capabilities, with the ability to perform airland/airdrop operations in a forward zone, and in restricted landing and take-off areas." The command's proposed Airlift Doctrine manual also described an efficient aerial port function with materials handling equipment capable of operating "as a mobile element even in remote areas."

This dramatic document was too bold for that time. Planners at Headquarters USAF asked MATS to resubmit a draft for AFM 2-21 and to entitle it, Strategic Airlift. The Tactical Air Command worked on a separate manual, AFM 2-4, addressing assault airlift. The new AFM 2-21 focused on MATS' role in intertheater airlift, specifically logistical support, deployment/redeployment, and aeromedical evacuation. Control of tactical and strategic airlift would remain separate for the time being. Even though on 22 September 1964 Headquarters USAF designated MATS the single Air Force agency to exercise control over all airlift force movements in deployment and redeployment operations, other major air commands with airlift capacity still did not completely accept the decision.

After MATS became MAC in 1966, Headquarters USAF asked MAC to draft a new version of the almost ten-year-old command charter, which would outline MAC's relationship to each agency of the Department of Defense. Command leaders used this opportunity to update all aspects of the subject. When Headquarters USAF issued the new mission statement, Air Force Regulation 23-17, the charter stated in part that both the Secretary of the Air Force and the Executive Director (the MAC commander) could deal directly with all Defense Department and other

government agencies on airlift matters. The MAC supplement to the new regulation noted, "MAC is the single Air Force Agency to provide movement control for airlift forces engaged in deployment and redeployment operations." Later that year, MAC also assumed two new functions: the operation of the Single Passenger Reservation System, a worldwide passenger reservation system for all international travel; and aerial port management which controlled the volume and rate of flow into the military airlift system. The 1960s set the stage for the consolidation of all airlift resources within a specified command that followed in the 1970s.

SOURCE: History of the Military Airlift Command, 1 July 1965-30 June 1966 (Scott AFB, IL: Office of MAC History, 1967), pp 5-8, 10, 11, 22-25, 29, 31; C. E. Miller, Airlift Doctrine (Maxwell AFB: Air University Press, 1988), pp 300, 301.

EVOLUTION OF MAC

1941
AIR CORPS FERRYING COMMAND, US ARMY AIR CORPS

1942
FERRYING COMMAND, US ARMY AIR FORCES

1942
AIR TRANSPORT COMMAND, US ARMY AIR FORCES

1947
AIR TRANSPORT COMMAND, US AIR FORCE

1948
AIR TRANSPORT COMMAND + NAVAL AIR TRANSPORT SERVICE elements = MILITARY AIR TRANSPORT SERVICE, US AIR FORCE

1966
MILITARY AIRLIFT COMMAND, US AIR FORCE

REDESIGNATIONS

Military Air Transport Service	*Military Airlift Command*
Air Photographic & Charting Service	*Aerospace Audio-Visual Service*
Air Rescue Service	*Aerospace Rescue and Recovery Service*
Eastern Transport Air Force	*Twenty-First Air Force*
Western Transport Air Force	*Twenty-Second Air Force*
62d Air Transport Wing (Heavy)	*62d Military Airlift Wing*
63d Troop Carrier Wing (Heavy)	*63d Military Airlift Wing*
322d Air Division (Combat Cargo)	*322d Air Division*

INACTIVATIONS	*ACTIVATIONS*
1254th Air Transport Wing	*89th Military Airlift Wing*
1405th Aeromedical Transport Wing	*375th Aeromedical Airlift Wing*
1501st Air Transport Wing	*60th Military Airlift Wing*
1502d Air Transport Wing	*61st Military Airlift Wing*
1602d Air Transport Group	*439th Military Airlift Group*
1607th Air Transport Wing	*436th Military Airlift Wing*
1608th Air Transport Wing	*437th Military Airlift Wing*
1611th Air Transport Wing	*438th Military Airlift Wing*
1707th Air Transport Wing	*443d Military Airlift Wing, Training*

of military assets over intercontinental distances. Transporting personnel and critical supplies halfway around the world by ship had become too slow in the rapid response environment of the nuclear age. United States military officials, therefore, increasingly relied on airlift to support military projections worldwide. Before MAC's participation in the Vietnam War had ended, the size and scope of the strategic airlift to Southeast Asia had grown to historic proportions. Command leaders used all their resources and creativity to meet the ever-expanding airlift requirements.

One of the first problems confronting the MATS staff, as they strove to support the airlift needs of the theater commanders, concerned the age and capability of the airlift fleet. Although command officials had already planned for a new transport to replace the aging C-124, they had to wait until the 1964 build-up of conventional forces in Vietnam necessitated the acquisition of additional capability. At that time, MATS possessed the following squadron strengths: 21 C-124 *Globemaster*, 3 C-133 *Cargomaster*, 7 C-130 *Hercules*, and 3 C-135 *Stratolifter*.

Da Nang Air Base, Vietnam. When the build-up in Southeast Asia began, C-124s comprised the bulk of the airlift fleet.

However, the Military Air Transport Service's new jet-powered C-141 *Starlifter*, with a 4,000 nautical-mile range and the means to airdrop both troops and cargo, had already entered the production phase in 1964 and would serve as the backbone of the airlift force throughout the conflict. The C-141 literally revolutionized intertheater airlift by tripling MATS' capability, the most significant increase in airlift capacity in the history of the Air Force.[2] As the first jet aircraft designed specifically for military airlift,

Unloading an aircraft wing, Tan Son Nhut Air Base, Vietnam. The command relied on the C-133 to carry outsized cargo until the C-5 became operational.

the C-141 boasted a cruising speed of 422-440 knots, heavy cargo load capacity, ocean-spanning range, and a complete aerial delivery system. Interior rails and rollers, that were part of the 463L materials handling system,[3] folded up to leave a smooth floor for loading vehicles and passengers. With the 463L system in place, the C-141A could offload 68,500 pounds of cargo, refuel, and reload a full cargo in less than an hour. Continuous seat tracks allowed loadmasters to quickly convert the aircraft from a cargo to passenger configuration.[4] The C-124, which had previously formed the backbone of MATS' airlift force, required 95 hours to fly 50,000 pounds from Travis Air Force Base, California, to Saigon and back. With a standard mission utilization rate of 6.7 hours per day, a C-124 made the trip in 13 days. In contrast, the *Starlifter* could carry 57,500 pounds of cargo 4,000 miles or 20,000 pounds non-stop from Travis to Southeast Asia at 431 knots.[5]

In 1964, the Military Air Transport Service also submitted a request to Headquarters USAF for a huge, high-speed, cargo carrier to replace the aging C-133 and to reduce the time needed to transport outsized cargo around the world. Revised Army strategy and tactics had changed airlift requirements. When

engineers designed the C-141 in 1961, Army leaders envisioned airlifting small, rapid-reaction paratrooper forces. Three years later, military strategists were planning larger-scale movements of heavy infantry units supplemented by mechanized and armored battalions. A large portion of the heavy equipment these Army units used was classed as "outsized" and would not fit into the *Starlifters*.[6]

With the 463L materials handling system in place, the C-141 could off-load its cargo, refuel, then reload in less than one hour.

Defense Secretary Robert S. McNamara announced on 22 December 1964 the administration's plan to develop the C-5A *Galaxy*. In 1965, President Lyndon B. Johnson told Congress, "We must further improve our ability to concentrate our power rapidly in a threatened area so as to halt aggression early and swiftly." To enable the United States to deploy a fighting force overseas in a matter of days, instead of weeks, the President supported the C-5A, which would "represent a dramatic step forward in the worldwide mobility of our forces and in American leadership in the field of aviation."[7]

Air Force Secretary Harold Brown reaffirmed airlift's contribution to national security when he discussed the C-5A. Brown believed the *Galaxy*, with its ability to deploy quickly a large, fully-equipped force, together with the C-141 and the Civil Reserve Air Fleet would "be a major deterrent to nonnuclear aggression, just as our Strategic Air Command is the major deterrent to nuclear attack."[8] On 17 December 1969, the Military Airlift Command received its first C-5A.[9]

With the Vietnam build-up, the command's leaders confronted the demands placed upon the strategic airlift structure. When the Southeast Asia Conflict commenced, the command's Eastern Transport Air Force—headquartered at McGuire Air Force Base, New Jersey, and with responsibilities for airlift to Europe and Africa—had the greater portion of aircraft and personnel resources due to the Cold War threats facing NATO. In the first half of 1965, as airlift to the Pacific increased, EASTAF aircrews flew many hours in support of Western Transport Air Force's requirements. The cost for temporary duty personnel and moving aircraft from the East to the West Coast prompted Headquarters MATS to shift resources permanently from EASTAF to WESTAF. While these measures eased the pressures, the Military Air Transport Service still lacked the capacity to meet the ever-increasing requests for airlift. The command, therefore, contracted with the Air National Guard Bureau for units to fly scheduled aeromedical evacuation flights in the Atlantic area, thereby freeing EASTAF aircraft for other duties. These Air Force Reserve and Air National Guard units helped to reduce backlogs and improve system productivity by flying as many of the shorter missions as possible.[10]

Besides flying stateside missions, the Reserve and Guard also carried military personnel and cargo to Southeast Asia. Using C-97 *Stratofreighters*, C-119 *Flying Boxcars*, C-121 *Super Constellations*, and C-124 *Globemasters* (limited to 10 tons by the extreme distances between refueling stops across the Pacific), the reserve forces contributed significantly to the war effort. By October 1972, the Air Force Reserve alone had made 1,294 trips into Vietnam, delivering 30,434 tons of cargo and 3,600 passengers. Even more importantly, by flying stateside and other non-Pacific missions the reservists freed MAC's active-duty personnel and aircraft for operations in Southeast Asia.[11]

The command also called upon the commercial airlines to help fill the increasing demand for airlift. Because the President had not declared a national emergency activating the Civil Reserve Air Fleet, MATS instead supplemented its fleet with voluntary contract leasing of commercial aircraft. Since both the United States and the Republic of Vietnam Air Forces had established air superiority over South Vietnam and there was little enemy air activity around major debarkation points, the commercial airlines transported most of the troops between the United

C-5 GALAXY

During the 1960 presidential campaign, John F. Kennedy criticized President Dwight D. Eisenhower's defense strategy of massive retaliation. Kennedy supported flexible response: the ability to tailor a reaction to fit the threat. Flexible response varied from nuclear retaliation to quickly dispatching highly mobile forces, trained in limited or guerrilla warfare, to trouble spots anywhere in the world. As the Army and the Marine Corps developed weaponry and tactics suitable for rapid deployment, their airlift needs soon surpassed the Military Air Transport Service's capability. Although the new C-141 Starlifter had tripled MATS' airlift capacity, it could not carry "outsized" cargo. The command still relied on the old C-133 Cargomasters.

On 9 October 1961, Lieutenant General Joe W. Kelly, MATS Commander, submitted a Qualitative Operation Requirement for the development of a logistics aircraft (heavy) to airlift outsized cargo. Lieutenant General Kelly pointed out that the C-133 was slow, had limited range, and had a projected service life of only four to five more years. He called for developing a huge new airlifter that could carry 100,000 pounds a distance of 4,500 nautical miles at 440 knots without refueling. The MATS Commander acknowledged that only state-of-the-art engineering design and capability could provide these levels of performance.

Changes in the Army's equipment during the next three years gave additional impetus to the Military Air Transport Service's need for a new aircraft to move outsized cargo. And by early 1964, neither the new C-141 nor the C-130E Hercules could carry 35 to 45 percent of the Army's bulky cargo. The gradual retirement of the C-124 Globemaster made the requirement for additional airlift even more pressing. Command studies showed that current and projected capability would fall short of the airlift needed to support flexible response. Lack of airlift directly affected Army and Marine combat effectiveness.

The Air Force Systems Command's Aeronautical Systems Division, with MATS' full participation, oversaw the design of the CX-HLS which became the C-5 Galaxy. The CX-HLS, with four turbofan engines mounted on high-swept wings, would fly at high subsonic speeds and could land at support area airfields. The fuselage design permitted nose-loading of the full cargo area, drive-through loading, and featured low floor-to-ground distance to further ease cargo handling. Aeronautical Systems Division engineers envisioned an aircraft 210 to 240 feet long, with a 215 to 233 foot wing span and a cargo area 17.5 to 19.5 feet wide, 13.5 feet high, and 120 to 135 feet long. These dimensions would make the CX-HLS the largest aircraft in the world. The new airlifter would be able to carry more than 98 percent of the Army's equipment, including the 102,000 pound M-60 tank. The aircraft's high flotation landing gear, with 12 to 16 low pressure tires on each main gear and 4 to 6 on the nose gear, would enable the CX-HLS to land on many existing, unimproved airfields.

Secretary of Defense Robert S. McNamara announced on 22 December 1964 the decision to build the C-5A. He stated that 50 of the giant aircraft combined with the C-141 force would increase MATS' airlift capacity by 600 percent by 1970. In 1965, the Defense Department awarded a contract to General Electric to build the Galaxy's engines and another to Lockheed Georgia to construct the airframe. The C-5A successfully completed its first flight on 30 June 1968, and the first aircraft joined the Military Airlift Command on 17 December 1969. The C-5's maiden flight into Vietnam occurred two years later in July 1970.

The Galaxy became operational near the end of the United States' involvement in the war in Southeast Asia and, therefore, did not play an important role in the resupply of American forces. During President Richard M. Nixon's Vietnamization of the war, however, the C-5 carried the outsized equipment, including howitzers and other large artillery, to strengthen the Army of the Republic of Vietnam and prepare for the replacement of American ground forces. Since Vietnam, the Galaxy has become an integral part of the Military Airlift Command's airlift force, participating in such highly visible missions as the Israeli Airlift, Armenian earthquake relief, historic Intermediate-Range Nuclear Forces Treaty, and DESERT SHIELD.

SPECIFICATIONS C-5A

Length:	*242.8'*
Height:	*63.1'*
Wing Span:	*222.7'*
*Basic Mission Weight:**	*712,000 lbs*
Maximum Useful Load Capacity:	*265,000 lbs*
Engines:	*4 GE TF 39*
Speed:	
Cruise	*440 knots*
Maximum	*470 knots*
Range:	*5,500 nautical miles/ unlimited w/AR*
Crew:	*6*

**Basic Mission: 100,000 pound payload, 5,500 nautical miles.*

SOURCE: Letter, Lieutenant General J. W. Kelly, Military Air Transport Service Commander, to Headquarters USAF, "Qualitative Operational Requirement for Logistic Aircraft Support System," 9 October 1961; History of the Military Air Transport Service, 1 January 1964-30 June 1964 (Scott AFB, IL: Directorate of Information, Historical Services and Research Division, 1965), pp 132, 133; History of the Military Air Transport Service, 1 July 1964-30 June 1965 (Scott AFB, IL: Directorate of Information, Historical Services and Research Division, 1966), pp 169-171; History of Military Airlift Command, 1 July 1969-30 June 1970 (Scott AFB, IL, Office of MAC History, 1971), pp 85, 86; History of Military Airlift Command, 1 July 1971-30 June 1972 (Scott AFB, IL, Office of MAC History, 1973), p 56.

Arrival of the first C-5 at Altus Air Force Base, Oklahoma, 17 December 1969.

Using outdated aircraft, the Air Force Reserve and Air National Guard contributed to the war effort by airlifting cargo and service personnel directly to Vietnam and by filling in for active duty crews on missions within the United States.

States and Southeast Asia while MATS carried the bulk of the airlift cargo. By 1968 commercial airlines were airlifting 91 percent of the passengers and 24 percent of the cargo for the Military Airlift Command.[12]

Commercial airlines also greatly boosted the morale of American forces in Vietnam. The commander of the Military Assistance Command, Vietnam, (MACV) authorized a periodic, out-of-country, five-day leave for personnel serving in South Vietnam. Since airlift was at a premium, MAC contracted with Pan American Airlines to provide most of the flights. As a goodwill gesture, Pan American flew several thousand servicemen for a rest and recuperation (R&R) trip to any one of several countries in the Pacific at a token cost to the government of $1 per month between March and June 1966.[13]

While the command amassed the available airlift forces, it prodded the Lockheed Corporation to speed up the manufacture of the C-141 *Starlifter*. Lockheed accelerated the production program from seven to nine aircraft per month, and the Air Force confirmed the projected "follow-on" buy of 134 aircraft over the original 150. In August 1965, the C-141 flew its first mission into Vietnam. The C-5's maiden flight into Vietnam came nearly five years later in July 1970. Lockheed had designed the *Galaxy* to carry 220,000 pounds of outsized cargo—including the Army's self-propelled howitzers, personnel carriers, and tanks—over 3,000 miles at 440 knots.[14]

Even before these new aircraft entered the inventory, the command worked to enhance the strategic airlift system's efficiency. Since Air Force directives limited troop carrier aircraft to 2.5 hours daily utilization, Headquarters MATS redesignated its 62d Troop Carrier Wing as the 62d Air Transport Wing, thus expanding the approved utilization rate for the wing's aircraft to 5 hours daily. The command circumvented other directives and multiplied airlift capability by simply changing the names of its operational units. Shortly afterward, Secretary of Defense McNamara authorized MATS to increase its aircraft utilization rate from 2.5 to 4 hours daily for troop carriers and from 5 to 8 hours for air transports.[15] Further, by prepositioning flight crews at the en route stations, the command enhanced aircraft utilization rates. Staging crews at Hickam Air Force Base, Hawaii, and Wake Island, for example, decreased ground times from 15 to about 4 hours.[16]

The FAST FLY program also added to the aircraft utilization rate. First, MAC extended the work week from 40 to 48 hours and then upgraded logistical support by expanding the supply system to make aircraft parts available at forward supply points. This improved supply departure reliability rates from 93 percent in 1965 to 98 percent in 1968. In addition, Colonel Benjamin Foreman, Chief of Maintenance for the 60th Military Airlift Wing at Travis, suggested shifting maintenance inspections from an "hours flown" to an "elapsed time" schedule. This new isochronal (ISO) system, with 70-day, 35-day, and 7-day home-station inspections, simplified scheduling and reduced the number of aircraft down for maintenance.[17]

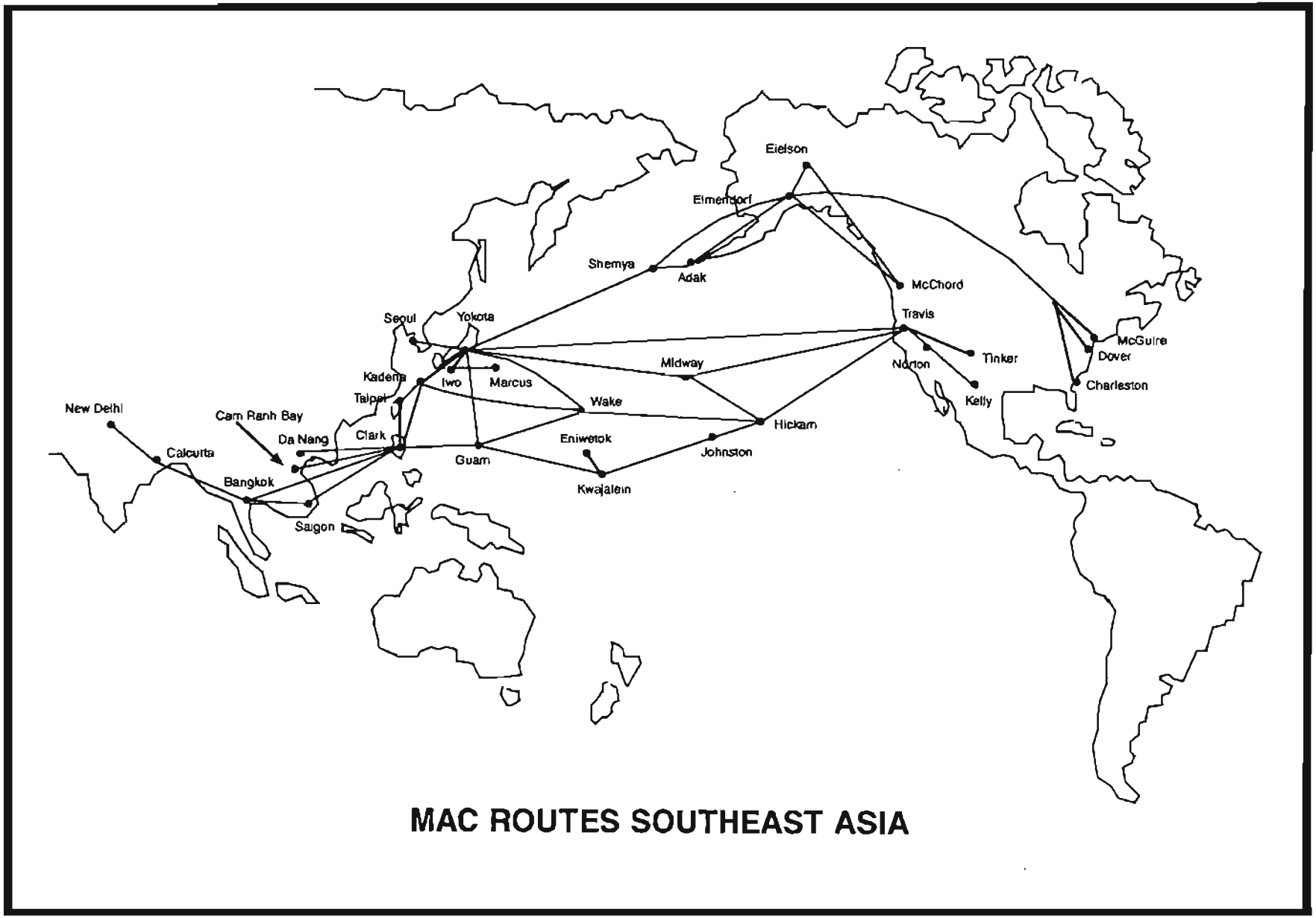
As the Military Airlift Command expanded its airlift capacity—traffic to Southeast Asia grew from a monthly average of 33,779 passengers and 9,123 tons of cargo in 1965 to 65,350 passengers and 42,296 tons of cargo in 1967—the command found the base and route structure inadequate for such heavy traffic. Congestion characterized the entire system. In South Vietnam, for instance, all inbound commercial flights processed through Tan Son Nhut Air Base, outside of Saigon. With the American military build-up, Tan Son Nhut soon had the highest air traffic density in the world. The United States began a huge construction program, renovating existing airfields and building new ones to relieve the congestion and to speed up cargo handling. A new passenger terminal at Yokota Air Base, Japan, and the use of Mactan Air Base, Philippines, also took some

Military personnel bound for the Pacific board a World Airways aircraft at Travis Air Force Base, California. Commercial carriers, contracted by MAC, airlifted the majority of the passengers between the United States and Southeast Asia.

of the pressure off Clark Air Base, Philippines, which had been the only major en route terminal for Southeast Asia.[18]

This additional activity produced backlogs at the aerial ports in the United States as well. In 1965, MATS' worldwide operations centered on several coastal aerial ports of embarkation (APOE), each serving specific destinations. All passengers and cargo destined for Southeast Asia, for example, processed through Travis. The command gradually expanded its cargo routes between the United States and Vietnam from one to twelve, and passenger routes from one to six. In 1965, MATS began using Kelly AFB, Texas, McChord AFB, Washington, and Norton AFB, California, as APOEs for Southeast Asia. The command later added Dover AFB, Delaware, McGuire AFB, New Jersey, and Tinker AFB, Oklahoma, to the list. Eventually the undermanned and overworked en route bases received some relief when

Air base ground defense guards protected the perimeter of Tan Son Nhut.



MAC ROUTES SOUTHEAST ASIA

Headquarters MATS assigned large numbers of personnel to these facilities.[18]

The military air transport service, meanwhile, decreased processing time by mechanizing its APOEs. The 463L materials handling support system, a means of rapid cargo movement through the aerial port system, had its genesis in 1957. The key to the system was a standardized pallet, 88 x 108 inches, which carried up to 10,000 pounds of cargo secured by large nets. The pallets moved along rollers in the floors of the terminals and the aircraft. The 463L system also included special vehicles to ease aircraft loading and unloading. Using an array of mechanical-loading rolling stock, terminal conveyor systems, and plane-interior hardware, the new system reduced aircraft loading times from an average of four and a half hours to 20-30 minutes. Although MATS tested and approved the revolutionary 463L system in 1963, it had to await the C-141's introduction to prove its worth. The command installed automated terminals at Travis in February 1965 and at McChord the following year.[20]

Additionally, by borrowing a page from Brigadier General William H. Tunner's plan for the Berlin Airlift, Headquarters Twenty-Second Air Force, the redesignated EASTAF, developed "Quick" procedures to make the airlift to Southeast Asia more efficient. "Quick Stop" moved an aircraft with no crew change through a station within one hour. "Quick Change" called for the incoming and outgoing crews to have their paperwork completed before the aircraft blocked in. Crews met at the aircraft for their debriefing, and special ground crew methods helped to have the plane airborne again within the hour. "Quick Fix" used judicious cannibalization, waivers, one-time flights, and rerouting to reduce maintenance down times and moved the aircraft back to the home station for inspections and repairs, instead of delaying

When the build-up in Vietnam caused Tan Son Nhut Air Base to become overcrowded, MAC expanded its airlift operations to other bases, including Cam Ranh Bay.

it at some forward base. This concept coincided with Colonel Foreman's idea of maintenance at home rather than at en route stations.[21]

The Joint Chiefs of Staff approved a revised priority system for special assignment airlift missions which gave MATS greater control of cargo handling and airlift capabilities. To move the highest-priority items such as critical parts for combat equipment, MATS revived the "Red Ball Express" idea that Tunner had used so successfully during the Hump Airlift in World War II. The command guaranteed that important equipment and parts would move within 24 hours after they reached the APOE. The Red Ball Express began on 8 December 1965, and by 1 May 1967 aircrews had flown 1,000 of the top-priority missions.[22]

Preparing paperwork for priority cargo destined for Southeast Asia. The command revived the "Red Ball Express" that General Tunner had used to make the Hump Airlift a success in World War II.

The modernized jet fleet, the FAST FLY program, and the increasing demand for airlift convinced General Howell M. Estes, Jr., MATS/MAC Commander from 1964-1969, that "positive command and control of the MAC airlift force is the key to achievement of the higher utilization rates and successful mission accomplishment." To assist that effort, the command deployed airlift control elements (ALCE) to function as central control points. General Estes vowed: "Operational control of the Airlift Command Post system will be a clear-cut line from MAC Command Post to the MAC Air Force Command Post to the area to the base." He placed the whole system directly under the control of individual commanders. All these changes improved MAC's airlift response to theater needs. By 1969, the command could claim that "the current MAC command post system is organized whereby the MAC Air Forces, area, and base command posts, with their separate and distinct functions, form an integral chain of command from Headquarters MAC to the lowest and most distinct echelon of command to exercise command control of the airlift force."[23]

STRATEGIC AIRLIFT OPERATIONS

The growth in ton-miles[24] reflected not only the escalation of the war but also the efforts to modernize the airlift fleet and improve the efficiency of the airlift system. In 1965, the Military Air Transport Service airlifted 700 million ton-miles of men and material to and from Southeast Asia; by 1968, the total had grown to 5.7 billion. In 1968, the command used 76 percent of its airlift capacity, including commercial aircraft designated for the Civil Reserve Air Fleet, in support of Allied forces in Vietnam.[25]

Besides carrying record numbers of personnel and material to Southeast Asia during the conflict, the command supported several special operations with additional airlift. For example, when intelligence information showed that the Viet Cong were massing for a major attack against Allied forces near Pleiku, South Vietnam, American military leaders decided to deploy an infantry brigade to reinforce the area. Between 23 December 1965 and 23 January 1966, MATS/MAC conducted the first combat operational test of the new C-141 when it airlifted 2,952 troops and 4,749 tons of equipment of the 3d Infantry Brigade, 25th Infantry Division, from Hickam Air Force Base, Hawaii, directly to Pleiku. A mixture of 88 C-141s, 126 C-133s, and 11 C-124s completed Operation BLUE LIGHT eight days ahead of schedule. Secretary of Defense McNamara called the operation a "striking demonstration of the Air Force's increased airlift capability as well as the professional skills of the Military Airlift Command." General William Westmoreland, Commander of United States Forces in Vietnam, stated, "This was the most professional airlift I've seen in all my airborne experience."[26] The movement proved the C-141's combat airlift capability and showed MAC's ability to respond quickly.

By November 1967, the Military Airlift Command's strategic airlift system, with the addition by that time of 270 C-141s, could support a movement twice the size of Operation BLUE LIGHT.

C-133s carried the 3d Infantry Brigade's outsize equipment during Operation BLUE LIGHT, December 1965 and January 1966.

In Operation EAGLE THRUST, the command carried 10,356 101st Airborne Division troops and 5,118 tons of equipment directly from Fort Campbell, Kentucky, to Bien Hoa Air Base, South Vietnam. Aircrews delivered the oversized equipment over one route on 22 C-133 missions and the troops and standard equipment over two other routes on 369 C-141 missions. Using engine-running, offload procedures that had been developed during BLUE LIGHT, MAC loadmasters and ground crews reduced the average C-141 offload time at Bien Hoa to 7.4 minutes. This short ground time prevented ramp saturation and minimized exposure to hostile fire.[27] It further enabled MAC to achieve one of its highest "throughput"[28] ratios ever.

Soon after completing EAGLE THRUST, MAC demonstrated its airlift capability again with Operation COMBAT FOX. In January 1968, Communist forces launched the massive Tet Offensive with simultaneous attacks on cities and bases throughout South Vietnam, overrunning several sites including the ancient city of Hue. During the height of this struggle, North Koreans seized the USS *Pueblo* patrolling in international waters off the coast of North Korea. The United States reacted by rushing reinforcements to both Vietnam and South Korea. During Operation COMBAT FOX, MAC C-124, C-130, C-133, and C-141 aircraft flew more than 800 missions to Korea from the United States, Southeast Asia, and Japan in support of tactical air forces. The command formed airlift control centers at Osan, Kimpo, Pusan, and Suwon, Korea, and at Misawa, Japan, and, with the help of five recently-activated Air Force Reserve airlift units, carried 7,996 troops and 13,683 tons of cargo to these bases between 29 January and 17 February 1968. The Military Airlift Command completed COMBAT FOX ahead of schedule, even though the operation was more than twice the size of EAGLE THRUST. At the same time, the command was rapidly expanding routine logistics airlift into Vietnam to help Allied forces repel the Tet Offensive.[29]

The North Vietnamese Easter Offensive into South Vietnam in April 1972 gave the Military Airlift Command an opportunity to underscore the flexibility of its global airlift system. The command supported a series of Tactical Air Command deployments known as CONSTANT GUARD I through IV. CONSTANT GUARD III was the largest single move in the history of TAC. Four F-4 squadrons from Holloman Air Force Base, New Mexico, deployed to Takhli Air Base, Thailand. Military Airlift Command C-5s, C-141s, and MAC contract carriers airlifted 3,195 personnel and

Operation EAGLE THRUST. 101st Airborne Division troops exit a C-141 at Bien Hoa Air Base, Vietnam, after a direct flight from Fort Campbell, Kentucky.

1,600 tons of cargo in nine days to assist CONSTANT GUARD III.

Not long thereafter, the C-5 gained its first experience in a combat environment. On 3 May 1972, the Military Assistance Command, Vietnam, requested an emergency airlift of six 49-ton, M-48 tanks from Yokota Air Base, Japan, to Da Nang Air Base, South Vietnam. The *Galaxy* was the obvious choice for the mission. Ground crews and loadmasters worked to minimize ground time and exposure to hostile fire. As the C-5s touched down, loadmasters removed all but one of the tie-down chains. When the cargo doors opened, the tank drivers started their engines, immediately exited the aircraft, and headed directly toward the battle area. The crews unloaded the tanks in less than seven minutes, and the C-5s took off again within 30 minutes. The giant *Galaxy* carried outsized cargo into Vietnam for the duration of American involvement there.[30]

TACTICAL AIRLIFT IN SOUTHEAST ASIA

The Military Airlift Command's primary responsibility during the Vietnam War was the strategic delivery of personnel and cargo, but the command also flew some intratheater missions. The war severely strained the Pacific Air Forces' ability to operate an intratheater airlift system while also meeting tactical airlift requirements in South Vietnam. Headquarters United States Air Force decided, therefore, that MAC should assume a greater portion of the intratheater airlift workload. The command's "tactical" cargo flights varied from delivering ammunition between Kadena Air Base, Okinawa, and Da Nang Air Base, South Vietnam, to moving troops and equipment within Vietnam. Indicative of the scope of MAC's tactical operations, the command used its strategic airlift fleet to transport 141,113 tons of cargo and 347,027 passengers within the Southeast Asian theater in 1967.[31]

Although the Pacific Air Forces' tactical airlifters flew the bulk of the intratheater missions in Southeast Asia, it is appropriate to include an account of this activity since the tactical airlift mission was consolidated into MAC in 1974-1975. Tactical airlift had proved its worth in World War II, especially in Western Europe and in Burma when hundreds of C-46 and C-47 aircraft supported Allied ground operations. During the Korean War, tactical airlift was again an invaluable asset for the United Nations' forces. Following that conflict, military planners called upon airlift to support short-notice transoceanic deployments of United States-based tactical air forces. Later, when President John F. Kennedy emphasized a more flexible defense program, the Air Force focused on airmobile tactics in ground warfare and airlift assistance for Army ground forces.[32]

The first United States Air Force tactical transports, four C-47s, arrived in Vietnam on 16 November 1961 as part of the Farm Gate detachment, combat crew training.[33] The Gooney Birds executed several missions, including support flights for Farm Gate, airdrops of Vietnamese paratroopers, and night flareship operations. Throughout the conflict, the airlifters' most important and difficult missions involved resupplying United States Army Special Forces at remote sites throughout South Vietnam. Often fire-suppressing Farm Gate or Vietnamese Air Force (VNAF) strike aircraft escorted the C-47s as they airdropped supplies to the Green Berets.[34]

The Vietnamese Air Force used C-47s too. A shortage of Vietnamese pilots in early 1962 caused the Air Force to assign American pilots to the two VNAF airlift squadrons. As a result, 30 American officers arrived to serve as copilots on otherwise all-Vietnamese C-47 crews in April 1962. This was followed by a second contingent of American pilots who replaced the original "Dirty Thirty" in the spring of 1963 and stayed until later that year when Vietnam began using its own copilots.[35]

The small Farm Gate detachment and the VNAF airlift squadrons, however, were insufficient to handle the growing requirements for airmobility within the Southeast Asian theater. When Air Force Chief of Staff General Curtis E. LeMay visited Vietnam in April 1962, he concluded that the lack of aerial port facilities and poor command, control, and communications prevented the operation of an effective airlift system. By the end of 1962, two C-123 *Provider* units—the 315th Troop Carrier Group (Combat Cargo) and the 8th Aerial Port Squadron—were in place. Planners stationed a third *Provider* squadron at Da Nang Air Base in April 1963 and a fourth at Tan Son Nhut Air Base in October 1964. The C-123's ability to land on short, rough fields proved invaluable, and the four units served in Vietnam until 1970.[36]

The C-130 *Hercules* flew the bulk of the tactical airlift missions during the Vietnam War, with the C-7 *Caribous* and C-123 *Providers* contributing substantially. When President Lyndon B. Johnson ordered American ground units into South Vietnam, C-130s airlifted the initial Marine battalion from Okinawa to Da Nang between 8 and 12 March 1965. Two months later, these same *Hercules* carried the first regular Army troops, the 173d Airborne Brigade, from Okinawa to South Vietnam.[37]

By the end of 1965, the 315th Air Division had 32 C-130s stationed at Tan Son Nhut, Vung Tau, Nha Trang, and Cam Ranh Bay Air Bases; limited ramp space and inadequate aerial ports curtailed further expansion. The *Hercules*, unlike the *Caribou* or the *Provider*, had a high-load capacity, on-board navigational radar, and a 24-hour-a-day capability. At first, the 315th restricted the C-130s to airfields of more than 3,500 feet, with the C-123 carrying cargo

to the marginal forward strips. The Tactical Air Command and Headquarters USAF, however, pressured the air division to exploit the C-130s' proven assault capabilities. The 315th relented in 1965 and directed that C-130s would operate into all airfields within the aircraft's performance characteristics. Ray L. Bowers, in a study on tactical airlift in Southeast Asia, stated: "The decision to use the C-130 for short field work, coupled with efforts to improve selected forward strips to meet the minimum Hercules landing-takeoff capability, paved the way for the application of this aircraft to battles of the future." The expanded role of the C-130 fit with General William Westmoreland's offensive and mobile tactics against the Communists in South Vietnam.[38]

Loading heavy equipment aboard a C-130 at Bien Hoa Air Base for an airdrop mission to forces in the field, 1966.

In addition, the C-7A *Caribous* assigned to the 834th Air Division had been flying tactical airlift missions in Vietnam since 1962. The Army had purchased these reciprocating twin-engine transports to support its airmobile forces. In April 1966, the Army and Air Force Chiefs of Staff agreed to transfer the *Caribous* to the Air Force. Later that year, airmen trained with, then gradually replaced, the Army personnel in the six C-7 companies. On 1 January 1967, these units officially became Air Force squadrons assigned to the 483d Tactical Airlift Wing at Cam Ranh Bay Air Base. The *Caribous* continued to operate under Army scheduling although such dedicated user procedure conflicted with the Air Force's doctrine of centralized control.[39]

Back in October 1966, the new 834th Air Division at Tan Son Nhut, with Brigadier General William G. Moore as Commander, absorbed the airlift control center and assumed ownership of the C-7s from the United States Army, as well as the C-123 wing and an aerial port group. The division also exercised operational control over the C-130s that had arrived in Vietnam the previous year. The *Hercules*, equipped with four turbo-prop engines and three times the payload capacity of the *Provider*, dominated intratheater airlift operations in Vietnam after early 1965.[40]

The creation of the new division paralleled the reorganization of the Southeast Asian aerial port structure, a revision forced by the growth in tonnage. Between early 1965 and mid-1966, the cargo passing through the system grew from 30,000 to 140,000 tons per month. Such expansion nearly overwhelmed the system, even though the number of processing detachments more than quadrupled, increasing from eight to thirty-five. Unreliable handling equipment, shortages in personnel, and limited experience levels hampered performance. A year later, in mid-1967, the number of aerial port detachments and operating locations leveled off at forty. In March 1968, cargo tonnage peaked at 209,000, and then it too leveled off at about 180,000 tons per month.[41]

The division's airlift control center managed the tactical airlift force in the theater. Emergency requests from the Military Assistance Command, Vietnam's combat operations center, unit move and special mission requests from the traffic management agency, and reports from aerial ports all filtered into the airlift control center. The center's staff scheduled missions, wrote movement orders, monitored airlift status, and coordinated emergency requests.[42] According to one historian, "In short, the 834th AD operated the tactical airlift resource."[43]

After 1968, President Richard M. Nixon's strategy of "Vietnamization" of the war coupled with American troop withdrawal led to a decrease in tactical airlift activity. When Headquarters MACV closed in March 1973, the parent of intratheater airlift in Vietnam, the Seventh Air Force, moved to Nakhon Phanom Air Base, Thailand. The airlift control center also merged with the control center at U-Tapao Air Base, Thailand, to control and schedule all C-130s in Southeast Asia.

TACTICAL AIRLIFT OPERATIONS

As the United States Army forces in Vietnam increased in 1965, the demand for tactical airlift within the country grew substantially. Search and destroy operations were basic to Allied strategy. The fixed-wing transports, which lifted multi-battalion task forces to forward positions and then kept them supplied, were pivotal in these ventures. Airlift avoided enemy highway ambushes and allowed the Allies to operate more efficiently in this "war without fronts." When General Westmoreland launched Operation NEW LIFE 65 by dispatching the 173d

Troops of the 173d Airborne Brigade boarding C-130 aircraft at Bien Hoa for deployment into combat areas, 1967.

Airborne Brigade from Bien Hoa to Pleiku in August 1965, 150 C-130 missions carried the soldiers to their destination. That November, the 173d made a helicopter assault on a dirt airstrip 40 miles east of Bien Hoa. Within an hour, the first *Hercules* landed with troops and cargo, followed by another 70 C-130 sorties within the next 36 hours. The *Hercules* continued to airlift supplies and reinforcements successfully throughout Operation NEW LIFE 65.[44]

In the fall of 1965, a large North Vietnamese Army force attacked Plei Me camp, near Pleiku. General Westmoreland committed the 1st Calvary Division to the defense of Plei Me. The 1st Cav's assault helicopters quickly consumed almost all of their fuel supply. Although Army *Chinook* helicopters and *Caribous* tried to maintain an adequate fuel reserve in the camp, these aircraft lacked capacity to satisfy the demand. On the morning of 29 October, C-130s began a steady flow of fuel, ammunition, and other supplies to the airfield at Pleiku, where Army helicopters waited to distribute the supplies to the battle area. After a few days, the *Hercules* began landing near the Catecka Tea Plantation, where the Army helicopters refueled. During the next 29 days, C-130s averaged 186 tons of fuel and cargo daily for the 1st Cavalry Division. This operation showed that future airmobile activities would require substantial logistical airlift support by the Air Force.[45]

Operation JUNCTION CITY, an Army airmobile assault in early 1967, further tested the *Hercules'* airborne support capability. JUNCTION CITY featured the war's only battalion-sized parachute jump. On the morning of 22 February, 13 C-130s carried the 173d Airborne Brigade's troops over the drop zone at Katum near the Cambodian border. Ten more C-130s dropped the brigade's equipment within 30 minutes; however, some of the gear landed in a nearby swamp. Bad weather hampered drop accuracy on the second day, but performance improved. By the end of the operation in late March, the C-130s were making accurate airdrops. In all, the *Hercules* crews delivered over 1,700 tons of supplies to the 173d Airborne Brigade's forces, easing the workload of the Army's resupply helicopters and providing the C-130 crews with invaluable experience.[46]

THE KHE SANH AIRLIFT

In mid-December 1967, North Vietnamese units began encircling two Marine Infantry battalions and an artillery battalion at Khe Sanh, South Vietnam, near the Demilitarized Zone. By January 1968, some

15,000 Communist troops had cut off all ground supply. Khe Sanh would have to rely on an air bridge to survive. Air Force C-130s airlanded another infantry battalion to reinforce the base, bringing the total number of defenders to 6,000. The Marines had enough food, fuel, and ammunition to last 30 days, and 15 *Hercules* missions daily sustained that level.[47]

Although the Americans controlled the air over Khe Sanh and Da Nang Air Base was only 30 minutes away for the C-130s, the location of the base and difficult weather hampered the airlift. Khe Sanh sat in a valley, and enemy forces controlled the surrounding hills. From secure perches, North Vietnamese soldiers kept up a deadly crossfire that prevented the C-130s from landing at Khe Sanh and severely limited C-123 operations. Even though the weather hindered Air Force fire suppression efforts, the clouds did screen the transports from enemy gunners. By using ground radar to guide the C-130s, the crews overcame a chronic problem in dropping supplies during poor visibility on the Khe Sanh runway.[48]

When a deadly crossfire prevented C-130s from airlanding at Khe Sanh, tactical aircrews airdropped vital supplies to the besieged American forces.

The North Vietnamese, stepping up their mortar, rocket, and artillery attacks on the base, destroyed Khe Sanh's main ammunition dump on 21 January 1968. When the Marines asked for tactical emergency aerial resupply, C-123s answered immediately; C-130s resumed their flights two days later. For the next eight days, the C-123s and C-130s delivered a daily average of 250 tons to the besieged Americans. In an attempt to halt the airlift, the Communists directed their fire toward the transports as mortar and artillery shells tore holes in the air strip. Incoming aircrews countered by staying in the clouds until the last minute, then flying a steep, tight approach pattern. Waiting ground crews quickly unloaded the aircraft to minimize the time on the ground.[49]

The poor weather and intense ground fire prompted a switch in tactics. Planners reduced C-130 landings and increased C-123 flights. Beginning on 13 February, the *Hercules* used the container delivery system (CDS) to drop ammunition, food, and construction materials. The C-130 crews also delivered supplies with the low-altitude parachute extraction system (LAPES); however, a shortage of LAPES rigging caused them to change to the ground proximity extraction system (GPES). During March, the Air Force delivered 5,100 tons of supplies; much of the total came from 52 LAPES and 15 GPES missions.[50]

Between the end of January and early April 1968, tactical airlifters delivered 12,430 tons of cargo in 1,128 sorties to the defenders of Khe Sanh. Enemy fire destroyed three C-123s and damaged at least 18 C-130s and eight C-123s. By March, the weather in the area began to improve, allowing strike aircraft to attack the North Vietnamese surrounding Khe Sanh. The air bridge enabled the base defenders to withstand the assault. According to one historian: "Airlift made possible the allied victory. . . . The defenders of this post were exclusively resupplied by air and withstood the attacks of four North Vietnamese regiments."[51]

TACTICAL AIRLIFT AND THE TET OFFENSIVE

To make the Khe Sanh resupply even more noteworthy, it occurred during the Tet Offensive, a major Communist operation throughout Southeast Asia, which began on 30 January 1968. Coordinated enemy forces struck at hundreds of locations simultaneously. The massive attack severed roads throughout South Vietnam, leaving airlift as the only logical means for supporting beleaguered Allied forces. The entire airlift system responded as emergency requirements overshadowed routine requests. Brigadier General Burl W. McLaughlin, Commander of the 834th Air Division, which directed tactical airlift operations in Vietnam, had already received authority to reschedule MAC C-133s and C-141s making deliveries into South Vietnam for second in-country stops. The lack of sufficient theater assets forced Brigadier General McLaughlin to press some MAC aircraft into intratheater airlift service to assist the overextended tactical force.[52]

During the night of 2 February, two C-123s airdropped five tons of supplies to Kontum where American troops were under attack. That same day, C-130s flew 17 sorties evacuating 500 101st Division troops and over 100 tons of equipment from Song Be to Tan Son Nhut Air Base. Other *Providers* and *Hercules* carried 30,000 tons of cargo over a 15-day period to the isolated Mekong Delta region. By 4 February, the tactical airlift system was carrying only

C-130s used the low-altitude parachute extraction system to deliver critical supplies to the Marines defending Khe Sanh.

priority cargo, and, even then, the system did not have enough aircraft to meet the demand. The *Pueblo* crisis in January 1968 had already drawn off out-of-country C-130s, so there were few reserve aircraft available to support the Tet Offensive surge. By the end of February, however, the *Hercules* fleet in Vietnam had grown to 96. By adding additional aerial port equipment and personnel to support the increased air fleet, the airlift system helped the ground forces repel the massive Communist attack. The airlift reaction to the Tet offensive proved the system's responsiveness and flexibility. In-country airlift averaged 3,740 tons per day in January, 3,880 in February, and 4,470 in March 1968. General Westmoreland commented: "The classical role of tactical airlift has been admirably performed in the truest sense."[53]

KHAM DUC AND TACTICAL AIRLIFT

A few months later, on 12 May 1968, the Communists repeated their Khe Sanh tactic when they surrounded the United States Special Forces camp at Kham Duc, ten miles from the Laotian border. General Westmoreland decided that the camp was indefensible and directed that C-130s and C-123s begin an evacuation. Intense enemy ground fire hit the first *Hercules*, causing it to take off with fuel streaming from holes in the fuselage. When three more C-130s arrived, the enemy damaged one so badly it was abandoned and destroyed another on takeoff, killing the crew and all 100 passengers on board. Only the third *Hercules* successfully evacuated its planeload of soldiers. Later that day, three other C-130s brought out the last of the garrison.[54]

During the evacuation, a three-man combat control team was inadvertently left behind. After one heroic attempt to rescue the team failed, Lieutenant Colonel Joe Jackson managed to land his C-123, pick up the team, and take off again. For this act, he received the only Medal of Honor awarded to an airlift pilot in Southeast Asia. His copilot, Major Jessie Campbell, received the Air Force Cross, and the rest

A special forces team directing the loading of a damaged truck aboard a C-130. The Hercules had just delivered a replacement vehicle.

of the crew Silver Stars. During the evacuation, enemy fire destroyed four helicopters and two C-130s, but the rescuers saved over 500 people.[55]

Intratheater airlift continued responding to the increased demand during the Communists' spring offensive in 1968. Military Airlift Command C-141s carried some of the troops and cargo between Tan Son Nhut and Da Nang, Bien Hoa, and Pleiku. These larger aircraft accounted for 25 percent of the airlift during this period. This relief allowed the tactically-oriented C-130s to concentrate on airdrops and forward deliveries. By June, the Allies had halted the Communist drive, and the airlift force resumed the earlier draw-down schedule. After the American withdrawal from South Vietnam, the tactical airlift force continued to support Cambodia until the fall of Phnom Penh in April 1975.

Between 1962 and 1973, Military Airlift Command and Tactical Air Command transports delivered more than 7 million tons—passengers and cargo—within the theater area. By comparison, Allied aircraft carried about 2 million tons during the Berlin Airlift and .75 million tons during the Korean War. As in World War II and the Korean Conflict, tactical airlifters again proved in Vietnam that they could deliver the goods. Their success cost dearly: 53 C-130s, 53 C-123s, and 20 C-7s were lost, with 269 crewmembers either killed or missing-in-action.[56]

AIR RESCUE IN VIETNAM

The Air Rescue Service, assigned to the Air Transport Command in 1946, had rescue forces in Southeast Asia throughout the conflict. The first USAF air rescue team in Vietnam, consisting of three officers and three airmen, arrived at Tan Son Nhut Air Base on 10 January 1962. This temporary duty team's mission was to organize a search and rescue control center and establish a network throughout the country. This small group, which in April became

Detachment 3, Pacific Air Rescue Center, had no aircraft or commander until early July. The detachment relied on Army advisors to provide helicopters for air rescue attempts. The Air Rescue Center lacked not only aircraft but other basic equipment as well. Initially, the center dispatched a messenger on a bicycle when it needed assistance from the operational units. This method, however, was faster than the Vietnamese telephone system.[57]

Obviously, the newly established Air Rescue Center needed specialized aircraft and equipment to operate effectively in Vietnam's jungles and mountains. The only rescue helicopter in the Air Force's inventory in the early 1960s was the short-range (220 miles) HH-43 *Husky*, but it was inadequate for conditions in Southeast Asia. The HH-43 lacked the range to reach many of the airmen downed in North Vietnam and parts of Laos.

A HH-43 rescue team practicing combat rescue techniques.

To overcome these inadequacies, the Air Rescue Service dispersed its squadrons and detachments over a large area. But, the limited range of the *Husky* still prevented the rescue of some downed airmen. Rescue crews also stockpiled fuel in jungle clearings. There, many miles closer to the scene of hostile actions, they could await the calls for help. Extra fuel tanks were even installed on the HH-43s to gain a little more operating time. And storing drums of fuel on mountain tops between Allied bases and North Vietnam allowed rescue crews to "leapfrog" from one fuel storage site to the next, greatly improving their ability to save those shot down over North Vietnam.[58]

In October 1964, Detachment 4 of the Pacific Air Rescue Center arrived at Bien Hoa Air Base and joined Detachment 3 in providing rescue service in Vietnam. Detachment 4 had three specially-modified HH-43Fs with heavy armor plating to protect the crewmembers and a 250-foot cable to improve rescue attempts in the heavy rain forests. By January 1965, five Air Force rescue detachments were operating in Southeast Asia, and in January 1966, the Air Force activated the 3d Aerospace Rescue and Recovery Group at Tan Son Nhut to serve as the primary rescue agency. The group directed the activities of four squadrons and fourteen detachments in Vietnam and Thailand.[59]

As tactical operations accelerated in Vietnam, the pararescue forces could not keep up with the demand for help with the HH-43s. Relief was in sight, however, when the CH-3 made its first test flight in June 1963. The new helicopter, a single-rotor amphibian, had a forward speed of 140 miles per hour, a range of 500 miles, and an endurance of 4 1/2 hours. The performance of the CH-3 so impressed Brigadier General Adriel N. Williams, Air Rescue Service Commander, that he convinced Headquarters USAF to procure the new helicopters for the entire service.[60]

To overcome rescue aircraft limitations, the Tactical Air Command lent the Air Rescue Service two CH-3s in July 1965. In November 1965, the air rescue units in Vietnam received their first six HH-3Es. This updated version of the CH-3 had about the same speed (140 miles per hour) and ceiling (10,000 feet) as the earlier version, but auxiliary fuel tanks increased the HH-3E's range to 650 nautical miles (compared to the 220 mile range of the HH-43). From Udorn Air Base, Thailand, or Da Nang Air Base, Vietnam, the HH-3E could reach any point in North Vietnam and return to its home base. Crewmen quickly dubbed the HH-3 the "Jolly Green Giant."[61]

While the new helicopter helped pararescue crews keep up with the increased tempo of the air war in Southeast Asia, the addition of several other new aircraft aided rescue efforts as well. In 1966, the HC-130 *Hercules* replaced the C-54s and HU-16s as the airborne command post. The HC-130 could fly great distances, locate downed airmen with its electronic gear, and circle in the area for extended periods. In 1967, the HC-130P completed the first operational mid-air refueling of an HH-3E helicopter. With the help of two mid-air refuelings, the Jolly Green

THE HH-3E "JOLLY GREEN GIANT"

With the arrival of two borrowed CH-3Cs at Nakhon Phanom Royal Thai Air Force Base in Thailand on 6 July 1965, search and rescue in Southeast Asia came of age. At last, the Air Rescue Service had an aircraft suitable for its mission. Although a converted Tactical Air Command cargo helicopter, the CH-3C was a great improvement over the short-range, vulnerable HH-43F Husky. Affectionately called the "Jolly Green Giant," because of its size and green and brown coloring, the CH-3C flew combat rescue missions until January 1966. On 3 November 1965, a C-133 arrived at Udorn Air Base, Thailand, carrying the first two HH-3Es, the true Jolly Green Giants, which would take over from the CH-3Cs as the combat rescue workhorse until the end of the war.

The Sikorsky HH-3E, with two 1,250hp turbine engines, cruised at 160mph at 7,000 feet and climbed to 12,000 feet. It flew at 100mph at 10,000 feet beyond the reach of small arms and the smaller antiaircraft guns. Engineers also protected the cockpit and other vulnerable areas of the aircraft with 1,000 pounds of half-inch titanium armor plating. The new rescue helicopter featured a shatter-proof acrylic canopy, an engine ice and foreign object damage shield, and a 600-pound capacity, 240-foot hoist cable with a jungle penetrator. The Jolly Green carried 650 gallons of fuel in its enlarged tank and two jettisonable 200-gallon external tanks.

Engineers were already creating an aerial refueling capability to extend the aircraft's range. The Aeronautical Systems Division completed testing in May 1966, and on 14 December 1966 an HC-130P successfully transferred fuel to a Jolly Green Giant in midair. To demonstrate the aircraft's range, Air Force crews flew two HH-3Es across the Atlantic Ocean to the 1967 Paris Air Show. The Jolly Green Giant not only became the first helicopter to cross the Atlantic, it also set records for distance (4,157 miles), endurance and speed. That same month, June 1967, the first air-

Mid-air refueling for an HH-3E from an HC-130P aircraft. This combination gave the Aerospace Rescue and Recovery Service an effective rescue capability.

SPECIFICATIONS

Normal Gross Weight:	*19,500 lbs*
with crew and ammo	
Useful Load Capacity:	*8,050 lbs*
Engine:	*T-58-GE-5*
Horsepower:	*1,500*
Speed:	
Cruise	*120 knots*
Maximum	*143 knots*
Altitude:	*12,000'*
Range:	*400 nautical miles*
Crew:	*4*
Armament:	*(2) .30 cal. machine guns*

refuelable helicopters joined the rescue forces in Southeast Asia.

By extending the range and increasing orbiting time, inflight refueling decreased the time rescue forces needed to reach airmen downed in North Vietnam and Laos. Typically, on mission days, the Jolly Greens topped off their fuel tanks just before reaching their assigned orbit area. The HC-130P Crown airborne rescue command post flew in the same pattern and refueled the HH-3Es when needed. They normally began their orbit at least thirty minutes before Allied aircraft started their attack and remained on the scene until the attackers completed the mission or until called upon to recover a downed flyer. If the rescue environment forced the HH-3Es to hover at higher altitudes or above mountains, the helicopters often had to dump fuel. Before aerial refueling became possible, the helicopters could not do this without depleting their fuel supply to the point where they could not return to base. After June 1967, the Jolly Green Giants could dump fuel whenever rescue conditions called for peak aircraft performance and then replenish their supply from an airborne HC-130P. With these two aircraft working in tandem, combat rescue reached new levels of proficiency in Southeast Asia.

Although the Jolly Green Giant greatly improved the search and rescue capability, the aircraft had limitations. While its armor could protect against small arms fire, it was susceptible to the increasingly intense antiaircraft fire. Its engines were too small to allow the aircraft to hover at tree-top level on some of the higher mountains. The HH-3E also lacked the necessary firepower to protect itself at lower altitudes. On 28 November 1966, therefore, the first "Super Jolly Green Giant" entered the Air Force inventory when the 48th Aerospace Rescue and Recovery Squadron at Eglin Air Force Base, Florida, accepted the new Sikorsky CH-53A. The HH-53B, with all the avionics of the HH-3E plus more lift and more firepower, supplanted the Jolly Green as the premier combat rescue helicopter. Nevertheless, between 1966 and 1970, the HH-3E completed 496 of the 980 aircrew rescues in Southeast Asia, establishing a record the newer aircraft never had an opportunity to equal.

SOURCE: Earl H. Tilford, Jr., Search and Rescue in Southeast Asia, 1961-1975 (Washington, DC: Office of Air Force History, 1980), pp 51, 69, 70, 85, 86, 89.

Giant completed an eight-hour mission showing its increased range and loitering capability. The HC-130 and the HH-3E made an effective air rescue team.[62]

In an effort to find an even better rescue aircraft, the Air Force contracted to develop the HH-53. In 1967, the "Super Jolly Green Giant" joined the HH-3E flying rescue missions in Southeast Asia. The HH-53 carried 38 passengers, or 24 litter patients and four attendants. It could transport seven short-tons of cargo 258 miles at 195 miles per hour, without using auxiliary tanks. As the fastest, largest, and most powerful helicopter in the Air Force's inventory, it also had an aerial refueling capability, automatic flight control, and an engine deicing system for all-weather flying.[63] The HH-3E and the HH-53 gave the Air Rescue Service excellent rescue capabilities.

After the build-up of American forces in Vietnam in 1965, rescue teams developed a complex search and rescue task force for recovery missions. The task force flew a rescue formation with two helicopters, one flying high and the other low. The lower aircraft made the actual recovery while the higher one stood by to help if needed. In addition, Air Force fighters flew cover to ward off possible enemy attackers. In August 1965, the A-1E *Sandy*, a slow, durable propeller-driven aircraft with considerable firepower and long staying time over target, began to fly rescue escort.

A rescue team's probability of saving a downed airman decreased as his time on the ground increased. Odds of a successful recovery were very high if the helicopter arrived on the scene within 15 minutes. After 30 minutes, the odds declined sharply. If darkness or inclement weather delayed the rescue attempt, the enemy often moved in, captured the airman, and set a trap for the rescuers.

During the early days of the war, a rescue team had a little more time to recover aircrews. Major Robert Wilson's experience on 23 June 1965 was typical for that period. While on a mission over southwestern North Vietnam, Wilson's F-105 was damaged by ground fire and began losing altitude. Wilson ejected and, after reaching the ground, contacted the airborne rescue command post on his survival radio. The command post relayed the information to Air Force A-1Es which soon pinpointed his exact location. The *Sandys* then orbited a few miles away, so as not to reveal Wilson's location to enemy troops, until an HH-43 arrived from a forward operating base in Laos. Even though it took the *Husky* ninety minutes to reach Wilson, the rescue team spotted his flare, lowered the penetrator through the jungle foliage, and then hauled him up to the aircraft. A few hours later, he was buying drinks for the helicopter pilots at the Nakhon Phanom officer's club in Thailand.[64]

The heroism of the pararescuemen during the Vietnam Conflict was legendary. These men won more decorations than any other Air Force group serving in Southeast Asia. Certainly, Airman First Class William H. Pitsenbarger epitomized the Air Rescue Service motto: "That others may live." On 11 April 1966, three HH-43s went to assist a group of United States Army soldiers surrounded by Viet Cong. Enemy fire struck Pitsenbarger as he descended on the hoist. Once on the ground, he tended the wounded and helped to load them on to the helicopter. When the HH-43 reached its capacity, Pitsenbarger elected to stay with the remaining wounded soldiers, even though he knew that another helicopter would not be able to fly into the area until the following morning. The next morning, rescuemen recovered the bodies of Pitsenbarger and the remaining soldiers. He had given his life in an effort to save the lives of nine others. William H. Pitsenbarger was the first enlisted man to receive the Air Force Cross.[65]

There is no question about the value of the Air Rescue Service (redesignated Aerospace Rescue and Recovery Service in 1966) in Vietnam. With helicopters adapted for combat rescue and techniques based on combat experience, these dedicated men helped save 3,883 lives in Southeast Asia between 1964 and August 1973, including 1,201 Air Force crewmembers. Besides reducing the need for replacement aircrews, the rescuemen's heroic efforts reassured crewmembers and improved their morale. In post-recovery interviews, pilots often stated that the assurance that pararescuemen would come was critical to their combat attitude. The rescue mission exacted a high cost: 71 rescuemen gave their lives between 1964 and 1973.[66]

THE AIR WEATHER SERVICE IN SOUTHEAST ASIA

The first cadre of 23 Air Weather Service personnel arrived in Vietnam between 27 and 29 December 1961.[67] In the early 1960s, the 30th Weather Squadron provided meteorological data to the United States Military Assistance Command, Vietnam; Military Assistance Command, Thailand; United States Army, Vietnam; 7th Air Force; and 9th Logistics Command. The rapid build-up of American forces in Vietnam after 1965 included a growing requirement for weather support. By June 1966, the service had 560 weather personnel in Vietnam.[68] Since the Air Weather Service's operations had grown to 21 detachments throughout Vietnam and Thailand, it abandoned centralized terminal forecasting and made each unit responsible for its own weather reports. This enhanced forecast reliability and local capability. As detachment forecasters gained expertise, the Air Weather Service implemented a 24-hour service.

While the importance of accurate weather reports for air operations was apparent, complex strike operations with primary, secondary, and tertiary

AIRMAN SECOND CLASS DUANE HACKNEY

Duane Hackney, the most decorated airman in Vietnam, embodied the heroism of all parajumpers who served there. On 13 March 1967, Viet Cong ground troops downed a Marine H-34 helicopter and quickly surrounded the survivors. Aircrews in a second Marine helicopter called for help and went to the aid of their comrades. The Air Rescue Jolly Green Giant arrived on the scene just in time for Hackney to see the second helicopter crash. As Air Force A-1Es blasted the Viet Cong attackers, the pilot of the HH-3E hovered over the embattled Marines, and Airman Second Class Hackney immediately boarded the Stokes litter and dropped to the ground. He constantly exposed himself to enemy ground fire as he strapped wounded Marines to the litter and rode up with them to the hovering craft. As Hackney reached the helicopter on one of the trips, an enemy bullet struck a hydraulic line forcing the pilot to head for Da Nang Air Base. Hackney, meanwhile, continued to treat the wounded Marines onboard. He suddenly slumped to the floor of the helicopter when an enemy bullet grazed his helmet, knocking him unconscious. He soon regained consciousness and resumed setting fractures, treating injuries, and applying tourniquets. Military Airlift Commander General Howell M. Estes, Jr., presented the Air Force Cross to Hackney for his efforts.

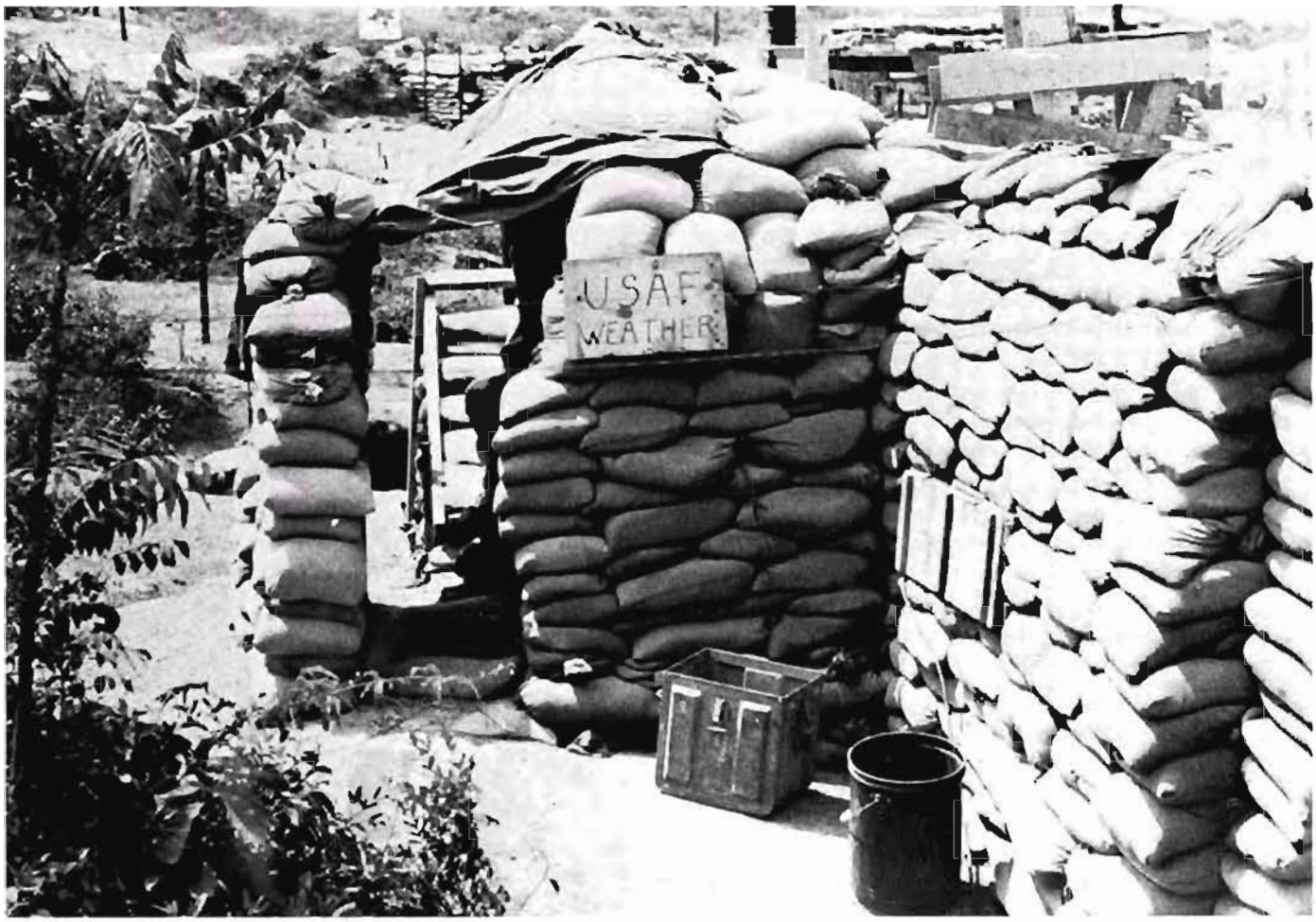
SOURCE: E. H. Tilford, Jr., Search and Rescue in Southeast Asia, 1961-1975 (Washington, DC: Office of Air Force History, 1980), pp 88, 89.

Airman Second Class Duane Hackney lowering the jungle penetrating hoist from the HH-3E.

targets in different areas required weather forecasters that were knowledgeable in many facets of aircraft operations and planning. They had to provide specific target forecasts for each mission. During one six-month period, Air Weather Service personnel issued 12,712 strike mission forecasts.[69]

Less well known was the importance of the Air Weather Service to the United States Army. As activity in Vietnam increased, the service's role shifted from predominately forecasting for the Air Force to providing weather information for large Army operations. Each Army brigade had a combat weather team; a base weather station operating at the main air strip; and a staff weather officer at division headquarters.[70] Since the Army initially conducted operations only during the "dry season," their commanders had little need for weather forecasts and, therefore, did not immediately appreciate the value of the Air Weather Service.

Operation MASHER, a large Army sweep along the coastal plain and adjacent hills north of Bong Son in early 1966, convinced Army commanders to include weathermen in their planning. MASHER began on 28 January 1966, even though the forecast called for low ceilings and rain showers. Army leaders quickly regretted their decision. Poor visibility forced the assault helicopters to fly at such low altitudes through the narrow valleys that enemy ground fire hit 20 aircraft. Also, cloud cover prevented tactical aircraft from flying pre-assault, fire-suppression missions so ground fire was especially intense.[71] On 3 February, another brigade, with a two-man weather team, deployed to the Bong Son airstrip. When the brigade moved to an advanced command post 20 miles north on the following day, the commander declined to take the weather team with him. The forecasters at the airstrip, located in a valley, had accurately predicted broken ceilings; however, the command post in the hills experienced persistent fog. The brigade commander immediately called for the



Landing Zone "Baldy," Vietnam, 1968.

weather team, and a helicopter transported the team to the command post. With on-the-spot data, the forecasters provided accurate and invaluable weather information.

Operation MASHER was the first to deploy a weather team. From this experience, Army planners, operations personnel, and commanders became more aware of the value of accurate weather information, and Air Weather Service personnel began briefing the division commanders at the daily staff meetings.[72] Later, the Army considered the Air Weather Service's recommendations in both the planning and execution phases of any major operation.

THE AEROSPACE AUDIO-VISUAL SERVICE IN VIETNAM

In December 1965, Headquarters USAF designated the Aerospace Audio-Visual Service, then the Air Photographic and Charting Service, the single manager for all Air Force photography in Southeast Asia other than that done through reconnaissance. The organization began with a 19-person detachment and gradually grew to over 500 authorizations. Initially, finding enough qualified personnel to fill these slots was a major problem. In 1966, for example, although the service had 508 authorized spaces, only 151 audiovisual specialists were serving in Vietnam. To further exacerbate the situation, units with adequate personnel often did not have enough audiovisual equipment.[73]

Poor technique and the absence of a suitable camera pod also hampered early attempts to document aerial strikes. During the first years of the war, tactical fighter pilots rotated from Southeast Asia every ninety days. The short-tour policy prevented adequate training in photographic requirements. Naturally, the pilots were more concerned with hitting the target and returning safely than they were with documenting the strike. Cameramen tried riding along in the back seat, taking pictures with hand-held cameras, but they could not hold their cameras steady enough to get useful photographs. Technicians improvised a camera pod that hung from the strike aircraft. This makeshift apparatus, however, vibrated excessively, and the pictures were of little value. Engineers with the aircraft manufacturing companies expended considerable time and energy developing

Major Keith R. Grimes, center, provided important weather information for the Son Tay raid, the attempt to rescue American prisoners of war.

equipment that could take clear photographs without producing undue drag on high-performance aircraft. By 1966, the Aerospace Audio-Visual Service had overcome many of these technical difficulties and had begun processing large amounts of film in Southeast Asia. Intelligence personnel used strike photography to analyze the effects of air strikes and recommend new targets. Fighter pilots reviewed the photos to assess their performances while the missions were still fresh in their minds.[74]

Aerospace Audio-Visual Service cameramen also provided ground photographs to supplement their aerial contributions. Technical shots depicting cargo handling, aircraft loading, refueling, aerial port activities, airdrops, and air rescue operations helped supervisors and instructors train inexperienced personnel. Photographs often accompanied human-interest stories. Film documentation of Air Force activities in Southeast Asia also proved invaluable to historians and other analysts interested in studying the war.[75]

AIRLIFT DOCTRINE OUT OF THE VIETNAM EXPERIENCE

In 1970, when the end of the United States' involvement in Southeast Asia seemed imminent, the House Subcommittee on Military Airlift held hearings to review changes in philosophy and doctrine during the war. A Military Airlift Command presentation, recapping the command's strategic airlift experiences in Vietnam, considered the deployment of forces as MAC's primary mission. With careful planning, strategic airlifters could introduce into the theater integrated fighting units ready to move into combat. The briefing described the command's second and third missions as employment and resupply within the combat zone. Military Airlift Command leaders further envisioned moving forces directly from the United States to the aerial ports, bare bases, or forward areas. Airlift operations in Vietnam had shown that sophisticated aerial ports were not absolutely

AAVS photographer Technical Sergeant Victor N. Neal making final preparations before a mission aboard an A-16 in Vietnam.

necessary. Even during high-volume, sustained resupply missions, strategic airlifters needed only minimal facilities for offloading in a forward area. The MAC representative told the subcommittee, "This source-to-user concept is becoming more feasible because modern airlift aircraft have improved strategic capabilities as well as the ability to perform in a variety of combat missions."[76]

During the previous five years, 1965 to 1970, the demand for airlift services increased 264 percent, despite stringent controls by the Joint Chiefs of Staff. In that same period, the Military Airlift Command had devoted 80 percent of its capability to supporting the war effort in Southeast Asia. At times, the command had averaged 44 military and 29 commercial contract flights daily into Southeast Asia. These figures confirmed the need for flexible and responsive airlift to sustain combat forces.[77]

One of the central doctrinal issues that arose from the Vietnam Conflict was command and control over airlift resources. The strategic airlift force, under the direct authority of the Military Airlift Command but supporting the theater command, worked closely with the tactical airlift force, which was the responsibility of the theater. The result was the establishment of two airlift structures—one supporting the strategic flow and the other more localized. These two systems were sometimes conflicting and all too often inefficient. The official Air Force study of the Vietnam War, Project CORONA HARVEST, noted this duplication of effort as well. Finding that maintaining support personnel at "strategic" airlift airfields and additional support personnel at "tactical" airlift bases wasted valuable resources, the study recommended ending this practice.[78]

Furthermore, both types of aircraft flew missions more properly associated with each other's operations. The "strategic" C-141 and later the C-5 flew into "tactical" combat areas. And the so-called "tactical" C-130, originally designed as a strategic airlifter, often performed "strategic" missions. Without question, American involvement in Southeast Asia blurred the differences between the two types of airlift. Therefore, one of the major recommendations coming out of the CORONA HARVEST study was to combine all strategic and tactical airlift forces under a single command. Centralization of control was perhaps one of the most significant doctrinal issues arising from the war in Southeast Asia.[79]

CONCLUSION

The Vietnam era was a revolutionary one for the Military Air Transport Service/Military Airlift Command. The principal role of airlift changed dramatically, shifting to a greater emphasis on direct combat support. To meet these new challenges, the command used its available resources plus those of the Air Force Reserve, Air National Guard, and commercial airlines to build the national airlift capacity to a wartime level. In the process, the command's mission expanded from strictly intertheater airlift to include intratheater airlift. Additionally, the command streamlined its organization to make the entire operation more efficient. An increase in the number of aerial ports, prepositioned crews at en route stations, and innovative maintenance procedures were just a few of the creative ideas that improved efficiency. Planners dusted off several of General Tunner's innovations from World War II and the Berlin Airlift to improve airlift operations and reduce cargo delivery time. During the Vietnam period, the command also received its first aircraft specifically designed as a military airlifter, the jet-powered C-141; the giant C-5A joined the C-141 a short time later to help convert the Military Airlift Command's intertheater airlift fleet from propellers to jets. Military airlift came of age in Vietnam. Airlift's expanded role proved that military airlift should consolidate under one commander and presaged the growing sentiment for the Military Airlift Command to become a specified command directly under the control of the Joint Chiefs of Staff.

The unknown soldier from the Vietnam War en route to final interment in the tomb of the Unknown Solider at Arlington National Cemetery, 1984.