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USAF HISTORICAL STUDIES NO. 23

DEVELOPMENT OF AEROMEDICAL EVACUATION  
IN THE USAF, 1909-1960

USAF Historical Division  
Research Studies Institute  
Air University  
May 1960

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USAF HISTORICAL STUDIES: NO. 23

DEVELOPMENT OF AEROMEDICAL EVACUATION  
IN THE USAF, 1909-1960

By

Dr. Robert F. Futrell

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USAF Historical Division  
Research Studies Institute  
Air University  
May 1960

TO THE AEROMEDICS--MEN AND WOMEN--  
WHO GAVE THEIR LIVES  
THAT OTHERS MIGHT LIVE

FOREWORD

This monograph traces the development of aeromedical evacuation services in the United States Air Force and its predecessors from the beginning of the concept in the United States in 1909 to 1960. Since aeromedical evacuation is a product of medical and air transport systems, attention has necessarily been given to the development of the medical and air transport services in the USAF and its predecessors. The research and writing of this monograph was done at Maxwell Air Force Base, Alabama, between 28 November 1958 and 10 May 1960. Following a review by the USAF Office of the Surgeon General, the USAF Deputy Chief of Staff for Operations, the Military Air Transport Service, and the Tactical Air Command and a conference with Lt. Col. Charles B. Gunther, Chief, Aeromedical Evacuation Division, Office of MATS Surgeon, the manuscript was revised in October 1961. Like other USAF Historical Division studies this history is subject to revision, and additional information or suggested corrections will be welcomed.

Personal views or opinions expressed or implied in this book are not to be construed as carrying official sanction of the Department of the Air Force or the Air University.

CONTENTS

	Page
I	VISIONS OF WINGS FOR THE WOUNDED ..... 1
	1. A Pioneer Air Ambulance ..... 1
	2. France Takes the Lead in L'Avion Sanitaire ..... 5
	3. American Experience with Air Ambulances and Air Transportation ..... 12
	4. European Nations Develop Air Evacuation Services ..... 37
II	AIR FORCE PREPARATION FOR AEROMEDICAL EVACUATION ..... 53
	1. Pre-War Plans and Policies, 1939-1941 ..... 53
	2. Mobilizing Air Evacuation Resources for War, 1942-1943 ..... 68
	3. Training Air Evacuation Personnel, 1943-1945 ... 81
	4. Development of Air Evacuation Equipment, 1943-1945 ..... 93
III	BEGINNINGS OF AIR EVACUATION IN COMBAT THEATERS, 1942-1943 ..... 106
	1. Evacuating the Wounded from the Solomons ..... 106
	2. Air Evacuation Begins in New Guinea ..... 117
	3. Aeromedical Evacuation Developments in North Africa ..... 131
	4. The Invasion of Sicily Tests Aeromedical Evacuation ..... 153
	5. The Air Transport Command Begins Inter- Continental Evacuation ..... 167
IV	AEROMEDICAL EVACUATION COMES OF AGE IN EUROPE, 1943-1945 ..... 181
	1. Worldwide Achievements of 1943 and Portents for 1944 ..... 181
	2. Medical Air Evacuation in Italy, September 1943- July 1944 ..... 183
	3. Air Evacuation in the United Kingdom and Normandy ..... 197

	Page
4. Aeromedical Evacuation in Southern France and Italy .....	213
5. Evacuating Casualties from the Battle for France .....	222
6. Air Evacuation from Germany .....	244
7. Last Months of Air Evacuation in the Mediterranean Theater .....	254
 V AIR EVACUATION IN ASIATIC AND PACIFIC THEATERS, 1943-1945 .....	 261
1. Early Operations in China-Burma-India Require Air Evacuation .....	261
2. Development of Aeromedical Evacuation in India-Burma and China .....	267
3. All-Out Aeromedical Evacuation in China, Burma, and India .....	293
4. Air Evacuation Supports the Attack toward the Philippines .....	315
5. Aeromedical Evacuation Realizes its Potentialities in the Philippines .....	331
 VI AEROMEDICAL EVACUATION BY THE AIR TRANSPORT COMMAND, 1944-1945 .....	 356
1. Worldwide Air Transport Command Expansion ..	356
2. Air Evacuation on South Atlantic Air Routes .....	365
3. Evacuating European Theater Casualties .....	371
4. Aeromedical Evacuation from the Mediterranean and India .....	389
5. Trans-Pacific Air Evacuation .....	397
6. Aeromedical Evacuation in the Continental United States .....	433
 VII AIR EVACUATION BETWEEN WORLD WAR II AND KOREA .....	 460
1. Aeromedical Evacuation Accomplishments of World War II .....	460
2. Post-War Air Evacuation Developments, 1945-1948 .....	468
3. The Military Air Transport Service Expands Aeromedical Transport .....	506

	Page
VIII THE IMPACT OF KOREAN HOSTILITIES ON AEROMEDICAL EVACUATION, 1950-1953 .....	534
1. All-Out Tactical Air Evacuation in Korea, 1950-1951 .....	534
2. USAF Builds Theater Air Evacuation Systems, 1950-1953 .....	570
3. Aeromedical Transport by MATS, 1950-1953 ....	601
IX RECENT DEVELOPMENTS IN AEROMEDICAL TRANSPORT, 1953-1960 .....	638
1. Establishing Air Evacuation Concepts and Capabilities .....	638
2. Aeromedical Evacuation Services in Europe .....	665
3. Air Evacuation Activities in the Pacific Theater ..	686
4. Aeromedical Transport in the Military Air Transport Service .....	703
X AEROMEDICAL TRANSPORT: POSTSCRIPT AND PREVIEW .....	749
1. Advanced Technology and Aeromedical Transport .	749
2. Problems of Air Transport Affecting Aeromedical Airlift .....	754
3. Some Thoughts on an Aeromedical Transport System .....	765
FOOTNOTES .....	773

MAPS AND ILLUSTRATIONS

NOTE: No special maps can be drawn for this study, but necessary situational maps to orient the reader as to places and campaigns can be provided. These maps were originally drawn to illustrate USAF Historical Studies.

Any desired number of photographs can be provided on any subject covered in the study.

Chapter I

VISIONS OF WINGS FOR THE WOUNDED

1. A Pioneer Air Ambulance

The epic flight by Wilbur and Orville Wright at Kitty Hawk, North Carolina, on 17 December 1903 meant many things to many people, for the potential military and commercial applications of the airplane were tremendous. To two young officers stationed with the Coast Artillery at Fort Barrancas, Florida, in the autumn of 1909 man's conquest of the air promised a solution to an old Army medical problem: how to speed the movement of sick and wounded soldiers to adequate medical facilities. The young pioneers were Captain George H. R. Gosman of the U. S. Army Medical Corps and Lieutenant Albert L. Rhoades of the Coast Artillery Corps.

In 1909, Captain George Gosman's eight years of service made him a relatively new-comer in the Army Medical Service, but both from his duty assignments and from a year at the Army Medical School (in 1903) he recognized that the Army's old horse-drawn ambulances, and even the new motor ambulances which the Army began to place in service in 1906, were too slow to do their job.<sup>1</sup> Gosman probably knew that the Army's system of casualty evacuation and hospitalization traced back to the American Civil War and to Assistant Surgeon Jonathan Letterman.

When he had become the Medical Director of the Union Army of the Potomac in July 1862, Assistant Surgeon Jonathan Letterman had been presented with two great problems. The first was humanitarian: to devise some means for caring for the sick and wounded. Late in his first month of field service, after the Second Battle of Bull Run, Letterman saw wounded men ~~be~~ unattended for as long as a week and die for want of medical attention. Letterman's second problem concerned military utility: how could an Army avoid "over-evacuation" of the sick and wounded which constantly drained away its military effectiveness. At periodic intervals up until this time, sanitary commission representatives from the various northern states had been collecting and carrying away their state's wounded and sick. These men were hospitalized in state medical facilities, and somehow many of them never returned to their old units for duty.<sup>2</sup>

As an answer to the problems presenting themselves, Jonathan Letterman devised a plan for evacuation and hospitalization of sick and wounded which was first used successfully at the Battle of Antietam. The "Letterman Plan" involved the use of field aid stations, ambulances, field hospitals, hospital trains, and general hospitals. Officially adopted throughout the United States Army in 1864, the Letterman system was further standardized during the Spanish-American War. The system established a "chain of evacuation," with each Army echelon becoming a link in

the chain. Litter-bearers carried men wounded at the front to aid stations, located 300 to 800 yards behind the front lines. At the aid stations, field ambulances picked up the casualties and took them to a collecting station or a clearing station. Once "cleared" from the forward area, the wounded soldier was transported to an Army field hospital, which prepared casualties for further evacuation and cared for those persons who could be soon returned to duty. The more serious cases were returned to a general hospital in the communications zone. In turn, the communications zone hospitals could evacuate patients to named general hospitals in the United States. The chain of evacuation employed litter-bearers, horse-drawn and motor ambulances, hospital trains, and hospital ships.<sup>3</sup>

The United States Army system of evacuation and hospitalization provided the sick and wounded with improved medical care. Moreover, through screening or "triage," each medical echelon could retain the men who could be returned to duty in an appropriate length of time, thus preventing combat units from being drained of strength by over-evacuation. Despite the successful application of the system, surface transportation of the sick and wounded was essentially slow and deleterious to the well-being of patients. Especially in Cuba during the Spanish-American War, disease-ridden soldiers jammed the field hospitals faster than they could be evacuated. Both in military and

civil medical practice, moreover, medical specialties were rapidly multiplying, and general practitioners in ordinary hospitals could no longer give adequate treatment with portable equipment. More and more military patients had to be transferred from field or station hospitals to Army general hospitals.<sup>4</sup>

Recognizing that the speed with which a patient received definitive medical treatment affected his prospect for survival or recovery, medical doctors of the world had been long seeking faster methods of moving casualties. Through necessity, during the German siege of Paris in 1870, some sick patients were successfully evacuated by balloon.

Probably the first reference in literature to the air transport of casualties was made by the novelist-prophet, Jules Verne, who in Robur le Conquerant (1886) described the rescue of shipwrecked men by an airship. Beginning in about 1890 and continuing to 1910, M. de Mooy, Chief of the Dutch Medical Service, worked on plans to transport patients on a huge stretcher raised by a captive balloon, the whole to be drawn by a horseman. While working with M. de Mooy, a French medical student and early aviatrix, Mlle. Marvingt, is said to have proposed plans for air ambulance work of a military nature.<sup>5</sup>

At Pensacola, Florida, in the autumn of 1909, however, Captain George Gosman and Lieutenant Albert Rhoades probably knew nothing of the activities of de Mooy and Marvingt when

they sought to build a plane for the express purpose of transporting patients. The plane that they built was a queer-looking affair in which the doctor-pilot was supposed to sit by the side of his patient. On the first flight in January 1910, the Gosman-Rhoades plane was towed down an incline by an automobile and made a powerless flight of some 50 yards. With a second-hand Metz power plant installed, Gosman and Rhoades flew the plane successfully at 100 to 150 foot height, for 500 yards until an oil feed line broke and the plane wrecked in a tree. After this second flight, Gosman and Rhoades were never able to get their plane going again. Lacking personal funds to continue the project, Captain Gosman went to Washington to seek money from the War Department for further experiments. In brief, Gosman recollected, the War Department thought the whole idea was "fantastic." Although their efforts were unsuccessful, Captain George H. R. Gosman and Lieutenant E. L. Rhoades were undoubtedly the first men to point out the great potentiality of the airplane for transporting military patients. "I clearly saw," said Gosman, "thousands of hours that would be saved by an ambulance plane."<sup>6</sup>

## 2. France Takes the Lead in L'Avion Sanitaire

Although the U. S. War Department saw no need for air ambulances, French physicians and aviation enthusiasts applied themselves to the development of l'avion sanitaire. In the great Poitou maneuvers of September 1912, M. le Docteur

Emile Reymond flew over the battleground in a Bleriat monoplane and located simulated casualties for medical stretcher-bearing parties.<sup>7</sup> Other French pioneers drew up plans for carrying wounded men to field hospitals by airplanes. They intended to use a monoplane for the purpose, and the plane was supposed to carry patients in a box-like structure (with mica windows) under its fuselage.<sup>8</sup>

Alerted by developments in France, American enthusiasts begged for the acceptance of air ambulances, without securing the approval of either the War Department or the American public. In May 1912, Secretary of War Henry L. Stimson disapproved a recommendation that airplanes be used to transport military patients. Later that year a flight with Lieutenant Henry H. "Hap" Arnold fired the imagination of Colonel A. W. Williams, a retired Army officer. At the meeting of the Association of Military Surgeons in Baltimore, Maryland, in November 1912, Williams recommended to the Committee on Transportation of Wounded in War that the airplane be used to transport surgical cases from battlefield to a general hospital. The Committee approved the suggestion, but next day the idea was discarded when an editorial in the Baltimore Sun stated that "the hazard of being severely wounded is sufficient without the additional hazard of transportation by airplane."<sup>9</sup>

Interest in the medical application of airpower continued to run high in France. In 1913, at the Societe de Medicine

Militaire, M. Uzak read an exhaustive paper on the subject, and M. Julliot advocated the protection of air ambulances with the Geneva Cross. In October 1913, the French Military Officer, M. Gautier, declared: "We shall revolutionize war surgery if the aeroplane can be adopted as a means of transport for the wounded."<sup>10</sup>

With the beginning of World War I, French aviators first practiced medical air evacuation as an emergency measure in Serbia. During the retreat of the Serbian Army in November 1915, Captain Dangelzer and Lieutenant Paulhan of the French escadrille in Serbia shuttled a seriously wounded Serbian flyer from Milrovitza to Vallona. Late that month, Commandant Vitrat, Chief of the French escadrille, transported five sick soldiers from Prizrend to Scutari, and seven sick and wounded men from Scutari to Alessio.<sup>11</sup> The service-type aircraft used in Serbia proved adequate in an emergency but were hardly fit for routine evacuation use. In the next few years the French gave little attention to air evacuation of casualties. They had too many casualties and too few aircraft to be concerned with air evacuation.

At least one French physician and aviation enthusiast had not forgotten the airplane. The man was the military surgeon, Dr. Chassaing, who also represented the District of Puy-de-Dome in the Chamber of Deputies. In 1916, Chassaing's plea for money to build air ambulances met a poor response among the French deputies, one of whom cruelly

demanded: "Are there not enough dead in France today without killing the wounded in airplanes?" Despite such criticism, Chassaing got an old Dorand A.R. II fighting airplane, and he worked with M. Justen Godart to design a lateral opening which permitted two superimposed stretchers to be carried in the "dead space" of the fuselage behind the pilot. After several flights at Villacoublay airdrome, Chassaing was authorized to fly in the <sup>3</sup>Moissons sector, where six airplanes of the same type were subsequently placed at his disposal. In April 1918, two of these planes were used during the evacuation from Flanders, but the fighting grew so intense that the French higher authorities withdrew their sanction. Late in 1918, Chassaing went on a mission to Morocco, and upon his return to France he was allotted sixty Breguet-14-A-2 type planes for conversion into air ambulances.<sup>12</sup> During the war in France, aerial evacuation of casualties amounted to little, but Chassaing had secured acceptance of the idea and deserved to be called "the father of ambulance airplanes."

During these same years, air ambulances were developed to meet special needs in the United States. No air ambulances were available, but the American Punitive Expedition into Mexico in 1916 demonstrated a need for such service. At their deepest penetration, cavalry troops were about 400 miles south of Columbus, New Mexico, and

more than two weeks were required to evacuate sick and wounded men by motor ambulances over some of the worst motor roads in the world. "We did not dare operate under such poor circumstances except as an emergency measure," stated one of the surgeons of the expedition. Such experiences during the Mexican Punitive Expedition clearly posed a requirement for air ambulances.<sup>13</sup>

The impetus leading to the development of the first operational air ambulance was not to come from the Mexican Punitive Expedition, however, but from a peculiar problem of the U. S. Air Service's all-out mobilization for World War II. Thousands of new pilots were being trained in 1917 at temporary flying fields, and many of the new pilots were prone to accidents. The officer in charge of flight training at Gerstner Field, Lake Charles, Louisiana -- Captain William C. Ocker-- was especially concerned with the problem of how to give medical aid to pilots injured in crashes. Roads were too poor, especially in rainy weather, for aid to reach an injured flyer in time. The usual procedure was for a pilot to fly a surgeon to the scene of the accident in an ordinary flying machine. Working quickly from an emergency medical kit, the flight surgeon might save the injured man's life, but getting him back to the base hospital by surface-moving ambulance took hours. Early in 1918, Captain Ocker proposed to

solve the problem by converting a plane into an ambulance, which would deliver a physician to the scene of the accident and return the patient to the Gerstner Hospital. The airfield commander did not give Captain Ocker much encouragement. On 14 February 1918, however, Major Wilson E. Driver, a reserve medical officer, came to Gerstner, and Major Driver soon lent his support to Ocker's project. Working together, Ocker and Driver modified a standard Curtiss JN-4 "Jenny"-- plane No. 3131-- to accommodate a patient in a semi-recumbant litter in the rear cockpit. Shortly afterward, Ocker and Driver transported to Gerstner the first patient ever to be flown by aircraft in the United States. For the development of this first operational American air ambulance, Ocker (who in the mid-1920's would develop the procedures for instrument flying) was inclined to give most of the credit to Major Driver. In a letter to the Air Service Surgeon on 21 March 1921, Ocker wrote: "To Major Wilson E. Driver belongs the credit for having developed the first airplane ambulance in the United States, if not in the world."<sup>14</sup>

Other air officers in charge of flying training at nearby Texas airfields soon heard of the Gerstner air ambulance. They were also having crash-rescue problems, and many of the smaller training camps had no adequate hospital care for injured men. Air service personnel at Ellington Field, Houston, Texas, used plans from Gerstner

and commissioned a JN-4D flying ambulance on 1 April 1918. This plane was stationed at the gunnery school at nearby San Leon and transported locally-injured personnel to the hospital at Ellington. At once, Ellington airmen began work on an improved modification of a JN-4H. In this plane, they removed the rear cockpit seat and incorporated a hinged cowling deck piece, allowing a patient to be loaded on a standard litter and carried in a sheltered and recumbant position. Based upon the demonstrations of the utility of the planes, the Director of the Air Service on 23 July 1918 ordered the preparation of JN-4H airplane ambulances at all flying fields in the United States. In the summer and autumn of 1918, air ambulance planes were put into service at Taylor, Post, Mather, Rich, and Carruthers Fields.<sup>15</sup>

Although air ambulances proved invaluable for crash-rescue and patient transport in the Air Service in the United States during 1918, the innovation apparently did not reach the American Expeditionary Forces in France. When American troops entered combat, the U.S. Medical Department employed its standard surface chain of evacuation and hospitalization: aid stations, collecting stations, field hospitals, evacuation hospitals, and base hospitals. For patient transport, the medical department employed litter-bearers, horse-drawn and motor ambulances, and hospital trains. Even in the static trench warfare and

in the short distances of the fighting zone, the movement of wounded men was often slow. Men wounded in the trenches could usually be moved only at night, which might mean delays of up to twelve hours between an aid station and a field hospital. Roads were often damaged by German shell fire or blocked for miles by supply convoys. Sometimes litter-bearers had to hand-carry the wounded all the way to the field hospitals. Hospital trains were frequently shunted onto sidings for supply trains moving forward had the right of way. Except for a relatively few permanently disabled men, the American Army was unable to return any patients to the United States until the end of World War I.<sup>16</sup>

### 3. American Experience with Air Ambulances and Air Transportation.

At the close of World War I, the U.S. Air Service foresaw a continuing need for aerial transportation of the sick and wounded. Air Service patrols along the Mexican border and increased amounts of cross-country flying portended many crashes in remote places. Small isolated military commands, moreover, would require a rapid method for transporting serious cases to the hospitals at which they could get proper treatment and care. To meet local requirements, a hodgepodge of ambulance aircraft had been modified at the continental airfields, without any direct supervision of the Air Service's Engineering Division.

With these thoughts in mind late in 1919, Colonel Albert E. Truby, the Air Service's chief surgeon, called for reports from all of the fields which used air ambulances. When none of the existing planes were found to be exactly suitable, Colonel Truby asked the Air Service Engineering Division to design a plane which would accommodate a pilot, a medical officer, and two patients in wire-basket Stokes litters. At McCook Field, Dayton, Ohio, an Engineering Division civilian engineer, A. V. Verville, planned and supervised the modification of a DH-4A airplane to meet Colonel Truby's specifications. To the rear of an auxiliary semi-cockpit which could accommodate the physician, the fuselage was so modified as to accommodate two patients in Stokes litters, one above the other. The patients were loaded through long, narrow doors, one opening on each side of the plane. A number of DH-4A's were subsequently modified for rescue service in the Southwest. While this work was underway in 1920, the Medical Research Laboratory and School for Flight Surgeons at McCook secured approval for a modification of a Curtis<sup>S</sup><sub>A</sub> Eagle plane as an ambulance capable of transporting, in an inclosed cabin, four litter and two sitting patients (or six sitting patients). The surgeon sat next to the pilot and a first-aid cabinet was installed near the front of the cabin.<sup>17</sup> Early in 1921, the Curtis<sup>S</sup><sub>A</sub> Eagle hospital

ship, resplendent with white paint, large red crosses, and medical insignia, was stationed at Mitchell Field, Long Island, New York.

The DeHavilland air ambulance planes were intended for crash-rescue work, but the Curtis Eagle was suited for air-route evacuation. Pointing out the undoubted fact that air transportation of seriously-injured men would be important in the future, Colonel Truby secured the approval of Surgeon General M. W. Ireland to transport patients by air from Mitchell Field to Bolling Field, Washington, D.C., for transfer to Walter Reed Hospital. After flying the Curtis Eagle, Brigadier General William C. Mitchell, Assistant Chief of Air Service, endorsed the proposal on 20 April 1921. "I consider," wrote Mitchell, "the transportation of patients from New York to Washington by this machine a very progressive step, and one that is no way hazardous." On 10 May 1921, however, the War Department disapproved the recommendation, with the notation: "In case of accident, the use of airplanes for the transportation of sick and wounded soldiers, when other safer means of transportation is available, could not be justified."<sup>18</sup> Unfortunately, the Curtis Eagle crashed at Morgantown, Maryland, on 28 May 1921, killing five Air Service men and two civilians, including former Congressman Maurice Connolly. The freak accident occurred

while the pilot was attempting an emergency landing in a violent electrical storm, but it was highly publicized because of the prominence of the passengers. "This one untimely crash," stated the Air Force's Surgeon much later, "probably had a decided effect in delaying the development of aeromedical transportation of patients in the United States."<sup>19</sup>

Despite the rash of bad publicity, the Air Service continued to plan for aeromedical evacuation, and, for the first time, Air Service officers began to consider the exact requirements posed by the function. As early as June 1921, Colonel Truby conceived that airplane ambulances would be employed in time of peace at Air Service stations for crash-rescue work and for transporting patients from isolated stations to larger hospitals and in time of war for transporting seriously wounded men from the front to base hospitals and for emergency transportation of medical supplies. Three types of ambulance planes were required: a relatively slow and small plane capable of landings and takeoffs from rough and restricted areas; a somewhat larger and faster cross-country plane which would be employed from prepared runways; and a large aerial ambulance capable of transporting many patients.<sup>20</sup>

Because of limited appropriations, the Air Service had to decide which type of aerial ambulance would be developed. At a conference in June 1921, Air Service

operations and medical officers agreed to concentrate their energy behind the development of a crash-rescue aircraft. This type of aircraft was immediately needed for safe-guarding the welfare of flying personnel, and neither the Curtis, nor the De Havilland modifications had given a satisfactory air rescue plane. While medical representatives thought that the larger planes would provide greatest usefulness in the future, the conferees agreed that the second and third types of air ambulances could probably be developed from existing type airplanes.<sup>21</sup> Despite this decision, the Air Service would soon begin to convert transport aircraft into air ambulance planes. Returning from a European inspection trip made during the winter of 1921-22, Brigadier General William Mitchell, Lieutenant Clayton Bissell, and Aeronautical Engineer Alfred Verville reported that the British were adopting their passenger-carrying air transport planes into air ambulances as a standard practice. These officers recommended that the development of "a convertible multi-motored type of a troop-carrier and ambulance plane should be undertaken as one of our new types."<sup>22</sup> Early in 1923, moreover, Lieutenant Colonel W. R. Davis, who had become Chief Surgeon of the Air Service, reported that most air accidents occurred on or near airfields where a crash rescue air ambulance was not needed. Believing that the priority requirement was for a larger plane which could

transport patients between stations, Colonel Davis asked the Air Service Engineering Division to develop and procure transport-type air ambulances.<sup>23</sup>

In response to the Air Service requirement for a crash-rescue air ambulance, the Engineering Division at McCook Field drew up plans during 1923 for the construction of a special type aircraft. Funds were not allotted for the construction of two experimental articles until April 1924, but in June of that year a contract was awarded to the Cox-Klemin Aircraft Corporation of Baldwin, Long Island, for the construction of two aerial ambulances, designated as the XA-1. These two planes were delivered to McCook Field in February and August 1925. The Cox-Klemin XA-1 was a biplane, powered by Liberty-12 engines, and capable of carrying a pilot in an exposed cockpit and a medical officer and two litter patients in a humpbacked compartment or cabin behind the cockpit. In stretcher cases, the patients were placed in modified Stokes litters, one above the other, on the right side of the compartment, in such a position that the physician, seated on the left, could minister to them in flight.<sup>24</sup>

Because of the time required to build the Cox-Klemin planes, the Air Service successfully modified transport aircraft for air ambulance service before it acquired the crash-rescue planes. To test the possibility of employing passenger planes as aerial ambulances, the McCook Field

shops installed litters and medical paraphernalia in a Fokker T-2 transport, the same type plane which had recently flown coast-to-coast non-stop. Designated as the "A-2," this Fokker plane was flown to Bolling Field for exhibition at a Shriner's Convention in the spring of 1923. What subsequently happened to the plane is not known. It was doubtless converted back into a standard transport, for the Air Service had ruled that any changes made in the transport would not "permanently injure its value for the purpose for which it was originally intended."<sup>25</sup> Having proved the feasibility of the convertible transport and ambulance plane, the Air Service in 1924 contracted to purchase nine Douglas C-1 planes, each of which would have attachments on the floor and walls of the passenger compartment so that four ambulance stretchers could be installed in an emergency. When these single-engine biplanes were delivered in 1926, two of them were additionally modified to accommodate a flight surgeon, medical supplies, and two litter patients in the cabin. In a change in nomenclature effected by the Air Corps (the Air Service was so redesignated in 1926), transport planes were designated as "C" rather than "T" and the "A" for "Ambulance" was no longer employed. As a matter of fact, no more special air ambulances would be built.<sup>26</sup>

Deployed to their stations in 1926 the new Cox-Klemin and Douglas air ambulances performed magnificently in the

sparsely populated areas of the American West and in Panama. Arriving at Kelly Field early in 1926, one of the Cox-Klemin planes transported 26 patients in its first six months of service. In the spring of 1928, the Cox-Klemin plane gathered nationwide publicity for its "mercy" flights to ferry storm victims from Rock Springs to San Antonio. Pilots and surgeons alike at Kelly thought highly of the Cox-Klemin, and the plane responded to calls for crashes anywhere within a radius of several hundred miles from San Antonio. The "Cox" could land almost anywhere-- in cotton patches, hayfields, or roads-- and its advocates swore it "could take off in a backyard." On occasions, pilots landed the plane in cotton fields at night under flare illumination to pick up injured aircrewmembers who required immediate hospitalization.<sup>27</sup> During 1927, the Douglas C-1 ambulance stationed at March Field, Riverside, California, made numerous flights to deliver emergency patients to general hospitals in San Diego and San Francisco.<sup>28</sup>

Aeromedical evacuation proved worthwhile in the United States, but it was proved to be "especially invaluable" in the jungle areas of Central America. The ambulance planes stationed at France Field, Panama Canal Zone, flew "mercy" missions to lift military and civilian patients from remote locations to Albrook and France Fields. During 1928, the two planes transported 23 patients for a distance

of 3,980 miles in about 53 hours with a time saving of 250 hours.<sup>29</sup> In nearby Nicaragua, in 1927 and 1928, U.S. Marines operating against guerrillas led by Augusto Sandino found an even greater need for aeromedical evacuation and air transport. Ten times between 6-8 January 1928, Lieutenant Christian F. Schilt flew his O2U Corsair biplane from Ocotal to Tuilali to evacuate 18 wounded Marines from a besieged detachment. As a result of their operations in the "bush" country of Nicaragua, the Marines perceived a firm requirement for air ambulance, troop carrier, and air cargo transport services.<sup>30</sup>

According to reports, everyone liked the Cox-Klemin XA-1's for aeromedical work, but with the passing of time these planes were at first obsolescent and then lost in accidents. By 1929 the "Cox" at France Field was washed out in an accident and two years later the sister ship at Kelly was destroyed when its wing hit a tree while taking off from a short field with the bodies of two aviation cadets aboard it.<sup>31</sup> The loss of these planes left a deficit of air ambulances in the Air Corps. On the basis of learning from these early aeromedical evacuation planes, Major Robert K. Simpson, M.C., in 1929 advocated the use of large transport planes which would be converted to accommodate litters. Simpson predicted that "Evacuation by airplane will be a very important factor in handling the wounded of the next war if not the method of choice

altogether." Apparently for one-time air evacuation employment during the annual field exercises held at Sacramento, California, beginning on 1 April 1930, the Air Corps modified a tri-motored C-3 Ford transport as a "Ship of Mercy." The Ford ship carried two pilots, a flight surgeon, and a medical attendant, and had accommodations for from four to six patients plus medical supplies. In order to insure clear passage in flight as well as on landings, the plane carried large Red Cross insignia.<sup>32</sup>

The Chief Flight Surgeon of the Army Air Corps, Lieutenant Colonel L. M. Hathaway, called the Ford transport "a long forward step toward the development of the ultimate airplane ambulance,"<sup>33</sup> but this plane did not meet Hathaway's requirements in one important regard. As a standard requirement for all transport planes purchased after 1924, the Air Corps required the installation of brackets to permit the installation of emergency litters. In 1929, Colonel Hathaway nevertheless called for the construction of special hospital airplanes which would be continuously available for aeromedical evacuation and would afford patients more comfort than could converted transports. Hathaway urged that "provision be made for the procurement of a few ambulance planes in order that this project might be kept alive and developed ... in preparation for military emergency as well as for present needs." The Air Corps Materiel Division did not subscribe

to this policy. The Cox-Klemin planes, it stated, had been procured because no suitable commercial closed-cabin airplanes had been available. The Materiel Division admitted that the conversion of existing transports did not make for patient comfort, but it urged that satisfactory installations could be worked out. Major General James E. Fechet, Chief of Air Corps in 1930, agreed that transports would constitute the basis for ambulance aircraft and he directed materiel and medical officers to work out suitable installations for converting standard transports to air evacuation purposes. General Fechet nevertheless recognized that many stations could not secure transports on short notice, and he directed that fiscal year 1932 purchases would include three ambulance airplanes for stationing overseas.<sup>34</sup>

Despite General Fechet's announced intention to procure at least three ambulance planes, the Air Corps in 1931 decided to delay this special purchase until it could test a converted Fokker-XIV (YIC-14) transport in the air evacuation role. At General Foulous' direction, the contractor converted the twentieth YIC-14 procured into an air ambulance. Designated the YIC-15, this "largest, latest, and fastest flying hospital" had comfortable accommodations for three patients in basket litters and equipment for treatment of emergency cases.<sup>35</sup> In the east-

coast maneuvers of the First Air Division (Provisional) held between 12 May and 1 June 1931, the Air Corps for the first time tested all phases of air transport support for field maneuvers. In this maneuver air transport and aeromedical work were the responsibility of Lieutenant Colonel H. H. Arnold who served as G-4 and Major C. L. Beaver who was the surgeon. The 31st Transport Group (Provisional) was organized on 12 May under command of Lieutenant Colonel A. W. Robins and with Major Wood S. Woolford, M.C., serving as flight surgeon. During this maneuver, the 31st Group employed the YIC-15 air ambulance and committed four transports to conversion into air ambulances as necessary. All patients requiring evacuation over an appreciable distance were transported by aircraft. Following the maneuvers, the YIC-15 was sent to Kelly Field for further on-the-job operational tests.<sup>36</sup>

As a result of the field maneuvers and the operational tests at Kelly, the Air Corps gained a better understanding of both transport and aeromedical evacuation aviation. Although the transport aircraft types employed left much to be desired, the maneuvers proved that air transport support was necessary to permit a rapid deployment of air striking forces. The arrangement whereby standard transports augmented the YIC-15 for air evacuation caused a conflict in jurisdiction between the transport group commander and the division surgeon. The transports

were often hauling cargo when the division surgeon needed them. Conversion of the planes to litter ships caused delays. The YIC-15 performed well in flights between airports, but it was not suited for crash rescue work. Further tests of the "Yic" at Kelly Field bore out its inability to make short-field landings and takeoffs. The old Cox-Klemin could be off the ground before the "Yic" could bring its tail into flying position. The YIC-15, however, was a more powerful plane and was well suited for long-distance flights. Recommendations implemented these observations. The official maneuver report recommended that more airplane ambulances be provided. Kelly Field recommended that a sturdy, single-engine biplane similar to the old Cox-Klemin be procured for ambulance work. In an article for publication, Major Beaver recommended the use of two large transport planes, each capable of transporting six litter patients, and two small two-litter planes for air ambulance work in future Air Corps maneuvers.<sup>37</sup>

Air Corps medical reports issued in 1931 demonstrated the aeromedical evacuation was rapidly gaining ground. Each year since 1928, the number of patients transported by air had roughly doubled. In 1931, 63 patients were flown some 15,000 miles without accident, saving about 546 hours over the usual surface time. In a lecture at the Air Corps Tactical School, Lieutenant Colonel Taylor

E. Darby, M.C., proposed that four squadrons, each with 21 air ambulances, could evacuate the daily casualties of a typical army of nine divisions in approximately twelve hours. The Army air ambulance service, Darby said, should be a part of G.H.Q. Aviation and should operate directly under the chief surgeon at G.H.Q.<sup>38</sup>

In September 1931, the Air Corps Materiel Division reported that the aeromedical evacuation mission evidently required two models of aircraft: one for transporting patients between stations with prepared runways, and another for rescuing patients from rough, restricted areas. In an official statement of policy, the Chief of Air Corps agreed that two types of ambulance airplanes were necessary. Because of the urgent needs of tactical units for bomber, pursuit, and attack models, however, the Air Corps could not provide special ambulance aircraft to be used only on infrequent occasions. Transport aircraft would therefore be employed as air evacuation planes, but they would not be so designated since ambulance equipment would be installed for each emergency. Because of shortages of combat aircraft the procurement of crash-rescue ambulance planes would be stringently limited.<sup>39</sup>

As a matter of fact, Air Corps funds were insufficient after 1931 even to permit the development of a crash-rescue ambulance plane. Instead, the Air Corps allocated

four American Airplane Corporation YIC-24 transport planes to air evacuation purposes, one to the Advanced Flying School at Kelly and one each to three other tactical units. The YIC-24 allotted to Kelly had been used as a supply plane in the 1931 maneuvers and was in poor condition. Equipped with a new engine, new wings, larger wheels and tires, and oleo struts, plus accommodations for a flight surgeon and four litter patients, the YIC-24 made a fairly acceptable air ambulance. It required only a short space for takeoffs and landings and would carry an extremely heavy load for its time. The C-24 hospital plane at Kelly was still operating in 1936, when it was transferred to Brooks Field and assigned to the 22nd Observation Squadron for service throughout the entire VIII Corps Area.<sup>40</sup> When the C-24 finally wore out it was replaced at Brooks by an obsolete B-18 bomber. Air Corps activities in Panama and Hawaii employed litter carrying transports and amphibians for mercy missions, while the Air Corps, Philippine Army, purchased a small Stinson Reliant aircraft which could be quickly converted into a two-patient ambulance.<sup>41</sup>

Since neither the few ambulance planes nor the converted transports were suited for crash-rescue work, Air Corps medical officers did not forget that they still needed a smaller air ambulance. In 1935, Lieutenant Colonel C. L. Beaver again recommended that the Air Corps

ought to have for peace and war service both a small rescue-type plane and a large hospital aircraft. While a student at the Air Corps Tactical School in 1937, Lieutenant Colonel David N. W. Grant, M.C., realistically questioned whether in time of war air ambulances of any type would be available because of greater demands for combat planes, but he nevertheless suggested that autogiro ambulances would provide an extremely mobile air ambulance service.<sup>42</sup> Despite Air Corps developmental work, however, the rotary-wing autogiro would never prove fitted for tactical employment.

No matter what type plane they used, Air Corps personnel on countless occasions demonstrated the value of aeromedical evacuation. On the night of 5 April 1935, Captain H. E. Rice and Major C. L. Chase, M.C., flew a C-9 transport from Albrook to Agua Dulce, where they landed at an unlighted field and evacuated a soldier stricken with appendicitis. On 15 May 1935, an Army amphibian piloted by Major Willis R. Taylor rushed a Panamanian political leader from Bocas del Toro to a hospital in Panama City. Flying the YIC-15, from Kelly on 15 July 1936, Captain Donald Olds and Captain B. R. Galbraith, M.C., landed on a concrete highway near Alice, Texas, to evacuate an injured Civilian Conservation Corps youth to Fort Sam Houston. Landing a C-39 by flare light at Trona Airport, California, Lieutenant Sam H. Wiseman

and Captain Harold H. Turtchell, M.C., on 29 July 1939 transported another CCC-boy to Hamilton Field. In the spring of 1940, Captain Walter E. Todd and Lieutenant Colonel Neely C. Mashburn, M.C., flew from San Antonio to Beaumont in a converted B-18 to evacuate an injured soldier. They completed the 500-mile round trip exactly four hours after they first learned of the need for the mercy mission. Accompanied in the B-18 "M" by Major W. M. Scott, M.C., Major B. T. Starkey flew 1,500 miles in one day in November 1940 to complete two mercy missions. The first mission lifted a stricken West Point Cadet from Fort Sill to Hot Springs, Arkansas, and the second carried an injured soldier from Gainesville, Texas, to Fort Sam Houston. These were only a few of the "mercy missions" which so adequately demonstrated that air transport could speed the sick and wounded to medical attention.<sup>43</sup>

Beginning in the early 1930's aeromedical evacuation was irretrievably associated with the development of transport aviation, whose functions were as yet imperfectly grasped. Up to January 1931, the Air Corps had purchased and service-tested 88 various types of transport aircraft, ranging from single-motored biplanes to tri-motored monoplanes, yet the progress of transport aviation had lagged behind that of combat aviation. In fact, Army transport planes were slower and hauled lighter loads than did contemporary commercial aircraft of the early 1930's.

Not many Air Corps leaders had as yet grasped the roles and missions of air transport aviation. As a result of experience acquired during the maneuvers of 1930 and 1931, Major Hugh J. Knerr, Chief of the Air Corps Field Service Section at Wright Field, stated the proposition that air striking forces could no longer depend upon ground lines of communication for logistical support. Only through air transported logistical support could combat air units exploit their mobility and range. Major Knerr specifically recommended that the Materiel Division and its four geographical air depots should each be allotted two cargo airplanes. As a result of Knerr's proposals made at the Annual Engineering Supply Conference in 1931, the Chief of Air Corps directed Knerr to inaugurate a transport supply service within each of the four depot control areas substantially as outlined. Such regular cargo transport service began on 11 January 1932.<sup>44</sup>

The concept of transport aviation was further developed at the Air Corps Engineering Supply Conference held in October 1932. At this meeting, Lieutenant Colonel Albert L. Sneed, Commander of the Fairfield Air Depot, presented the beginning of a true concept of airpower. Too many Air Corps officers, he said, limited the role of military aviation to destruction. The proper larger role of military aviation included a field of air transportation for ground as well as air force logistics. Later in the

conference, Major Knerr asserted that a transport wing of 210 centrally-controlled cargo planes could concentrate and provision a field army of a million men in the United States. In order to provide a skeleton organization of such a transport wing in time of peace, Knerr recommended the establishment of a transport group headquarters at Wright Field and a transport squadron at each of the air depots. In November 1932, the Chief of Air Corps directed the establishment of the 1st Air Transport Group (Provisional) and four transport squadrons, one each at the Sacramento, San Antonio, Fairfield, and Middletown Air Depots.<sup>45</sup>

The Air Corps had established a centralized establishment for its air cargo operations, but the 1st Air Transport Group (Provisional) continued to lack suitable air cargo aircraft. The problem was actually Air Corps-wide, for the strength of the Air Corps had been set at 1,800 aircraft when the five-year expansion program was established in 1927. The 1,800 planes did not meet the minimum requirements for the Air Defense of the United States, and Major Walter H. Frank, Chief of the Air Corps Plans Division, explained that the Air Corps did not feel justified in diverting many planes from combat to supply purposes.<sup>46</sup> The same held true for the diversion of experimental money from the development of combat aircraft to the development of military air transport planes. Within the Air Corps, the air cargo function also faced

competition from the medical people who wanted air ambulances and from tactical commanders who wanted personnel carriers. Early in 1932, Major Knerr attempted unsuccessfully to recapture the four YIC-24's which had been diverted to air ambulance purposes. These planes were better able to carry aircraft engines than were the YIC-14's which the air depots were compelled to use. In March 1933, moreover, Brigadier General Oscar Westover, Acting-Chief of Air Corps, declared that the mobility of tactical organizations required that they be assigned new military transports designed primarily for conveying personnel.<sup>47</sup> Even though funds for this purpose were extremely limited, the Air Corps apparently intended to develop different types of transports for cargo and troop carrying purposes.

Early in the 1930's, Air Corps plans for development-- including the plan to establish a new GHQ Air Force with a degree of air mobility which would permit it to concentrate in any threatened area of the United States-- were stifled by limitations on air strength. In October 1933, a War Department board headed by Major General Hugh A. Drum accepted the idea that the Air Corps needed a GHQ Air Force and a top strength of 2,320 planes, but it recommended against increasing the strength of the Air Corps at the expense of the remainder of the Army. In the winter of 1933-1934, however, a series of flying

tragedies served to secure a reversal of the Drum Board recommendations. With little warning and in extreme weather, Air Corps pilots on 19 February 1934 were required to fly the air mail. The death of nine pilots within three weeks led to the appointment of a new investigating board headed by former Secretary of War Newton D. Baker.<sup>48</sup>

The Baker Board began its hearings in April 1934, and its final report issued on 18 July 1934 recommended many fundamental changes in the Army Air Corps. The principal change recommended by the Baker Board was the establishment of a GHQ Air Force. The board also observed that 2,320 airplanes was the minimum Air Corps strength necessary to meet peacetime Army requirements. As for transport aircraft, the board recorded an opinion that competition for civil sales had caused commercial air transports to forge ahead of military transports. "In general," said the board, "it seems desirable that cargo and transport airplanes procured by the Air Corps be developed from types in use in commercial service and in production, instead of specially developed types that would not be available in large quantities in the event of an emergency."<sup>49</sup>

Although its recommendations were resultant in the establishment of the GHQ Air Force effective on 1 March 1935, the Baker Board imposed restrictions upon the development of military air transport aviation, some of which would be long lasting. Since it accepted the aircraft strength figures prepared by the Drum Board, the

Baker Board set the Air Corps' transport aircraft strength at 120 aircraft, 40 of which would be allocated to the GHQ Air Force. In November 1934, Brigadier General B. D. Foulois, Chief of Air Corps, urged that the air striking force ought to have more transports and he proposed to increase the Air Corps' total number of transports to 202 planes. General Foulois also objected to the rule whereby the Air Corps was expected to convert commercial transports to military uses. He conceded that speedy commercial airliners would be adequate to transport military personnel, but he insisted that the Air Corps ought to develop its cargo aircraft to meet military characteristics.<sup>50</sup> The War Department yielded on neither score, with the result that the Air Corps had to retrench its transport organization.

In the expansion program for 1935, the Materiel Division had expected to convert its provisional air cargo service into a regular establishment. At the direction of the Chief of Air Corps, however, the 1st, 2d, 3d, and 4th Air Transport Squadrons were formally activated in June 1935, but the 1st Air Transport Group (Provisional) was disbanded. The Materiel Division protested the disbandment of the provisional centralized group organization, but the Chief of Air Corps declared that the reorganization was necessary because of a dearth of personnel and airplanes.<sup>51</sup> Each of the squadrons

possessed two Bellanca C-27 transports, and each squadron was attached to one of the continental air depots.<sup>52</sup>

As was the case in the Air Corps expansion of 1935, air transport aviation during the next several years received low procurement priorities. Air Corps leaders knew that they needed more transport aircraft, but they were unwilling to procure them at the expense of combat aviation.<sup>53</sup> In December 1936, Brigadier General H. H. Arnold, now Assistant Chief of Air Corps, attempted to justify procurement of an increased number of transport airplanes. The air transport cargo squadrons made it possible for the Air Corps to operate on a reduced supply budget by quickly delivering needed items from central supply stocks. More planes were needed to expand this service. Experiences of the Italians in the Ethiopian War also indicated that air-dropped resupply would be important to ground troops. General Arnold also noted that more transports were required for use as aerial ambulances. Because of the expense, no special air ambulances were being developed, but instead the air transports were being designed with litter installations to permit them to satisfy the ambulance function. The GHQ Air Force, moreover, needed transports for mobility; it requested two transport squadrons and other transports to be assigned to its bases. Because of its shortage of transport planes, the GHQ Air Force had already recommended

that new bombers and reconnaissance planes would be able to transport personnel, and it planned to use these planes in its 1938 maneuvers for the movement of essential units. The Air Corps Materiel Division wanted to expand its four transport squadrons and to establish a group headquarters to control them. The total peacetime requirement of the GHQ Air Force, the Materiel Division, and other Air Corps activities was set at 149 transport airplanes, no distinction being made as to cargo and personnel types.<sup>54</sup>

Despite General Arnold's interest in the matter, air transport aviation made limited progress, and this only in the Materiel Division's cargo service. In 1936, the Air Corps purchased <sup>17</sup>sixteen C-32 planes, new cargo versions of the all-metal Douglas DC-2 airliners, and eight of these C-32 aircraft were split equally between the four cargo transport squadrons. On 8 June 1937, Headquarters and Headquarters Squadron, 10th Transport Group was activated at Wright Field to provide central direction to the 1st, 2d, 3d, and 4th Transport Squadrons. During 1939, the 10th Transport Group received 24 new C-39's (planes with Douglas DC-2 fuselages and DC-3 tails), bringing its total strength up to 32 Douglas transports. The added strength allowed the 10th Group to undertake inter-depot flights.<sup>55</sup> Ordinarily, transport aircraft assigned to bases handled aeromedical missions, but on

16 October 1937, a 3d Transport Squadron ship, piloted by Master Sergeant Carlton P. Smith, transported a young girl in an "iron lung" from Tulsa, Oklahoma, to Wichita Falls, Texas.<sup>56</sup>

The Air Corps Materiel Division fortunately managed its transport expansion during the period in which the Air Corps momentarily enjoyed some priority for the acquisition of military funds. The GHQ Air Force was not so fortunate. The new Secretary of War, Harry H. Woodring, who took office on 25 September 1936, was not sympathetic to airpower. During a series of conferences on air procurement for 1938 and 1939 in August 1937, Secretary Woodring stated that there was no justification "for buying any transports due to their high price" and, furthermore, that there was "no use which warranted their purchase." Woodring directed that only 36 transports would be purchased in fiscal-year 1938 and none in fiscal-year 1939. The money available from this curtailment was to be used to purchase bombers\* or corps and division observation planes. The Woodring Program required the Air Corps to meet its requirements for transports by converting obsolete bomber aircraft.<sup>57</sup>

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\* In the spring of 1938, however, Woodring directed the Air Corps to confine its bomber estimates for fiscal-year 1939 to the purchase of light, medium, and attack bombers. As a result, the Air Corps lost a year's production of the B-17 bombers it would need so sorely in 1941.

To test the Woodring policy, the San Antonio Air Depot made intensive studies of the practicability of converting a damaged B-18 bomber into a transport, only to cease the project after the plane was repaired. The Depot reported that the cost of converting the bomber would exceed the price of a new transport.<sup>58</sup> But the Woodring Program could not be changed. As a result, the Air Corps purchased only 35 C-39's and a few miscellaneous transports in fiscal year 1938 and no transports at all in fiscal year 1939.<sup>59</sup> Because of the myopic Woodring Program, the Air Corps would be woefully lacking in air transportation when the United States entered World War II.

#### 4. European Nations Develop Air Evacuation Services.

In the two decades which followed World War I, the United States first struggled to develop an air ambulance and then entrusted the aeromedical evacuation function to air transport organizations which could not secure enough planes to perform their primary function. With the passing years, the United States Army and the American public gradually accepted air transport as a means for transporting sick and wounded patients, but only when the emergency was sufficiently grave. Each patient transported by air was an exceptional case, and air evacuation was clearly not supposed to replace the older means of surface transportation.<sup>60</sup> Except for a brief episode in Nicaragua,

the United States had no experience in the employment of aeromedical evacuation during actual hostilities.

European nations during the 1920's and 1930's tested aeromedical evacuation in wars of some proportion. These nations accumulated experience in the techniques of air evacuation, and they developed equipment and organization for massed air transportation of sick and wounded men. In many instances, aircraft became the routine means of transporting patients. During the years in which American air evacuation handled only a few patients in a year, flight surgeons of the Army Air Corps learned much from the experience in Europe.

Even though they found little requirement for aeromedical evacuation on the continent during World War I, the French began to use aircraft for the transportation of sick and wounded in Morocco during the autumn of 1918. The military situation in this North African protectorate was peculiarly difficult. In the far reaches of the rugged Atlas Mountains and in the barren deserts, fanatical Berber and Riff tribesmen waged savage guerrilla war against French garrison troops under Marshall Louis Lyautey. Surface transport for the sick and wounded was extremely difficult, if not impossible. Using improvisations apparently suggested by Dr. Chassaing, French pilots carried eighteen wounded men from Tafilalet to Bon-Denib in September 1918. At this early date, the

French troops were reportedly not too keen about the work, but an incident in January 1919 dramatized the value of air evacuation. One of the best known French leaders, General Polymiréau was severely wounded on a march near Meski and had to get surgical aid. The gravely wounded man was carried by stretcher to a landing ground at Ksar es Louk, whence he was flown to a hospital at Bon-Denib, a distance of 63 miles. Here General Polymiréau's life was saved by a Surgeon Faure, who had been flown over the Atlas Mountains from Fez.\*<sup>61</sup>

Since air evacuation proved vital in the Moroccan deserts, the French in 1920 allotted specially modified Breguet-14A ambulances to the forces of Lieutenant Colonel Cheutin, Commander of the 37th Regiment of Aviation. A Major Epaulard established the initial airplane ambulance organization. Employing six of the small Breguet-14A ambulance planes, each of which could carry two litter patients, Epaulard's organization airlifted more than 1,200 patients in 1922. As soon as possible, the small Breguet planes were replaced by a combination of large Breguet-Limousine planes, capable of carrying eight to ten cases, and small Hanriot biplanes, which carried one or two stretcher cases and could land and takeoff from

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\* Possibly as a result of this experience, the French developed an aerochir aircraft which carried a surgical team and equipment enabling operations to be performed in the field. Such an outfit proved of little value, for military surgeons agreed that it was better to operate on casualties after they had been moved to the safety and comfort of a hospital.

a small space. Under the new organization, two or three ambulance planes were allocated to each airfield, but the planes could be rapidly concentrated when necessary. Picked combat pilots ordinarily flew the hospital craft during late afternoon hours, and an air ambulance was supposed to be ready at all times to start an evacuation mission 30 minutes after a squadron received an order. Wounded were picked up at forward landing grounds by Hanriot planes and flown to rearward airfields, when Breguet ambulances transported patients to base hospitals at Fez, Meknes, Rabat, or Casablanca. As the war drew to an end in 1928, the Moroccan Air Medical Service was employing 26 Breguet machines and 17 Hanriots; and during the years between 1921 and 1928 the French transported 3,969 patients by air in Morocco, with only two fatal accidents.<sup>62</sup>

With the outbreak of conflict with Arab nationalists in the mandated territory of Syria, other French troops under General Denain found air evacuation to be urgently needed. Sixteen Breguet-14A ambulances were allotted to Levant in 1920, and following fighting around Deir-ez-Zor near the Euphrates River in 1921 the air ambulances evacuated 150 wounded a distance of 156 miles to a base hospital at Aleppo in an elapsed time of two days. The actual flight required four hours as against five days by motor ambulance, or fifteen days by mule or camel,

through desert country threatened by hostile tribesmen. In the year following a new outbreak of tribal hostilities around Damascus in June 1925, the French evacuated more than 200 wounded men by Breguet-Limousine planes. In these campaigns, advancing troop columns located and prepared landing grounds. Arrangements were made for radio communication and ambulance planes were dispatched at once on demand from the ground troops. In one series of fifty cases carried by Breguet planes seven patients later died, but no patients were reported as having suffered as a result of the air journey to the hospital. When a promise of eventual independence quieted Syria in 1928, the French reported that they had conducted 1,392 patient evacuations by air in the sporadic campaigns since 1921.<sup>63</sup>

"The airplane is the ambulance of the future," stated Dr. Robert Picque of the French Health Service. "By rapidly removing the wounded from the fighting zone, the medical aeroplane has in a remarkable manner relieved the convoys, economized the fighting troops, and hastened the advance of attacking columns." Spoken in 1924 and 1925, Picque's remarks attested the value of aeromedical evacuation in the French Colonial Wars.<sup>64</sup> After four years' experience in command in Morocco, Colonel Cheutin noted that successful aeromedical evacuation required close and friendly collaboration

between the air and medical services, confidence of all troops in aerial transport, the existence of large numbers of landing grounds, suitable air ambulances of common types to facilitate parts supply, and qualified pilots.<sup>65</sup> In 1929, a summary French report stated that an air ambulance service (which could comprise commercial-type aircraft) should be considered as a normal means of transport in a modern war. Existing light air ambulances had been unable to work very effectively within ten kilometers of the frontline, and the main use of air ambulances was said to be the conveyance of patients between rearward airstrips and base hospitals. The French report thought that the air ambulance service should be made a special section of the air force and that hospital planes should be protected by the international red cross of the Geneva Convention.<sup>66</sup>

Confronted with a positive declaration by the Director-General of the British Army Medical Services in France that airplanes were not suitable for the transport of wounded men, the Royal Air Force made no progress in developing aeromedical transport while World War I raged in Europe.<sup>67</sup> The earliest authorized British air ambulance was not built until 1919 and was never used. This plane, an Armstrong-Whitworth machine, was modified to the design of two RAF medical officers. That same year, another RAF medical-supervised ambulance modifications made on a

De Havilland DH-6 at Moascar, Egypt, but there was no record of its use in carrying casualties. In the autumn of 1919, however, a De Havilland DH-9 modified as an ambulance, accompanied the RAF "Z" expedition into Somaliland. Employing air action against a perennial troublemaker Mohammed bin Abdullah-- better known as the "Mad Mullah"-- the RAF expedition accomplished its objective early in 1920. The experimental De Havilland air ambulance (the troops called it the "Blood Wagon") could carry only one stretcher and a medical attendant but it quickly justified its existence. Patients were carried back to the base at Berbera in a two-hour journey which would have consumed at least five days on land.<sup>67</sup>

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As rebellious tribesmen began hostilities in the British mandated territory of Iraq in 1920, the Royal Air Force procured its first air ambulance plane, an ambulance adaptation of the standard twin-engine Vickers-Vernon transport aircraft. Two additional planes of the same type were soon secured. Early in 1922 the three Vernon ambulances were shipped by sea to Aboukir, where trouble almost immediately began to haunt them. The first crashed during a test flight in Egypt; the second crash-landed in the Judaeen hills late in 1922 while enroute to Baghdad and had to be returned to Aboukir for extensive repairs; the third reached Baghdad in March 1923 and hauled a few casualties in from Kirkuk before

it was completely wrecked at a forward landing ground. The loss of these air ambulances was inopportune, for a British ground column was driving into the mountains of Kurdistan on roads which were impassable to wheeled vehicles. In April 1923, a sudden epidemic of dysentery struck down some 200 British soldiers in Northern Kurdistan.<sup>69</sup>

Fortunately for the British soldiers stricken in the northern mountains, the Royal Air Force garrison in Iraq included two squadrons of Vickers-Vernon troop carrier aircraft. Planes of this type were sent from Baghdad to Kirkuk on 28 April 1923 and patients from the Kurdistan column were soon being lifted from a treacherous forward field at <sup>S</sup>Kerkhuma. Bad weather and down drafts in the Adghir Dagh Mountains caused one Vernon to crash land, but no one was injured. A Bristol fighter, carrying a medical officer, was able to land near the crash site; the Bristol subsequently evacuated one critically ill man, and the medical officer superintended the evacuation of the other patients by donkey. Altogether, 198 cases were evacuated by air to Kirkuk and thence to Baghdad. In the following fifteen months, 161 other patients were evacuated from outlying stations, such as Kirkuk, Sulimaniyeh, Kinderban, Ramadi, and <sup>2</sup>Mesul, to Baghdad, mainly in Vernon transports. The Vernon air ambulance which had been damaged in the Judaeen hills

finally arrived in Iraq in September 1924 and was used for routine weekly evacuation of patients from Kirkuk to Baghdad. The British also made some use of standard two-seater fighters for crash-rescue work. In such instance, a patient was encased in a bamboo and canvas Neill-Robertson stretcher and strapped on top of the fuselage of the airplane.<sup>70</sup>

At the same time that these operations were in progress in Iraq, the Royal Air Force instituted air evacuation services in the United Kingdom. Three single-engine Avro-Andover ambulances were commissioned in 1923. These planes had facilities for two lying and two sitting patients and were suitable for crash-rescue work or routine evacuation from outlying stations. These planes, however, were non-standard types and were difficult to keep operating on that account. The RAF also stationed two specially-fitted Vermont Victoria aircraft, with facilities for 14 litter or 24 sitting patients, at Halton, near London, in 1925. The RAF intended that these planes would bring patients from a radius of a hundred miles to the service hospital at Halton, but the service<sup>^</sup> was little used and was discontinued in 1926.<sup>71</sup>

Royal Air Force experience in Iraq demonstrated that aeromedical evacuation was useful, but the RAF had not yet determined the most feasible manner in which to manage the function. Some thought was given to the

establishment of a separate flight, squadron, or wing of air ambulances, but the British recognized that such an organization would be often unemployed. On the other hand, standard air transports could be adapted for patient transport with slight modifications which did not disqualify them for their primary function. In 1924, the Air Ministry directed that all new troop carriers would be fitted for emergency patient lift. Since troop carrier aircraft could not be accorded non-combatant status, the British deleted the Red Cross from all its old airplane ambulances in October 1925, so ending "the short and rather inglorious life of the air ambulance in the Royal Air Force."<sup>72</sup>

Following the initiation of air evacuation practices in Kurdistan, the Royal Air Force continued a routine employment of transport aircraft for aeromedical purposes in the Middle East. To eliminate a several weeks<sup>3</sup> sea voyage over the rough and steaming Persian Gulf, the RAF made arrangements late in 1924 to fly patients across the desert from Iraq to Egypt, a distance of 625 miles. This could be done in a day, from sunrise to sunset, but generally an overnight stop was made at Ziza, thirty miles from the Dead Sea. Because of fuel requirements, the transport aircraft usually carried only four patients on this pioneer international airlift. Because of "shockingly bad" roads, the British in 1927 conveyed

patients almost entirely by air in Palestine, flying them from Transjordan to the RAF hospital in Palestine. During the twelve year period of routine patient airlift between 1925 and 1936 a total of 1,783 patients were carried in RAF aircraft. In 1935 alone, the Royal Air Force evacuated 282 patients by air in 164 flights totalling 46,995 miles in length. Practically any patient who could be transported by any media could be carried by air without aggravating his condition.<sup>73</sup>

Even though the Royal Air Force generously employed its overseas air transports for patient evacuation, the British Air Ministry stoutly maintained that it could not use its scarce funds for purchasing aircraft for purely medical use. In 1937 and again in 1939, the British Commander in Egypt suggested that in event of war in the Western Desert he ought to have air ambulances. On both occasions, the Air Ministry insisted that it could not spare scarce aircraft and personnel to form sporadically - active ambulance flights.<sup>74</sup> Experience in Waziristan on the northwestern frontier of India in 1937, moreover, indicated that RAF transports could adequately handle air evacuation as a secondary mission. As the punitive operations began against hostile tribesmen in Waziristan in February, the deputy director of medical services of the Northern Command elected to use existing hospitals far from the combat area to accommodate casualties.

Surface evacuation was normally employed, but Vickers-Valentia bomber transport planes based at Kohat and Risalpur were used for emergency air evacuation. Each of these planes could accommodate four litter and five sitting patients and a medical attendant. In this operation, the Vickers-Valentia transports hauled supplies forward and were then diverted to Rawalpindi to "backload" patients to rear area hospitals. All patients were normally accompanied by a medical attendant, either an assistant surgeon or a trained nursing orderly. The Waziristan operations demonstrated that transport aircraft could be readily employed for patient evacuation without interfering with their primary duty. Air evacuation also promised to reduce the size of the "tail" of a Medical Service, for it could bypass numerous line-of-communication medical units and speed patients to centralized hospitals outside the combat zone.<sup>75</sup>

During the Spanish Civil War (1936-1938) the German Luftwaffe first demonstrated the feasibility of aero-medical evacuation of casualties over great distances and under conditions of modern warfare. In this dress rehearsal for World War II, the Nazi Condor Legion evacuated casualties from Spain across the Mediterranean to Northern Italy and then over the Alps to German hospitals. Total distances varied from 1,350 to 1,600

miles, but the Junkers JU-52 transport planes made the flights in ten to twelve hours. When auxiliary cabin tanks were used, the JU-52 could carry six litter or two ambulatory patients, but, without auxiliary fuel tanks, the transport could accommodate ten litter and eight ambulatory patients. The alternative to air evacuation was a two-day trip by train to the coast of Spain and then by cargo vessel to Hamburg, the entire trip requiring six to seven days. Air evacuation of Condor Legion casualties not only saved time, but a patient could be moved much sooner after injury and treated in first-rate hospitals in Germany. In order to cross the Alps, the Junkers planes lifted patients to altitudes of up to 18,000 feet without ill effect, the first time that sick or wounded had been taken so high. Medical attendants accompanied the flights and oxygen therapy was available enroute.<sup>76</sup>

Drawing upon the experience gained in Spain, the German Army employed aeromedical evacuation in support of blitzkrieg tactics when it launched its invasion of Poland in September 1939. During the first six weeks of World War II, the Luftwaffe evacuated 2,500 patients from Poland to army hospitals in Germany. By August 1941, the German press reported that over 280,000 casualties had been evacuated by air from the eastern front, where Russia was now the adversary. In the issue

of Der Deutsche Militar Arzt for January 1940, two German military surgeons and a Luftwaffe officer described Nazi aeromedical evacuation experience in Poland. Lieutenant General Erich Hippke, the Surgeon General of the Luftwaffe, emphasized that no special ambulance had to be built for operations between airfields since commercial passenger aircraft were easily marked with Red Crosses and converted for carrying litters. Planes used for medical purposes hauled medical supplies forward and lifted patients on their return trips. General Hippke urged that patients requiring special attention should be simply prepared for immediate air evacuation and then transported to well-equipped central hospitals in Germany. Because of road congestion at the front, Hippke posed a requirement for a small, low-speed, plane of the Fiesler-Storch \* liaison type which could shuttle patients from dressing stations to combat-area airfields where the wounded could be loaded aboard transport-type planes. Hippke emphasized that medical personnel had to attend patients in flight and during loading and unloading.<sup>77</sup>

In this same issue of Der Deutsche Militar Arzt, Major W. Tonnis, a consulting surgeon in the Luftwaffe Surgeon General's Office, described the medical aspects

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\* Well known to aviators in the 1930's, the Fiesler-Storch was a slow-flying, light communications plane which was a forerunner of American "grasshopper" or "puddlejumper" liaison planes.

of air evacuation. During the blitzkrieg into Poland, medical motor transport had been unable to keep up with the rapidly advancing front, but medical airplanes had brought patients to well-equipped hospitals in Germany. In one instance, a German soldier wounded near Warsaw was on the operating table of the surgical clinic at the University of Breslau two and one-half hours after the wound was received. In a third article, Major F. Schmidt, commander of a medical airplane squadron, explained the advantages of grouping hospital planes in special flights and squadrons. Using interchangeable litters, the hospital crew could load or unload a standard load of eight litter and two ambulatory patients in eight to fifteen minutes, so permitting the ambulance plane to make up to three flights to Poland each day, provided patients were assembled on time at the forward airfield. Although he noted that such a detail might appear trivial, Major Schmidt emphasized that litters used by ground ambulances and on the hospital planes had to be interchangeable. Shifting men from one type litter to another in the first part of the operation caused much wasted motion and loss of time. Despite some trouble with fog and icing, Major Schmidt reported that only a small percentage of flights in Poland could not be carried out. Schmidt also stated a requirement for a small communications plane of the Fiesler-Storch type which could handle forward area

evacuations.<sup>78</sup> As World War II progressed, the Luftwaffe would be forced to handle aeromedical evacuation as a fortuitous by-product of air transport activity, but in the first months of battle, Luftwaffe medical officers galvanized medical circles in the United States with the reports of their exploits in aeromedical evacuation.

CHAPTER II

AIR FORCE PREPARATION FOR AEROMEDICAL EVACUATION

1. Pre-War Plans and Policies, 1939-1941

In the autumn of 1938, men of vision in Washington were not very happy about world affairs. Undeclared war raged in Asia, and the forces of dictatorship were moving toward war. America was too weak militarily to stand as a force for peace. As well as anyone else, Major General Henry H. Arnold, who became Chief of Air Corps on 29 September 1938, knew the military unpreparedness of the United States. Because of limited funds the Air Corps had never been able to develop the combat aviation it required, much less to develop balanced airpower in all its aspects. Among other things, General Arnold knew that the Air Corps was deficient in air transport. In 1934 he had told the Baker Board that the Air Corps' striking forces required the combat mobility which could be attained only with modern air transport planes. When he again asked for transports in 1936, Arnold had pointed out that these planes would double as air ambulances.<sup>1</sup> Deficient appropriations and the concept that the Air Corps could mobilize the nation's civil air fleet for war had delayed the development of military air transport aviation.

If he had not recognized it earlier, President Franklin D. Roosevelt saw after the Anglo-French capitulation to

Adolph Hitler at Munich that only American airpower was likely to <sup>be</sup> effect Hitler's mad rush to war. Like a bolt from the blue, President Roosevelt announced at a meeting on 28 September that he wanted to increase America's aircraft production and that he was going to ask Congress to appropriate \$300,000,000 for the Air Corps.<sup>2</sup> As he had said he would do, President Roosevelt asked Congress on 12 January 1939<sup>1</sup> to vote the large appropriation to the Air Corps. Within three months, Congress authorized the Air Corps to expand to a strength of 5,500 planes, 3,203 officers, and 45,000 men.<sup>3</sup>

Although the appropriations voted in 1939 amounted to half as much as the Air Corps had received in the fourteen prior fiscal years, the new money actually was sufficient only to flesh out the existing organization of the Air Corps. New air bases and air depots had to be built for strategic reasons, and the Air Corps limited its expansion to a total strength of 24 groups, to be combat-ready by 30 June 1941. Because of earlier cutbacks by the late Secretary Woodring, the Air Corps had to invest <sup>heavily</sup> in heavy bombers and could purchase only <sup>12</sup> twelve small transports for administrative duty in fiscal year 1940.<sup>4</sup> To provide air transport squadrons for the new air depots which were being built under the augmentation program, however, the 5th, 6th, and 7th Transport Squadrons were activated at Fairfield,

Middletown, and Sacramento on 14 October 1939. Gaining a few more Douglas C-39's, the 10th Transport Group now possessed 44 aircraft and was able to undertake coast-to-coast flights, speeding the delivery of government-furnished equipment from producers in the east to aircraft factories on the west coast. On 9 August 1940, a regular weekly logistics flight was inaugurated between the San Antonio and Panama Air Depots.<sup>5</sup>

Put into effect before the outbreak of World War II, the Air Corps augmentation of 1939 was a step in the right direction, but each Nazi conquest served notice that the United States had not set its goal for Air Corps expansion high enough. Led by the Luftwaffe which provided combat and logistical support, Nazi blitzkreig forces rolled up Poland in the four weeks after 1 September 1939, invaded Denmark and Norway on 9 April 1940, marched into the Netherlands, Belgium, and Luxembourg on 10 May 1940, and forced France to capitulate on 22 June 1940. Employing air transport as a combat weapon, the Luftwaffe employed paratroopers and airlanded troops in the van of the ground attack. A steady flow of reports from Europe by such experienced air officers as Lieutenant Colonel Carl Spaatz and Major George C. Kenney left little doubt in General Arnold's mind that the Luftwaffe was the major element in the Nazi victories. If Great Britain collapsed, the Luftwaffe would be unleashed against an isolated United States.

As General Arnold's Office of Chief of Air Corps worked as a part of the War Department Planning "Hemispheric Defenses" in the spring of 1940, money was no longer a controlling factor. Lead time and the productive capabilities of America's aviation industry were the factors dictating how fast the Air Corps could expand. In addition to providing for its own needs, President Roosevelt insisted that the United States must serve as an "arsenal of democracy" to provide equipment to the nations who fought the Axis. Spurred through Congress by news of the fall of France, the Air Corps officially undertook the Army's First Aviation Objective on 12 July 1940. Calculated for Hemisphere Defense (not for defeating the Axis) this program called for a total of 54 combat groups, 6 transport groups, 12,835 planes, 16,800 officers, 15,000 aviation cadets, and 187,000 <sup>1</sup>unlisted men. The Air Corps was to attain this strength by April 1942.<sup>7</sup> Looking toward the achievement of the air transport portion of this program, as well as to the allocation of planes to other using organizations, the Air Corps for the first time in its history ordered substantial numbers of transport planes. From Douglas, the Air Corps ordered 953 C-47's and 193 C-53's, both aircraft being military versions of the DC-3 civil transport. From the Curtiss-Wright Company, the Air Corps ordered 1,064 C-46's, a wholly-new twin-engine

transport. In June 1941, the Air Corps took over from Douglas 24 C-54 aircraft--standard model DC-4 four-engine airliners which had been ordered by civil airline companies.<sup>8</sup>

With the acceleration of war preparedness programs, the dearth of Air Corps transport aircraft became more and more acute. Enlargement of depot services, the need to convey government equipment to factories, and the activation of Army paratroop units posed increased demands for transport planes. As a part of the First Aviation Objective, five new transport groups were activated (the 60th, 61st, 62d, 63d, and 64th) on 1 December 1940. The 10th, 62d, and 63d Transport Groups shared the old transport squadrons, and on 8 January 1941, the transport groups were assigned to the simultaneously-activated 50th Transport Wing.<sup>9</sup> Despite a chronic shortage of airplanes (it had only 41 in April), the 50th Transport Wing is said to have hauled more cargo than all American Civil Aviation combined during the first six months of 1941.<sup>10</sup>

During the lean years of the late 1930's, Lieutenant Colonel Malcolm C. Grow, Chief Flight Surgeon of the Air Corps from 1934 to 1939, had been willing to go along with the use of transport planes for air evacuation of casualties, but he never believed that the decision was correct.

Placing the transport planes on order was one thing, but getting them delivered from hard-pressed aircraft companies was quite another.<sup>8</sup>

Lieutenant Colonel David N. W. Grant, who became chief of the newly-named Air Corps Medical Division in 1939, held substantially the same views. While Colonels Grow and Grant pushed the idea of air-ambulance evacuation as much as possible, their anomalous status in the Medical Department of the U. S. Army did not give them much authority. Over the years the Air Corps Medical Division had developed a unique importance and a binding allegiance to the air service, but the Air Corps, strictly speaking, was no more entitled to a medical service than was any other branch of the Army. The Surgeon General of the Army was responsible for the evacuation and hospitalization of Army sick and wounded. Until the Surgeon General showed some interest in aeromedical evacuation, there was nothing that the Air Corps Medical Division could do about the matter.<sup>11</sup>

Excited by General Hippke's reports of German aeromedical evacuation in Poland, Colonel Grant stirred up enough interest in the Surgeon General's office to provoke a request for War Department action on air evacuation. On 11 July 1940, the Surgeon General suggested that a framework for an air evacuation service ought to be drawn up for implementation in time of war. He suggested that an Air Corps Medical Transport Group should be provided for each field army and should be controlled by the chief surgeon at the general headquarters. Each group would

comprise an Airplane Medical Transport Squadron and an Airplane Shuttle Ambulance Squadron. The Surgeon General remarked that the planes and aviation personnel for the war<sup>time</sup> organization could be obtained from civilian sources.<sup>12</sup> Indicating his personal enthusiasm for the proposed Air Corps Medical Transport Group, Colonel Grant wrote that it would lighten and speed the task of transporting casualties.<sup>13</sup> In its comment on the proposal, however, the Air Corps held a more restrained view. It agreed that air ambulance units should be controlled by field army commander and that tables of organization ought to be drawn up at once. The Air Corps suggested that the air evacuation service would in reality be a composite task force with Air Corps elements to maintain and operate the air ambulances and Medical Corps troops to serve aboard the air ambulances, to handle medical supplies and equipment, and to load and unload patients. The Air Corps believed that its existing tables of organization for transport groups and squadrons were suitable for use by ambulance organizations and it saw no reason to prepare new tables. The existing transport squadron tables would suffice for the airplane medical transport squadron; by substituting three single-engine planes in lieu of two twin-engine planes, the existing table would also suffice requirements of the airplane shuttle ambulance squadron.

It suggested, however, that the Medical Department should prepare and publish tables of organization for an ambulance battalion (air) and an ambulance company (air). The company could be a Medical Corps companion unit to a transport squadron and the battalion would be a companion unit to an air transport group of three squadrons.<sup>14</sup>

The suggested Air Corps solution appeared reasonable to the War Department General Staff, which returned the recommended tables of organization of the Air Corps medical transport group to the Surgeon General's office for revision. On 5 September 1940, the War Department directed the Chief of Air Corps to maintain plans to convert standard transport airplanes and suitable single-engine airplanes to ambulance use.<sup>15</sup> On 20 September, General Arnold called Colonel Grant to his office and told him to get a Douglas C-39 transport plane and to draw up plans for the fittings it would need to be converted into an air ambulance. At Colonel Grant's request, the Air Corps Materiel Division had a C-39 fitted for carrying litters at Wright Field and flown to Bolling Field for inspection. Early in December 1940, Colonel Grant recommended that all Air Corps transport planes be equipped for carrying standard pole and canvas field litters instead of the old wire-basket Stokes litters. As a result of Grant's recommendations, the Douglas Company began to produce bracket-type

litter supports which fitted on the cabin walls of its DC-3 and held three tiers of standard army litters. Each Douglas C-47 litter-support kit weighed about 200 pounds and was stowed in a compartment beneath the floor of the plane adjacent to the cargo door. With the metal brackets, a C-47 could accommodate 18 patients. The Douglas Company also provided metal litter supports for its passenger-type C-54 aircraft. In this installation, litters for 13 patients were fixed in the aisles of the plane.<sup>16</sup>

In the spring of 1941, the Air Corps devised plans and policies for the employment of the Douglas transports in peacetime air evacuation. On 11 January 1941, the Chief of Orthopaedics at Walter Reed General Hospital protested that Army orthopaedic cases arriving by rail were usually exhausted while similar Air Corps cases transported by air were usually in excellent shape. The Walter Reed Hospital accordingly asked the Army's Surgeon General to state a policy that seriously-injured men would be moved over long distances by air and to insure that air transport for such patients would be available.<sup>17</sup> Asked for comments, the Air Corps Medical Division recommended on 1 March that one of the new transport aircraft being procured should be assigned to each air district in the United States for use as an air ambulance. Reasoning that all cargo aircraft were potential air ambulances, Brigadier

General Davenport Johnson, Chief of the Air Corps Training and Operations Division, disagreed with the Medical Division's recommendations. General Johnson preferred to charge the 50th Transport Wing to provide necessary emergency transportation for medical patients.<sup>18</sup> General Johnson did not wish to burden base and tactical units by assigning them special ambulance airplanes.

The Air Corps met no especial difficulty in preparing its standard Douglas multi-engine transports for emergency aeromedical evacuation. The War Department directive of 5 September 1940, however, also required the Air Corps to maintain plans for converting suitable single-engine airplanes into ambulances. As soon as he saw this directive, General Arnold noted that he knew of no single-engine plane either possessed or under procurement which was adaptable for air ambulance work. Brigadier General B. K. Yount, Air Corps Plans Division Chief, nevertheless suggested that corps and division liaison planes might prove able to perform shuttle air evacuation.<sup>19</sup> Here the matter rested for several weeks. At Randolph Field, Texas, however, Lieutenant Colonel Robert K. Simpson, M. C., on 7 November 1940, stated a requirement for a small air evacuation plane which could get into and out of small fields. The converted B-18 that the Gulf Coast Training Center was using for ambulance work could operate only from prepared

airfields. Brigadier General Gerald C. Brant, commander of the Center, asked the Air Corps to procure three small Stinson or Buchcraft aircraft and allot one of them for ambulance service.<sup>20</sup> In Washington, the Air Corps Medical Division concurred with General Brant's recommendations, but the Air Corps Plans Division recommended against the purchase of special planes which were different in maintenance and equipment from other planes in service. It recommended the use of obsolete or "otherwise available" planes for the work and suggested that the Medical Division select some obsolete plans for conversion.<sup>21</sup> Brigadier General George H. Brett, Acting-Chief of the Air Corps, approved the Plans Division recommendation on 31 December 1940 and directed the Materiel Division to recommend suitable obsolete planes for conversion. When <sup>at</sup> Wright Field showed that there were no suitable obsolete planes for conversion, the Air Corps Materiel Division secured authority to convert three Stinson O-49 liaison planes into light air ambulances for the training centers.<sup>22</sup> When these planes came off production lines in May 1941, three O-49's were modified so as to carry one medical attendant, and a single litter patient. The three special planes were designated as O-49B's (later L-1B's).<sup>23</sup> By this action the Air Corps procured crash-rescue type planes for its training centers, but it did not solve the problem of

shuttle-type planes for use in a comprehensive air evacuation system.

As the Army air arm grew in strength and responsibilities, the War Department was hard-pressed to process air affairs through its maze of control channels. Recognizing that air affairs needed unified direction, General George C. Marshall, the Army Chief of Staff, made General Arnold the Acting-Deputy Chief of Staff for Air in November 1940. On 20 June 1941, General Marshall initiated a general air reorganization which created a new Army Air Forces headquarters over the Air Corps and the Air Force combat command (the new ~~contract service from Miami across Africa in the early summer of 1941. Employing eleven converted B-24 Liberator bombers on loan from the Combat Command, the Air Corps Ferrying Command began a passenger service over the North Atlantic to Britain on 1 July 1941. Three subsidiaries of Pan-American Airways began a~~ name for the GHQ Air Force). General Arnold now became both the Deputy Chief of Staff for Air and the Chief of the Army Air Forces. Other air organizational changes accompanied this reorganization. In March 1941, four numbered Air Forces--the First and Third in the Northeast and Southeast and the Second and Fourth in the Northwest and Southwest--were organized for continental air defense. In the same month, the old Air Corps Materiel Division was split by the

establishment of a new Air Corps Maintenance Command (which was redesignated the Air Service Command in October 1941). To fly aircraft purchased by the British to peripheral transfer points of embarkation in the United States, the Air Corps Ferrying Command was established on 29 May 1941.

As the Nazi air blitz raged against Great Britain and German ground forces marched against Russia, the United States began to consider its requirements for fighting the Axis. The War Department ordered a Second Aviation Objective on 14 March 1941. This program provided for eighty-four groups by 30 June 1942, to be equipped with 7,800 combat planes and manned by 400,000 officers and airmen. The Second Aviation Objective called for seven transport groups, each to possess four squadrons instead of the old standard of three squadrons. Faced with growing demands for aircraft on 9 July 1941, President Roosevelt asked the War and Navy Departments to prepare an estimate of "overall production requirements required to defeat our potential enemies." The report submitted to Roosevelt on 11 September 1941, included an Army Air Forces section prepared by the Air War Plans Division and known as AWPDL. To carry out its missions, the AAF estimated that it would require 239 combat groups and 108 separate squadrons, 63,467 planes of all types, and 2,164,916 men. In general, this statement of total requirements for air ascendancy

Employing eleven converted B-24 Liberator bombers on loan from the Combat Command, the Air Corps Ferrying Command began a passenger service over the North Atlantic to Britain on 1 July 1941. Three subsidiaries of Pan American Airways commenced a contract service from Miami across Africa in the early summer of 1941.

proved to be nearly right, but its estimates of air transport requirements were less than would be required. For support of ground forces, the plan called for <sup>14</sup>nineteen transport groups with 1,520 aircraft; for AAF maintenance support, an estimated <sup>12</sup>thirteen transport groups with 1,040 planes were deemed necessary. The air planners estimated that the latter figure would comprise 160 four-engine long-range transports and 880 two-engine medium range transports.<sup>25</sup> The air planners did not visualize the tremendous requirements which would develop for air transport aviation in a war of modern proportions.

Strangely enough, the organization of the Army Air Forces did not add anything to the autonomy of its medical services, and the reorganization actually complicated aeromedical planning for a time. Only after long and tedious negotiations was Colonel Grant relieved from the Office of Chief of Air Corps and assigned to Headquarters, Army Air Forces, on 30 October 1941. At this time, an AAF special order designated Colonel Grant as "The Air Surgeon." In addition to these duties, however, Grant continued to be Chief of the Air Corps Medical Division.<sup>26</sup> Even in his new job, Colonel Grant lacked authority to push aeromedical evacuation, which continued to be a sphere of authority of the not-too-interested Surgeon General of the Army. Early in 1941, for example, the Air Corps Training Center surgeon

at Randolph Field, Texas, wanted to use the large and well-equipped hospital at Randolph as a central hospital which would serve patients who would be transferred by air from outlying airfields. The Eighth Corps Area, however, ruled that air evacuation could be accomplished only when necessary to save a man's life.<sup>27</sup> In the Louisiana and Carolina maneuvers of 1941, aeromedical evacuation was neither employed for actual casualties<sup>or</sup> tested with simulated casualties.<sup>28</sup>

The slow progress that was made upon the preparation of a table of organization for the Medical Department unit which was to handle airborne patients was also indicative of the Surgeon General's lack of interest in the matter. On 29 October 1940, the Surgeon General submitted to the War Department a revised table of organization for an air ambulance unit, but the table evidently remained without action in the G-3 Division,<sup>(S-2)</sup> of the General Staff for almost a year. When the G-3 released the table on 15 August 1941, both the Air Corps Medical Division and the Surgeon General's Office agreed that it had<sup>to be</sup> completely revised.<sup>29</sup> Following revision and coordination, the War Department published Table of Organization 8-455, Medical Air Ambulance Squadron, on 19 November 1941. The squadron was to be a companion unit for an Air Corps Transport Group, which would possess one squadron of light aircraft and two

squadrons of twin-engine transports. The medical air ambulance squadron was to have 45 <sup>or</sup> small Medical Department officers, and 218 enlisted men. It would consist of a headquarters section, a single-engine transport aircraft section, and two twin-engine transport ambulance sections.<sup>30</sup> No Medical Department air ambulance squadron was immediately organized and the proposed organization was not tested on field maneuvers prior to Pearl Harbor.

2. Mobilizing Air Evacuation Resources for War, 1942-1943

Although substantial numbers of transports were on order when the United States entered World War II, the Army Air Forces actually had only 133 medium and heavy transports on hand on 7 December 1941.<sup>31</sup> Under the impact of the war emergency, the AAF enlarged its procurement program especially for DC-3 and DC-4 (C-47 and C-54) type planes, and, on 13 December 1941, President Roosevelt directed the Secretary of War to take possession of any part of any civil aviation system required for the war effort. Under the circumstances of a global war, however, the Army Air Forces' pressing requirement was for long-range, four-engine transports. In an effort to break the overseas transportation bottleneck, the AAF converted B-24 bombers into C-87 transports. The C-87 was not an efficient transport, but it was a life-saver before C-54 transports became available in quantity during 1944.<sup>32</sup>

To support a global war effort, the War Department and the Army Air Forces were compelled to undertake a sweeping reorganization. Effective on 9 March 1942, General George C. Marshall organized three autonomous and co-ordinate commands under his authority--the Army Air Forces, the Army Ground Forces, and the Services of Supply (later the Army Service Forces). In a concurrent reorganization, Lieutenant General Henry H. Arnold reorganized his Army Air Forces. Internal friction between the Office of the Chief of Air Corps and the Air Force ~~B~~ombat Command were eliminated by abolishing both headquarters. A general redefinition of the air transport mission soon followed. To take control of the air transport groups assigned to the Air Service Command, General Arnold established an Air Transport Command at Wright Field effective on 30 April 1942. Colonel F. S. Borum, commander of the new organization, did not consider that the name was indicative of his mission, and Colonel H. L. George, commander of the Air Corps Ferrying Command, was equally dissatisfied with the designation of his organization. In an effort to better describe their duties, the two organizations changed their names on 20 June 1942. Colonel Borum's command became the I Troop Carrier Command and established its headquarters at Indianapolis, Indiana. Colonel George's Ferrying Command became the Air Transport Command, keeping its headquarters at the

Washington National Airport. The I Troop Carrier Command would train and organize troop carrier wings and groups (air transport units were so redesignated) for services overseas. The AAF Air Transport Command would be responsible for worldwide air transport services between theaters of operations and the United States.<sup>33</sup>

With the deployment of American servicemen to many overseas locations served by limited evacuation and hospitalization facilities, aeromedical evacuation soon became a medical necessity and a positive military requirement. From remote Alaska, where surface evacuation was often impossible, a B-18 bomber had moved <sup>10</sup>ten patients to hospitals in the United States during 1941. As construction troops began to build the Alcan Highway, volunteer medical attendants flying in C-47 cargo planes began the first American mass evacuation of sick and injured in January 1942. In this and other Alaskan Theater air evacuation work during 1942, C-47 crews transported 223 patients within the theater and 212 from the theater to the United States.<sup>34</sup> Acting on their own initiative, station surgeons at North Atlantic ferrying bases began to airlift seriously ill men to adequate hospitals. On 19 April 1942, the first patient was flown from Goose Bay, Newfoundland, to Presque Isle, Maine. During the remainder of the year, the North Atlantic Wing of the Air Transport

Command used returning aircraft to evacuate 61 patients from outlying bases.<sup>35</sup> After making a medical inspection of South Atlantic and African ferry route stations in June 1942, Colonel Leon A. Fox called for some kind of an air ambulance to service the route. The commanders of the Alaska Defense Command and the Newfoundland Base Command asked to be assigned special air ambulances in July 1942.<sup>36</sup>

Improvised air evacuation was also beginning in theaters of operation. Flying a few American-built Dakotas during the allied evacuation of Burma in the early months of 1942, the Royal Air Force No. 31 Squadron lifted 8,616 persons, including 2,600 sick and wounded, from Magwe, Shweba, and Mytkyina to airfields in India. American transports under Force Aquila which were at Dinjan flying the "Hump" to China also helped evacuate friendly personnel from Mytkyina, but they kept no figures on the catch as catch can air evacuation.<sup>37</sup> In Great Britain on 24 July, Major General Carl Spaatz, commander of the Eighth Air Force, recommended to Lieutenant General Dwight D. Eisenhower, commander European Theater of Operations United States Army (ETOUSA), that the transportation of patients by air within the theater should be carried on "as extensively as possible." The Eighth Air Force Surgeon, Colonel M. C. Grow, planned to use standard air transport planes for hauling patients and asked Washington to ensure

that all C-47's and C-53's sent there were equipped with litter racks. Colonel Grow also wanted to secure some light planes suitable for use as air ambulances.<sup>38</sup>

In view of the growing importance of aeromedical evacuation, it was fortunate that the War Department on 18 June 1942 officially charged the Army Air Forces with the "development and operation of air evacuation."<sup>39</sup> General Arnold sub-delegated the responsibility to Brigadier General David N. W. Grant, The Air Surgeon of the Army Air Forces. In view of the AAF's organization of air transport, General Grant really had to plan two air evacuation systems--one for intra-theater use and the other for inter-theater or theater to the United States movements. Somewhat later, a third system would be required for patient movements within the United States.<sup>40</sup> Completely dedicated to the principal that air transportation would save lives of the sick and wounded, The Air Surgeon's staff not only pioneered in the development of organizational techniques but also "sold" air evacuation to reluctant ground medical officers.

As soon as he received responsibility for aeromedical evacuation, General Grant gave as much attention as

possible\* to the development of an aeromedical evacuation system for use within theaters of operations. To assist in planning the theater aeromedical evacuation organization Grant called to Washington Colonel Wood S. Woodford, an experienced air surgeon who became Surgeon of the I Troop Carrier Command on 10 June 1942. At a meeting in Washington on 30 June 1942, Colonel Woodford's plan was accepted in its entirety by the Air Surgeon's Office.<sup>41</sup> One of the most interesting features of Colonel Woodford's plan was to employ female flight nurses. The plan to use flight nurses probably did not originate with Colonel Woodford, for after an inspection in North Africa he suggested in February 1943 that an air evacuation squadron performing short hauls of patients did not actually require flight nurses.<sup>42</sup> (~~Memo for TAS from Woodford, subj: Observations made in Northwest African Theater, 13 April 1943.~~) Other than its requirement for nurses, the plan was similar in concept to earlier ideas on theater aeromedical evacuation organization. Woodford proposed to move the

\*Even after the establishment of the AAF, General Grant was not completely able to devote his full attention to his duties. During the week ending 18 September 1942, for example, practically the entire effort of the Air Surgeon's office had to be given to defending the AAF Medical Service against a second effort of the Services of Supply to take it over. Each of these efforts forced General Grant and his staff to take time off from regular business and attend conferences with "young efficiency experts who knew nothing about medical problems." (Memo for Office of Technical Information AC/AS 4-2 AAF from Grant, 18 Sep 42.)

38th Medical Air Ambulance Squadron (which the Army had activated at Fort Benning, Georgia, on 25 May 1942) to Bowman Field, Louisville, Kentucky, and use its personnel for the organization of an "Airplane Evacuation Group (Medical) Troop Carrier Command." The groups would comprise a headquarters squadron and four airplane evacuation squadrons, three of them to be "Heavy" and one to be "Light." One group would be assigned to the troop carrier command of each air force. The "Heavy" squadrons would be employed with standard C-47 transport groups to carry sizable numbers of casualties. The "Light" squadron was authorized <sup>20</sup>twenty light aircraft and would be available for frontline evacuations, within "machinegun range of the enemy, if necessary."<sup>43</sup>

General Grant submitted a "Plan for Development and Operation of Air Evacuation Groups" to the Air Staff on 24 July 1942, and received approval to begin its implementation, apparently with an understanding that the proposed employment of light planes for air evacuation would require more study.<sup>44</sup> For several weeks there was some uncertainty about the fate of the proposed air evacuation organization. Acting in response to a rumor that the organization might be placed under the Air Transport Command, General Grant on 31 July formally requested that the AAF make the I Troop Carrier Command responsible for organizing and

training air evacuation groups. Following affirmative action, the 38th Medical Air Ambulance Squadron moved with a strength of two officers and 138 enlisted men,<sup>c</sup> to Bowman Field on 28 September 1942, and, on 1 October 1942, it was redesignated the 507th Air Evacuation Squadron (Heavy). The 349th Air Evacuation Group was activated on 7 October 1942.<sup>45</sup> Under the direction of the I Troop Carrier Command, the 349th was hurriedly whipped into shape and was able to furnish two flight surgeons, six nurses, and fifteen<sup>15</sup> enlisted men for service with the 53d Troop Carrier Wing in the Texas maneuvers of late October 1941.<sup>46</sup>

When Colonel Woodford<sup>l</sup> drew up his original plan for an air evacuation group he had thought it possible that theater troop carrier commands might actually transport casualties all the way from theaters back to the United States. In June 1942, the distinction between the Air Transport Command and the Troop Carrier Command was still not too clear.<sup>47</sup> It was soon apparent, however, that global air transport would be the work of the Air Transport Command, and at the request of the Air Surgeon's office, Brigadier General<sup>l</sup> Thomas J. Hanley, Jr., Assistant Chief of Air Staff A-4, on 28 August 1942,<sup>l</sup> directed the Air Transport Command to make aircraft available for evacuating to the United States personnel casualties from Alaska, Canada, Newfoundland, Greenland, Labrador, the

Caribbean, and other theaters where practicable. Such evacuation was to be conducted in connection with routine operations of transports and no special aircraft would be provided for the service.<sup>48</sup> To set the plan in motion, General Marshall directed all theater commanders on 25 September 1942<sup>7</sup> to call upon the Air Transport Command for the air evacuation of serious medical cases to the United States. Requests for air evacuation, however, were to be kept to a minimum.<sup>49</sup> Arrangements were made to provide 200-bed holding hospitals for the Air Transport Command at Edm<sup>o</sup>nton, Canada; Presque Isle, Maine; Miami and West Palm Beach, Florida; and Hamilton Field, California. The Services of Supply would evacuate patients from these station hospitals by rail.<sup>50</sup>

Under the direction of General Grant, the plans for a comprehensive medical air evacuation system were slowly but surely being pushed through a multitude of coordinating agencies. A cablegram received from London on 19 October 1942, however, indicated that the air evacuation program needed to be speeded up. In preparation for Twelfth Air Force operations pending in North Africa, Major General Carl Spaatz asked for an air evacuation group with both "light" and "heavy" squadrons. Arrangements were promptly begun at Bowman Field to activate the 620th and 621st Air Evacuation Squadrons (Heavy) and the

622d Air Evacuation Squadron (Light) on 11 November 1942, and General Grant expected to make the units ready for service in approximately sixty days. At this juncture occurred a circumstance which would require a modification of the entire plan for theater air evacuation. The Army Air Forces had actually never agreed as a matter of policy to provide liaison aircraft to a light air evacuation squadron. On 28 October 1942, when he requested twenty such planes to be converted and delivered to Bowman, General Grant ran headlong into the massive opposition of Major General Myr S. Fairchild, AAF Director of Military Requirements, who insisted that "the activation of any puddle jumper squadrons" for the evacuation of wounded was not required. The proposal was at variance with the Air Force's long-established policy of not providing special aircraft for ambulance purposes and would allow a medical officer to command air crews in a manner contrary to regulations. General Fairchild suggested that Army motor ambulance units ought to handle patient evacuation along the frontlines; in such areas motor ambulances were often under fire and it seemed hardly likely that light planes could operate there. Since no formal requirement had ever been placed for light-plane ambulances, no such planes were immediately available when the matter was brought to General Arnold's attention on 12 November, he agreed with General Fairchild.<sup>51</sup>

The Air Force decision to limit medical air evacuation to standard air transport planes and to the evacuation of casualties to the rearward of Army evacuation hospitals cut short the life of the squadrons which had so recently been activated at Bowman Field because it destroyed the basic concept underlying their formation. In an effort to get better thought on the problem, General Grant summoned Colonel Woodford to serve as the Chief of the Air Surgeon's Plans and Training Division. At about this same time a young doctor who had been studying abroad and had witnessed the success of German air evacuation procedures was brought into the Air Surgeon's office. This man was Major Richard L. Meiling, and, while he would hold several nominal positions, he would be the first and only "An Evacuation Officer" in the Air Surgeon's office.<sup>52</sup> Beginning work anew, the Air Surgeon's office soon devised a table of organization for a Medical Air Evacuation Transport Squadron which would be suitable for employment by either troop carrier commands or the Air Transport Command.

Issued in tentative form on 30 November 1942, and in final format on 15 February 1943, Table of Organization 8-447 established a Medical Air Evacuation Transport ~~Eva-~~  
~~cuation-Transport~~ Squadron which consisted entirely of medical personnel and had no capabilities for operating

motor ambulances or holding stations at loading points. The squadron would consist of a headquarters and four evacuation flights, each made up of six flight teams. The headquarters, or "housekeeping" section, included the commanding officer, the chief nurse, a medical administrative corps officer (supply, motor, and mess), and twenty-nine enlisted men (clerks, cooks, and drivers). Headed by a flight surgeon, each flight consisted of six flight nurses and six enlisted surgical technicians, and two enlisted clerks. Flight teams, consisting of one nurse and one staff sergeant technician, could be placed aboard transport planes as needed.<sup>53</sup> When personnel were short or casualties were very heavy, the flight nurse and surgical technician could each fly in separate planes. The flexible organization also permitted the employment of individual evacuation flights independently of the squadron headquarters; in such case, the flight was attached to some other organization for administrative support. Time would show a need for some changes in the organization of the squadrons. By a revised Table of Organization 8-447 issued on 19 July 1944, the squadrons had a slight change in enlisted strength and redesignated as the Medical Air Evacuation Squadron. Late in 1944, the Air Transport Command would secure approval to modify its medical air

air evacuation squadrons.\* As initially organized on 30 November 1942, however, the medical air evacuation squadron was a good, workable solution to aeromedical evacuation requirements.

Given a pressing requirement for the services of aeromedical evacuation technicians overseas in the winter of 1942-1943 and the new form of squadron organization, the Air Surgeon's Office acted swiftly to reorganize the units at Bowman Field. On 30 November 1942, General Grant issued an urgent appeal for graduate nurses, especially airline hostesses, to apply for appointment to the Army Nurse Corps and assignment to the AAF Air Evacuation service.<sup>54</sup> At Bowman, on 10 December 1942, the 620th and the 621st Air Evacuation Squadrons (Heavy) were redesignated as the 801st and 802d Medical Air Evacuation Transport Squadrons and the 803d, 804th, 805th, and 806th Medical Air Evacuation Transport Squadrons were activated. The superseded 622d Air Evacuation Squadron (Light) was inactivated on 30 January 1943. Pressed by overseas commitments, the 801st and 802d Squadrons got admittedly meager and inadequate training, but the 802d departed Bowman for the North African combat zone on Christmas Day, 1942. The five flight surgeons of the 801st Squadron departed by air on 29 December and the remainder of the

\*See Chapter 4 pp. 112-114.

squadron sailed for New Caledonia on 22 January 1943. Originally, of course, General Eisenhower has<sup>d</sup> asked for both of the squadrons, but the War Department had directed a speedy reply to Major General Millard F. Harmon, who cabled his urgent need for such an organization in the South Pacific. The only feasible method of moving casualties from Guadalcanal, Harmon said, was by air transport.<sup>55</sup>

3. Training Air Evacuation Personnel, 1943-1945

At Bowman Field, early in January 1943, Lieutenant Colonel<sup>17</sup> Ralph T. Stevenson, commander of the 349th Air Evacuation Group, was charged by the I Troop Carrier Command to provide both the individual training for the flight surgeons, nurses, and surgical technicians who were to compose medical air evacuation squadrons and the operational training which would prepare the newly formed squadrons for overseas movement. The aeromedical evacuation function was entirely new, and the duties of the personnel and the operating techniques of the squadrons were not precisely defined. Facilities had to be built at Bowman for the specialized training. In view of its experimental nature, the training organization and the educational curriculum had to be changed several times during the war period.<sup>56</sup>

In the beginning, General Grant placed the air evacuation training function at Bowman Field under the I Troop

Carrier Command because of his conception that air evacuation squadrons would work mostly with troop carrier units and would possess some light aircraft. Under such circumstances, the 349th Air Evacuation Group was expected to perform as a typical operational training unit. Experience proved, however, that the work to be done was that of a school and not an operational training unit. Accordingly, on 23 June 1943, the AAF School of Air Evacuation was established at Bowman Field and the 349th Group was disbanded.<sup>57</sup> Named as commandant of the new school, Colonel Stevenson continued in this position until 31 December 1943 when he became Surgeon of the I Troop Carrier Command. At this time Lieutenant Colonel John R. McGraw became commandant of the School of Air Evacuation and held the position while the school was at Bowman Field.

The retrenchment and redirection of Army Air Forces in 1944 led to changes in the command status and the location of the aeromedical evacuation training function. The School of Air Evacuation had about completed the operational training of medical air evacuation squadrons, and its future work would be to provide individual training for replacement air evacuation personnel. On 25 May 1944, moreover, the Ferrying Division of the Air Transport Command replaced the I Troop Carrier Command as the responsible agency for aeromedical evacuation services within the

continental United States.\* The AAF accordingly made changes in the School of Air Evacuation on 18 August 1944, redesignating it the 26th AAF Base Unit (School of Air Evacuation) with direct assignment to Headquarters AAF. A consolidation of medical training activities soon followed. Effective on 15 October 1944, the establishment at Bowman Field was discontinued and its mission and personnel were transferred to the 27th AAF Base Unit (School of Aviation Medicine) at Randolph Field, Texas.

At Randolph Field, the School of Aviation Medicine established a Department of Air Evacuation on 15 October 1944 with the mission of providing individual and unit training in air evacuation procedures. Under the direction of Major Russell C. Smith until 26 January 1945 and of Major Frederick R. Glassford for the remainder of the war period, the Department of Air Evacuation conducted a course for flight nurses, courses for air evacuation medical technicians, and an orientation course for flight surgeons who were being assigned to air evacuation duties. To provide realistic field training for flight nurses and medical technicians in the actual evacuation of patients, the I Troop Carrier Command maintained at Randolph a detachment including two C-47 aircrafts, one L-5B, and one Norseman C-64 aircraft.<sup>58</sup>

\*See Chapter II, pp. 1-11.

"Many are called, but few are chosen" was Lieutenant Colonel Richard L. Meiling's description of the selection and preparation of medical personnel for aeromedical evacuation duties. Applicants for air evacuation training and duties were volunteers who were able to pass the class three portion of the standard physical examination required of all flying personnel, and they had to be recommended by a senior flight surgeon as being particularly adapted for air evacuation work.<sup>59</sup> By the time of the organization of the AAF School of Air Evacuation, a curriculum had been systematized to acquaint the four classes of aeromedical evacuation personnel--medical officers, medical administrative officers, flight nurses, and aeromedical evacuation technicians--with their responsibilities for classifying patients, loading and unloading patients, and treatment while in the air. From the record of training at Bowman and Randolph and from reports from combat theaters concerning the operations of air evacuation squadrons, the AAF gained a broader appreciation of the duties and functions which had to be a part of the aeromedical evacuation system.

Under the organizational concept of the medical air evacuation squadron, a medical officer commanded the squadron and other medical officers headed each of the squadron's four flights. In the squadron headquarters,

a medical administrative officer handled supply, motor transport, and mess management. As a matter of practice, the medical administrative officers were committed to the school as new squadrons were activated and most of their training was on the job. Already flight surgeons before they reported to the school, the medical officers received varying amounts of course work. In 1943 and early 1944, officers were usually assigned to newly-activated squadrons, and their course work was frequently interrupted by squadron duties. The school of Air Evacuation nevertheless initiated a three-week orientation program for medical officers in April 1943 and soon shortened it to two weeks. At Bowman, a total of 109 medical officers (including two Royal Canadian Air Force officers) were formally graduated from the orientation course for medical officers. At Randolph, a single class of five medical officers graduated from the orientation course on 16 November 1944. The orientation course included lectures, demonstrations, conferences, and applicatory exercises.<sup>60</sup>

Especially in the early months of operations of medical air evacuation transport squadrons in combat theaters, when many Army medical officers did not understand or appreciate the new evacuation medium, the role of the flight surgeon in the air evacuation squadron was extremely important. Flight surgeons in large measure "sold" air evacuation

services. At newly captured airfields, the flight surgeons maintained liaison with airfield and forward hospital commanders, and screened the patients brought for airlift to determine that none of them had contraindications for flight. Very few of the air evacuation surgeon's duties were actually those of a medical doctor. According to one veteran doctor in the service, older medical doctors selected for this work encountered a morale problem for they were unable to keep up with normal developments in the medical and surgical profession. This doctor recommended that young, physically-fit doctors who had not practiced very long would be best fitted for the aeromedical evacuation service.<sup>61</sup> In a postwar evaluation, the Twelfth Air Force Surgeon stated that the duties of air evacuation flight surgeons could have better been performed by medical administrative officers. Such officers could adequately perform the many liaison duties, and all cases scheduled for air evacuation were screened for contraindications to flight by medical personnel of ground force hospitals before they were brought to the airfield. The rejection of a patient by a flight surgeon thus represented at best an honest difference of opinion which was rarely sufficient to justify the return of the patient to the ground hospital.<sup>62</sup> No change was made in the assignment of air evacuation flight surgeons during the war, but there would be changes in the post World War II period.

Viewed in retrospect, General Grant's decision to assign a chief nurse and twenty-five flight nurses to each medical air evacuation squadron was one of the more audacious choices of World War II. Although Miss Laretta M. Schimmoler had urged the creation of an aerial nurse corps since 1932, the War Department had never favored the idea. In the autumn of 1942, a few nurses were assigned to the 349th Air Evacuation Group,\* but as yet there was no such thing as a flight nurse. The first nurses assigned to the 801st and 802d Squadrons were Army nurses who had received some orientation earlier in units at Bowman Field. On 30 November 1942, however, General Grant made an urgent call for graduate nurses to volunteer for flight duty and initiated a War Department memorandum setting forth the qualifications for the service. The first class of thirty-nine new flight nurses, including many former airline hostesses, completed a four weeks' course at Bowman on 18 February 1943. The course included class work in air evacuation nursing, plus some field instruction in plane loading procedures and an over-night bivouac. At the end of his address to the first graduating class, General Grant, on the spur of the moment, pinned his own miniature flight surgeon's insignia on Lieutenant Geraldine F. Dishroon of

\*The first Army nurse of the 349th Air Evacuation Group was Lieutenant Cora E. Conerly who was assigned to the 507th Air Evacuation Squadron (H), on 12 October 1942. Later Lieutenant Conerly was assigned to the 801st Medical Air Evacuation Transport Squadron.

Tulsa, Oklahoma, the honor graduate of the class, and remarked that the insignia for flight nurses would be the flight surgeon's wings with a small "N" superimposed. For several months the War Department refused to sanction this insignia but, with General Arnold's intercession, it eventually yielded.<sup>63</sup>

Training of flight nurses was a major concern of both the School of Air Evacuation and of the School of Aviation Medicine. In February 1943, the course was extended to six weeks, and in November 1943, it was extended to eight weeks. On removal to Randolph, the course in aviation nursing was further lengthened to include three phases, each of three weeks duration. The first two phases covered a review of medical and military subjects, with emphasis on aeromedical physiology, aeromedical therapeutics, handling of neuro-psychiatric casualties, and procedures for emergencies such as forced landings. Most of the third phase was devoted to practical air evacuation flights in the zone of interior. Classes were staggered so that the third phase ran continuously. During 1943, volunteer nurses were assigned directly to the School of Air Evacuation and to medical air evacuation squadrons following their graduation. In 1944, candidates were required to serve for a minimum of six months in an Army Air Forces or Army Service Forces hospital before becoming eligible

for flight nurse training; at the completion of the course the graduates were returned to their former station, to await orders to an air evacuation squadron. The designation "flight nurse" was not automatic but required special certification from the AAF; only when certified could a nurse wear the coveted flight nurse's wings. During the period from December 1942 to October 1944, the School of Air Evacuation graduated 1,079 flight nurses. At the School of Aviation Medicine, 330 flight nurses successfully completed their training between November 1944 and September 1945.<sup>64</sup>

The training of enlisted medical technicians at the School of Air Evacuation and the School of Aviation Medicine varied according to a technician's background. In the early period at Bowman, surgical technicians were given practical medical work in three civilian hospitals in Louisville, where nurses and technicians were assigned for two weeks. Each nurse was assigned a surgical technician and instructed him in the elements of nursing care, intravenous technique, catheterization, oxygen administration, and other emergency procedures. The technician was then given a didactic course in emergency medical treatment, conversion of the cargo plane to an ambulance plane, loading of patients, and use of equipment. The fifth week of specialized technician training was devoted to training

flights, field maneuvers, and the practical study of psychotic patients. By 1944, all enlisted technicians received a six weeks' course in field medical training at the AAF Medical Service Training School at Warner-Robins Field, Macon, Georgia, before reporting for three weeks' training in specialized flight medicine and aeromedical evacuation procedures. In the final phase of training, the medical technician engaged in actual evacuation flights under the tutelage of a graduate flight nurse. Earlier statistics are not available, but from 27 November 1943 to 3 October 1944, Bowman Field graduated 558 enlisted technicians, and at Randolph between November 1944 and 20 October 1945 a total of 349 medical technicians successfully completed their training course.<sup>65</sup>

When the air evacuation system was instituted, there was some thought that enlisted medical technicians rather than flight nurses should accompany patients in flight. According to reports, the Surgeon General of the Army, who was always short of nurses, stated that he was much opposed to flight nurses. General Grant, however, felt that the air evacuation program should employ flight nurses since they were the most highly trained medical personnel available for the mission.<sup>66</sup> He was confident that flight nurses would prove valuable members of the aeromedical evacuation team. The graduate nurses, well trained to

handling medical emergencies, rendered constant in-flight care of patients, and (when a flight surgeon was not available) often screened patients for air evacuation at forward airfields. The presence of a calm female nurse aboard a plane tended to allay any fears that a patient might have of flying.

As will be seen, the employment of flight nurses in combat theaters caused some difficulties. The flight nurses required special billets, special dress, and occasionally, special consideration. Early in the campaigns in the Solomons and the Philippines, flight nurses were not allowed to go forward because of dangers involved. In India-Burma, they were soon forbidden to fly over the Himalayas except in cases of extreme emergency. In the Southwest Pacific Theater, Army nurses know some antipathy for the flight nurses. The nurses of the 804th Medical Air Evacuation Squadron were made to remove their flight wings before they left the boat on arriving in the theater. Again, on Biak, when they were not being permitted to go into the beachhead at Leyte, flight nurses volunteered to serve in an Army hospital, but the hospital refused the offer unless the nurses would doff their flight wings. In all theaters until December 1944, most flight nurses could never expect a promotion above the second lieutenantcy called for by air evacuation squadron tables of organization.

From India, Major General George F. Stratereyer protested this "as an injustice of the first order." On 9 December 1944, the War Department authorized the promotion of nurses to first lieutenant's rank after eighteen months' service without regard for organizational vacancies.<sup>67</sup> Some enlisted medical technicians asserted that they were better prepared to handle in-flight patient care than were the nurses. After mature consideration, however, the Twelfth Air Force officially concluded: "well-trained, highly-selected enlisted medical technicians . . . can serve on air evacuation teams but cannot replace nurses."<sup>68</sup> Talking in retrospect of service as the IX Troop Carrier Command Surgeon in Europe, Colonel Erling Berquist stated that, "the use of nurses was probably the wisest thing that air evacuation ever had. The young ladies were highly enthusiastic, and they sold the air evacuation program."<sup>69</sup>

In addition to the task of providing specialized training to air evacuation personnel, the 349th Air Evacuation Group and the School of Air Evacuation organized, trained, and dispatched from Bowman Field a total of twenty-nine (the 801st through the 829th) medical air evacuation squadrons between December 1942 and September 1944. At Randolph, the School of Aviation Medicine organized and dispatched the 831st Squadron between 8 November 1944 and 7 January 1945. Squadron training programs for each of these

organizations varied in length depending upon the commitment dates for overseas movement. The training programs consisted of classes conducted by squadron officers supplemented by instructors from the schools. Demonstrations and practical applications of previously taught material comprised the larger part of squadron training. Some of the squadrons also flew actual air evacuation flights within the zone of interior.<sup>70</sup>

Since it was the first institution of its kind, the AAF School of Air Evacuation's influence was world<sup>e</sup>wide. During 19<sup>1</sup>43, two surgeons and a number of nurses from the Royal Canadian Air Force attended the school. The Brazilian government, in cooperation with the Brazilian Red Cross, sent a representative (Senora Anesia Pheria Machado) to study the school preparatory to the institution of similar training in Brazil. Several nurses from the U. S. Navy studied at Bowman, prior to the establishment of the Navy School of Air Evacuation at Alameda, California. In September 1945, six Philippine Army nurses graduated from the flight nurses' course at Randolph and became the nucleus of a Philippine air evacuation service.<sup>71</sup>

4. Development of Air Evacuation Equipment, 1943-1945.

"The policy of The Air Surgeon with regard to aircraft for use in air evacuation operations," stated Colonel<sup>1</sup> Walter S. Jensen, Deputy Air Surgeon, on 4 March 1944,

"is to utilize tactical, cargo, or transport aircraft to transport patients as the military situation and military requirements warrant."<sup>72</sup> This policy followed AAF Military Requirements Policy No. 41, 25 May 1943, which stated that aeromedical evacuation requirements would be handled by the incorporation of such capabilities into aircraft and not by the development of any special planes for air evacuation. In context with the AAF policy that aircraft would not be assigned specifically for air evacuation work, the Air Surgeon discouraged the use of such terms as "air ambulance" or "hospital plane." Under such circumstances, of course, the AAF never used Red Cross insignia on any of its aircraft in combat theaters.<sup>73</sup> While no special planes were developed for air evacuation, the Air Surgeon constantly worked to insure that existing planes were fitted for aeromedical evacuation purposes. The many developments undertaken in the field were largely the labors of the Aeromedical Research Laboratory at Wright Field, the School of Air Evacuation at Bowman Field, and the School of Aviation Medicine at Randolph Field. The I Troop Carrier Command and the Air Transport Command also participated in the developmental work.<sup>74</sup>

Under the direction of Colonel<sup>5</sup> Otis O. Benson and of Colonel<sup>1</sup> W. R. Lovelace, after 18 September 1943, the Aeromedical Laboratory at Wright Field evaluated all existing

transport aircraft and sought to design suitable installations which would enable them to transport litters. As has been seen, the Douglas Company was already delivering suspension-type bracket litter supports for its DC-3 type planes. This installation worked well, but it was heavy and called for critically-short aluminum. Because of material shortages, the Douglas Company was tardy in delivering these supports for the C-53 (DC-3 trooper) planes the AAF received late in 1942.<sup>75</sup> To meet the requirements of C-46, C-54, and C-87 aircraft, the Evans Project Company devised a stanchion litter support device which was tested by the Aeromedical Laboratory in 1943. Installed as standard equipment in the C-54A, the Evans stanchion litter supports accommodated ~~twenty-four~~ <sup>24</sup> patients. Once again the installation gave rigid support for litters, and good aisle space for medical attendance, but it was heavy and required critical materials.<sup>76</sup>

While inspecting a mock-up of the new C-82 Packet in September 1942, Colonel Lovelace noted that the Fairchild Airplane Corporation engineers had devised a very simple and inexpensive webbing-strap system for suspending litters in this plane. Solid fittings on the cabin walls grasped one litter pole and the other litter pole was suspended on the aisle by loops in webbing straps which were attached to ceiling and the floor of the plane. When not in use,

the webbing straps were simply rolled up and enclosed in canvas storage bags on the plane's ceiling. After coordinating the project with Colonel E. L. Berquist, Surgeon of the I Troop Carrier Command at that time, Colonel Lovelace supervised developmental and design work on the webbing support for all types of air transport planes during 1943. Using webbing straps in a mock-up C-47, the School of Air Evacuation routinely prepared for and loaded twenty-four patients in six to eight minutes. Following exhaustive tests of all kinds, the AAF directed on 8 April 1944 that web-strap litter supports would be installed as permanent equipment in all cargo airplanes.<sup>77</sup>

During the summer of 1944 all cargo aircraft coming off production lines were equipped with web-strap litter supports and some planes were retrofitted with the new system. Equipped with the web straps, a C-47 had a capacity of twenty-four patients instead of eighteen with the Douglas installation. Newer model C-54B's equipped with web straps could handle twenty-eight litter patients, or thirty-six if cabin fuel tanks were not installed. Web-strap supports enabled the C-87 to accommodate fourteen litters and still have seats for two to five ambulatory patients or medical attendants. With web straps the C-46 Commando, largest of twin engine transports, could accommodate three tiers of litters on each side of its cabin, each tier being four

litters high. This gave the plane a capacity for twenty-four litters, and it could still handle nine to twelve ambulatory patients.<sup>78</sup> The web-strap litter supports were advantageous in that they permitted any standard transport aircraft to be converted for aeromedical evacuation in a matter of minutes. In a "hospital" plane used for long distance movements of patients, however, the web-strap litter supports were not completely satisfactory. Several flight nurses who had worked with ATC in flights between Europe and the United States pointed out that the web-strap installation in C-54's prevented them from being able to work on either side of a patient as they needed to do, especially with paralytic patients. These nurses urged that the older Evans stanchion litter support was more stable and comfortable to patients and ought to be used in transcontinental C-54's.<sup>79</sup>

Simultaneously with the development of litter supports for standard transport planes, the Air Surgeon's office and the Aeromedical Laboratory gave attention to the problem of light aircraft and glider evacuation of patients from forward areas. Such planes were also required for crash rescue purposes in the zone of interior. Although the AAF had squelched this developmental work in November 1942, a cut-back in glider training programs in the spring of 1943 released a number of L-1 aircraft which had been used

for towing the gliders. About one-hundred L-1's and L-1A's were converted into L-1C's at the Fairfield Air Depot and allocated to the Flying Training Command and Second Air Force. In the L-1C modification, the Stinson liaison plane would hold one litter which was loaded through an opening on the left top side of the plane.<sup>80</sup>

The Stinson L-1C worked well as a light air evacuation plane, but it was the earliest of the liaison plane types and was no longer in production. Early in 1944, the AAF accordingly stated a requirement for aeromedical evacuation capabilities in currently-produced liaison planes. With only minor modifications, the Air Technical Service Command was able to modify a Piper L-4J plane to accommodate a litter and a 200-pound patient. First study of the more powerful Vultee L-5A plane indicated that it could not accommodate a litter because its fuselage tapered off toward the tail too sharply. The Stinson Division of the Consolidated Vultee Aircraft Corporation nevertheless modified one of its planes to incorporate ambulance and light cargo features. After flight<sup>2</sup>testing, the L-5B was ordered into production on 5 May 1944 as the standard AAF light plane for use as an ambulance and light cargo aircraft.<sup>81</sup> In the L-5B, a patient was loaded on a special rigid stretcher through a lateral door in the side of the plane. Since the litter covered the observer's seat, the plane could not carry a medical attendant.<sup>82</sup>

Heavier than a liaison plane, and falling into a "utility cargo" classification, the UC-64A Norseman plane held some promise for forward-area operations. Manufactured by Noorduynd Aviation Limited of Montreal, Canada, the Norseman was originally designed as a "float and ski" freighter for employment in Canada's lake regions. In the year following July 1942, the AAF bought 746 UC-64A's with fixed landing gears and, early in 1944, the Air Surgeon insured that the Norseman was equipped with web-strap litter supports. So equipped, the UC-64A could accommodate three litter patients, two seated patients, a medical attendant (in the co-pilot's seat), and the pilot.<sup>83</sup> In a special adaptation designed for use at the XX Bomber Command's bases in China, two light-cargo Beech C-45B planes were configured as air ambulances. Each plane could carry a maximum of four litter patients and two ambulatory patients in local air flights. These two planes began operations in China on 14 June 1944.<sup>84</sup>

Although General Grant stated that he did not favor the use of such a vehicle except in unusual circumstances, the Aeromedical Laboratory devised a web-strap installation for Waco CG-4A gliders. Set up for air evacuation in the same manner as any other strap-equipped aircraft, the CG-4A glider would accommodate six litter patients, who were carried into the fuselage through the liftable nose door.

Tests showed that patients could withstand the accelerative force when the glider was picked up off the ground by a tow plane. For use in case of emergencies, each troop carrier squadron was allocated two sets of glider evacuation equipment in June 1944.<sup>85</sup>

As a student at the Air Corps Tactical School in 1937, General Grant had written a thesis describing the potentialities of an autogiro for front<sup>line</sup> medical air evacuation. The autogiro had never proved practicable, but in the early 1940's rotary-wing helicopters were being produced by Platt-Le Page, Kellett, and Sikorsky. In December 1942, following an inquiry from a Virginia physician, Dr. Huston St. Clair, to his office, General Grant secured performance data from the AAF Materiel Command which convinced him that helicopters were far enough developed to be of service in the air evacuation system.<sup>86</sup> Being able to land and take off from unimproved surfaces, the helicopter promised to lift casualties from collecting stations near the frontlines to advanced airfields which served standard transport planes. The Air Surgeon wanted a helicopter which could carry three to five litter patients. Since the Sikorsky XR-6 could lift two litter patients and an ambulatory patient, Colonel<sup>5</sup> Walter S. Jensen, Executive to the Air Surgeon, on 27 July 1943 requested the AAF to procure 150 XR-6 helicopters with the least practical delay.

These aircraft would be allocated to six air evacuation helicopter squadrons.<sup>87</sup>

Despite a general agreement in the Air Force that the new aircraft would prove useful for air evacuation, the AAF helicopter program in mid-1943 was not nearly so far advanced as the Air Surgeon had been led to believe. The Sikorsky YR-4A helicopters to be delivered in 1943 would accommodate only one sitting patient inside the fuselage. The Sikorsky YR-5's and YR-6's were not scheduled for delivery before the spring of 1944. The AAF Requirements Division nevertheless promised that these helicopters would carry litters.<sup>88</sup> The only way in which these helicopters could be equipped to carry litter patients, however, was by the attachment of litter "capsules" to the external structure of the aircraft. On the basis of this development, the Air Surgeon revised his requirements early in 1944. Believing that the "capsules" would be satisfactory only for emergency use, the Air Surgeon relinquished any demand for R-5 or R-6 helicopters. The Emergency Rescue and liaison squadrons which received the planes would also get litter capsules to enable them to perform emergency air evacuation. In place of these types, the Air Surgeon stated a requirement for a utility-cargo helicopter which would accommodate light cargo or a minimum of four to six litter patients within its fuselage.<sup>89</sup>

Available in small numbers and not yet completely developed, the helicopter made only a token contribution to medical air evacuation during World War II. Five YR-4A helicopters were shipped to Burma, and one of the three that became operational evacuated four wounded men from behind Japanese lines on 23 April 1944.<sup>90</sup> As a result of the Air Surgeon's requirement, the AAF negotiated a contract with the Kellet Company on 16 October 1944 for the purchase of two experimental XR-10 twin-rotor helicopters. This large aircraft was designed to accommodate a crew of two and a one-ton cargo load. Its cargo compartment could accommodate six litter patients. The XR-10 would be a forerunner of large cargo type helicopters, but it was not ready for delivery until 1947, well after the end of World War II.<sup>91</sup>

Since aircraft were basic to aeromedical evacuation, AAF medical officers devoted their strongest efforts to developing planes to fulfill the mission. Simultaneously, all AAF agencies concerned with aeromedical evacuation sought to perfect the many other items of specialized equipment needed for the care and comfort of airborne patients. At the beginning of the war, Air Corps flight surgeons already possessed a crash-rescue medical kit, but the Aeromedical Laboratory began to work on a standard airplane ambulance kit which would be issued to each air

evacuation team. After coordinating with the commands concerned, the <sup>11 =</sup> airplane ambulance chest was procured and <sup>the airplane ambulance chest</sup> issued in 1943. The contents of the chest proved adequate for six to nine hour trips, but it was too large for short trips and too small for larger trips. Further development on this item continued during the war. In theaters of operations troop carrier planes usually did not fly high enough for their oxygen systems to work. Since patients might require therapeutic oxygen, the Aeromedical Laboratory developed portable continuous-flow oxygen units and four of these kits were allotted to each air evacuation team. When patients on long flights complained of fatigue, the Air Force developed and issued ~~in 1945~~ <sup>in 1944</sup> ~~twenty-four~~ <sup>four</sup> air mattresses to each flight team. To provide warmth to patients in flight, sleeping bags were procured and issued; this item of equipment, however, proved unsatisfactory since it was awkward and immobilized patients.<sup>92</sup>

The care and handling of patients during loading and unloading and at plane stops enroute was a matter of concern to the Air Force. A major problem was to keep plane cabins heated during winter stops along the North Atlantic route, or cooled during summer stops in the South Atlantic and South Pacific. During 1944, the Supply Division of the Air Surgeon's Office procured and issued portable heaters to northern stations and portable air conditioners

for use in the hotter climates. In 1944 the Aeromedical Laboratory developed two types of airborne hospital shelter units, one for arctic and one for tropic conditions. These air transportable shelter units could be erected at the flight line to shield patients from the elements during prolonged<sup>d</sup> stopovers when planes had to be unloaded. Each shelter could accommodate <sup>12</sup> twelve patients in litters and was equipped with web-strap litter supports. Until the autumn of 1943 loading and unloading litters were accomplished manually according to stylized techniques taught by the School of Air Evacuation. In order to simplify the loading and unloading of its high-door C-54's, the Air Transport Command early in 1944 devised and dispatched adaptors which permitted the use of fork lifts for lifting and lowering patients. Using this equipment, a patient could be loaded or unloaded in forty seconds with a minimum expenditure of physical effort.<sup>93</sup>

Early in World War II, General Grant and other members of the Air Surgeon's office had thought of air evacuation in terms of "flying hospitals" under the control of flight surgeons and able to render substantial medical care. As the war continued, however, the Air Surgeon's office accepted the injunction that the medical service should under no circumstances control airplanes. "The medical responsibility," stated Colonel Meiling, "is to provide adequate

medical care for patients aboard the aircraft."<sup>94</sup> The role of aeromedical evacuation became that of providing the most rapid and safest means of getting patients to hospitals where definitive care was available. Although the Air Force sought to provide the best possible services and equipment for the care of patients in flight, General Grant, <sup>r r l</sup>recognized that "air evacuation is more logistical than medical in value."<sup>95</sup> This policy guided the training of personnel and the procurement of equipment, as well as the operation of the aeromedical evacuation system in overseas theaters of operations.

## Chapter III

BEGINNINGS OF AIR EVACUATION IN COMBAT THEATERS,  
1942 - 19431. Evacuating the wounded from the Solomons

"Medical Air Ambulance Squadron ... urgently needed here because all evacuation from Cactus necessarily by air transport," cabled Maj. Gen. Millard F. Harmon, the Air Corps officer who commanded United States Army Forces in the South Pacific Area on 29 November 1942.<sup>1</sup> General Harmon's headquarters was on New Caledonia, and "Cactus" was the code name for Guadalcanal, where U.S. Marines had landed on 7 August 1942. The strategy of America's first offensive announced by the Joint Chiefs of Staff on 2 July 1942 required South Pacific Area forces under the overall command of Vice Adm. William F. Halsey to move up through the Solomon Islands toward the Japanese bastion at Rabaul. At first, the U.S. Navy had expected to supply Guadalcanal by ship, but Japanese naval forces were too strong and it was soon apparent that air transport from Espiritu Santo<sup>f</sup> and New Caledonia could furnish the only consistent transport between Guadalcanal and the outside world.

During the autumn and early winter months of 1942, the

South Pacific Area increased its air transport capabilities. Marine Transport Squadron VMJ-253 which had begun to fly forward in September was joined by another squadron (VMJ-152) to comprise Marine Air Group 25, and on 9 October the Air Force's 13th Troop Carrier Squadron landed its C-47's and C-53's on New Caledonia after a trans-Pacific flight via San Francisco, Hawaii, Christmas, Canton, and the Fiji islands. With the arrival of the ground echelon, the 13th Squadron was reformed at Tontouta Air Base, New Caledonia, on 13 December 1942. In accordance with Navy Task unit organization, these air transport squadrons were placed under the South Pacific Air Transport Command (SCAT) which was organized on 24 November 1942 under the command of a Marine air officer. Early in the Guadalcanal operation, the Marine and Air Force DC-3 squadrons which hauled ammunition, gasoline, and supplies forward had begun to backload sick and wounded men in the night flights from the island's Henderson Field, and by December 1942, when the 1st Marine Division left Guadalcanal, SCAT had flown out 2,879 casualties, nearly three times as many as were evacuated by ships. Frequently, patients were loaded at Henderson Field under artillery fire, without benefit of even a telltale flashlight. At first, the Marines had no medical attendants

aboard the evacuation planes, but soon they placed a few marine medical corpsmen on flying status to care for patients in flight.<sup>2</sup>

Begun as an urgent improvised method of clearing casualties from Guadalcanal, SCAP's medical air evacuation system soon achieved a more permanent form. Led by the squadron commander, Capt. James W. Vaudry, the four flight surgeons of the 801st Medical Air Evacuation Squadron arrived by air in New Caledonia on 2 January 1943 and were attached to the 13th Troop Carrier Squadron. On 10 January 1943, Captain Vaudry made the 801st Squadron's first evacuation flight to evacuate sixteen patients from Guadalcanal. Three days later the 801st had its first tragedy when the C-47 carrying Lt. Burton A. Hall and seventeen patients from Guadalcanal was lost without a trace. Lt. Hall was the first casualty of the Air Force medical evacuation organization. While the Air Force flight surgeons made almost daily flights to Guadalcanal, the remainder of the 801st Squadron loaded aboard an old Dutch merchantman, the Tjisadane, at San Francisco on 22 January 1943 and began a wretched twenty-day voyage to New Caledonia. Put ashore on 14 February 1943, the nurses and men of the 801st Squadron were transported to the 31st Station Hospital near Tontouta Airfield, dumped

on the ground, and told to build a tent camp. Living was rough, but the 801st had reached the war zone.<sup>3</sup>

When the main body of the 801st Medical Air Evacuation Transport Squadron reached New Caledonia, Major James E. Crane (who replaced Capt. Vaudry) hoped to employ his squadron in the manner planned at Bouman Field. Circumstances of command and the battle zone made this impossible. SCAT was a Marine command which operated flights out of Tontouta Air Base on rigid schedule. The SCAT medical department which controlled air evacuation was under a Navy medical officer. Since the 801st was attached to the SCAT medical department, it operated under Navy control. All policies regarding air evacuation were established by the Navy and Marines without coordination with the Army, Air Force, or air evacuation squadron that was specifically organized for such duties. "We never had any control of the work except a rare suggestion that was generally unfavorably received," explained the 801st commander. Since the Japanese were still active on Guadalcanal and the nurses were not allowed to go forward, Major Crane was unable to place a full evacuation flight there. Instead, a flight surgeon was sent to Henderson Field to maintain liaison with evacuation hospitals and attend to the sorting of patients. The liaison at the forward base

was quite important: early in the Guadalcanal operation wounded men had lain in the sun for hours at Henderson waiting for a plane. SCAT operations placed flight surgeons or enlisted technicians on board C-47's that started from Tontouta, laid over enroute at Espiritu Santo until 0200 hours in the morning, and then took off to arrive at Henderson Field at daybreak, which was thought to be the safest time of day. After unloading cargo, the pilot and the flight surgeon determined how many patients could be loaded. Since Henderson Field was within enemy artillery range, the transports remained there as short a time as possible. Wounded men were flown to Espiritu Santo, Efate, or New Caledonia.<sup>4</sup>

Following an American offensive, the Guadalcanal campaign was terminated on 21 February 1943. The first flight nurse was allowed to fly to Guadalcanal on 1 March, and after this time the evacuation route was regularly flown by flight surgeons, flight nurses, and surgical technicians. Because of the length of the flights and space shortage, only one aeromedical person normally was included on a single transport. The aeromedic was considered as a crew member and so scheduled on the plane's manifest. During the late spring of 1943 patients were mostly men who were sick or

injured, and the evacuation flights (which carried supplies forward) left New Caledonia at 1300 hours; arrived at Espiritu Santo at 1600; left Espiritu Santo at 0300; arrived Guadalcanal at 0700; left Guadalcanal at 0800; arrived Efate at 1300; left Efate at 1400; and arrived New Caledonia at 1600 hours. At this time, three aircraft were generally designated as an air evacuation flight: a flight surgeon was assigned to the first plane, a flight nurse to the second, and a surgical technician to the third. Casualties were loaded according to their seriousness, with the flight surgeon and the nurse taking the more serious cases. Even in this interlude in the ground fighting, air evacuation flights were far from routine. The Japanese still bombed Henderson Field and transport planes remained there for the minimum time. Up to eight-hour flights over tropical seas in turbulent weather held an element of hazard. On 27 April, a Marine C-47 with Lt. Dorothy P. Shikoski aboard had to ditch off New Caledonia, and, on 29 July, a C-47 with Lt. Earl E. Conway and <sup>21</sup>twenty-one patients crash landed on San Christobal Island. For heroism in these two crashes, Nurse Shikoski received the air medal and Flight Surgeon Conway was awarded the legion of merit.<sup>5</sup>

As American landings at New Georgia Island on 20 June 1943 marked the beginning of a campaign for the Central and Northern Solomons, the AAF was able to provide additional troop carrier support for what had been supposed originally to be an amphibious war. The air echelons of the 64th and 63d Troop Carrier Squadrons left Hamilton Field, California, on 17 July and 30 July and reached Tontouta, New Caledonia, seven to ten days later. On 7 August, both squadrons were transferred to Espiritu Santo. The 403d Troop Carrier Group soon arrived on the same island to provide a parent organization for the 13th, 63d, and 64th Squadrons. Moving to Espiritu Santo, the 801st Medical Air Evacuation Squadron was attached to the 403d Group on 18 October.<sup>6</sup> On 20 October, the 64th Squadron was ordered to Guadalcanal to operate under Commander Air Guadalcanal and the 13th Squadron moved from Tontouta to Espiritu Santo. Although AAF air transports now outnumbered Marine transport units, all of the organizations were placed under the operational control of the South Pacific Combat Air Transport Command (SCAT). Operationally, SCAT was now divided into two divisions. The northern division was based at Espiritu Santo and comprised the 13th and 63d Troop Carrier Squadrons and the 801st Squadron; the

southern division at Tontouta comprised the two squadrons of Marine Air Group 25.<sup>7</sup>

Much to the dismay of Captain Charles G. Mixter, Jr., who assumed command of the 801st Medical Air Evacuation Squadron on 26 June 1943, SCAT continued to control air evacuation quite strictly and not always effectively. Up until about 30 June, nearly all patients evacuated from Guadalcanal were moved southward by air. As long as the fighting had been limited to one island, air evacuation had been easily managed, but ~~as~~ South Pacific forces captured or built airfields on New Georgia (Munda Airfield) and Vella Lavella Islands in August and on Bougainville in November 1943 the management of air evacuation became more difficult. Because of the lengthy time required to capture and repair Munda Airfield on New Georgia, most casualties were evacuated by naval vessels (LST's). Even at the end of the campaign, when it was possible to land at Munda Airfield, communications and transportation from the frontlines were so difficult that only a few patients were evacuated by SCAT planes, though over ~~four~~<sup>400</sup> hundred patients were evacuated from ~~Bayloke~~<sup>Bayloke</sup> Harbor by Navy amphibian PBV's.<sup>8</sup>

More than anything else, the lack of a coordinated

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South Pacific program for casualty evacuation and the absence of reliable communications hampered aeromedical evacuation during the campaigns in the central and northern Solomons. Because of the many airfields from which patients could be evacuated, the SCAT medical department sent Air Force or Marine medical personnel to each airfield. Capt. Paul M. Cronewett of the 801st, for example, went to Munda Airfield and also helped with the evacuation of patients from Vella Lavella. On 12 December, Lt. DeWitt C. Kissell of the 801st went to Torokina Airfield on Bougainville to handle air evacuation matters. Because a lack of communications made it impossible to schedule planes for air evacuation, the SCAT medical department placed a flight surgeon, nurse, or technician on every SCAT transport which went north from Espiritu Santo. This was extremely expensive of medical personnel since only about half of the planes were used to return patients. In such circumstances the services of the medical personnel was wasted. Two factors caused troop carrier planes to fail to secure patients. Naval vessels were now taking casualties southward, even though air evacuation was much more rapid. Under SCAT priorities, moreover, patients had a low priority (litter patients had a 2 priority

and ambulatory cases had a 4 priority), even below combat personnel returning from the combat zone for rest leave. Since hospitals could never be sure of air transport under the low priority enjoyed by patients, many evacuation officers preferred to load their patients on slower but surer naval ships. Once again as at Guadalcanal, flight nurses were not allowed to go into the central and northern Solomons for several months, and this made for an inefficient employment of many of the best trained aeromedical personnel. Because of the restrictions placed upon nurses -- on where they could operate and there they could stop overnight -- the number of patients evacuated by nurses was unnecessarily low. For some reason, moreover, SCAT medical detachments at forward fields were said to have given patients to enlisted technicians many times in preference to nurses.<sup>9</sup>

Despite many problems and growing pains, aeromedical evacuation had proved its worth in the Solomons campaigns of the South Pacific during 1943. Altogether South Pacific Combat Air Transport planes evacuated a total of 24,767 patients with only six deaths during flight. Twenty-seven patients, however, were lost in three plane crashes. In the early months, air evacuation had been the only reliable

means of transporting casualties from Guadalcanal. Air evacuation was also flexible; in December, when heavier than anticipated fighting on Bougainville filled the forward hospitals, planes evacuated approximately 1800 patients to hospitals on Guadalcanal and Espiritu Santo in ten days. As the first year of operations ended, however, the 801st Squadron had a number of recommendations for improvements in the system. Some theater coordination of all forms of evacuation was needed: the SCAT could have carried 5,000 patients a month but its full capacities to transport casualties speedily to rear-area hospitals were not fully utilized. Medical evacuees deserved a higher priority for air transport, or else a set number of planes should be assigned daily for medical air evacuation. Hospitals did not like to depend upon an irregular number of places for evacuees, especially when evacuees might be put off a plane at the last moment because of low priority. In order to expedite evacuation, some form of holding facilities were needed at forward airfields. Better air evacuation communications were an urgent requirement to permit an orderly use of aeromedical personnel and a regular flow of patients. A definite policy was needed as to the utilization of flight

nurses in forward areas. In the South Pacific during 1943, the 801st Medical Air Evacuation Squadron had not had a free hand, but it was sure that it had the knowledge and the capabilities to manage the system if it were given a chance.<sup>10</sup>

## 2. Air Evacuation Begins in New Guinea

At the beginning of America's participation in World War II no forces needed air transport worse than the men who were driven backward from the Philippines, through the Netherlands East Indies, to Australia. Under command of General Douglas MacArthur, the Southwest Pacific Area was a region of immense distances, oceans, and islands, and the vast mountainous bird-shaped islands of New Guinea would have to provide the stepping stones for the return to the Philippines. Australia itself, which would have to be the logistical base in the Southwest Pacific, was sparsely served by a railway network of different width gauges between main cities on the east and west coasts.

Organized on 28 January 1942 to control all transport planes it could secure from any source, the Directorate of Air Transport (which was for a short time called the "Air Transport Command") began operations at Amberly Airdrome,

Queensland, Australia, with a mixed collection of five new C-53's found aboard a ship which had been destined for the Philippines, old civilian airliners, obsolete bombers, and flying boats. Changing station to Archerfield, Brisbane, the DAT in early March 1942 flew American troops to Darwin and brought wounded personnel back to Brisbane on their return trips. On 3 April 1942, the War Department authorized the activation of the 21st and 22d Transport Squadrons, using American planes and personnel from the DAT. In accordance with the AAF change in designation, the squadrons were named the 21st and 22d Troop Carrier Squadrons on 26 July.<sup>11</sup>

With the collapse of the Netherlands East Indies barrier in February 1942, it had seemed that the Japanese might move against Australia from the north. Instead, the Japanese wisely moved down the northern coast of New Guinea, established a base of strength at Rabaul on New Britain, and began to extend air superiority over Australia's only remaining bases in New Guinea -- Port Moresby (on the coast) and Wau (high in the Owen Stanley Mountains). Evidently the United States and Japan recognized the strategic importance of northeastern New Guinea, or Papua, at almost the same moment. In conjunction with South Pacific attacks up the

Solomons axis toward Rabaul, the Joint Chiefs of Staff on 2 July 1942 instructed General Douglas MacArthur, commander in chief of the Southwest Pacific Area, to establish control over the northeastern coast of New Guinea. Beginning on 21 July, the Japanese made landings on the northeastern coast at Lae, Salamana, and Buna. They promptly began to drive across the Buna-Kokoda trail toward Wau and Port Moresby.<sup>12</sup>

<sup>Gen.</sup>  
Major George C. Kenney, who took command of the Allied Air Forces, Southwest Pacific Area, 4 August 1942 (and soon commanded the U.S. Fifth Air Force as well) later pointed out that Allied forces could have advanced far up the coast of New Guinea and could have established points of strength to hold the area -- if they had had adequate air transport. Even the small amount of air transport that the Allies possessed proved vital as first Australian and then American forces battled in defense of Papua. The combat area necessitated air transport, both for the delivery of troops and supplies and the evacuation of casualties. The tension between the coastal flat at Buna-Gena and Port Moresby was difficult and hazardous. Peaks of the Owen-Stanley mountains rose to 8,000 foot heights. Dense rain forests, winding

ravines, and interlacing gorges made the area the equal to the most treacherous terrain in the world. There were no roads -- only trails -- and the enemy controlled the sea lanes.<sup>13</sup>

Led by Capt. E. W. Hampton, the 21st Troop Carrier Squadron had ferried Australian troops to Wau and Bulolo on 22 May 1942, and, with the Japanese landings at Buna, the 21st and 22d Squadrons landed Australian reinforcements and supplies at the mountain airdrome at Kokoda where fighting was already beginning. Because of the terrain, evacuation of casualties <sup>had</sup> to be by air. The Allied Land Forces stated that air evacuation would be primarily the work of air ambulance units, but that transport aircraft would be used as necessary.<sup>14</sup> The Royal Australian Air Force No. 36 Squadron had a few small DeHavilland-84 air ambulances among its transports, and the 22d Squadron assigned an O-49 (L-1) as a "Red Cross" plane. These small planes were often able to land at forward clearings and pick up single stretcher cases. Flown by S/Sgt. Neil O. Maxwell and later by Lt. Ronald E. Notestine, the O-49 brought over <sup>50</sup> ~~fifty~~ men to hospitals and delivered thousands of pounds of dressings and medicines to air <sup>st</sup> stations along the Kokoda Trail. The

little air ambulances were handy for landing at forward areas, but <sup>10.</sup> Flight-Lieutenant F. W. Kiel, medical officer of the RAAF No. 36 Squadron, pointed out that the light planes were hazardous to fly in the treacherous air currents of the Owen Stanleys and could carry only a few casualties whereas many wounded men needed transportation to hospitals. <sup>15</sup>

Except for air transportation, the Allies probably could not have saved Papua. By 18 September, the Japanese attack had forced the Australians back to Lorabaiwa Ridge, only ~~thirty~~<sup>two</sup> air miles from Port Moresby. Using every available plane, General Kenney's Directorate of Air Transport transported a regiment of "Diggers" from Brisbane to Port Moresby. In preparation for the all-out offensive to begin on 25 September, the Directorate of Air Transport flew three infantry regiments of the U. S. 32d Division to Port Moresby. Aided by the <sup>0.</sup> survival of the 6th Troop Carrier Squadron from the United States, the Directorate of Air Transport flew 3,600 men to Wanagela Mission in three days in mid-October to speed the capture of Buna. After being held up at New Caledonia to fly supplies to Guadalcanal during October and November, the 33d Troop Carrier Squadron reached Port Moresby on 2 December 1942. Allied capture of

Gona (9 December 1942), Buna (2 January 1943), and Sanananda (23 January 1943) brought the Papuan campaign to a successful conclusion.<sup>16</sup>

Had it not been for the evacuation of sick and wounded soldiers by air transport planes, the Allied campaign probably would have bogged down because of the weight of its casualties. In an improvised effort, however, Directorate of Air Transport crews airlifted approximately 13,000 Australian and American soldiers across the Owen Stanley mountains to Ward's Drome at Port Moresby. Approximately 11,310 patients were ambulatory, and about 1,690 were stretcher cases. Accurate statistics were available only for Americans: 5,883 were airlifted, of whom 1,570 were wounded. Arrangements for handling patients were highly informal. Following preliminary treatment, patients were carried by first aid men or native litter-bearers to "jeep heads" where they were transported to various operational airstrips where transport aircraft were landing. Ambulatory patients walked to the "jeep heads." Medical personnel provided some care for the patients at airstrips. Arriving at the airstrip, transport pilots hurriedly loaded (the Japanese frequently strafed the fields) as many patients as they thought they could lift and flew

them to Port Moresby. The trip required about fifty minutes, but about an half hour of this time was spent in crossing the Owen Stanleys at altitudes above 7,000 feet. Arriving at Port Moresby, the pilots indicated the number of patients aboard their planes by flag signals and the medical officer dispatched ambulances to arrive at dispersal areas simultaneously with the aircraft.<sup>17</sup>

"Evacuation of patients by air from combat areas has been a marked success," reported Maj. Alonzo J. Beavers, flight surgeon of the Fifth Air Forces' advance echelon at Port Moresby. The evacuation had been undertaken as a "military necessity" in view of the "non-existent evacuation plan for the infantry campaign on the northeast coast of New Guinea."<sup>18</sup> Despite the general success with air evacuation, much had gone wrong with the improvised system. The aircraft carried no medical personnel, and, although many transport crews made over two-hundred trips with wounded patients, they nevertheless protested that they lacked time and training to give the patients the care they deserved. According to official reports, only one patient died in flight during the relatively short evacuation from Buna to Moresby, but aircrews emphasized their need for medical

flight attendants. On one occasion an unattended mental patient wandered up to the front of a plane and threatened the crew with a revolver; fortunately the patient soon got into a fight with another patient and was subdued. Aircraft, moreover, were poorly equipped: they had no oxygen for therapeutic purposes. Many of the planes used had no litter racks, and because they required two hours for unskilled personnel to install, the litter racks on the DC-3 planes were seldom used. Despite the sketchy Allied Land Forces memorandum on medical air evacuation, the Army and Air Force medical officers did not coordinate their operations. Patients often waited for hours at a forward airfield which was not being used, while aircraft departed with less than maximum loads from nearby airfields. On the other hand, some pilots risked destruction and slowed airlift operations by remaining on the ground at forward airdromes for as long as two hours, waiting for patients who were not ready to fly. The ground medical officers at forward airfields seemingly made little effort to classify patients by casualty types, which would have simplified flying them to Moresby. These officers seldom gave pilots any special instructions regarding the medical requirements of the patients loaded aboard their

planes. Everyone agreed, however, that patients were efficiently unloaded at Port Moresby.<sup>19</sup>

During the Battle for Papua, the air transport capabilities of the Southwest Pacific were being augmented and in the first half of 1943 these resources were being permanently organized. On 12 November 1942, the 374th Troop Carrier Group was activated to control the American troop carrier squadrons then in the theater. The air echelon of the 317th Troop Carrier Group arrived from the United States in mid-January 1943 and was promptly sent to Port Moresby, from which place the group participated on 29 and 30 January in the airborne delivery of Australian troops and supplies to reinforce against an enemy attack at Wau, thirty miles southeast of Salamaua. Leaving its new C-47's in New Guinea for the 374th Group, the 317th took the collection of older planes flown by the 374th back to Australia in February 1943 to operate under the Directorate of Air Transport.<sup>20</sup> Promised a strength of four troop carrier groups, General Kenney secured authority from Washington to organize a troop carrier wing to serve in New Guinea. The 54th Troop Carrier Wing was activated on paper at Brisbane on 13 March, and in May it actually assumed form at Port Moresby, when Col. Paul H.

Prentiss, former commander of the 374th Group, headed it. Two new troop carrier groups -- the 375th in July and the 403d in August -- soon arrived in New Guinea.<sup>21</sup>

Although General Kenney built up his air transport capabilities during the first half of 1943, little was done to improve the operation of aeromedical evacuation, possibly because of the lull in ground operations and the reduction of the number of patients to be moved. In the Southwest Pacific, moreover, the evacuation of patients was the responsibility of the United States Army Services of Supply (USASOS). Some patients continued to be evacuated by air from the forward areas to Port Moresby hospitals, and patients requiring more than a month's hospitalization were further evacuated to Australia. Many of the latter patients were moved by boat, but some were airlifted. Although they were untrained in air evacuation, nurses from the 116th, 117th, 171st, and 166th Hospitals were commonly sent as attendants for patients evacuated by air to Australia.<sup>22</sup>

At the urging of the Air Surgeon's Office in Washington, General Kenney agreed to receive a medical air evacuation squadron, and, on 9 May 1943, the 804th Medical Air Evacuation Transport Squadron left Bowman Field. After a

month at sea, the squadron reached Brisbane on 14 June, where it was assigned to USASOS and was to spend two and one-half months of relative inactivity in a tent camp at a local race track. The squadron commander, Major Walter S. Miller, Jr., urged that the squadron should be assigned to the Fifth Air Force and made a trip to New Guinea on 20 July to present a plan of operations to the air commanders there. Major Miller urged that squadron headquarters should be at Port Moresby (where Directorate of Air Transport and 54th Wing routes met), that one flight should be stationed at Townsville (which should be the Australian terminus for air evacuation), and that the other flights should be attached to troop carrier units in New Guinea. The flights at the forward airfields would receive and classify patients, load aircraft, and provide flight attendants for the trip to Port Moresby.<sup>23</sup>

Although USASOS would not yet yield command of it, the 804th Squadron began slowly to deploy to field stations. Flight D went to Townsville by train on 1 August, and on 13 August evacuated the squadron's first patients from New Guinea. Departing by boat from Brisbane on 30 August, the male personnel of the 804th began to fly evacuation operations

out of Ward and Jackson Strips at Port Moresby on 17 September. On the morning of 22 September, Flight C was flown across the Owen Stanleys to Dobodura, where four troop carrier squadrons were based in support of forward operations. Following a decision that flight nurses could be employed south of the line between Port Moresby and Dobodura, the nurses who had been left behind at Brisbane were flown to join the squadron headquarters at Port Moresby on 3 October 1943. On 5 October, Flight B (less nurses) went to join troop carrier squadrons which had just begun to operate from the newly-captured airfield sites at Nadzab. Since the largest requirements proved to be in the war zone to the north, Flight D flew from Townsville to Dobodura on 18 October 1943, and Flight C promptly reinforced Flight B at Nadzab.<sup>24</sup>

Because of transportation delays, the 804th Squadron's flights were a little slow in getting situated, but they rendered invaluable support for the Huon Peninsula campaign which had been formally begun with an airborne invasion at Nadzab on 5 September 1943. Medical technicians of the 804th's detachment at Nadzab loaded aboard cargo-carrying C-47's and went into Gusap, Dumper<sup>u</sup>, and Kaipit. American casualties were brought back to the 4th Portable Hospital

and Australians were turned over to the Australian dressing station. Communications from Nadzab to the rear were a problem at first, but the evacuation flights at Nadzab soon had an efficient system operating. Every night the hospitals at Nadzab and Lae telephoned reports to the flights at Nadzab of patients needing evacuation. The 804th's headquarters at Port Moresby was notified by radio and secured a commitment of planes by identification number from the 54th Troop Carrier Wing. In the rearward air transport channels, patients enjoyed the highest priorities: litter patients had first priority, mail had second priority, <sup>↓</sup> setting patients had third priority, and other personnel had fourth priority. Both the Fifth Air Force and the 804th Squadron had long insisted that air evacuation should be under air force control, and on 16 October 1943 the 804th Squadron (less nurses) was finally relieved of assignment to USASOS and assigned to the Fifth Air Force. The Fifth Air Force assigned the squadron to the 54th Troop Carrier Wing. Although flight nurses were attached to the 804th, USASOS retained control over them until 21 December 1943 when they were assigned to the 804th Squadron.<sup>25</sup>

Working with vigor in the evacuation of patients between forward bases, from forward bases to Port Moresby, and from

Port Moresby to Australia, the 804th Squadron handled 5,595 patients in October, 4,787 in November, and 9,953 in December 1943. Although the statistics may not have been completely accurate for the early months of the year, Colonel Bascom L. Wilson, the Fifth Air Force surgeon, estimated that 19,912 Americans and 30,565 Australians were evacuated during 1943. Adding a few unclassified cases and some Japanese prisoners, 51,933 patients were air evacuated in the Southwest Pacific during 1943. According to records, only one patient died while in flight; he was a manic depressive in the manic phase who had been given excessive sedation.<sup>26</sup> Later on, air evacuation personnel in the Southwest Pacific would learn to handle psychotic patients.

In the roadless jungles of Papua and the Huon Peninsula, aeromedical evacuation of sick and wounded soldiers had proved to be almost the only feasible method of evacuation in 1942 and 1943. Begun as an improvisation, aeromedical evacuation in the Southwest Pacific had yielded to a more orderly management with the beginning of the operations of the 804th Medical Air Evacuation Squadron under air force control in the autumn of 1943. As yet, theater and air force command arrangements affecting air evacuation were not

completely satisfactory, but air evacuation was working. As the year ended, Lt Col Alonzo J. Beavers, Surgeon of the Fifth Air Force's Advanced Headquarters in New Guinea reported that: "The contribution of the Medical Air Evacuation Squadron is providing medical care in flight is undoubted. Both Australian and American Ground Forces are grateful for their efforts." As Colonel Beavers saw it, the only limiting factor in the service was the physical limitation of the air evacuation personnel on duty. "It would be ideal," he said, "to have sufficient personnel on hand to station a 'flight' at each major air base concerned in the air evacuation channel."<sup>27</sup>

### 3. Aeromedical Evacuation Developments in North Africa

Unlike the Allied operations in the Solomons and New Guinea, the Anglo-American invasion of Northwest Africa on 8 November 1942 was a planned offensive -- the first such campaign of the war for American troops. Earlier in the year in the hope that a cross-channel invasion might prove possible, the United States had begun to build up air and ground forces in the United Kingdom. On 30 July, however, President Franklin D. Roosevelt and Prime Minister Winston S. Churchill ordered the execution of "Operation Torch" --

a simultaneous invasion at Casablanca in Morocco and at Oran and Algiers in Algeria. In cooperation with the British Eighth Army, which would drive westward from Egypt, Allied forces would destroy German and Italian armies in North Africa. To carry out "Torch," Allied Force Headquarters, North Africa (AFHQ) was established in London on 11 August 1942, with Lt. General Dwight D. Eisenhower in command. At Bolling Field, Washington, D. C., the Twelfth Air Force was activated on 20 August 1942 and earmarked for "Torch." On 22 August, the "Eighth Air Force, Jr.," a planning section for the future Twelfth Air Force was created in London. Major William F. Cook was the medical member of the planning section in London, and Colonel Richard E. Elvins became Surgeon of the Twelfth Air Force on 20 September 1942.<sup>28</sup>

As Colonel Elvins and Major Cook drew up Twelfth Air Force medical plans for "Torch," they anticipated that aero-medical evacuation of troop casualties would be of great importance. <sup>road</sup> ~~Sea~~ only by a few coastal roads and railroads, <sup>5</sup> North Africa was a country of vast distances, deserts, and mountains. In such an area, air transportation of casualties was bound to be needed. Army medical officials tended to scoff at air evacuation planning; high medical officers told

Colonel Elvins that the Twelfth Air Force would not be required to evacuate any patients by air because the method was too uncertain, unreliable, and hazardous for the evacuation of sick and wounded. Undaunted by the lack of ground force interest, Cook and Elvins continued to make plans. Elvins later stated that Cook<sup>12</sup> was the driving force in planning for the air evacuation work in North Africa. As has been seen,<sup>\*</sup> the Twelfth Air Force medical planners on 19 October 1942 requested Washington to assign an air evacuation group with "light" and "heavy" air evacuation squadrons to "Torch." When this organization was not made available, plans had to be made to place principal reliance for aeromedical evacuation on the newly-formed 51st Troop Carrier Wing which was arriving in the United Kingdom from the United States. The air echelon of the 51st Wing -- including the C-47's and C-53's of the 60th, 62d, and 64th Troop Carrier Groups -- left Presque Isle, Maine, on 26 August and flew the North Atlantic route to Prestwick, Scotland. The entire complement of 150 aircraft completed the crossing without loss, a remarkable achievement in view of the inexperience of many of its younger pilots. In England, Colonel<sup>13</sup> Paul L.

\* See Chap<sup>14</sup> II, p. 71.

Williams took command of the 51st Wing.<sup>29</sup>

The Twelfth Air Force medical plan for aeromedical evacuation issued on 19 September 1942 stated the broad principle that the transportation of patients by air should be carried on as extensively as possible without implying any material decrease in other means of medical evacuation. Troop carrier aircraft would be employed in accordance with priorities: First, transport of airborne combat troops; Second, transport of supplies necessary for air operations; Third, transport of sick and wounded. The first two priorities were generally applicable to rear-to-front movements so that the backhauling of patients would actually have a rather high priority. The plan assumed that ground force clearing stations would be located near advanced airfields to prepare patients for evacuation, and <sup>the</sup> air unit medical personnel would provide liaison between the clearing station and the airdrome operations office. Surgical or base hospitals should be located conveniently near the airdromes where transports would land on return trips. The plan assumed that air transport would provide an emergency means of evacuation which would be chiefly useful in cases where speed was essential to proper medical treatment. <sup>It is not clear, however,</sup> Probably no more

than 1% of the force engaged would require air evacuation. The 51st Wing's C-47s arrived in England with standard Douglas litter equipment. About 104 of these planes would be available in North Africa, and each could accommodate 17 litter patients. The Eighth Air Force Air Depot Group checked the C-47s for litter equipment and installed it where necessary. 30

In addition to the landings in French North Africa, the Allied plan for "Torch" required General Sir Harold Alexander, British Commander in Chief in the Middle East, to strike westward from Egypt with the British Eighth Army under Lt. General Bernard L. Montgomery. Under Air Vice Marshal Arthur Cuningham, the Western Desert Air Force would support the advance. The Western Desert Air Force would be chiefly composed of RAF units, but groups of Major General Lewis H. Bureton's U. S. Army Middle East Air Force (which became the U. S. Ninth Air Force on 12 November 1942) would be integrated into it. In previous battles in the Middle East, the British had made some use of aeromedical evacuation and meant to continue its deployment in the forthcoming Libyan campaign. The Royal Australian Air Force No. 1 Air Ambulance Unit -- a small organization equipped with three

DeHavilland-86 planes -- was located at Rear Air Headquarters and was available at immediate call from Advanced Air Headquarters to bring forward emergency medical supplies and evacuate emergency casualties. Three converted Bombay transports and a South African Red Cross Lodestar transport also worked with the air ambulance unit. From bases in the rear, the RAF Air Transport Service also made a few runs forward each day, and the transport planes back-loaded pilots returning for replacement aircraft and casualties being evacuated to base hospitals. In the evacuation endeavor, the Air Transport Staff officer and the Senior Medical Officer at Advanced Air Headquarters worked in close contact with the Deputy Director of Medical Services at Advanced General Headquarters, Middle East.<sup>31</sup> During the early battles in the Western Desert air evacuation had proved valuable for emergencies but impracticable for routine employment. Without air superiority it was hazardous to bring air ambulances or air transports to forward airfields and these planes normally landed at airfields at least forty miles behind the front. Since patients had to be carried such a distance, they were normally evacuated to a railhead where a hospital train was available. Up until November 1942, only men whose

lives would be endangered by surface travel were evacuated by air.<sup>32</sup>

~~As~~ British Eighth Army attacks against El Alamein on the night of 23 October prepared the way for successful Anglo-American landings at Casablanca, Oran, and Algiers on 8 November 1942, both the Twelfth Air Force and the Western Desert Air Force had prepared for aerial medical evacuation but neither command had realized how vital the system would be to the successful accomplishment of the Allied mission. During November, ~~as~~ Allied troops in northwest Africa subdued sporadic French resistance and marched toward Tunisia, casualties were light and, except for isolated instances, air evacuation was not used by the ground forces. On the initiative of local medical officers, <sup>11</sup> eleven patients were flown from the Oran area to Gibraltar in November and, early in December, 103 British patients were flown to Gibraltar from Bone. Transport aircraft were engaged in a number of paratroop missions and were not yet following any sort of regular schedules. During the month, however, the 51st Troop Carrier Wing was establishing itself in Algeria. Headquarters of the 51st Wing located near the Twelfth Air Force command post in Algiers; in the Oran area

the 60th and 62d <sup>6</sup> Troops were first located at Tafaraoui ("where the mud was deep and gooey") but soon separated, moving to Relizane and Nouvion airdromes. The 61st Group operated initially from Maison Blanche Airfield, Algiers, but soon moved to nearby Blida airdrome. <sup>33</sup>

Late in November 1942, Anglo-American forces driving from the west appeared to have the capture of Tunisia within their grasp. From the east, the British Eighth Army had been pursuing the retreating Germans all during November. Having received substantial reinforcements from Sicily and having reorganized his old forces, German Field Marshal Erwin Rommel began to fight for Tunisia. Early in December, even before ground troops were having trouble with casualties, Air Force units which had moved forward to the central Tunisian front were in need of air evacuation. Located at Youks-les-Bains more than a hundred miles from the coast, Major Harold P. Tompkins, Flight Surgeon of the 14th Fighter Group, had no hospital to shelter his sick and wounded from freezing rainy winter weather. His choices of evacuating patients were to send them on a <sup>24</sup> 24-hour motor ambulance trip up over rough macadam mountain roads, or to put them on the antiquated, narrow-gauge railway for a one to two day

trip through the Atlas mountains, or to arrange some sort of air evacuation which would give a patient a two-hour trip to Algiers. Major Tompkins secured a hospital tent in Algiers to shelter patients while they awaited twice-a-week evacuation flights aboard C-47's which delivered supplies to Youks-Les-Bains.<sup>34</sup> Other local medical officers began to make more use of empty C-47's returning to Oran and Algiers. No accurate statistics were kept, but altogether by mid-January 1943 the 51st Wing estimated that its troop carrier crews had evacuated about 220 patients.<sup>35</sup>

In view of the stiffened German resistance, General Eisenhower late in December ordered a new line of attack against Tunisia from the west. While the British First Army held the northern sector along the coast, the Satan Task Force -- chiefly the U. S. II Corps -- would attack through the mountains on the central Tunisian front in cooperation with force exerted against Rommel's Mareth line defenses in eastern Tunisia by the British Eighth Army. For the evacuation of its wounded, the British First Army would use the coastal railway and good motor highways, but the Satan Task Force would have fewer hospital facilities and no good land routes of evacuation. According to the ground evacuation

plan, however, casualties of the southern forces would be collected in the Tebessa area and evacuated to three general hospitals at Constantine. Other general hospitals were located around Algiers and Oran. Ground facilities for the transportation of wounded from Tebessa to Constantine consisted of a single macadam road and the narrow-gauge railroad. To cover the distance of about 230 miles from Tebessa to Constantine required some fifteen hours by motor ambulance or twenty-two hours by train. Practically no motor ambulances, however, could be spared for this trip. Since the Constantine hospitals had no motor ambulances, the surface evacuation from this place to Oran required a twenty-eight hour trip by standard-gauge railway. By way of contrast, C-47 flying time from Youks-les-Bains in the Tebessa area to Tebergma airfield near Constantine was only an hour; the flying time from Tebergma to Algiers was an hour, and a C-47 could fly from Tebergma to Oran in an hour and a half.<sup>36</sup>

"With the distances involved, poor communications, and lack of adequate United States medical units, it soon became obvious that we should have to evacuate by air," wrote the AFHQ Surgeon, Brig. Gen. Albert W. Kenner.<sup>37</sup>

In view of the difficulties confronting surface evacuation from the central Tunisian front, Col. R. E. Elvins,

Col. Paul L. Williams, Lt. Col. William F. Cook, and Lt. Col. Ernest E. Howerton, surgeon of the 51st Wing, met with General Kenner in Algiers on 14 January 1943 to discuss a plan for mass air evacuation of casualties. The Twelfth Air Force plan issued this same day included general statements of responsibility whereby the ground forces would establish triage and treatment stations near advanced airfields to select and prepare patients for air evacuation aboard 51st Wing C-47's. The 51st Wing would handle necessary communications and liaison and would provide in-flight medical attendants. The surgeon of the North African Theater of Operations (NATOUSA) would designate hospitalization in the base section for casualties.<sup>38</sup> On 15 January, a system for handling air evacuation was established by Colonel Howerton. An Air Evacuation Center was set up at Maison Blanche Airfield, Algiers, under the direction of the headquarters squadron surgeon of the 51st Wing. A detachment of 35 medical enlisted men drawn from units of the wing was set up at Maison Blanche to serve as medical attendants aboard planes. From all hospitals, the AFHQ Surgeon received requests for air evacuation and passed them by telephone to the Air Evacuation Center with directions as to where patients would be delivered for hospitalization. ~~The Air Evacuation~~

~~Center with directions as to where patients would be delivered for hospitalization.~~ The Air Evacuation Center notified base surgeons at forward airfields of patients to be moved the following day and the planes which would be available for movement. All communications were by telephone since radio and teletype proved too slow to handle the traffic. Base surgeons at various airfields involved supervised the loading and unloading of patients and necessary coordination with ground force units.<sup>39</sup>

Put into operation on 15 January 1943, the Twelfth Air Force's system for mass air evacuation of sick and wounded men proved to be a life-saver as intense fighting flared in central Tunisia. Almost at once, air transport became the method of choice for evacuating casualties from Youks-les-Bains and Telergma to Maison Blanche and La <sup>S</sup> <sub>l</sub> <sub>a</sub> <sup>e</sup> <sub>n</sub> <sub>i</sub> <sub>a</sub>. The 54th Wing also established an evacuation route from Maison Blanche to La <sup>S</sup> <sub>l</sub> <sub>a</sub> <sup>e</sup> <sub>n</sub> <sub>i</sub> <sub>a</sub> in order to transfer patients between base section hospitals. In mid-February, when Rommel launched a shattering attack through the Kasserine Pass, Youks-les-Bains on one occasion loaded 129 patients aboard nine C-47's in a short time. Speed of loading proved essential since on another occasion German fighters strafed and bombed

Youks thirty minutes after <sup>50</sup> ~~fifty~~ transports had left the field. The number of casualties thrown upon the three hospitals at Constantine was so great that these facilities served only as evacuation centers. In the week of the Rommel attack extremely hazy weather caused by a sand<sup>2</sup> storm grounded transports for several days and demonstrated that weather was a limiting factor in aeromedical airlift. On these days motor ambulance convoys evacuated patients rearward from Tebessa. With improving weather, the C-47's lifted 808 patients in the week beginning on 27 February, a peak figure which would soon be routinely exceeded. During Rommel's breakthrough, the personnel and equipment of a number of forward area hospitals had to be evacuated by air.<sup>40</sup>

The Twelfth Air Force medical air evacuation system was working so well when he visited the theater as General Grant's representative in February 1943 that Colonel<sup>9</sup> Wood S. Woolford expressed "serious doubt" that a medical air evacuation transport squadron would be needed, and he "particularly question(ed) the wisdom of diverting female nurses for this service when their nursing qualifications are so urgently required in hospitals actually to take care of the sick<sup>10</sup> and wounded."<sup>41</sup> As a matter of fact, the survival<sup>11</sup> of the 802d

Medical Air Evacuation Transport Squadron from the United States caused little change in the air evacuation system. Under command of Capt. Frederick R. Guilford, the 802d Squadron became operational at Maison Blanche on 10 March, and two days later the squadron's nurses and technicians flew their first missions. The 802d Squadron promptly assumed control of the Air Evacuation Center at Maison Blanche, and, on 26 March, it sent detachments comprising a flight surgeon and a few enlisted men to take charge of liaison and the loading and unloading of patients at La Senia, Telergma, Youks-les-Bains, and Souk-el-Arba (in Northern Tunisia). If the 802d Squadron's arrival made little change in the system (which continued to be under the supervision of the 51st Troop Carrier Wing's surgeon) the better-trained personnel of the 802d nevertheless had beneficial aspects. In North Africa, as in other theaters, many arguments were presented against the use of nurses on air evacuation flights, but the 802d Squadron routinely employed nurse-technician teams into the forward airfields. Colonel Cook admitted that "our women, demand a great deal more 'taking care of' than enlisted men," but he noted that flight crews liked to have some person aboard a plane who could make sound medical decisions.

Patients also got a "psychological boost" from the cool assurance of the flight nurses, and in a few emergencies the flight nurses knew what to do to save men's lives. "We intend using nurses to the fullest possible extent," said Colonel Cook.<sup>42</sup>

Except for two lesser attacks early in March, the Kasserine offensive marked a beginning of the end of German resistance. Despite hard fighting, Allied forces pushed into Tunisia on all fronts in March and April. The advance of combat troops into Tunisia, plus the increased number of friendly casualties in the final stages of the campaign, when the action was an infantry offensive against strong positions, multiplied problems of casualty evacuation. To expedite increased patient airlift from northern Tunisia, the 802d Squadron opened a detachment at Tingley Field, near Bone (on the Mediterranean) on 27 April. In the final stages of the campaign, airfields in the vicinity of Beja, Souk-el-Arba, and Menjez-el-Bab were used for patient airlift. Following the surrender of the German forces on 12 May 1943, fairly large-scale air evacuation continued from fields as far advanced as Mateur, Bizerte, and Sidi Smail. Algiers and Oran hospitals continued to be the destination of most patients,

although a limited number of cases were carried as far as Casablanca. In the latter stages of the campaign, especially in northern Tunisia, communications were not dependable. Accordingly, medical attendants or air couriers hand-carried messages outlining the following day's aerial evacuation requirements back to Maison Blanche each day. Each message was passed to the Allied Force Surgeon's office to determine a destination for the patients. Under this system it was impossible to inform the forward areas how many patients would be evacuated on a given day, but the first troop carrier aircraft which arrived at the field carried a message giving this information. This way of communicating was not ideal, but ground force units located evacuation holding units near the forward airfields which accommodated patients until they could be airlifted.<sup>43</sup>

"Air evacuation has proved to be of inestimable value in this theater," reported the North African Theater of Operations, U. S. Army. "Considering the distances involved, the necessary absence of fixed hospitals in the forward area, the scarcity of space on make-shift hospital trains, it is believed that evacuation of casualties in the Tunisian campaign could not have been accomplished in any other way."<sup>44</sup>

~~\*Ltr., Hq NATOUSA to TAG, subj: Essential Technical Medical Data from Overseas Forces, 11-Aug-1943.~~

Ground force commanders in Africa stated that had it not been for air evacuation they would have had to stop the war twice to remove the wounded and make way for the advance of fresh troops. In Northwest Africa during the Tunisian campaign (up to 29 May 1943), 15,027 American, British, French, and prisoner of war patients were airlifted to hospitalization. This total number included 8,800 (58.56 per cent) litter patients and 6,227 (47.44 per cent) ambulatory patients. In this airlift, the C-47's flew 5,610,815 patient miles and 40,591 patient hours. Only one patient died in flight; and he was a moribund case who succumbed despite the ministrations of an accompanying flight surgeon and a nurse.<sup>44</sup> Almost all patients were evacuated during the return flights of troop carrier aircraft which delivered personnel and supplies to forward airdromes. "Air evacuation has been one of the outstanding successes of this entire campaign," stated Colonel Elvins in his summary of the Tunisian campaign, "and more patients have been transported by air than has ever been done in the history of warfare."<sup>45</sup>

In its long overland campaign across Libya's deserts, the British Eighth Army found even greater requirement for aeromedical evacuation than that<sup>46</sup> of the Anglo-American forces

in northwest Africa. Nothing in their previous experience in the theater had prepared the British for supplying their forces and evacuating their casualties over an increasing distance which would ultimately stretch out to some 700 miles from logistic depots and base hospitals in the Nile Delta. After El Alamein, air superiority turned in favor of the British and air transport to forward airfields became possible. On 23 November, moreover, the beginning of operations of the U.S. Ninth Air Force's 316th Troop Carrier Group improved the desert mobility of British troops. Recognizing that patients would wait for airlift<sup>g</sup> in holding units<sup>3</sup> the British assigned the 14th U.S.<sup>74</sup> Field Ambulance to the Desert Air Force's Advanced Air Transport Center. The RAAF air ambulance unit was also assigned to this center, and this whole establishment leap-frogged forward behind ground advances through Libya and Tripolitania.<sup>i 46</sup>

As employed by the Desert Air Force aeromedical evacuation displayed both tactical and strategic values. A classic example of tactical air evacuation occurred in the latter<sup>of</sup> stages of the Tunisian campaign when General Montgomery employed the New Zealand division in a famous "left hook" to turn the Mareth line. To make this flank attack, the

New Zealand division had to travel over rough ground which was impassable to field ambulances. Familiar with casualty air evacuation, the division prepared two rough airstrips, and, on the fourth day of the battle, when casualties were swamping its medical facilities, the division called for airlift. Five Bombay transports and the Lodestar Air ambulance brought in medical stores and in a forty-minute flight evacuated 426 patients from the airstrips which were virtually behind Axis lines.<sup>47</sup> In a typical day's work while basing its four air ambulances at Sfax, the RAAF Air Ambulance Unit evacuated over a hundred patients from forward clearing stations each day. In the final stage of the campaign, while based at Enfidaville, the RAAF unit transported British head injuries to Medjez-el-Bab, where American troop carriers picked them up and flew them to Algiers. On return trips from Medjez-el-Bab, the air ambulances returned Indian casualties to Eighth Army Indian hospitals.<sup>48</sup>

The British air ambulances gave exceptional service in the forward areas, but the main air evacuation effort was performed by transport aircraft which hauled logistical support forward and back-loaded patients to hospitals in Egypt. Augmented in preparation for the desert campaign, the RAF No. 216 Group took on its final form as an Air

Transport and Ferry Group on 9 September 1942, and the arrival of the 316th Troop Carrier Group in November 1942 approximately doubled the air transport capability of the RAF forces in the Middle East. <sup>by the</sup> ~~As~~ the Eighth Army moved forward, it relied increasingly on air evacuation. By December 1942, some 200 patients a day were being flown eastward from "Marble Arch" Airdrome in Libya (Cyrenaica). As British forces marched further west, they were supported by two separate air transport runs. The RAF No. 216 Group continued to fly forward from Cairo, while the other RAF units and three squadrons of the 316th Troop Carrier Group were based at El Adem near Tobruk in December and operated forward of this point. Casualties were thus being evacuated either to Egypt or to El Adem. By special arrangement, planes returning to Egypt from the front were routed through El Adem to pick up patients left stranded there. The casualty air evacuation system could still fly 200 men a day the 700 miles back to Cairo west airfield in Egypt, but RAF<sup>F</sup> medical officers found the existence of two semi-independent air transport services "a great nuisance." Male RAF medical orderlies accompanied patients in flight from forward areas to Cairo. From the beginnings of air evacuation in 1941 to

the end of the North African campaign, the RAF evacuated about 12,000 casualties. Between December 1942 and April 1943, the 316th Troop Carrier Group evacuated 2,194 patients, of whom only one died in flight.<sup>49</sup>

The aeromedical evacuation experience in Northwest Africa and in the Western Desert enabled Americans and British alike to gain a fuller understanding of requirements and problems of the new technique. Above all else, the experience justified the employment of trained medical air evacuation personnel in special units. Colonel Elvins found the organization of the 802d Squadron to be satisfactory and reported that the unit had done "exceedingly good work." Since the squadron could handle only about 400 evacuees a day, the theater air force needed a second medical air evacuation squadron. On the basis of the achievements of an improvised organization in North Africa, the British Air Ministry in July 1943 decided to organize new Casualty Air Evacuation Units as a part of air transport Forward Staging Posts. In England, RAF Station Hendon was already training some medical orderlies in an Air Ambulance School. This course was expanded in June 1943 to provide additional enlisted RAF and WAAF nursing orderlies for the casualty air

evacuation units, each of which would comprise two medical officers and <sup>12</sup>twelve medical orderlies. <sup>50</sup>

Other problems of air evacuation encountered in North Africa were difficult to solve, and reliable communications were not always available. Reliability of communications, however, <sup>1</sup>affected all forms of military operations. One major problem causing great difficulty to both British and American air evacuation work was the different design of British, French, and American litters. Litter racks in the C-47's were modified to fit both American and British litters, but could never be used for French litters. Later on, web strap supports in troop carrier planes overcame the problem of the varied design of field litters. Since troop carrier planes moving freight forward could not be burdened with 600 pounds of litters and blankets for <sup>18</sup>eighteen patients, the medical air evacuation system could not exchange equipment in forward areas as motor ambulance crews had always done. The only practical means which American and British air officers could see for this equipment problem was to provide additional stocks of litters and blankets to Army units up forward. Flying from the front to the rear, RAF medical orderlies had trouble getting transportation back

to the front. Generally, the medical orderlies returned from Cairo by road. Under the new RAF system, the orderlies would assist with freight and passengers on an outward transport trip and would care for patients on the return trip. The British air ambulances, painted white with non-belligerent Red Cross markings, were invaluable for special air evacuation operations into forward airfields and improvised airstrips in North Africa. To meet this same requirement, Colonel Elvins urged that the Army Air Forces should provide its medical service with light aircraft and helicopters which could carry one or more litter cases.<sup>51</sup>

#### 4. The Invasion of Sicily Tests Aeromedical Evacuation

"To our surprise," wrote Colonel Cook about the Tunisian campaign, "we have found that all patients suitable for transportation by any other means are suitable for air evacuation."<sup>52</sup> Prior to Tunisia many ground officers had been at best lukewarm about aeromedical evacuation, but as the island of Sicily loomed up as the next Allied invasion objective there was general agreement that aeromedical evacuation across the Mediterranean to hospitals in North Africa would be logistically beneficial and medically sound. Both for the successful completion of the Tunisian campaign and the

forthcoming undertaking against Italian soil, General Eisenhower had married the Allied Commands in North Africa in February 1943. Under AFHQ and at the top of the air structure stood the policy-making Mediterranean Air Command, which had as subordinates the Northwest African Air Forces (NAAF); the RAF, Middle East (RAFME); and the RAF, Malta. Lt. General Carl Spaatz commanded NAAF, and Colonel Elvins stepped up to become its surgeon, with Colonel Cook as his assistant. In view of the increased importance of troop carrier work and of growing troop carrier strength, Brig. General Paul L. Williams now commanded the NAAF Troop Carrier Command (Provisional). Arriving from the United States in May, the 52d Troop Carrier Wing (61st, 313th, and 314th Groups) together with the 51st Troop Carrier Wing comprised the bulk of the strength of the NAAF Troop Carrier Command. The Ninth Air Force's 316th Troop Carrier Group, however, was attached to the 52d Wing, and the 802d Medical Air Evacuation Squadron was assigned to the NAAF Troop Carrier Command. According to concept, the NAAF Troop Carrier Command was primarily concerned with operations in the forward areas. To perform predominantly rear-area logistical transport work under the Mediterranean Air Command, the Mediterranean Air Transport

Service (MATS) was established with headquarters at Algiers on 25 May 1943. The polyglot organization included American Troop Carrier Squadrons detached from time to time from the 51st Troop Carrier Wing, the British No. 216 Group and British Overseas Airways Corporation planes, and Air France and French military air transports.<sup>53</sup> These were the organizations which would be chiefly concerned with aeromedical evacuation from Sicily.

In the planning, organization, and operation of the air evacuation of casualties in support of the Sicilian Campaign, the Northwest African Air Forces profited from experience gained in Tunis. When representatives of the NAAF Surgeon's office met with the medical planning section of the <sup>FIFTH</sup> 15th Army Group on 1 June 1943, they found that army medical officers were counting heavily on air evacuation, both for emergency and routine cases. In Operation "Husky," ground forces would constitute the <sup>FIFTH</sup> 15th Army Group under command of General Alexander. Subordinate units would be the British Eighth Army under General Montgomery and the newly established U.S. Seventh Army under Major General George S. Patton, Jr. To prepare the way for amphibious landings on 10 July 1943, the NAAF Troop Carrier Command

would drop paratroop and gliderborne elements of the U. S. 82d Airborne Infantry Division and the British I Airborne Division at selected points behind the beachheads before dawn on 10 July and after nightfall on 11 July. After D-day-plus-2, American troop carrier planes and the RAF No. 216 Group would be prepared to ply airlanded missions to newly captured Sicilian airfields. In the backhaul from Sicily only aircrews returning for replacement airplanes would have a priority higher than patient evacuation. The 15th Army Group estimated that it might sustain up to 7,000 casualties in the initial phase of the invasion. For this reason, approximately 10,000 hospital beds would be available in the Mateur - Tunis - Bizerte area to support patients evacuated from Sicily. As necessary to prevent overcrowding of the Tunisian hospitals, patients would be evacuated from there to other base hospitals near Constantine, Algiers, and Oran. <sup>54</sup>

Learning the strategy and requirements posed by Operation Husky, the NAAF surgeon secured approval of a plan outlining theater responsibilities for air evacuation. Almost at once, the plan was placed in operation. In order to free the hospitals in the Mateur - Tunis - Bizerte area so that they could support the Sicilian invasion, NAAF Troop Carrier

Command planes between 22 May and 10 July transported 1,109 patients from Tunisia to base hospitals in Algeria. Nearly 85 per cent of these cases were litter patients. Since troop carrier units were heavily involved in training for troop drops, the RAAF Air Ambulance Unit performed almost one-third of the patient transfer work. The air transportation of these patients out of Tunisia was not only a comfortable means of travel for them, but it permitted much more secrecy than surface transport by motor or train. Preparatory to evacuations from Sicily, the NAAF Surgeon designated Mateur Airfield No. 2 as the principal reception point for Americans and El Alouina (Near Tunis) for British casualties. Mixed loads of patients could, of course, land at either airfield. Seven tents were set up as a reception center at Mateur Airfield No. 2, and an 802d Squadron detachment manned it. The British employed the 2d Field Ambulance in similar arrangements at El Alouina. Goubrine Air Base near Sousse was named as a weather alternate for patient evacuation. The main body of the 802d Medical Air Evacuation Squadron moved to Foch Field near Tunis early in July. This airfield would be the main transport base in support of the Seventh Army in Sicily. A new classification of patients was agreed

upon and announced: Class I patients were litter cases requiring nursing care in flight and were to be accompanied by a flight surgeon and a nurse (or a technician); Class II patients were litter and ambulatory cases who required minor nursing care and were accompanied by a flight nurse and technician; Class III patients were ambulatory patients who required no nursing care and were accompanied only by a technician.<sup>55</sup>

When airborne and amphibious landings in southeastern Sicily on 10 and 11 July 1943 marked the beginning of the Allied campaign for that island, a comprehensive air evacuation plan was ready for implementation. Uncertain as to when airfields on Sicily would be ready for transport landings, the air evacuation plan was flexible enough to become active anytime after D-day-plus-4 and certainly by D-day plus-14<sup>1</sup> which was the most conservative date for beginning air evacuation. Because of this uncertainty as to when aeromedical evacuation could begin as well as to a recognition that weather could interfere with patient airlifts, the 15th Army Group scheduled surface evacuation as well as air evacuation. As a matter of fact, however, overwhelming Allied air superiority over Sicily together with the success of the

initial landings and the early capture of airfields in the vicinity of Gela and Pachino allowed air evacuation from Sicily to begin on D-day-plus 4<sup>1</sup>. Even though it began earlier than anticipated, air evacuation from both the American and British sectors of Sicily met a number of difficulties which had not been foreseen.<sup>56</sup>

In accordance with the Sicilian air evacuation plan, U. S. Seventh Army medical battalions established "holding units" within two miles of each main evacuation field. According to plan, an advance detachment of the 802d Medical Air Evacuation Squadron was supposed to have sailed for Sicily aboard a hospital ship on 13 July. Since initial invasion casualties were light the hospital ship's departure was delayed, and the 802d Detachment had to be flown to Ponte Olivo Airdrome on 17 July. Under direction of the Third Air Defense Wing surgeon, over a hundred patients were flown out of the Gela region on 15 and 16 July. These patients had no medical attendance in flight, but they were carefully selected and met no difficulties. On 17 July, the 802d Detachment evacuated 75 patients from Ponte Olivo Airdrome, but that night German planes bombed and mined the airfield. As a result, the 802<sup>1</sup>d Detachment switched its

activities to nearly Gela Airdrome on 18 July and evacuated 38 patients. At this juncture the 802d detachment ran into another problem. Since the transport planes could not manage a property exchange, the Allied medical plan had provided that 5,000 litters and 10,000 blankets were to be deposited on the beaches at Sicily by landing craft. The dumps containing these items could not be found, however, with the result that special air cargoes of litters and blankets had to be flown to Ponte Olivo on 19 July. From 19 through 22 July, the 801st detachment continued to evacuate from Ponte Olivo, the largest number of patients on any one day being 135.<sup>57</sup>

Forward moving U. S. Seventh Army columns left Ponte Olivo Airfield far behind, and, with hospitals moving up, no patients were offered for air evacuation on 23 July. On 24 July, the 802d Squadron's detachment moved to Agrigento Airfield and made this field the center of air evacuation until 27 July, when the 802d Squadron established a second detachment on the northwest coast of Sicily at Palermo. On 5 August, ten C-47's flew the Air Evacuation detachment and a part of its associated medical battalion holding station from Agrigento to Termini Immerse Airfield on the northern

coast of Sicily. The air evacuation station was in operation at the new site in an elapsed time of only four hours. From 5 August through the conclusion of the Sicilian campaign with the capture of Messina on 17 August, Palermo and Termini Immerse were the main loading points for patients. For eleven days after the official end of the campaign, the detachments continued to evacuate combat casualties. In the seven weeks of operations between 11 July and 28 August 1943, a total of 4,755 patients (2,299 ambulatory and 2,456 walking) were evacuated by air from the American sectors of Sicily. Thanks to air transport, these patients were flown the some 240 miles from field hospitals in war-torn Sicily to base hospitals in North Africa in easy two-hour flights. Some of the patients were uneasy about the over-water flying, but all made the trip safely.<sup>58</sup>

In Eastern Sicily, where the British Eighth Army fought the Germans, NAAF Troop Carrier Command C-47's furnished most of the airlift for sick and wounded men but the Royal Air Force managed the evacuation. As yet the RAF had not been provided with the casualty air evacuation units it required to operate an aeromedical evacuation system, with the result that the system employed in eastern Sicily was

somewhat improvised. Royal Army medical personnel manned the Air Reception and Evacuation Units which worked alongside Air Dispatch and Reception Units at forward airfields in Sicily. Wing evacuation centers which were equivalent to air reception and evacuation units were also formed on forward fighter airdromes by pooling squadron medical personnel in a common wing sick quarters. Each air reception and evacuation center possessed a number of nursing orderlies, but the total number of orderlies available was insufficient to permit them to accompany each air evacuation plane. The more serious cases, however, were accompanied by medical orderlies.<sup>59</sup>

As was the case with the Americans, the British Eighth Army had few casualties and speedily captured Pachino Airfield. The first transport aircraft landed at Pachino on 13 July, and on the following day <sup>65</sup>~~sixty-five~~ casualties were evacuated to Africa. Transport planes landed supplies each day without interruption, but only <sup>16</sup>~~sixteen~~ patients were evacuated by air between 15 and 18 July. The delayed beginnings of British air evacuation were attributed to two causes. Many ground units in the vicinity of the forward transport airfield were ignorant about air evacuation, and

fighting soon progressed too far from Pachino to permit casualties to be returned there over rough mountain roads. Recognizing that the latter factor was significant for air transport, the British shifted their advanced Air Transport Center northward up the coast to Cassibile Airdrome near Syracuse, and the No. 1 Australian Air Ambulance sent a detachment there to operate two DH-8<sup>6</sup>'s, one Bombay, and the Lodestar ambulance. The air ambulance unit maintained a routine shuttle service to Lentini and Francesco and flew request missions to Comoso and Pachino, successfully moving some 1,918 patients from the forward airfields to the main transport field at Cassibile for further transport to North Africa. Finally getting underway in good order on 22 July, British air evacuation by 14 August had transported 3,010 patients to El Alouina, 1,414 to Malta, and 462 to Castel Benito in Tripoli. The evacuation to Malta was a fortuitous arrangement: transport aircraft frequently stopped there to refuel and patients who were not travelling well were transferred to the Malta hospital. RAF transports flying between Tripoli and Sicily unloaded patients at Castel Benito. Despite the good service rendered by the <sup>RAF</sup> Australian air ambulance unit, ~~with decrepit planes,~~ poor roads and

unservicable landing fields in eastern Sicily continued to hamper British air evacuation. Thus on 15 August, casualties were evacuated from Catania by hospital ship; had it not been for <sup>15</sup> fifteen miles of terrible road between Catania and Lentini, the patients might have been moved much more speedily by air. On an earlier occasion, however, hospital ships were late arriving in Syracuse and troop carrier planes were hurriedly concentrated there to relieve overflowing field hospitals. <sup>60</sup>

In order to keep the Tunisian hospitals free to receive casualties during the Sicilian <sup>p</sup> operation Mediterranean Air Transport Service transports and a few planes of the RAAF Air Ambulance Unit (usually only one Bombay) flew American patients to Telergma, Canadian and British patients to Phillipville, and British and American patients to Algiers. In this airlift between 11 July and 28 August 1943, 2,068 patients were moved, nearly all being litter cases. Of the total, the RAAF unit moved 928. The Bombay had its own medical aircrew, and the 802d Squadron supplied personnel to accompany patients flown in C-47 transports. <sup>61</sup>

As the Sicilian campaign closed, Colonel Elvins reported that more than 25,000 patients had been evacuated by

air in North Africa and the Mediterranean since 8 November 1942." "We now have a set-up and the necessary plans to accomplish air evacuation in a smooth and efficient manner," Colonel Elvins said. In his report, Colonel Elvins emphasized factors which were important. Good communications were needed so that medical officers and hospital commanders could direct requests to the medical air evacuation squadron through troop carrier command, desirably <sup>24</sup>~~25~~ hours in advance of the need for the patient airlift. Ground force hospitals ought to be conveniently close to forward and rear airfields, and the ground forces should establish holding stations at the airfields. In the Sicilian operations, many lesser-wounded men were evacuated, but Colonel Elvins stated that air evacuation

\* Exact accounting of the patient airlift would never be known since figures for the RAF accomplishments in the Western Desert and Sicily were imperfectly recorded by a cumbersome documentation system requiring sextuplicate copies of passenger loading lists which simply could not be prepared in the rushed loadings at combat airfields. The Allies would soon work out a standardized duplicate ticket accounting method which would work under combat conditions.

should not be used for patients who would be off duty for less than fifteen days. Although litter patients were normally given precedence over other wounded, the air evacuation units had found it practical to load about five litter patients in a C-47 and to fill the remaining space with ambulatory patients. This speeded troop carrier aircraft turn-around time at forward airfields. No matter how good planning and direction from "top side" might be, Colonel Elvins emphasized that the success of air evacuation depended upon the medical officers, nurses, and medical airmen who were actually engaged in the mission.

62

As did Colonel Elvins, Air Commodore T. J. Kelly, Principal Medical Officer of the Royal Air Force in the theater, reported that surgeons and physicians of the hospitals in Tunisia remarked on the satisfactory condition of patients received by air and found no instance of ill effects due to air transport. Commodore Kelly stated that nursing orderlies should attend all patients in flight and called upon the Air Ministry to provide the new casualty air evacuation units which would permit the establishment of a permanent casualty air evacuation system in the Mediterranean. Commodore Kelly also singled out for praise

the "excellent work" done by the No. 1 Australian Air Ambulance Unit, even though handicapped by obsolete aircraft. He asked that the unit be equipped with modern transports such as C-47's.<sup>63</sup> After Sicily, however, the RAF would abandon the use of non-belligerent hospital planes protected by the Geneva Red Cross, but it would endeavor to provide aircraft which could carry freight to the most forward airfields and evacuate casualties from them. As a result of the change in policy, the RAAF Air Ambulance Unit secured no new planes. Its Bombays were no longer safe for passengers and it could no longer secure low octane fuel for its ancient De Havilland-86's. When the Allies invaded Italy, the ambulance unit carried some medical freight in its Bombays and evacuated a few casualties in the Lodestar ambulance. After the Lodestar wore out, the Australian government called the unit home in February 1944. As it left the Mediterranean, the No. 1 RAAF Air Ambulance Unit was credited with the movement of 8,252 casualties in its less than three years of active humanitarian service.<sup>64</sup>

5. The Air Transport Command Begins Inter-Continental Evacuation

When General George Marshall directed all theater

commanders on 25 September 1942 to call upon the newly created Air Transport Command for aeromedical evacuation of serious medical cases to the United States, no one in authority probably had any concept of the magnitude which global air evacuation would eventually assume. The Surgeon General of the Army agreed <sup>that</sup> the air evacuation of sick and wounded men from out-of-the-way places such as Alaska, Newfoundland, and the Caribbean would be useful, but neither the Army's Surgeon General nor its Chief of Transportation considered that airplanes would represent any significant capacity for evacuating patients from overseas theaters to the United States. General Marshall's directive (drafted by Air Force officers) left air evacuation requests to the discretion of theater commanders, but advised them that air transport would be applicable to emergency cases for whom essential medical treatment was not locally available, cases for whom air evacuation would be a military necessity, and cases for whom prolonged rehabilitation and hospitalization was indicated, with the exception of psychotic cases. Requests for air evacuation, said General Marshall, would be kept to a minimum.<sup>65</sup>

General Marshall's precautionary comment that theater requests for air evacuation would be kept to a

minimum reflected the fact that the AAF's fledgling Air Transport Command had a very limited global transport capability. When it was formed by redesignation of the Ferrying Command on 20 June 1942, the Air Transport Command inherited the overseas air routes and the contract carrier services controlled by the older organization. To handle the operations and housekeeping responsibilities along the major air routes pioneered the previous year, the ATC activated the Caribbean, South Atlantic, Africa-Middle East, North Atlantic, and South Pacific Wings in June 1942. The Ferrying Division remained responsible for operations in the United States. Four new wings were added between October 1942 and January 1943. Created on 17 October 1942, the Alaskan Wing assumed control of the northwest route to Alaska, previously controlled by the Ferrying Division. The India-China Wing, activated on 1 December 1942, took over from the Tenth Air Force the task of supplying China by air. As the ATC gained enough personnel to operate the long route to Australia, the South Pacific Wing was renamed the West Coast Wing on 18 December 1942, and a new Pacific Wing with headquarters at Hickam Field, Oahu, was established on 5 January 1943. The establishment of the European Wing on 14 January 1943

marked the new position of the United Kingdom as a point of departure for aircraft flying to North Africa.<sup>66</sup>

At its organization, the Air Transport Command took control of the several civil aircarriers which were flying military routes overseas. These contract carriers included Pan American Airways which flew to and through Africa; Transcontinental and Western Air whose <sup>stratoliners</sup> flew the North Atlantic route to the United Kingdom and the South Atlantic route to Cairo; Northeast Airlines which was pioneering the route to Fairbanks, Alaska; and Consolidated Aircraft Corporation which was flying from the west coast to Australia. Contract carriers would continue to fly many ATC routes, but during the last half of 1942 the operations of Pan American Airways - Africa and Pan American Air Ferries were militarized under direction of the Africa-Middle East Wing and the Ferrying Division. The India-China Wing employed military personnel in its route across the Himalayas from Assam to China. Although its routes served tactical movements and contract airline operations, the Air Transport Command possessed very few military transport aircraft in 1942. In December 1942, for example, the ATC possessed only 47 C-87 types, 23 C-54's, 26 C-46's, and 250 C-47's.<sup>67</sup>

Although the Air Transport Command was as yet far from ready to undertake any ambitious program of intercontinental air evacuation, Army medical authorities at the 159th Station Hospital in Karachi in January 1943 evidently decided to test the intercontinental application of aeromedical evacuation. The ATC historian later suggested that what was to be the pioneer long-distance air evacuation flight "was bootlegged by the Command,"<sup>68</sup> but the lack of coordination of flight suggests that the ATC had little to do with its planning. Whatever the origin, Second-Lieutenant Elsie S. Ott, a 29 year old Army nurse with a little more than a year's military service was told on 16 January 1943 to be prepared to leave for the United States within twenty-four hours with two litter patients and three ambulatory cases aboard an ATC plane. Lt Ott had never before flown in an airplane, and prior to take-off the patients were not screened by a flight surgeon nor was Miss Ott provided with any special instructions or medical supplies for her patients. She gathered up a few dressings and medicines from the hospital ward at Karachi, which also furnished two cots, mattresses, and blankets. A Medical Department staff sergeant who had been a recent patient in the hospital at Karachi with chronic

arthritis was assigned as a medical attendant.<sup>69</sup>

Early on the morning of 17 January 1943 a DC-3 transport lifted Lt Ott with her five patients from the runway at Karachi. Once in the air, Miss Ott found that her patients represented just about every possible medical condition. The two litter cases were paralyzed in their lower extremities, one from poliomyelitis and the other from multiple fractures with deep ulcerated bed sores. The three ambulatory cases respectively had early active tuberculosis, manic depression (considered non-violent for the trip), and glaucoma. The DC-3 made stops at Salala (Arabia), Aden, Khartoum, El Fasher (Sudan), Maduguri, and ended its trip at Accra on the evening of 20 January. For the flight from Accra, Lt Ott and her wards were put aboard a converted B-24 (C-87) with eleven passengers. Mattresses in the aisles accommodated the two litter patients. Making stops at Ascension Island, Natal, Belem, and Borinquen, the C-87 landed at Morrison Field, West Palm Beach, Florida on 23 January. Next day, Lt Ott and her aeromedical evacuees were flown to Bolling Field, Washington, where the patients were met by medical attendants and transferred to Walter Reed Hospital.<sup>70</sup>

"The future success and development of air evacuation

rested in the hands of Lt Ott during those seven days," said Major Meiling, "for had she failed it would be difficult to regain the lost confidence of all concerned." By using initiative, common sense, and a nurse's intuition, Lt Ott prevailed against all obstacles. The young nurse who had never before flown provided continuous care for her patients with only a short respite at Natal when a local flight surgeon took over. When the patients were charged for their meals at each stop, Lt Ott personally paid for those who had no money from her own funds. She arranged for further air transportation at Accra and West Palm Beach and secured such personnel comfort for the patients as would be obtained from enroute medical facilities, none of which had been alerted to care for the transient patients. Although personally exhausted when she reached Bolling Field, Lt Ott was highly enthusiastic about the air evacuation media, which in six and a half days moved patients 11,000 miles or half-way around the world, thus saving them at least three months of arduous surface travel. Lt Ott asked to be assigned to air evacuation duty, and in recognition of her meritorious achievement she received the first Air Medal ever awarded to a woman in the history of the U. S. Army.<sup>71</sup>

Recognizing that the pioneer long-distance aeromedical mission had been "poorly planned and poorly coordinated," Lt Colonel Paul C. Gilliland, the ATC Surgeon, ordered all wing surgeons to insure that they would become able to render the best possible service to all patients being evacuated. This included advance notification of stations of arrivals of patients and the proper reception and care for transitory cases.<sup>72</sup> Announcing its responsibility for intercontinental air evacuation on 26 February 1943, the ATC provided that emergency air evacuees would be accorded the highest priorities available in a theater and that routine air evacuees would be accorded a class three priority but would not be displaced by higher priority passengers once they were in flight. ATC flight surgeons at air-embarkation points were charged to pass on the condition of patients offered for air travel. Medical Department personnel accompanying patients were authorized an automatic baggage excess to include an airplane ambulance chest.<sup>73</sup>

Early in 1943 the bulk of the movement of patients from theaters of operations had to be by hospital ships, but by June 1943 the Air Transport Command was routinely transporting about 250 patients a month from overseas theaters

to the United States. During 1943, a total of 3,260 individuals were evacuated from theaters of operation into the United States aboard ATC transport aircraft, with only one death in flight. In addition, ATC planes carried 5,507 patients within or between theaters of operations during the year.<sup>74</sup> As yet, the ATC did not possess enough four-motor airplanes to provide extensive over-water air evacuation, and the demand for air transport was so great as to rule out the transportation of patients with "three" priorities. These causes delayed the beginnings of air evacuation from the European Theater of Operations throughout 1943, although Colonel M. C. Grow, the Eighth Air Force's Surgeon, in April requested authority to send Air Force patients back to the United States by air.<sup>75</sup> Beginning in March 1943 and held to a minimum because of a scarcity of planes, the ATC's Pacific Wing transported an average of about twenty patients a month, the majority being moved from hospitals in Australia to the United States. Theater medical authorities selected the patients who were to be evacuated by air and at first ground forces medical officers with little flying experience accompanied patients. One case was reported in which the patient made the trip without incident, but the medical officer was

air sick during the entire flight.<sup>76</sup>

Slow to make beginnings on the trans-Pacific routes and on the North Atlantic route to Great Britain, Air Transport Command intercontinental air evacuation nevertheless was getting underway on the Caribbean, South Atlantic, and Africa-Middle East routes to India and China. Counting intra- as well as inter-wing evacuations in the months between May and November 1943, the Africa-Middle East Wing lifted 443 patients, the South Atlantic Wing transported 1,305, and the Caribbean Wing carried 1,010 sick and wounded men.<sup>77</sup> To handle such an amount of air evacuation, the Air Transport Command required an air evacuation squadron. The Army Air Forces accordingly assigned the 808th Medical Air Evacuation Squadron to the Air Transport Command. In October 1943, the Headquarters and Flights A and B of the 808th were assigned to the South Atlantic Wing with station at Natal, Brazil, and the 808th's C and D flights went to the Africa-Middle East Wing with station at Accra, on Africa's Gold Coast. With the arrival of these flights, the Air Transport Command's wings were able to effect a coordinated air evacuation system. Air evacuation teams from Accra accompanied patients from North African bases, or from Karachi, India, to Accra.

Air evacuation personnel from Natal accompanied patients from Accra to American airports of entry. Many problems still demanded solution. The medical air evacuation squadron's organization was not particularly well adapted to an airline type operation. The many different type of ATC planes caused patient comfort to vary and allowed little standardization of techniques. In many cases, ATC planes carried cargo as well as sick and wounded; sometimes patients were laid in the aisles of passenger planes or lashed to cargo in other aircraft. Few ATC stations had facilities to feed or house patients during necessary overnight layovers.<sup>78</sup>

Because of its scarcity of four-engine transports as yet limited its trans-oceanic air evacuation effort, the Air Transport Command actually evacuated more casualties from Alaska than from any overseas theater during 1943. This was natural, since the Alaskan Department, characterized by the wide reaches of frozen land and the long Aleutian Island chain, had great need for air transportation. Because of distances between bases, Alaska could be served by twin-engine transports. In support of the Alaska build-up and the short Aleutians campaign, the Eleventh Air Force employed the 42d and 54th Troop Carrier Squadrons to transport 223

patients within Alaska during 1942; and, with in-flight medical care provided by Flight A, 805th Medical Air Evacuation Squadron after 30 April 1943, the two C-47 squadrons transported 1,290 patients within the theater during 1943. Also flying C-47 aircraft, the Alaskan Wing of the Air Transport Command conveyed 212 patients from Alaska to the United States in 1942 and 763 in 1943. At first, theater medical personnel accompanied patients in flight to the United States, but, on 10 June 1943, Flight B, 805th Medical Air Evacuation Squadron, was assigned to the Alaskan Wing. To serve its route, the Alaskan Wing placed the flight surgeon and two evacuation teams at Fairbanks and located the two other evacuation teams at the enroute stations of Edmonton and Whitehorse.<sup>79</sup>

Following the unexpectedly bloodless occupation of Kiska in August 1943, the Army Air Forces was able to begin to withdraw air units from Alaska for service on more active fronts. One proposal seriously considered within the Army Air Forces was to withdraw both Eleventh Air Force C-47 troop carrier squadrons and to turn all air transportation in the area over to the Air Transport Command, but, as a compromise, the 54th Troop Carrier Squadron was allowed to remain in

Alaska. All Eleventh Air Force air evacuation teams continued to be based at Elmendorf Airfield at Anchorage, but they went forward into the Aleutians to gather patients into Adak. Other evacuation teams took over at Adak and shuttled patients to Fort Richardson at Anchorage. From Fort Richardson cases requiring it were flown by the Air Transport Command to the United States. Other than one unfortunate crash north of Naknek, Alaska, on 27 July 1943, which resulted in the death of a nurse and medical technician of Flight A, the Alaskan patient lift proceeded smoothly even under Arctic conditions. The nurse, Lt Ruth L. Gardiner, was said to have been the first Army nurse to have died on duty in World War II. On 9 July 1944, Gardiner General Hospital at Chicago, Illinois, was named in her honor.<sup>80</sup>

Although Air Transport Command aeromedical evacuation was quite small in 1943, the command was learning the requirements posed by the problem of providing intercontinental movement of the sick and wounded. To undertake an expansion of the worldwide mission, the Air Transport Command required a fleet of four-engine transports properly modified to accommodate litter patients. Air evacuation squadrons needed change to adapt them for airline type operations. Holding

facilities were required at ATC stations along the air routes.  
Given these things the Air Transport Command would be able  
to manage a gigantic expansion of patient airlift in 1944.

Chapter IV

AEROMEDICAL EVACUATION COMES OF AGE IN EUROPE, 1943-1945

1. World-wide Achievements of 1943 and Portents for 1944

"On the basis of the AAF's first full year of experience in the air evacuation of war casualties," wrote General Grant as he looked back on 1943, "we can conclude that this is the method of choice for the quick, safe and comfortable transportation of virtually all types of sick and wounded patients." Air evacuation solved the logistical problem of casualty evacuation and contributed considerably to the tactical success of every major offensive involving American forces. All told, approximately 173,000 sick and wounded patients were evacuated by air throughout the world in 1943. From slow beginnings early in the year, AAF planes evacuated 4.5 per cent of the patients returned from overseas theaters to the United States in 1943. The total deaths of patients in flight in 1943 was eleven, or a minuscule rate of .006 per cent or six per 100,000 patients' trips. "Its swift and comfortable delivery of the patient to a hospital equipped for definitive medical care," said General Grant, "places air evacuation in a group with the sulfa drugs

and blood plasma as one of the three greatest life-saving measures of modern military medicine."<sup>1</sup>

Air evacuation had proven to be medically desirable and logistically practicable during 1943, and Army medical officers who had earlier doubted the practicability of the technique now requested expanded aeromedical evacuation services. During the winter of 1943-1944 there were many demands for the air transportation of patients within the United States. Congested railways and shortages of hospital train accommodations in January 1944 led the director of the Surgeon General's Hospital Administration Division to confer with the Deputy Chief of Air Staff on the "feasibility of moving patients by air from port hospitals" in the United States. At a conference of service commanders in February, the Second Service Command's commanding general stated that air transportation of patients was "most desirable." In March, the Army Service Forces mentioned "the highly efficient and extensive air evacuation" of the past and asked the AAF to expand trans-oceanic air evacuation, so as to effect a great savings in the delayed hospital ship construction program.<sup>2</sup>

Early in 1944, as additional demands for air transportation were laid upon it, the Army Air Force began to receive an adequate number of suitable air transport aircraft. Given an accelerated priority in January 1944, Douglas plants at Long Beach, California, and Oklahoma City, Oklahoma, provided an unprecedented total of 2,842 C-47's for Air Force acceptance in the first half of 1944. After this, production of C-47's was gradually cut back in favor of larger and longer-range C-46's and C-54's. Despite some production difficulties, Curtiss-Wright delivered 1,321 C-46 Commando aircraft in 1944 and 1,439 in 1945. Transport aircraft acceptances were running high enough in May 1944 that the AAF could begin to return many aircraft to the civil air carriers and to release its leased plants.<sup>3</sup> In the last two years of World War II, the AAF finally possessed an air transport fleet roughly commensurate in capability to the tasks placed upon it.

2. Medical Air Evacuation in Italy, September 1943-

July 1944

As the capture of Messina on 17 August 1943 marked the conclusion of the Sicilian campaign, General Eisenhower's Allied Zone Headquarters began to prepare for an

invasion which would knock Italy out of the war and contain German troops who might otherwise oppose the major invasion of Continental Europe. Supported by the British Desert Air Force, the British Eighth Army's 13<sup>th</sup> Corps was to cross the Straits of Messina and seize the "toe" of the "Italian boot" beginning on 3 September. The U. S. Fifth Army with the U. S. VI Corps and the British 10<sup>th</sup> Corps was to land at Salerno on 9 September, seize the airfield at Montecorvino, and then capture Naples with its splendid port and airfield complex. The XII Troop Carrier Command with the 51st and 52d Troop Carrier Groups would provide airborne and air<sup>1</sup>landed support in Italy.<sup>4</sup>

As published in the Northwest African Air Forces field order for the invasion of Italy, the plan for medical air evacuation differed in only one important respect from the plan employed during the Sicilian campaign: a number one priority was accorded the movement of blankets and stretchers by air to Italian airfields where dumps would be maintained by the XII Troop Carrier Command. The Task Force Surgeon would, of course, be responsible for medical arrangements in Italy and would

designate areas from which he wished patients evacuated. The commander of the XII Troop Carrier Command would furnish the planes necessary for the air evacuation of casualties. Ordinarily, planes returning from missions would be used. In emergencies planes would be sent forward on call. Reception stations for American patients would be established at Mateur No. 2 and <sup>S</sup>Lidi Ahmed airfields in North Africa and at Palermo airdrome <sup>i</sup>on Sicily. Based on the plan, the Surgeon of the XII Troop Carrier Command (under direction of the NAAF Surgeon) was responsible for the operation and detailed management of air evacuation. Medical air evacuation personnel would provide coordination at forward and rear airfields and would furnish in-flight attendance as necessary.<sup>5</sup>

On 3 September 1943, British Eighth Army elements crossed to the <sup>t</sup>southern tip of Italy, and, on 9 September, the U. S. Fifth Army under Lt. Gen. Mark W. Clark landed on the beaches along the Gulf of Salerno. Despite the surrender of Italy on 8 September, German armored forces mounted such strong counterattacks at Salerno that allied forces could not secure the beachhead for six days. Because of the severity of enemy

resistance, air evacuation was unable to begin on D + 3 or D + 4 as had been hoped. A holding unit of 250 beds was nevertheless established at Sele airdrome, and the first transport planes to land there on 16 September brought a detachment of the 802d Medical Air Evacuation Squadron. On 17 September (D + 7) the air evacuation of casualties began from Sele airdrome.<sup>6</sup>

Because of poor lateral communications in the Salerno beachhead, which hindered the transportation of wounded men to Sele airdrome, air evacuation from Italy proceeded slowly at first. Only 801 patients were evacuated from Italy by air during the period between 17 and 30 September. To clear the hospitals in Sicily for the reception of casualties from Italy, however, 2,402 patients were evacuated to North Africa by air in September. In this month, the air evacuation system was also augmented to handle the larger number of casualties who would doubtless be incurred in Italy. Under command of Capt. W. P. McKnight, the 807th Medical Air Evacuation Squadron arrived at Bizerte, North Africa, from the United States on 4 September, and the new squadron's personnel immediately began to

work with Maj. Frederick R. Guildord's veteran 802d Squadron. On 30 September, the 802d Squadron's headquarters moved to Palermo, Sicily, and, on 8 October, the 807th established its headquarters at Catania, Sicily.<sup>7</sup>

According to the NAAF concept for aeromedical evacuation of the widening zone of fighting in Italy, the 802d Medical Air evacuation squadron was going to operate in support of the U. S. Fifth Army on the western side of Italy while the 807th Squadron supported the British Eighth Army on the eastern or Adriatic side of the Italian peninsula. During October, the 802d accordingly established a forward operations detachment at Pomigliano Airfield near Naples. The 807th sent detachments to Grottaglie in southeastern Italy and later to Bari near the Adriatic coast. In November, following the capture of the major airfield complex at Foggia, the Grottaglie detachment moved there. In October, 3,792 patients were moved by air from Italy while 2,950 were being moved from Sicily to North Africa. For the first time, over 10,000 patients were evacuated by the medical air evacuation squadrons in November. A total of 7,055 was carried from Italy to Sicily and North Africa and 4,182

were transported to North Africa from Sicily. During the early phase of the Italian campaign, air evacuation proved able to overcome situations which would not have been foreseen in medical planning. One evacuation hospital scheduled to be set up early lost all of its equipment enroute to Italy and could not function. Malaria and dysentery added to the heavy burden of casualties in September and October. Operating every day, air transports eased the load on hospitals which were overburdened.<sup>8</sup>

As the 807th Medical Air Evacuation Squadron deployed to Italy in November, a tragic accident (which became to the personnel involved an adventure of heroic proportions) severely reduced the operating capabilities of the organization. On the morning of 8 November, a plane took off from Sicily carrying <sup>13</sup>thirteen flight nurses\*

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\*The flight nurses were Second Lts. Gertrude G. Dawson, Agnes A. Jensen, Pauline J. Kanable, Ann E. Kopsco, Wilma D. Lytle, Ava A. Maness, Ann Markowitz, Frances Nelson, Helen Porter, Eugenie H. Rutkowski, Elna Schwart, Lillian J. Tacina, and Lois E. Watson.

and twelve medical technicians in addition to five crew members. The air evac nurses and technicians were going to Bari to evacuate sick and wounded. Over Italy, the plane ran into no-visibility thunderstorms and, after flying aimlessly for several hours, the pilot spotted an airfield and circled to land. The field, however, was hostile; flak batteries holed the American ship and Nazi fighters took off to intercept it. Ducking again into the clouds, the pilot flew another hour before a failing fuel supply forced him to land on a flat spot in the mountains. As the Americans unloaded in pouring rain, friendly natives appeared and told them that they had landed in Albania.<sup>9</sup>

Authorities in Italy soon learned from the Albanian underground that the nurses and airmen were safe, but getting them out of German-occupied Albania was a problem of some complexity. Escorted surreptitiously from village to village in the mountains, the nurses and technicians found a need for all the survival training that they had received at Bowman Field. As the party's clothing and shoes wore out, friendly planes dropped supplies, but the country was too rough for a landing.

Early in January 1944, plans were made to evacuate the fugitives from a partisan airfield, but two German tanks arrived at the scene, forcing the transport and fighters sent to do the job to depart the area without landing. More than half of the party now had dysentery, two were seriously ill with jaundice, and one had pneumonia. The fugitives nevertheless marched seven days to the sea, where they were successfully evacuated to Italy on 9 January by a British motor boat. On 25 March, three other nurses who had become separated from the main party finally reached Twelfth Air Force headquarters by an equally-circuitous route. "Those nurses were brave," said a male member of the party. "They showed no signs of fear, even in the tightest spots." Since all of the missing nurses had been replaced during their absence, they were all evacuated to the United States.<sup>10</sup>

Early in the winter of 1943, as the Anglo-American ground offensive stalled against the German Winter Line (or Gustav Line), the Anglo-American Combined Chiefs of Staff authorized a reorganization of their forces in the Mediterranean in context with the plans to invade the

European continent sometime in 1944. Effective on 10 December 1943, the Mediterranean Theater of Operations was established and the Mediterranean Allied Air Forces (MAAF), to be commanded by Maj. Gen. Ira C. Eaker, replaced the old Northwest African Air Forces. Colonel Elvins stepped up to become Surgeon of the Army Air Forces, Mediterranean Theater of Operations (the American component of MAAF), and Colonel W. F. Cook became Acting-Air Surgeon of the Twelfth Air Force on 1 January 1944. Under the Army Air Forces, Mediterranean Theater of Operations, the Twelfth Air Force continued to be responsible for tactical air operations in the Mediterranean, but its XII Troop Carrier Command was disbanded on 5 March 1944 following the transfer of the 52d Troop Carrier Wing to the United Kingdom on 14 February. Now the 51st Troop Carrier Wing was assigned directly to the Twelfth Air Force for administration and to the Mediterranean Allied Tactical Air Force for operations. Assisted to a small degree by the Mediterranean Air Transport Service, which informally evacuated about <sup>0</sup>ten to <sup>15</sup>fifteen patients a week from Corsica and Sardinia, the 51st Wing continued to furnish the planes

required for air evacuation.<sup>11</sup>

The reorganization of the Mediterranean forces had little effect ~~on the~~ <sup>the</sup> air-evacuation system managed by the Twelfth Air Force, which continued to evacuate at a rate of 195.5 patients a day during December 1943. The 802d Medical Air Evacuation Squadron continued to evacuate Fifth Army personnel on Italy's west coast. <sup>As</sup> ~~As~~ American troops went ashore up the Italian coast at Anzio and Nettuno on 22 January, it was hoped that casualties might soon be evacuated by air from the beachheads. The only airstrip in the Anzio area, however, was too greatly hazarded by German shell fire to permit slow transport planes to load wounded there. When it was impossible to evacuate the wounded by air, a number of flight nurses volunteered to go to Anzio by boat and help the overtaxed attendants at evacuation hospitals. On the east coast of Italy, the 807th Squadron operated out of Bari. This activity was of two types. One type was the evacuation of patients from hospitals to the north of Foggia at Cerignola and Spinazzola and from hospitals in southeastern Italy at Lecce and Erchie to the general hospital at Bari. This route became regularized on a bi-weekly basis and was known as the "milk

run." The second type of evacuation was from Bari to Sicily and Africa and later to Naples when British hospitals were expanded there.<sup>12</sup>

Air evacuation in Italy declined steadily from January through April 1944. The front lines became stabilized around Anzio and along the Garigliano River. Up until 19 March, moreover, the regular evacuation routes still carried a majority of evacuees to Bizerte and Algiers, but general hospitals were moving to Italy, and, after 19 March, Naples for the American patients and Bari and Catania for the British became the normal hospital centers. Increased evacuation by hospital ship from Italian ports also reduced the number of patients evacuated by air. As a result of these factors, only 18,745 patients were evacuated by air in the Mediterranean in January through May 1944, whereas 11,411 had been evacuated by air in December 1943. For the most part the aeromedical evacuation became a routine endeavor, but on 24 February a transport carried its aircrew, an air evacuation nurse and a technician, and <sup>11/2</sup> sixteen patients to their death when it crashed into the side of a mountain near Caltagirone, Sicily.

Apart from this accident, no deaths or harmful effects were noted among the 51,419 patients evacuated by air in the months of September 1943 through May 1944.<sup>13</sup>

The Allied advance into Central Italy, which got underway on 11 May 1944, changed the entire picture for air evacuation. Once again, as in Tunisia and Sicily, the 51st Troop Carrier Wing was in a position to relieve congestion in forward hospitals, allowing them to move forward rapidly with advancing ground troops. Colonel W. F. Cook, who became Twelfth Air Force Surgeon on 23 April 1944 when Colonel Elvin<sup>S</sup> rotated to the United States, directed the evacuation work of the 802d and 807th Medical Air Evacuation Squadrons and the three <sup>r</sup>groups of the 51st Troop Carrier Wing. Although all troop carrier groups participated, the 62d Group actually furnished most of the patients<sup>g</sup> left in the record-smashing month of June 1944. <sup>W.F.C.</sup>As the all-out patient evacuation was getting underway, the 802d Squadron on 4 June established its headquarters and main operating location <sup>at</sup> ~~to~~ Capodichino Airfield at Naples, the field which served the most important complex of hospitals which were now located in Naples.<sup>14</sup>

Carefully synchronizing their thrusts with an attack out of the Anzio beachhead, Allied forces in Italy broke the Nazi Winter Line and launched a powerful drive all the way to Rome, which fell on 4 June 1944, two days before the Cross-Channel assault in Europe. Air evacuation was able to begin from Neutenno Airstrip in the Anzio beachhead on 26 May, and it continued until the hospitals there were completely evacuated, permitting them to move forward with the advancing ground troops. Since the flight from Neutenno Airstrip to Capodichino Airfield at Naples required only about forty minutes, many freshly-wounded men were evacuated by air for the first time. A number of patients were transported to Naples while still under the anesthetic from their field operations. The Office of the Surgeon, Fifth Army, made arrangements with the evacuation hospitals in the beachhead area as to the number of cases to be evacuated in a day's operation, and airplanes were despatched from Capodichino to Neutenno at thirty-minute intervals. During the first eleven days, 5,765 patients were lifted from Neutenno, the highest total for one day being 962. In about two hours patients

were evacuated from front-line evacuation hospitals around Anzio to the facilities of well-equipped general hospitals at Naples. The time saved by air evacuation was of vital importance to seriously wounded cases, and all patients were spared the trauma associated with surface evacuation.<sup>15</sup>

As Allied forces forged ahead to the Arno River north of Rome, where German Gothic Line would once more hold, the U.S. Fifth Army's casualties were evacuated almost entirely by air. When the front moved forward, the 51st Wing located new airfields at such places as Viterbo, Orvieto, Montalto, and Grossetto (Cambrone) and secured permission to use them for landing supplies and loading patients. The evacuation stations worked in close coordination with Army clearing companies, which had been divided into two platoons. While one platoon continued to operate from one field, the other was moving to a more forward field. During June, 17,444 patients were evacuated by air, and in July, 23,027 were moved from forward airfields to Galera Airfield at Rome and Capodichino Airfield outside Naples. Up until 24 July, the 51st Troop Carrier Wing flew all of the patient

airlift, but on this date the Advanced Echelon of the 50th Troop Carrier Wing, which had flown down from the United Kingdom took over the mission, to permit the 51st Wing to train for the airborne phase of an invasion of southern France. Forward loading fields were now Cicina, Fallonica, Lake Trasimeno, and Rosia, and patients were off-loaded at either Galera or Capodochino. Never before in the Mediterranean theater had such a large proportion of Allied casualties been evacuated by air.<sup>16</sup> Such experience in all-out aeromedical operations stood the Mediterranean air forces in good stead as they prepared for a forthcoming long leap into Southern France.

3. Air Evacuation in the United Kingdom and Normandy

Although the Allies had ~~directed~~<sup>v</sup> forces from the United Kingdom for an invasion of North Africa in the autumn of 1942, they had never given up the idea of a Cross-Channel attack which would carry through France into the heart of Germany. Before an attack upon Festung Europa<sup>12</sup> could be managed, however, time would be required for a new buildup of forces in the United Kingdom. In the meanwhile, the U. S. Eighth Air Forces remained in Britain to conduct a strategic air offensive

against Germany.

Even before he had come to England, Colonel Malcolm C. Gross<sup>r</sup>, Surgeon of the Eighth Air Force and of the U. S. Army Air Forces in the United Kingdom, had been a protagonist of aeromedical evacuation. Such a capability would undoubtedly be necessary when the continent was invaded, and meanwhile the Eighth Air Force needed a better means of moving its sick and wounded to the available hospitals. American hospitals, built on sites designated by the British, were often convenient neither to airfields nor to rail transportation. American bomber groups based in East Anglia, for example, were more than <sup>50</sup> fifty miles away from the nearest evacuation hospital. In 1942, there was often great delay in evacuating Air Force wounded to hospitals. In July 1942, Colonel Gross's<sup>r</sup> plan to convert light aircraft obtained from the British into airplane ambulances was disapproved.<sup>17</sup> In October 1942, however, General Grow<sup>r</sup> procured a C-47 for use as a flying ambulance. Together with a flight surgeon and a first aid squad, this plane was stationed at Bovingdon. Crews returning from combat with wounded could radio for this ambulance plane.<sup>18</sup>

Since the single C-47 air ambulance could not meet all requirements laid upon it, Colonel <sup>G</sup>row attempted to secure more air ambulances in January 1943. A B-24 airplane, modified to accommodate litter racks and other medical equipment, was subsequently pressed into service after March 1943, and the completion of several hospitals in East Anglia finally rendered air evacuation unnecessary in the region.<sup>19</sup>

As early as July 1942, Colonel <sup>G</sup>row had visualized that troop carrier aircraft ought to transport sick and wounded men as extensively as possible as a third priority mission to the transportation of airborne combat troops and supplies.<sup>20</sup> With the departure of troop carrier organizations for North Africa, however, the only available transports in England were <sup>12</sup>twelve C-47's under the operational control of the VIII Air Force Service Command Ferry and Transport Service. These planes were usually not available when they were needed for air evacuation tasks.<sup>21</sup> As a result of the experience in North Africa, the surgeons of the European Theater of Operations and the Eighth Air Force on 27 March 1943 agreed to take steps looking toward the

development of an air evacuation system for a cross-channel operation. Following this meeting, General Grow requested the dispatch of a medical air evacuation squadron to the United Kingdom in order to familiarize personnel there with air evacuation techniques. When the 806th Medical Air Evacuation Squadron, under command of Maj. William K. Jordan, arrived in England on 27 July, Colonel Grow appointed a committee to prepare a detailed plan of evacuation and to conduct exercises. Since no transport aircraft were available, however, the 806th Squadron gave its time to demonstrations of air evacuation techniques at stations in England.<sup>22</sup>

In the early days in the United Kingdom very little aeromedical evacuation was possible because of the scarcity of suitable aircraft, but in the autumn of 1943 the establishment of an organization for Operation "Overlord" and the arrival of some of the forces committed to the European invasion permitted beginnings of air evacuation. To give planning and operational forces in Europe, the Allied Expeditionary Air Force (AEAF) was contemplated as early as June and finally established in November 1943. On 16 October 1943, American

tactical units in England were organized into the U. S. Ninth Air Force. Simultaneously, the IX Troop Carrier Command was activated under the Ninth Air Force. The United States Strategic Air Forces in Europe (USSTAF) was established under command of Lt. Gen. Carl Spaatz on 1 January 1944 to provide control over the Eighth and Ninth Air Forces. The older Headquarters, U. S. Army Air Forces in United Kingdom was dissolved. In mid-January 1944, General Dwight D. Eisenhower returned to the United Kingdom to assume command of what soon became Supreme Headquarters, Allied Expeditionary Forces (SHAEF).<sup>23</sup>

According to concept, Operation Overlord would require extremely large airborne, air transported resupply, and aeromedical evacuation operations. After long discussion at high levels, the strength of the IX Troop Carrier Command was ultimately fixed at three wings (the 50th, 52d, and 53d) and 13½ groups. In addition to the 806th, which was already in the United Kingdom, nine other medical air evacuation squadrons from the United States (the 810th through the 818th) were committed to Europe. When not committed to priority

missions, the Anglo-American troop carrier groups would be available for air transport missions. To provide coordination of airlift requirements, a Combined Air Transport Operations Room (CATOR) would be established as a special section of the Allied Expeditionary Air Force~~s~~ (AEAF). In order to provide additional air transport for air force units, the 31st Transport Group was assigned to the Ninth Air Force and the 27th Transport Group to the Air Service Command <sup>USSTAF,</sup> ~~USSTAF~~. The European Wing, Air Transport Command, also operated into the United Kingdom.<sup>24</sup>

Planning for the <sup>beginnings</sup> ~~beginnings~~ of organized aeromedical evacuation in the United Kingdom and for the European invasion began in the autumn of 1943. Concerned over the shortage of hospital beds available for American troops in North Ireland, Maj. Gen. Paul R. Hawley, Chief Surgeon, Services of Supply / ETOUSA, asked Brig. Gen. M. C. Grow to examine the possibility of evacuating patients by air from North Ireland to England, where more beds were available. General Grow's air evacuation committee drew up a plan which was approved for implementation by the newly arrived Ninth Air Force. When

the plan was completed on 12 November, General Grow dissolved his air evacuation committee and turned over aeromedical evacuation problems to the Ninth Air Force. With the creation of this tactical air force, the Eighth Air Force could get out of the air evacuation business. Within a few weeks, however, General Grow would be named USSTAF Surgeon and would again be giving top-level policy directions to medical air evacuation.<sup>25</sup>

When he assumed the working control of the Air Force side of aeromedical evacuation in the United Kingdom in November 1943, Colonel Edward J. Kendrick, the Ninth Air Force Surgeon possessed a first-hand experience in such matters gained from service in North Africa. Colonel Kendrick preferred that air evacuation tasks should be arranged, coordinated, and assigned through command channels rather than by committee work, but General Hawley who, as Chief Surgeon, Services of Supply ETOUSA, was actively concerned with the operational details of casualty evacuation, nevertheless secured the appointment of a board of officers to study and make recommendations on air evacuation. By the nature of his job, Maj. Gen. A. W. Kenner, Chief

Medical Officer SHAEF<sup>5</sup> was charged with responsibility for all evacuation in the European theater of operations. The Air Force would be responsible for equipping its planes for air evacuation, screening and in-flight care of patients, and the delivery of patients to airdromes convenient to fixed hospitals. Unless otherwise required by military necessity, all transport aircraft returning from forward areas would be available for air evacuation. The field armies would be responsible for establishing holding facilities at forward airfields, loading casualties on aircraft, and liaison with the Air Force. The Services of Supply in the United Kingdom and in the Communications Zone had equivalent responsibilities for unloading and receiving casualties. Both the field armies and the Services of Supply were charged to maintain stocks of equipment as might be required by the impracticability of effecting property exchange with the Air Force.<sup>26</sup> Within the Air Force, the USSTAF Surgeon served as coordinating agent between SHAEF and the Surgeons of the Ninth Air Force and the 27th Transport Group. The actual responsibility for air evacuation was charged to the Ninth Air Force and further

delegated to the IX Troop Carrier Command, which was authorized to use the 31st Transport Group for evacuation within the United Kingdom.<sup>27</sup>

While responsibilities for air evacuation were being worked out, the Ninth Air Force on 16 December 1943 made the inaugural flight of the United Kingdom air evacuation system. Escorted at first by personnel of the 806th Medical Air Evacuation Squadron and subsequently by the other newly-arriving evacuation squadrons in rotation, the IX Troop Carrier Command aeromedical airlift provided a generally convenient method of transportation between Meghaberry Airdrome in North Ireland and RAF Station Pershore in England. The operations were under the direction of Colonel E. L. Bergquist, IX Troop Carrier Command Surgeon; and, after April, they were supervised by an Air Evacuation Section of Colonel Bergquist's office which was headed by Maj. William B. McKnight. Except for weather problems, these two-hour flights were generally without incident. On occasion, however, weather conditions at Pershore forced the evacuation planes to land unannounced at some other RAF airdrome. Since these RAF bases had no medical holding facilities, the sudden arrivals of evacuation

planes were seldom welcomed. Using C-47 and C-53 planes, the 50th Troop Carrier Wing evacuated patients from Meghaberry to Pershore until 10 April 1944, when the 52d Wing assumed the task. From the beginning in December 1943 through May 1944, a total of 2,786 ambulatory and litter patients were evacuated by air from North Ireland to England. In the spring of 1944, the IX Troop Carrier Command also began to fly an increasing number of patients (446 in May) from airfields in England to Prestwick Airfield in Scotland for movement by the Air Transport Command to the United States.<sup>28</sup> The intra-United Kingdom aeromedical airlift was not large in these early months, but it possessed utility (additional hospitals did not have to be built in North Ireland) and training value for the air units concerned.

As more exact plans and arrangements were made for Operation Overlord in the spring of 1944, British and American theater surgeons pressed General Grow and Colonel Kenkericks to give exact figures as to how many patients would be lifted from France by aircraft at particular times. General Grow leaned toward conservatism since he knew that no planning section could visualize the many

factors which might affect airlift in the first days of the invasion. The Overlord plans therefore specified that air evacuation would begin between D + 10 and D + 15 and would become more effective as Allied troops captured additional airfields. General Grow insisted that adequate plans for water evacuation should be made to provide against suffering if air evacuation was slow getting started. A medical air evacuation squadron was to be stationed at each airdrome used for formal air evacuation and would be responsible for the coordination of air and ground forces aeromedical evacuation. To receive patients returned by air from France, Membury and Ramsbury Airfields were designated in May as the main reception fields. A platoon of a field hospital and ambulance complements were located at each of these fields. In June, similar arrangements were made so that patients would be off-loaded at Merryfield and RAF Rednall. Air evacuation liaison officers were dispatched to the Office of the Chief Surgeon, Advance Echelon, Communications Zone, to the offices of the Chief Surgeon of the First and Third U. S. Armies, and to the Advance Headquarters, Ninth Air Force. The liaison officers with the First

Army and Ninth Air Force's advance party were scheduled to land on the continent on D-day and make arrangements for airfields, holding stations, and aeromedical evacuation planes.<sup>30</sup> Everything was as ready as it could be for evacuating casualties by air from Normandy, but many details would have to be worked out as the operations progressed.

Despite unfavorable weather forecasts, General Eisenhower set D-day for Normandy on 6 June 1944. Beginning at 0200 hours that morning, American and British troop carrier wings dropped one British and two American airborne divisions to seal off Normandy beaches east of the Cherbourg Peninsula. Beginning at 0630 hours that morning, U.S. First Army and British Second Army forces stormed across the Normandy beaches. By nightfall, the Anglo-American ground forces had a firm foothold on Adolph Hitler's "Fortress Europe." Getting ashore with the advance party of the Ninth Air Force on 8 June, Major<sup>C</sup> John W. Pace -- the IX Troop Carrier Command's assistant air evacuation officer who was taking charge of air evacuation on the far shore -- found the First Army greatly in need of air evacuation. Casualties were

heavy and heavy surf -- which would continue during the first three weeks of the invasion -- was interfering with the evacuation of patients across the beaches. Having no hospitals ashore, the First Army wanted to evacuate all of its sick and wounded to England. Late on the night of 8 June, the aviation engineers completed an emergency landing strip behind "Omaha" beach at St. Laurent-sur-Mer. Unexpectedly to Major Pace, air evacuation from this field would begin on 10 June (D + 4). On this day, someone in higher headquarters ordered five 436th C-47's to Normandy with news correspondents and 816th Squadron flight nurses aboard, ~~under heavy fighter cover.~~ While newsmen photographed nurses picking poppies, the transports sat on the ground <sup>for more than two hours</sup> while <sup>15</sup> fifteen casualties were rounded up for evacuation to Membury. Colonel <sup>K</sup> ~~A~~ Hendricks and air evacuation personnel (especially the flight nurses who were now derisively dubbed "The Poppy Girls") bitterly resented the whole affair as a crude publicity stunt.<sup>31</sup> Serious air evacuation began on 11 June when the IX Air Force Service Command's 31st Transport Group, with the 806th Medical Air Evacuation Squadron attached, lifted <sup>14</sup> fourteen

patients from St. Laurent-sur-Mer. On 17 June, aviation engineers completed another airfield at Beuzeville, behind "Utah" beach. This field served for air evacuation and resupply for eleven days, but then the tactical commitment became so heavy that the field reverted to combat use only.<sup>32</sup>

In the planning for "Overlord," USSTAF had announced an intention of beginning regular medical air evacuation by D + 15 at the latest, but when Colonel Bergquist asked authority to institute such full scale air evacuation beginning on 20 June he met several objections. The IX Troop Carrier Command was ready: it had the planes and technicians and could operate into St. Laurent-sur-Mer and Beuzeville. The Allied Expeditionary Air Forces (AEAF), however, was still thinking of follow up airborne operations and would not give anything other than special clearances for the use of troop carrier planes in resupply and evacuation missions. The worst weather in fifteen years over Normandy not only slowed air operations but caused the heavy-loaded cargo planes to tear up lightly-built, water-soaked runways. Because of objections of the combat air commanders, Beuz<sup>e</sup>ville

was closed to transports after 28 June. Still, the air evacuation problem gradually improved. By 21 June, all Army evacuation hospitals were ashore, and the First Army instituted a ten-day evacuation policy, reducing the number of patients who had to be moved to England. The 31st Transport Group and the 806th Squadron continued to fly the dependable air evacuation schedules, but on a few days IX Troop Carrier planes were available. During the first weeks of operations in Normandy, 27,387 casualties were evacuated, of which 6,469 were moved to the United Kingdom by air. By the end of June, 7,947 patients had been evacuated by air from Normandy -- 4,015 by the 31st Transport Group and the 806th Medical Air Evacuation Squadron.<sup>33</sup>

After the confusion of June, the aeromedical evacuation system in the European Theater of Operations settled down to hard work in July 1944. Early in July, a "real airfield" for transports was opened at Querqueville and lighter-surfaced fields were soon available for transport use at Binniville and Colleville. Now, heavily-loaded transports could land and unload at Querqueville and then hop on to Binniville and Colleville (or even to

a combat airstrip) to pick up casualties. Employing gas treatment battalions augmented by platoons of field hospitals, the First Army established units which could hold up to 1,200 patients while they awaited transportation from Binniville and Colleville. Benefiting from the increased reliability of air transport, the First U.S. Army virtually suspended water evacuation early in July. Within the United Kingdom, following not-too-successful efforts to evacuate patients by hospital train to the ATC overseas terminal at Prestwick, intra-United Kingdom air evacuation began again late in June and waxed strong in July. The only incident which marred the patient lift during the month took place within the United Kingdom on 27 July when a 441st Group C-47 crashed at Port Logan, near Prestwick, killing all aboard including <sup>12</sup>thirteen patients and two members of the 813th Air Evacuation Squadron. Except for this crash, only two of the 14,068 patients lifted during July by the IX Troop Carrier Command died in flight. As of 24 July, when it turned its Normandy hospitals over to the Advance Section, Communications Zone, the First Army reported that it had evacuated 56,129 patients to England -- 20,117 by air and

36,012 by <sup>air</sup>boat. During July, 19,490 casualties were evacuated by air and 18,195 by <sup>air</sup>boat. While air evacuation had been accepted as a bonus in planning, it had not only relieved the strain in the evacuation system but without doubt saved many lives. "Air Evacuation is working," stated Colonel Kendricks, "and ... there is nothing spectacular about it ... except that these people are sick and wounded and are accompanied by a good looking army nurse."<sup>34</sup>

*4. Quintessential Evacuation in Southern France and Italy*

While Allied troops prepared to break out of Normandy during July 1944, Mediterranean Theater of Operations forces were planning a long leap which would establish the U.S. Seventh Army on the coast of Southern France. Thanks to the flexibility of airpower, many units of Brig. Gen. Paul L. Williams' IX Troop Carrier Command, which had led the invasion in Normandy, arrived in Italy during the third week of July to take part in the landings in Southern France. At Lido di Roma, General Williams established a Provisional Troop Carrier Air Division on 16 July, which assumed operational control over the 50th and 53d Troop Carrier Wings from the United Kingdom and the 51st Troop Carrier Wing. General Williams also brought the 819th Squadron from England to help the

802d and 807th Medical Air Evacuation Squadrons during Operation "Dragoon."<sup>35</sup> As the Mediterranean Allied Tactical Air Force and the Mediterranean Allied Coastal Air Force provided close support from airfields in Corsica, the U.S. Seventh Army would follow the airborne attacks with amphibious landings on the Mediterranean shores of France, southwest of Cannes. The basic objectives of "Dragoon" were to prevent the reinforcement of German forces in Normandy and to provide the Allies supplementary lines of communication to France through her Mediterranean ports.<sup>36</sup>

The Mediterranean Allied Air Force medical air evacuation plan for the invasion of Southern France involved several complexities: long overwater flights, the necessity to evacuate all patients to the hospital center at Naples, and the requirements to continue air evacuation from fighting zones in North Italy and between hospitals in southern Italy at the same time as the Dragoon operation. MAAF had also been evacuating Yugoslav partisans wounded in the Balkans, and this, too, would continue.<sup>37</sup> From their long experience, however, all aeromedical personnel in Italy were extremely competent in air evacuation and

knew both their requirements and duties. The medical plan assumed that invasion casualties brought by boat from the beachheads would begin from Ajaccia<sup>o</sup>, Corsica, to Naples on ~~D plus 4~~<sup>D + +</sup> days. Depending upon the capture of an airfield, the establishment of an Army holding unit, and the location of an aeromedical evacuation squadron attachment there, air evacuation from the objective area in Southern France would begin as soon as possible after ~~D plus 4~~<sup>+</sup> but not later than ~~D plus 7~~<sup>+</sup>. The Mediterranean Tactical Air Force, the Seventh Army, and Services of Supply North African Theater of Operations were respectively responsible for the operation of the patient lift, the care and loading of patients at forward strips, and the unloading and care of patients at Capodichino and emergency landing fields. Major<sup>y</sup> Frederick R. Guilford<sup>f</sup>, veteran commander of the 302d Medical air evacuation squadron, was named Air Evacuation officer of the Provisional Troop Carrier Air Division to coordinate all necessary air evacuation operations.<sup>38</sup>

During July 1944, the Mediterranean Troop Carrier and Air Evacuation units prepared for the invasion of Southern France without reducing their support for the

fighting in Northern Italy. The 807th Medical Air Evacuation Squadron moved from Sicily to Lido di Roma on 30 June, and the 802d Squadron came from Naples to this same station on 22 July. Travelling by air from England, all echelons of the 819th Squadron arrived at Lido di Roma by 25 July. Arriving from England and establishing its groups at the troop carrier fields north of Rome on 18 July, the 50th Troop Carrier Wing relieved the ~~veteran~~ 51st Troop Carrier Wing\* of its current air evacuation responsibilities on 24 July in order that the 51st might undergo a short period of intensive airborne training. In the Adriatic sector, however, the 51st Wing's 60th Group continued to evacuate patients on the Bari "milk run" and from the Balkans. Starting on 24 July, the 50th Wing's 442d Group evacuated 4,589 patients from Cecina, Fallonica, Lake Trasimeno, and Rosia to Galera airfield at Rome and Capodichino during July. The 53d Wing reached Italy on 20 July and established its headquarters

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\* On 15 July 1944, from Cecina Airfield (just behind the frontlines in the Leghorn area) the 51st Wing had recorded the evacuation of its 100,000th patient.

at Tarquina. The 53d Wing handled the ferrying of personnel and freight previously handled by the 51st Wing. At the Provisional Troop Carrier Air Division Headquarters, Major Guilford insistently requested and got a commitment to the effect that planes when needed would be available solely for air evacuation purposes from Southern France.<sup>39</sup>

Early in August, all units of the Provisional Troop Carrier Air Division quietly prepared for the airborne operation. In addition to some airborne training, the 50th Wing evacuated 5,870 patients from forward airfields through 10 July, when it turned the function over to the 51st Wing's 60th Group which would not participate in the airborne landings. Following four days stand down for intensive maintenance and briefings, 396 transports of the Provisional Air Division took off of the airfields between Fallonica and Ciampino early on 15 August 1944 and flew to drop their paratroopers at dawn a few miles inland from the coast near Le Muy, France. Morning and afternoon glider actions in the same area swelled the number of sorties for the day to 852 and completed the

air transport assault mission. Aided by a preinvasion aerial bombardment of coastal guns, troops of the Seventh Army began going ashore against scant opposition at 0800 hours on 15 August 1944.<sup>40</sup>

When Dragoon had been ordered, Allied Forces had been in a difficult situation in Normandy, but before 15 August the German forces in France were everywhere in retreat and the best Nazi troops had been removed from the southern coast. Consequently, the U.S. Seventh Army met scant opposition and had few casualties as it forged inland from the coastal towns of St. Tropez, St. Maxine, and Feijus. <sup>Sisteron</sup> As the campaign progressed rapidly, the Provisional Troop Carrier Air Division released the 50th and 53d Wings and the 819th Medical Air Evacuation Squadron for return to the United Kingdom on 20 August. Although planned to begin as early as 18 August, Seventh Army aeromedical evacuation proved unnecessary until 22 August, when detachments of the 802d and 807th Air Evacuation Squadrons began to operate at Sisteron and Romatuelle, France. Counting the 441 patients lifted from the latter airfield, a total of only 14,052 sick and wounded men were given air transport in the Mediterranean

during August 1944. This was the lowest total for several months, but the Germans were on the run and casualties were light.<sup>41</sup>

In Southern France the major ports of Toulon and Marseilles fell to the Seventh Army on 28 August, and an overland advance northward allowed the Seventh Army troops to make contact with other Americans moving southward through France on the night of 10/11 September 1944. Effective on 15 September, SHAEF assumed control of the Seventh Army which now became the Sixth Army Group. Despite this transfer of these ground forces to the European Theater of Operations, the 51st Troop Carrier Wing remained responsible for providing air resupply and evacuation to them. The rapidity of the northward advance had not allowed enough time for the establishment of reliable land communications or adequate hospitalization. The wing found it difficult to handle these tasks as well as continuing responsibilities in Italy. Beginning of 5 September and for two months afterward, however, the 802d Air Evacuation Squadron maintained an operating detachment at Istres Le Tube Airfield, near the busy port of Marseilles. A similar

detachment of the 807th Squadron followed the ground front northward, operating at Le Luc, Crest, and Amberieu Airfields before establishing itself at Luxeuil Airfield near Belfort Gap on 23 September.<sup>42</sup>

During the initial phase of the invasion of Southern France, the 51st Troop Carrier Wing thought it logical that combat casualties should be evacuated to Naples, but when the Seventh Army passed over to SHAEF it thought that the casualties should be evacuated to England. From Luxeuil at the Belfort Gap it was only about 225 miles to Paris or 450 miles to London, but it was 1,000 miles to Naples. For the time being, however, the European Theater could not supply or evacuate these forces and the 51st Wing had to continue the task. In order to accomplish it, air evacuation had to be conducted in two stages: planes of the 64th Group backloaded patients to Istres Le Tube, and other transports dispatched from Italy picked them up and brought them to Naples. On other occasions, 62d Group aircraft hauled supplies to the Fifth Army port in Italy and then flew to Istres Le Tube to pick up patients. Using every possible plane for evacuation from France, Italy, and the Balkans, the

51st Wing moved 19,118 patients to Capodichino and Galera Airfields during September 1944, but backlogs of patients nevertheless built up on occasions at Istres.<sup>43</sup>

Despite a general recognition that the aerial evacuation of patients from France to Naples was an "uneconomic use of aircraft" and a "cause of discomfort to the wounded," the 51st Troop Carrier Wing continued to lift patients from Luxeuil, France, and from Florence, Pisa, and Rimini in Italy through October and during a fortnight in November. Stormy flying weather over Southern France severely hampered the patient movement late in October, and on 1 November a loaded C-47 evacuation plane crashed while in flight through a violent storm between Luxeuil and Istres with a loss of <sup>20</sup> ~~twenty~~ people, including a nurse and technician from the 802d Squadron. In spite of the unfavorable weather and an emergency lift of troop replacements from Cherbourg to Italy, the 51st Wing successfully evacuated 18,516 patients in October.<sup>44</sup> Meanwhile, USSTAF had been figuring a method of solving the 6th Army Group's weekly requirement for airlifting 1,000 patients a week from Luxeuil to Istres Le Tubc. Early in November, a squadron of the 302d Trans-

port Wing and a medical air evacuation squadron were sent to Istres preparatory to taking over the lift on 15 November. Before this arrangement could go into effect, however, SHAEF changed its hospitalization policy and directed the <sup>51st</sup> 6th Army Group to follow normal CATOR request channels and to evacuate its long term patients from Dijon Airfield to the United Kingdom.<sup>45</sup>

Effective on 15 November 1944, the 51st Wing and the 802d and 807th Medical Air Evacuation Squadrons terminated their operations at Istres Le Tube and Luxeuil. Thenceforth these organizations would give their whole attention to operations in the Mediterranean.

5. Evacuating Casualties from the Battle for France

During the invasion and battles for Normandy, air transportation and aerial evacuation of casualties worked well enough under situations which were essentially simple. Flight distances from ~~Air~~ Transport bases in southern England to Normandy airfields were short and the distances within American lines in Normandy were also short. From the two air transport airfields, trucks and ambulances could easily reach all American troops.

Already, however, it was evident that something was wrong

with the command and organization of troop carrier and air transport aviation. The IX Troop Carrier Command possessed tremendous air transport capabilities, but its concerns were mainly tactical airborne troop carrier operations. The Allied Expeditionary Air Forces (AEAF) had operational control over the IX Troop Carrier Command. Since the IX Troop Carrier Command was usually engaged in airborne operations or in preparing for them, the USSTAF-controlled 27th and 31st Transport Groups provided most of the air transportation to and from Normandy. Even the operations of these air transport groups were not closely coordinated, since the 27th Group was assigned to USSTAF and the 31st Group to the Ninth Air Force. Recognizing that USSTAF needed to develop an air transport service for all air forces in Europe, Maj. Gen. Hugh J. Knerr, USSTAF's Deputy Commander for Administration, on 23 July 1944 asked authority to activate an air transport wing directly under command of USSTAF, which would control the 27th and 31st Transport Groups. This wing would fly forward supplies and equipment originating in the Communications Zone and would return evacuated personnel and equipment.<sup>46</sup> General Knerr's suggestion would be approved

in a little more than a month, but by this time even this beneficial action was insufficient to meet the air transport problem.

Following a massive air bombardment at St. Lo on 25 July, Allied troops raced out of Normandy. Under the direction of the U.S. <sup>Tenth</sup> 12th Army Group, the Third Army first moved into the Br<sup>2</sup>aton peninsula in an effort to seize strategic ports and then joined the First Army for a drive across the Seine. Paris fell to the Americans on 25 August. Meanwhile, the British <sup>The Tenth</sup> 21st Army Group moved across the northern flank of the Allied advance toward the Ruhr. Late in September, the U.S. Ninth Army in Brittany finally captured the strategic port of Brest, which had been almost completely destroyed. In Normandy, air transportation and aerial evacuation had been an adjunct of surface transportation, but with the rapid advance of the Allied ground armies, air transportation became the primary means of transportation. "Evacuation by air," wrote General Hawley on 30 August, "is the only means available at present for the proper evacuation of casualties from the Armies." In the advance, medical installations were left far to the rear.

Allied armies in France had enough motor ambulances to evacuate their casualties, but 100-mile journeys by road were "deleterious to all casualties and of great harm to serious casualties." General Hawley had been able to secure ~~no~~ locomotives for hospital trains, and even if he got them he ~~know~~<sup>knows</sup> that hospital trains would be too slow to handle casualties.<sup>47</sup>

In response to the urgent need arising for the evacuation of casualties by air during August 1944, the Ninth Air Force did its best with limited capabilities. In support of the battle for the ~~Br~~<sup>B</sup>iton peninsula, air transport airfields were obtained and patients were evacuated from, first, Courtaills airfield at the base of the peninsula and, later, from Morlaix Airstrip at the western end of the peninsula near Brest. Using existing airfields, <sup>at</sup> Le Mans and Orleans were opened to air transport and air evacuation in the forward areas. Using these airfields, as well as fields in Normandy and Great Britain, the air evacuation services lifted 31,658 patients during August -- 29,151 across the English Channel and 2,507 within the United Kingdom.<sup>48</sup>

While air evacuation was making a substantial con-

tribution in Europe in August 1944, both air and ground medical officers recognized that weaknesses of the system were preventing maximum accomplishments. General Grow had already demonstrated that the ETO policy of limiting the air evacuation of casualties to returning freight-carrying aircraft and restrictions upon the use of tactical airfields on the continent by air transport planes severely limited the number of casualties who could be transported by air.<sup>49</sup> During the drive across France, Maj. Gen. Hoyt S. Vandenberg, commander of the Ninth Air Force, would seldom allow transport aircraft to operate into his forward fighter fields and protested that his aviation engineers were too strained to develop air transport fields behind the rapidly moving ground armies.<sup>50</sup> The Ninth Air Force's Surgeon, Colonel Kendricks, was puzzled by the fact that practically every headquarters in the ETO had something to do with establishing air evacuation policy or controlling the means of air evacuation.<sup>51</sup> Since no parallel organization of air and ground forces for air evacuation existed, air evacuation communications broke down on the continent. Air evacuation personnel improvised what they called the "carrier pigeon

service" whereby air evacuation flight nurses and technicians returning to England from airfields, carried messages specifying probable air evacuation requirements for the next twenty-four hours.<sup>53</sup> Pungently summing up these same difficulties and stating his pressing requirement for reliable air evacuation, General Hawley on 30 August asked SHAEF to give air evacuation a "definite status" as a separate Air Force mission not entirely dependent upon resupply by air. He asked that definite communications channels be established for air evacuation and urged that sufficient C-47's -- a squadron to begin with -- be stationed in France with a sole mission of air evacuation.<sup>53</sup>

Most of the faults found with aeromedical evacuation were actually attributable to the defective organization of air transport and troop carrier aviation in the European Theater of Operations. Lt. Gen. Carl Spaatz, the USSTAF commander, recognized that all tactical and routine airborne and airlift operations ought to be centrally controlled by the theater air commander, who would receive airlift priority requirements from the theater commander and allocate airlift capabilities to accomplish them. In the ETO, however, no individual or agency was empowered to

provide overall airlift coordination and control, and, although USSTAF somewhat strengthened its authority over airlift matters, it never possessed the centralized control that was needed.<sup>54</sup> Some changes in troop carrier and air transportation were nevertheless made. Preliminary to the demise of the Allied Expeditionary Air Force and in order to give a unified control of airborne troops and troop carrier aviation, the First Allied Airborne Army was created directly under SHAEF on 16 August 1944. At this time, the IX Troop Carrier Command was relieved from assignment to the Ninth Air Force and assigned for administration to USSTAF and for operations to the First Allied Airborne Army. Following General Knerr's earlier recommendation, General Spaatz ordered the establishment of a theater air transport wing comprising the 27th and 31st Air Transport Groups. The 302d Transport Wing was accordingly established on 1 September 1944 under command and control of the Air Service Command USSTAF. In order to continue to meet its logistical requirements, the IX Air Force Service Command organized a makeshift unit called the First Provisional Transport Group.<sup>55</sup>

Since both the Ninth Air Force and the IX Troop

Carrier Command independently passed to the administrative control of USSTAF, General Eisenhower amended the SHAEF directive on air evacuation so as to charge the entire Air Force responsibility for air evacuation to the USSTAF commander. Effective on 9 September, USSTAF relieved the Ninth Air Force of its air-evacuation responsibilities including the administration of the medical air evacuation squadrons. From this time on, General Grow, as USSTAF Surgeon, actively directed air evacuation in the ETO.<sup>56</sup> On 2 September, General Grow privately recommended to Maj. Gen. A. W. Kenner, Chief Medical Officer SHAEF, that he ought to initiate action to insure that at least <sup>EO</sup> fifty C-47's were available at all times for casualty evacuation. At this time, however, SHAEF was unwilling to commit aircraft specially for air evacuation or even to allow the dispatch of empty aircraft for the sole purpose of bringing patients from the continent to the United Kingdom.<sup>57</sup> Acting on his own in a conversation with General Knerr on 2 September, however, General Grow personally succeeded in securing some planes for air evacuation. General Knerr verbally authorized the movement of the 320th Transport Squadron (Communications and

Mail) of the 27th Group to France, where its Norseman UC-64 planes (which were not well-suited for Air Corps resupply) could be used to have <sup>ul</sup> medical supplies forward and casualties rearward.<sup>58</sup>

Within a few weeks, these organizational changes would show beneficial results, but early in September 1944 all Allied Armies in Europe were facing emergency logistical problems which could be solved only through air transport. Without pausing at Paris, the U.S. Third Army drove eastward toward the Siegfried line while the U.S. First Army forged northeastward toward Belgium and Luxembourg. Exploiting the advance of the armies, the IX Engineer Command opened a chain of supply and evacuation airfields behind the Third Army at Reims/Champagne, Villeneuve/Vertus, St. Liviere, Verdun, and Toul. In support of the First Army, the IX Engineer Command built <sup>r</sup> rehabilitated a string of supply and evacuation fields at <sup>S</sup> Lenzeilles (Cerfontaine), Vitrival, Maubeg<sup>e</sup>, St. <sup>Q-A</sup> Frand, and Liege in Belgium and at Sandweiler near the city of Luxembourg. At Paris, the aviation engineers repaired Le Bourget <sup>i</sup> Airdrome for transport use, a major task since the Germans had all but demolished the field.

So much work in such a short period of time strained the resources of the aviation engineers, who were also preparing other strips for fighter-bombers.<sup>59</sup> In an effort to keep the armies moving, Eighth Air Force B-24's "trucked" gasoline to forward transport strips, and IX Troop Carrier Command C-47's flew 5,200 air transport sorties between 5 and 14 September.<sup>60</sup>

While engaged in pursuit of the Germans, the First and Third Armies sustained relatively few casualties, but their main problem was to conquer the distances involved in all evacuation routes. At Paris, the Communications Zone was building a hospital center, but Paris was now far to the rear of the fighting troops. <sup>by law</sup> As the combat troops of both armies approached Siegfried line defenses in mid-September, German resistance stiffened, and heavy rains turned roads and unsurfaced airfields into veritable quagmires. Early in the month, air evacuation and other emergency measures allowed the armies to dispose of their casualties, but on and after 17 September the First Airborne Army's invasion of Holland required the full capabilities of the IX Troop Carrier Command. Casualty evacuation from the First and Third Armies

became critical: on 19 September, 4,929 patients awaited evacuation and only 1,145 were evacuated by air and approximately 300 by train, leaving a backlog of 3,484 which increased hourly. By 23 September, more than 7,000 sick and wounded soldiers were awaiting evacuation. From the continent, General Hawley protested the "needless suffering." The regular airlift had been withdrawn from him without notice. The only way that he could get airlift for patients was to have Major McKnight, the air evacuation officer stationed with the Communications Zone, request it over the Air Force radio net. Whether such planes would be furnished, in all or in part, was never known in advance.<sup>61</sup>

In an effort to shore up the services of supply on the Continent, Lt. Gen. John C. H. Lee, Commander of the Communications Zone, on 8 September 1944 asked that he be charged with the administrative responsibility for airlift. All airlift supply requirements would be filed with Communications Zone headquarters, which would place demands for planes on the designated air commander. To meet the casualty evacuation problem in the First and Third Army areas, General Lee asked for an immediate

commitment of 200 airplanes and a permanent assignment of 50 planes for the work. General Eisenhower refused to approve the latter request, ruling that tactical employment of troop carrier planes would have to take precedence over casualty evacuation. On 25 September, however, the Twelfth Army Group also requested planes for air evacuation.<sup>62</sup> Even as the casualty evacuation situation was darkest, however, USSTAF mobilized to meet the problem. The 302d Transport Wing was already doing its utmost, and, hearing of the problem from Colonel Bergquist, General Williams used as much of the IX Troop Carrier Command's capability for air evacuation after 23 September as could be spared from support of airborne troops fighting in Holland. Operating into Verdun, <sup>S</sup>Denzeilles, Toul, and <sup>S</sup>Lt. Trond (with empty planes when necessary), the 301st Wing and IX Troop Carrier Command evacuated more 4,556 patients to the United Kingdom and 614 to Le Bourget in three days of intensive effort. Altogether, during September, the two organizations evacuated 26,126 patients. In a letter of appreciation to General Williams, General Hawley said: "You can feel with complete assurance that it was only you, yourself, who saved

many lives and prevented an enormous amount of suffering during this emergency."<sup>63</sup> On 30 September, when the crisis was over, SHAEF informed the Twelfth Army Group that air evacuation had to be considered as a bonus to be available as conditions permitted. No transport aircraft could be specially assigned for air evacuation.<sup>64</sup>

The September crisis was a clear indication that air transport aviation in the European Theater of Operations was not yet properly organized and controlled. Air and ground officers alike were dissatisfied with the weakness of Combined Air Transport Operations Room (CATOR). As an agency of the Allied Expeditionary Air Forces (AEAF), CATOR had no transport forces of its own but operated as a liaison committee which called upon other commands to provide air transports for special tasks. In view of the fact that CATOR had not proven able to exercise centralized control of air transports and the impending dissolution of the AEAF, General Knerr on 30 September proposed to SHAEF that all airlift for ground armies and air forces in Europe should be made the responsibility of USSTAF. The Headquarters, 302d Air Transport Wing was establishing itself in Paris, and General Knerr urged that it be given

authority to receive requests for airlift and to allocate theater airlift capabilities as necessary.<sup>65</sup> While SHAEF did not approve General Knerr's recommendation, the indication of the need for stronger central controls for airlift no doubt resulted in the strengthening of CATOR. In conjunction with the movement of command headquarters forward to Paris late in September, CATOR opened an advance echelon at Versailles. With the demise of AEF in October 1944, CATOR became an agency of the concurrently established Air Staff, SHAEF, and functioned at this higher level with increased authority throughout the remainder of the war. Even though SHAEF did not approve his major recommendation, General Knerr was able to get the Communications Zone to accept a new procedure which simplified CATOR's work. The Communications Zone agreed in October to establish an agency in its headquarters which would receive, consolidate, and assign priorities to requests for air transport from ground armies.<sup>66</sup>

Although he was not sure what authority would ultimately provide the central control of theater airlift, General Gross<sup>er</sup> went to Paris during the last week of September to seek a closer integration within the air

evacuation system. Since CATOR was charged with the control of all airlift, General Gross<sup>W.E.</sup> arranged for Lt. Col. McKnight, the senior medical air evacuation officer on the Continent (who had been stationed in General Hawley's Office of Chief Surgeon, ETOUSA), to be located in the Forward Echelon, CATOR, where he could closely coordinate air evacuation requirements with air transport operations. General Gross<sup>r</sup> also arranged that the 320th Transport Squadron at Le Bourget Airfield would receive forward area air evacuation requests from CATOR through the 302d Transport Wing in Paris.<sup>67</sup> As a concurrent<sup>to</sup> General Gross<sup>W.E.</sup>' plan, SHAEF on 30 September directed the Twelfth Army Group to begin at once to place its demands for air evacuation upon CATOR at the same time that demands for airlift were tabled. Such demands for air evacuation would include a specific number of casualties to be evacuated from specified airfields.<sup>68</sup> This same arrangement was later established for the Sixth Army Group operating in Southern France.<sup>69</sup> Early in October, direct communications were established between CATOR advance and the Air Evacuation Office, IX Troop Carrier Command, permitting Colonel McKnight to pass air evacuation requirements to the operating command with

facility. At this same time, telephone and radio communications to forward strips also improved, but the air evacuation liaison officers at these advanced fields would continue to use air courier messages when other communications were not satisfactory.<sup>70</sup> Recognizing that forward area communications were often apt to be difficult, General Gross<sup>70</sup> made no change in the established practice of assigning medical air evacuation surgeons as liaison officers to operating headquarters and forward airfields. Moving into the ETOUSA Surgeon's Office in Paris, Major Pace provided liaison there and also spent much of his time as a supervisory medical air evacuation officer visiting forward airfields.<sup>71</sup>

The changes effected by General Gross<sup>71</sup> in the air evacuation system early in October 1944 resulted in a more efficient employment of scarce air transport capabilities. In this same month, new medical facilities in the Paris area lent efficiency to the system. The men and planes of the 320th Transport Squadron reached Le Borget, and the squadron -- soon called the "Grow Escadrille" -- began to haul whole blood and medical supplies forward and to evacuate patients to Paris hospitals on 28 September.

The single-engine UC-64 Norseman planes were not very efficient for their task, since they could accommodate only two ambulatory and three litter patients, but the men of the squadron were inspired with the importance of their mission.<sup>72</sup> In addition to the small air evacuation capability represented by the twenty Norseman aircraft, USSTAF permitted the IX Troop Carrier Command to designate a maximum of 150 C-47 airplanes to be used primarily for air evacuation at times when the planes were not required by the Allied Airborne Army. Following the movement of the 50th Troop Carrier Wing and its four groups to airfields in the Le Mans complex, planes of this wing picked up patients from hospitals in France, flew the sick and wounded men to England, and returned to the forward area with supplies.<sup>73</sup>

Although aeromedical evacuation benefited from closer scheduling and added airlift capabilities, the onset of adverse weather in October brought new problems, for the winter of 1944-1945 was to be one of the worst that Europeans had known for many years. During October tactical utilization of all-weather fields prevented aeromedical airlift in support of the U.S. First Army

which was engaged in the most active combat of the month. Casualties from this army had to be brought by hospital train from Leige to Paris, whence many of them were flown to England. Third Army casualties, however, were evacuated directly to the United Kingdom from Villeneuve, Verdun, and Tonn<sup>er</sup>. In spite of bad weather, the IX Troop Carrier Command and 302d Transport Wing moved 17,518 patients during October.<sup>74</sup>

A supreme effort on the part of the supply services having improved the logistical situation, the U.S. First and Ninth Armies began to drive toward the Roer River on the north while the U.S. Third and Seventh Armies headed toward the Saar. Because heavy rains made forward airfields unfit for operations, only two or three cargo strips were generally in use at a time. No cargo strips were available to support the First and Ninth Armies, but the Third Army was served by Tonn<sup>er</sup> and Verdun, and the Seventh Army began to evacuate its casualties by air within the ETO from Luxeuil on 9 November. Only a few hundred patients could be evacuated by air from the forward fields each day, and the rest were transported by hospital trains to central airfields such as Le Bourget from which many were transshipped by air to the United

Kingdom. Such an extensive employment of hospital trains was necessary under the circumstances, but General Hawley pointed out that each trainload of patients (300) displaced a trainload of logistical resupply (400 tons). Since <sup>12</sup>thirteen C-47's would move the same number of patients, General Hawley wanted to use air evacuation as extensively as possible.<sup>75</sup> Because of the bad flying weather for which England is notable in November, the patient-lift from France to the United Kingdom was complex. To take advantage of slightly better weather at such hours, the IX troop Carrier Command scheduled many missions at night. To provide better terminal landing conditions, Membury and Chilbolton now became the main patient reception points in England, with Ramsbury and RAF Station Tarrant Rushton being designated alternates and RAF Station Ford an emergency casualty reception point. While all flights were weathered in on some days, the IX Troop Carrier Command and the 302d Wing committed large numbers of planes to air evacuation on favorable days. Thus, 3,225 patients were evacuated by air on 21 November, and a total of 26,059 were transported by air during November.<sup>76</sup>

In view of the tactical reverses which suddenly

confronted the Allied armies in Europe when the Germans launched their shattering Ardennes offensive on 16 December, aeromedical evacuation of casualties had never been more important than it was in December 1944. In this same period, however, all flying over England and the Continent was greatly restricted by impossible flying weather. In a move designed to give faster service and to avoid bad flying weather over the United Kingdom and the North Atlantic, Air Transport Command C-54's began to evacuate patients bound for the United States from Orly Field at Paris via the Azores on 7 December.

Employing a new forward airstrip at Thionville and the older evacuation fields, air evacuation planes lifted 18,682 patients during the first twelve days of December, while relatively good weather prevailed. The onset of bad weather, however, grounded transport planes at almost the same time that the Germans launched their Ardennes offensive. No evacuation airfields were lost to the enemy, but, with transports grounded and battle and trench-foot casualties mounting, all surface<sup>s</sup> evacuation facilities and hospitals on the Continent were taxed to capacity. <sup>by 1.00</sup> As the bad weather broke on 23 December,

IX Troop Carrier Planes dropped supplies to embattled American defense forces and began to lift casualties from overflowing French hospitals to the United Kingdom. Taking advantage of the remaining days of marginal to good weather, the IX Troop Carrier Command and 302d Wing lifted a total of 31,478 patients during December, the largest month's air evacuation total up to that time in the ETO. Most planes found successful landings at the reception stations in England, but on the night of 30 December a 50th Wing C-47 became lost in the soup and finally crash-landed near Le Havre. The nurse aboard -- Lt. Ann M. Krueger of the 817th Squadron -- kept the <sup>27</sup>twenty-seven patients from panic and got them off the plane before it burst into flame.<sup>77</sup>

Since 23 September, the 320th Transport Squadron (Communications and Mail) had been performing an air evacuation mission at Le Bourget Airfield near Paris, but events of December 1944 led to a revision of this function. Despite a high personal dedication to the medical transport work on the part of squadron personnel, the Norseman C-64 planes simply were unsuited to their mission. Structural weaknesses -- including tail wheel struts which broke with disconcerting frequency on ruts in frozen ground -- forced the

pilots to carry crew chiefs on evacuation pick-ups instead of medical attendants. The planes, moreover, could not land on unimproved airstrips. After study of the problem, Colonel Martin A. Bateman, commander of the 302d Transport Wing, noted that one C-47 could do the work of four C-64's in air evacuation and medical supply transport. He therefore proposed to equip the 320th Squadron with <sup>25</sup> twenty C-47's, of which seven would be maintained for medical supply and patient evacuation. General Crow accepted the proposal, and, on 1 January 1945, the 320th Squadron ceased to operate the Norseman planes in standard evacuation work. To meet special needs in forward areas, the 302d Wing kept two UC-64's: one for station at Liege and one for Thionville. During the period in which the 320th Squadron operated with UC-64's it had evacuated 257 litter and 911 ambulatory patients and had carried 36,008 pints of blood and 387,918 pounds of medical supplies to forward areas. Although the "Crow Escadrille" experiment was successful, the Norseman planes had not permitted efficient operations.<sup>78</sup> The Allied medical officers preparing for the invasion of Germany would have to rely upon the commitment of C-47 transports through GATOR for all air evacuation.

## 6. Air Evacuation from Germany

While Allied armies fought to contain the German advance and then to recover lost ground in January and February 1945, the pattern of air evacuation changed very little. In both months the principal points of patient airlift on the Continent were Thionville, Liege, and Le Bourget. Field ambulances and hospital trains transported sick and wounded men to the main air evacuation airfields. On the policy level, a few changes affected air evacuation. Since the beginning of its operations into the ETO, the Air Transport Command had borrowed air evacuation personnel from the squadrons assigned first to the Ninth Air Force and later to the IX Troop Carrier Command. Early in January 1945, Colonel Bergquist agreed that three medical air evacuation squadrons ought to be transferred to the European Division of the Air Transport Command. After Washington had acted on the matter, the 810th, 814th, and 815th Squadrons were assigned to the Air Transport Command on 26 March 1945.\* In view of the fact that the IX Troop Carrier Command would be heavily engaged in airborne operations in Germany, arrangements were made whereby the 31st

\*See Chap. VI, p. 381.

Transport Group (302d Wing) based at Grove, England, would begin to transport patients on 1 February. Now equipped with C-47's instead of a miscellany of planes, the 302d Wing would transport an increasingly large proportion of casualties as the war continued. Largely in fairly routine operations which were often curtailed by bad weather, the IX Troop Carrier Command and the 302d Transport Wing lifted 17,483 patients in January 1945 and 17,428 in February 1945. In the latter month, the 302d Wing lifted more than half of these patients.<sup>79</sup>

The Battle of the Bulge had delayed the Allied attack against Germany, but the Allied strategy undertaken in February and March 1945 was much the same as projected earlier. <sup>P. L.</sup> ~~Projected~~ operations for March looked toward the crossing of the formidable Rhine River barrier in three general phases: the U.S. First and Third Armies would continue to clean up in the Ardennes, the U.S. Seventh and French First Army would eliminate German resistance on the Alsace-Lorraine front, and the British armies -- aided by an airborne operation -- would breach the Rhine north of Dusseldorf. Once the army groups reached the Rhine they would bridge it and mount strong drives into the heart of Germany. When the front moved near the Rhine,

thawing weather combined with heavy vehicular traffic reduced roadways to rubble. Road after road in the First Army zone had to be withdrawn from the traffic circulation plan, and direct routes for ambulance evacuation became rare. The army surgeon requested light plane evacuation, and, on 20 February, an L-5B liaison squadron plane, equipped with litter racks, began ferrying patients from division clearing stations to evacuation hospitals. In the remaining days of February, 23 patients were flown to field hospitals, and the First Army's medical section requested and received four L-1 aircraft marked with Geneva crosses, which were flown by former fighter pilots. The detachment was attached to the AAF liaison squadron serving First Army headquarters. In view of the scarcity of L-1 planes in the ETO, Lt. Col. Mathias F. Regner and Capt. Albert D. Haug, flight surgeons of the 50th Troop Carrier Wing and the 816th Medical Air Evacuation Squadron, on 18 March demonstrated the use of CG-4 gliders to land medical supplies in forward areas and then to be snatched off forward strips loaded with litter casualties. Early in March, standard air evacuation was also vital. When the army front moved to the Rhine, supply and evacuation air-

fields were located within a few miles of the river at Munchen in the Ninth Army area and Dunstekoven in the First Army Zone.<sup>80</sup>

Exhausted by their ill-fated Ardennes offensive, the German armies were unable to defend the formidable Rhine barrier. Finding a bridge mistakenly left intact by the retreating enemy, First Army units forged across the Rhine at Remagen on 7 March. Two weeks later, Third Army forces crossed the Rhine in assault boats. On 24 March, the first Allied Airborne Army staged Operation "Varsity" which placed it across the Rhine near Wesel. Following these crossings of the Rhine, evacuation of casualties by air was the only practicable means of bringing sick and wounded men to rearward field hospitals, for bridge capacity was slight and traffic going forward possessed overriding priority. Building railway bridges across the Rhine would require at least four weeks. At Remagen, the First Army called upon air evacuation to overcome the bridge bottleneck. The pilots of three L-5 airplanes evacuated seventy-two litter cases in the last half of March, and, under the personal supervision of Colonel Bergquist on 22 March, the 50th Troop Carrier Wing snatched two gliders with twenty

six wounded men aboard from a clearing in Remagen beachhead and delivered them to the air holding unit at Dunstokoven airfield. The trip by air required only nine minutes instead of four hours by ambulance. Using this same technique, the IX Troop Carrier Command believed that ten tow planes servicing ten gliders could have evacuated several hundred patients from forward areas each day, but the gliders were required for Operation Varsity, and by the time this airborne operation was completed airfields had become available east of the Rhine. On 29 March, Eendenbach Airfield opened in the Remagen beachhead area and began serving supply and evacuation planes. Benefiting from good flying weather, the IX Troop Carrier Command and 302d Transport Wing lifted 44,108 patients during March. Since the IX Troop Carrier Command was busy with Operation Varsity, the 302d Wing evacuated 41,036 of the 44,108 patients.<sup>81</sup>

From the day that the Allied armies charged across the Rhine, virtually 100 percent of medical evacuation of casualties from Germany was to be performed by air. In fact, many ground force medical officers told Lieutenant Colonel Pace, now the IX Troop Carrier Command's air evacuation officer, that their whole medical organization would

have bogged down without air evacuation. Air transport of supplies to the fast-moving Allied columns was also going to be of critical importance. Recognizing that logistical support by air would be requisite to speedy victory in the exploitation phase, the SHAEF G-4 held a conference of high-ranking air and ground logistical officers on 31 March 1945 to arrive at procedures which would expedite supply by air. At this conference, and by means of an interchange of liaison officers, procedures were speedily worked out whereby each army could request air transport support through its tactical air command to GATOR.

Up until this time, the IX Engineer Command had never been sufficiently well informed of future ground force plans to permit adequate planning for supply and evacuation fields, but now Colonel Pace began to visit the aviation engineer headquarters at frequent intervals to explain where evacuation fields would be needed. A great number of sod fields existed in Germany, and few of these fields had been bombed. As soon as the IX Engineers declared a field operational, a IX Troop Carrier liaison officer would reconnoiter it and determine its capacity. If the field was needed for air evacuation, the Army established a

holding unit there and a air evacuation liaison officer came forward. This officer arranged with Air Evacuation Headquarters at CATOR for the arrival of planes in accordance with the number of patients awaiting evacuation. Since communications were not too reliable in the fast-moving situation, the air evacuation officers usually sent their requests for planes by a returning plane. The Army plan of evacuation divided patients into three categories: all patients who would be hospitalized for less than sixty days had their field medical records marked with a large "Under 60"; these patients were flown either to Le Bourget at Paris or to Mourmelon Airfield at Rheims, where a new concentration of general hospitals was established in March. Patients requiring more than sixty but less than 120 days hospitalization had their records marked "Over 60," and they were flown to reception airfields at Chilbolton and Membury in the United Kingdom. Patients requiring more than 120 days hospitalization had a large "ZI" placed on their records; these men were flown to Orly for movement to the United States.<sup>82</sup>

For the first time in history during April 1944, Allied armies driving into Germany left their general hos-

pitals more than 300 miles to their rear. No general hospitals were operational east of the Rhine. Selecting from among the large numbers of German airfields overrun, air and army evacuation officers maintained evacuation airfields as far forward in each army zone as possible. These strips usually were only a few miles from the front<sup>4</sup> lines and most of them were rapidly occupied and abandoned as the armies forged ahead. In all during April, the transport aircraft operated from thirty-eight airfields, some of them for only two or three days, and twenty-seven fields were used for air evacuation. Late in the month, the evacuation of disabled men from Allied prisoner of war camps further swelled evacuation totals. With the total capabilities of the IX Troop Carrier Command and 302d Wing available as needed, and good flying weather prevailing, the evacuation total for April reached a war<sup>+</sup>time high of 81,701 patients. Over 1,200 patients were evacuated each day, and the peak daily total came on 18 April, when 4,348 patients were airlifted. In addition to the evacuation work, six evacuation hospitals were moved by air to provide emergency medical service east of the Rhine. Holding units were moved by air on four occasions. The movement

of these medical units by air not only released ground transportation needed to support ground forces with supplies, but it provided means for the rapid forward displacement of the hospitals into areas requiring them.<sup>83</sup>

Air evacuation in Europe continued to be heavy during the first week of May, for victory in Europe on 8 May 1945 did not end these essential operations. Many American wounded and liberated Allied prisoners of war had to be evacuated to general hospitals west of the Rhine. In the early period and in the beginning of post-hostilities, <sup>7</sup> twenty-seven airfields were used for air evacuation; of these fields only Membury, Le Bourget, and Mourmelon near Rheims were in the rear areas and the other fields stretched as far east as Pilsen in Czechoslovakia. Efforts were made to keep air evacuation operating from fields as close to the front as possible. During May, 26,705 patients were moved by IX Troop Carrier Command aircraft and 15,861 by the 302d Transport Wing for a total of 42,567 sick and wounded moved by air. Two unfortunate accidents, both involving the new C-46 aircraft which were being received in Europe, marred the last month of the combat aeromedical evacuation effort in Europe. On 6 May, a IX Troop Carrier C-46

crashed into a hillside near Dunsfield, England, killing the crew, a medical technician and 24 patients; and, on 23 May, a 302d Transport Wing lost an engine in flight and crashed near Taillefontaine, France, killing the crew, a medical technician, and 40 ambulatory patients.

By the end of May 1945, the USSTAF transport and troop carrier commands had completed the evacuation of all American battle casualties from the forward areas. As far as could be determined, 369,595 sick and wounded men had been transported by air in the European theater between D-day at Normandy (6 June 1944) and 31 May 1945. The total included 19,196 patients moved within the United Kingdom, 96,115 transported <sup>to</sup> the Continent, and 254,284 flown from the Continent to the United Kingdom.<sup>85</sup> Although the war in Europe was over, there would still be much need for aeromedical evacuation in the occupation period which was to follow. In May and June, SHAEF and USSTAF leaders were studying the demonstrated advantages and limitations of aeromedical evacuation.\* As result of such study, a permanent peacetime system of air evacuation would be established

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\* See Chap. VII, pp. 1-10.

in Europe.

7. Last Months of Air Evacuation in the Mediterranean Theater

During the summer and autumn of 1944 victory in Italy had seemed well within the grasp of Allied forces in the Mediterranean, but retreating German ground forces soon checked Allied ground progress in a defensive fight from Gothic line defenses in the foothills of the Northern Apennines. Although Allied ground forces breached these defenses in September, the diversion of substantial strength to France, a spirited German defense in rugged mountain terrain, and the beginning of winter weather forced General Mark W. Clark to order the Allied 15th Army Group to prepare for a winter of defensive action. From their defenses on the slopes of the Northern Apennines, U. S. Fifth Army troops could sometimes glimpse the communications-hub city of Bologna in the strategic Po River Valley, but strong German defenses barred the way to this objective.<sup>86</sup>

Relieved from air resupply and evacuation responsibilities in Southern France on 15 November 1944, the 51st Troop Carrier Wing, with its 60th, 62d, and 64th Troop Carrier Groups and 802d and 807th Medical Air Evacuation

Squadron settled down to provide air transport support to Allied air and ground forces in Italy and to partisan forces in the Balkans and in Northern Italy. There would be no more airborne operations in the Mediterranean. Under the general supervision of Colonel Edward M. Sager, who became Twelfth Air Force Surgeon on 27 December 1944 vice Colonel Cook, the air evacuation effort occupied only a part of the 51st Wing's capabilities. In fact, the 62d Troop Carrier Group usually furnished the crews and the C-47 aircraft employed for air evacuation. Early in January 1945, the 51st Wing established new deployments which placed its units in better position to accomplish their air transport tasks. Headquarters, 51st Wing and the 802d and 807th Medical Air Evacuation Squadrons moved forward from Lido di Roma to Sienna. The 62d and 64th Troop Carrier Groups moved to Tarquinia and Leghorn (Rosignano Airfield). The 60th Troop Carrier Group maintained its station at Naples/Pomigliano Airfield. At least one squadron of one of these groups would continue to be stationed in the eastern part of Italy at Brindisi Airfield.<sup>87</sup>

Early in November 1944, when the 15th Army Group began its defensive in the Northern Apennines, medical

air evacuation in Italy became stabilized and even routine. The 807th Squadron maintained forward area detachments at Florence (Peretola Airfield) and at Rimini and sent nurses to serve on rotational detached service at Bari. Army base sections provided holding hospitals near these evacuation airfields. The Fifth Army attempted to return as many sick and wounded to duty as possible in forward area hospitals, but patients requiring extended hospitalization or special medical services were sent to the holding hospitals for air evacuation. When patients at the forward airfields required evacuation, the evacuation airfield flight surgeon notified Lt. Col. M. Robert Halbouty, now 51st Wing surgeon, who arranged for flight nurses and technicians to accompany a transport plane to the field and perform the evacuation. During the winter, the largest flow of patients was from Florence to hospital centers at Leghorn, Rome, and Naples, but the Bari detachment evacuated British Eighth Army patients from Rimini and occasionally went across the Adriatic to pick up patients who were brought by clandestine means to the islands of <sup>Z</sup>Lara and Vis. Patients were also occasionally evacuated from Corsica to Italian hospitals. Patients destined for air

evacuation to the United States were placed aboard Air Transport Command planes at Naples. Little concerned with air evacuation up until this time, the Mediterranean Air Transport Service agreed in March 1945 to inaugurate thrice-weekly evacuation of French Colonial litter patients from Algiers to Marseilles.<sup>88</sup>

Air evacuation from the largely inactive Allied front in Italy was not heavy during the winter of 1944-1945. Only 5,931 patients were evacuated by air in November and only 6,376 in December 1944. Because of inactive fighting and bad flying weather, only 9,894 patients were evacuated by air in the months of January through March 1945. The movement of general hospitals close to the Fifth Army front in this period also reduced the number of patients requiring air evacuation to rear areas.<sup>89</sup> Despite the rough flying weather, no patients suffered ill effects from flight. On 2 February 1945, however, the crash of a C-47 aircraft at Montieri, Italy, claimed the lives of Captains Harry Derman and Philip J. Lopresti, two flight surgeons of the 802d Medical Air Evacuation Squadron.<sup>90</sup>

Preceded by months of logistical betterment which coincided with a period in which the German armies were

weakened by comprehensive aerial interdiction, Allied ground forces in Italy launched an overpowering spring offensive on 14 April 1945. In the offensive, the 802d Medical Air Evacuation Squadron supported Fifth Army operations in western Italy and the 807th Squadron supported the British Eighth Army in eastern Italy. Preparatory to the attack, the 802d Squadron opened a detachment at Rosignano Airfield, Leghorn, and, on 25 April, another detachment served the newly captured forward airfield at Bologna. Three days after Bologna was captured, air evacuation planes were hauling casualties to Leghorn hospitals. In support of the Eighth Army, the 807th Squadron opened another evacuation airfield at Forli on 9 April. In their rapid drive northward, neither the Fifth nor the Eighth Armies sustained heavy casualties, but the 51st Wing nevertheless lifted 5,759 patients during April.<sup>91</sup>

Unable to rally his defeated armies, the German commander in Italy surrendered at Caserta on 2 May 1945, but the air evacuation work was not yet completed. Following advancing columns, 807th Medical Air Evacuation Squadron personnel opened evacuation airfields at Villa-

franca di Verona (5 May), Treviso (12 May), and Campoformido (30 May). The evacuation of German as well as Allied wounded to hospitals at Pisa, Rome and Naples added up to 4,387 patients during May 1945.<sup>92</sup> As the mopping up progressed during May, the Twelfth Air Force was planning the disengagement of its forces for deployment to the Pacific. According to plan, the Mediterranean Air Transport Service would continue to serve occupation forces until the inactivation of the theater. On 13 June, the veteran 51st Troop Carrier Wing flew its last aeromedical evacuation flights and at the close of the day's operations transferred the 802d and 807th Medical Air Evacuation Squadrons to the Mediterranean Air Transport Service. As the combat air evacuation effort so ended, the 802d Squadron had provided care for 122,038 patients and the 807th had served 81,337, for a total of 203,375 sick and wounded men evacuated by the two squadrons in the Mediterranean.<sup>93</sup> Counting patients who had been evacuated by air prior to the arrival of the evacuation squadrons, a grand total of 212,285 sick and wounded men had been transported by AAF units in the Mediterranean.<sup>94</sup> In the Mediterranean Theater of Operations aeromedical

evacuation had succeeded to an extent even beyond the  
dreams of those who had held forth in its practicality.

CHAPTER V

AIR EVACUATION IN ASIATIC AND PACIFIC THEATERS, 1943-1945

1. Early Operations in China-Burma-India Require Air Evacuation.

In all of the allied theaters of World War II, air transport and aeromedical evacuation of casualties were never more important than they proved to be in the far reaches of jungles and mountains that characterized South-eastern Asia and China. Allied ground strategy demanded that China be kept in the war, but Japan's easy conquest of Burma in early 1942 severed the only remaining surface lines of communication into China--the old Burma Road. Shortages of arphibious shipping would never permit a sea-borne invasion on the coasts of Burma, and the Allied reconquest of this strategically important country would have to be mounted from adjacent India to the west over lines of attack dominated by the towering Naga and Chin Hills--actually mountains with peaks up to 10,000 feet. Burma's roads and railways ran north and south, and only a few trails transected the rugged mountain barrier separating that country from India. Although it would have to serve as the Allied base, India itself was a vast country with few modern communications. Throughout the theater, tropical diseases would be almost as great an obstacle to Allied military operations as were terrain and enemy opposition.

When the Japanese invaded Burma in January 1942, Allied air transport capabilities were extremely meager. The Royal Air Force No. 31 Squadron had a few Dakota transports which provided a slight amount of supply and evacuation support to the combined British, American, and Chinese forces, who, under <sup>Lt.</sup> Lieutenant General Joseph W. Stillwell, unsuccessfully attempted to defend Burma. At the war's beginning, the Chinese National Air Corporation, owned jointly by Pan American Airways and the Chinese Nationalist Government, was operating an airline from Calcutta to Kunming. <sup>As</sup> At the direction of President Franklin D. Roosevelt the "over the hump" airlift was expanded into the Tenth Air Force's India-China Ferry Command on 15 July 1942, and, on 1 December 1942, the strategic airlift was reorganized as the India-China Wing of the Air Transport Command. American air units in India were organized into the U. S. Tenth Air Force on 5 March 1942 with headquarters at New Delhi, and American air units in China were first designated as the Tenth Air Force's China Air Task Force and, after 10 March 1943, as the U. S. Fourteenth Air Force. Both organizations maintained their headquarters at Kunming, China. From the outset of the war, Field Marshal Sir Archibald P. Wavell was Commander-in-Chief, India, while Chiang Kai-shek was Supreme Commander in China. General Stillwell served as Commanding General, U. S. Army

Forces in China, Burma, and India and as Chief of Staff to Generalissimo Chiang Kai-shek. In order to provide Stillwell with a senior air commander, Major General George E. Stratemeyer assumed command of the U. S. Army Air Forces, India-Burma Sector, China-Burma-India on 20 August 1943.<sup>1</sup>

In view of the emergency measures which influenced the buildup of Allied forces in Assam and Burma, providing medical facilities to care for the sick and wounded troops was quite difficult. Early in the Burma campaign, the American medical missionary who was soon given a commission, Doctor Gordon <sup>S</sup>Legrave, mobilized his Burmese physicians and nurses in support of Chinese expeditionary troops in Burma. Air Corps troops which were to be a part of the Tenth Air Force arriving at the West India port of Karachi in March 1942 also had to be served by improvised medical facilities since the first American hospital--the 159th Station Hospital--did not reach Karachi until May 1942.<sup>2</sup> Medical support had not greatly improved by July 1942, when <sup>Lt.</sup> Lieutenant Colonel <sup>C</sup>H. B. Porter, Tenth Air Force Surgeon, outlined an Air Force medical plan. At New Malir, Karachi, the 159th Station Hospital had opened a large base hospital. The distance from Karachi to American air units in Kunming, China, however, was approximately the same as that from San Francisco to New York. To meet the immediate problem of forward hospitalization, the Services of Supply opened

dispensaries at Agra, Allahabad, Kunming, Delhi, and Chabua. Although the evacuation of sick and wounded was an <sup>SES</sup> function, Colonel Porter advised Air Corps units that they had to originate the impetus and means for evacuating their own casualties. "Full advantage will be made of evacuation by air from outlying fields," he ordered.<sup>3</sup> By November 1942, the Base Hospital (1,000 beds) for the India-Burma-China theater was operating at New Malir, Karachi, while Station Hospitals were located at Agra (97th), Gaya (99th), Chabua (95th), Delhi (100th), and Chakulia (98th). Because of distances involved and poor surface transportation available all American units were still advised to use air transportation of casualties to the utmost when available.<sup>4</sup>

The medical experience of the Fourteenth Air Force in China was quite similar to that of the Tenth Air Force. China's vast distances, rugged terrain, and primitive terrain made any surface movement difficult. Acting on his own initiative, Colonel<sup>3</sup> T. C. Gentry, the Fourteenth's Surgeon, built up the Kunming Station Hospital, and each air base established 20-bed hospital dispensaries. Where available, Chinese nurses were employed in Fourteenth Air Force hospitals. In October 1943, the 95th Station Hospital opened at Kunming, but the air base dispensaries continued to operate.<sup>4</sup> Both in China and India, forward area hospitals

~~Med. Hist. Fourteenth AF, Mar. 1943-Apr. 1944, p. 70.~~

attempted to become as self-sufficient as possible, thus reducing the need for patient evacuation. When necessary, however, the Fourteenth Air Force Transport Section moved patients in China, and the Tenth Air Force ferry command and the successor India-China Wing, Air Transport Command informally returned patients using the route from Kunming to Karachi. At first, few planes were available for the trans-India portion of the route, but, in February 1943, the newly-arrived 1st Troop Carrier Squadron, based at Delhi with a detachment at Agra, took over intra-India air transport from the Air Transport Command. Arriving at this same time, the 2d Troop Carrier Squadron based at Yangkai, China, and joined the Hump airlift.<sup>5</sup>

From the beginning of Allied operations in Burma, American and British transport aircraft supported friendly troops in the jungles by air<sup>y</sup>dropped supplies and (when airfields were available) by evacuating casualties. Throughout 1942, for example, a detachment of the RAF No. 31 Squadron flying from Dinjan successfully supplied an allied garrison which continued to maintain an outpost at Fort Hertz in far northern Burma. As he planned possible operations which could be conducted in Burma, General Wavell nevertheless could not<sup>^</sup> conceive of the fact that air supply could be a primary means of supporting land forces. Conducted between December 1942 and May 1943, the British

First Arakan Campaign sought to rely upon ~~land~~ <sup>land</sup> communications for an overland movement down the coast of Burma aimed at the capture of Akyab Island. Because of the dependence upon land communications, the Japanese easily enveloped the British line of advance and the campaign failed.<sup>6</sup>

At the beginning of 1943, Major General Orde C. Wingate conceived and organized a British expedition which would for the first time demonstrate the implications of air supply to mobile land forces. Leaving Imphal in February 1943, General Wingate's long-range penetration groups infiltrated into central Burma where they cut the strategic north-south railway and then returned to India. During March and April, transports of the RAF No. 31 and No. 194 Squadrons supported Wingate's mobile columns with air-dropped supplies. In one incident on 28 April, a Dakota transport landed at an improvised runway and wobbled-off again with <sup>17</sup> ~~seventeen~~ sick and wounded men aboard. At the beginning of the expedition, however, Wingate had impressed upon all his men that casualties would be left behind with money and medical supplies to find for themselves, and this doubtless had a bad effect on morale. At the end of the first Wingate expedition it was evident that air-dropped supplies could lend mobility to ground forces operating in Burma, but some solution was necessary for the evacuation of casualties from the jungle expeditions. The obvious solution appeared

to lie in the use of light aircraft which could land and take off from hurriedly-prepared landing grounds.<sup>7</sup>

2. Development of American Operations in India-Burma and China

During the first years of the war in Southeast Asia, the allies had employed separate national forces, but, at Quebec in August 1943, the Allied Combined Chiefs of Staff recognized that expanding operations in Burma required a unified command. As directed, Admiral Lord Louis Mountbatten on 16 November 1943<sup>7</sup> assumed the post of Supreme Allied Commander, Southeast Asia Command. General Stillwell became deputy commander to Mountbatten, as well as retaining his former duties. Air Chief Marshal Sir Richard Peirse was named Air Commander Southeast Asia, with Stratemeyer as his deputy. General Stratemeyer remained in command of the Army Air Forces, India-Burma Sector and was additionally named commander of the newly created Eastern Air Command. As a tactical headquarters, the Eastern Air Command had operational control over RAF and AAF units organized into a strategic air force, a tactical air force, a photo reconnaissance force, and a troop carrier command. The latter command was commanded by Brigadier General William D. Old.<sup>8</sup>

The Southeast Asia Command reorganizations looked toward the employment of integrated Allied forces in expanded operations in Burma during the favorable dry season of 1943-1944. More ambitious plans<sup>9</sup> were drawn, but because

of limited capabilities the SEAC operations were soon reduced to an advance from Ledo to Myitkyina to clear North Burma, an advance down the Mayli peninsula in the Arakan, an advance from Imphal across the Chidwin River, and airborne operations of a new long-range penetration force to disrupt Japanese communications in Central Burma.<sup>9</sup> Recognizing the importance of air-transported supplies, Admiral Mountbatten and General Stratemeyer both pressed Washington for more transport aircraft. Since the B-29's of the XX Bomber Command would begin to operate from bases at Chengtu, China, in the spring of 1944, the AITC's India-China Wing also required additional transport aircraft.

In view of the experience of the Wingate expedition, all organizations in Southeast Asia gave special attention to problems of air supply and aeromedical evacuation as they planned their campaigns for 1944. Knowing that almost all medical evacuation in China and India was being accomplished by air, General Grant had urged the assignment of a medical air evacuation squadron to the theater as early as March 1943. The War Department, however, did not commit the 803d Medical Air Evacuation Squadron to the CBI theater until 2 June 1943. After a lengthy ocean voyage, the 803d Squadron landed at Calcutta on 6 November 1943, where Major Morris Kaplan sought orders for his squadron.<sup>10</sup> General Stillwell promptly charged the Army Air Forces, India-Burma

Sector, to furnish aircraft and personnel for air evacuation and to designate an air evacuation control officer. The Services of Supply was charged to provide hospitals and ambulance transportation. Although the 2d Troop Carrier Squadron had taken over tactical supply-dropping missions from Dinjan on 1 July and the 1st Troop Carrier Squadron began full-time air drops from Hookerating Airfield in October 1943, the operations of these squadrons did not lend themselves to air evacuation. Taking note of theater's lack of a troop carrier command, General Stratemeyer's headquarters initially decided to attach Flights A and B of the 803d to the ATC's India-China Wing with station at Chabua, to attach Flight C to the Fourteenth Air Force with station at Kunming, China, and to attach Flight D to the Tenth Air Force with station at Dinjan, India.<sup>11</sup>

Although General Stratemeyer's headquarters intended to attach one medical air evacuation flight to the Tenth Air Force, this would not be done. Named air evacuation control officer for the CBI, Major Kaplan was given "a rather free rein to employ the squadron" as he saw fit. Accordingly, the 803d Squadron was flown to the major ATC base at Chabua on 7 November, and on the following day Major Kaplan accompanied a plane load of patients from Chabua to the 181st General Hospital at Karachi, thus

accomplishing the squadron's first evacuation mission. On 2 December, Flight C was flown across the Hump to Kunming where it was to operate under the direction of Colonel<sup>11</sup> Thomas C. Gentry, the Fourteenth Air Force Surgeon. Since the Tenth Air Force had very few troop carrier planes, Major Kaplan elected to keep the rest of the 803d Squadron at Chabua. At this base, with the active assistance of the India-China Wing Surgeon, Colonel<sup>12</sup> Don D. Flickinger, Kaplan got three C-47's assigned as "hospital ships" and soon fixed them up "to look like real hospital wards." Up until this time, the ATC had been transporting only about <sup>10</sup> ten patients a week, but the 803d Squadron was more active. Flying out of Chabua, the 803d Squadron made trips across the Hump and to Karachi as necessary and commenced tri-weekly evacuation schedules to the forward airfields in North Burma and similar schedules to the 112th Station Hospital at the port of Calcutta where the majority of American patients were now being sent for surface evacuation or extended hospitalization.<sup>12</sup>

At the same time that the 803d Squadron was going into action, the Army Air Forces, India-Burma Sector was increasing its capabilities for forward area aeromedical evacuation. A detachment of liaison personnel and L-4 aircraft arrived virtually unannounced at Karachi in April 1943, and General Stillwell, conceiving the mission

of the unit to be service to ground force units, ordered the detachment to the Chinese Training Center at Rangark, India, in June 1943. With the activation of the 71st Liaison Squadron on 15 July the liaison aircraft and personnel were concentrated in this squadron, which was attached to the Chinese-American Combat Troop Headquarters of the Northern Combat Area Command. At this time there appears to have been little concept that the 71st Squadron would furnish aerial evacuation services, for the Northern Combat Area Command provided itself with a full medical complement: the 20th General Hospital and the 14th, 48th, and 73d Evacuation Hospitals were established at Ledo and the 151st Medical Battalion was charged to link combat areas with the base medical units. Upon the completion of a combat strip at Ledo, the 71st Squadron moved there in mid-September and commenced courier and supply drops to outposts along the Ledo road which was being built toward China. With the beginning of the North Burma campaign in November 1943, Chinese combat engineers soon prepared a liaison strip at Shingbwiyang in the Hukawng Valley. Having modified one of its L-4's to accommodate a specially designed litter, the 71st Squadron evacuated the first patient by air in Northern Burma from Shingbwiyang to Ledo on 25 November 1943. Quite shortly, now using both L-4 and L-5 light planes, the 71st Squadron was

plying a regular evacuation run from Burma to India. Chinese litter carriers brought wounded Chinese soldiers from distances as far as <sup>25</sup>~~twenty-five~~ miles to Shingbwiyang. Here the 151st Medical Battalion maintained a clearing station which held the sick and wounded men until the "Flying Sergeants" of the 71st Squadron could transport them to Ledo. Only four L-4's were equipped for stretchers, but these four planes often made four round-trips each over the <sup>15</sup>~~sixty-five~~ mile journey each day. By 25 December 1943, Shingbwiyang strip could accommodate C-47's and on 26 January 1944, the 803d Squadron hospital transport planes took over the evacuation work. By this time, however, advancing Chinese troops were readying new liaison strips further down the Hukawng Valley which would be served by the liaison planes.<sup>13</sup>

The establishment of the Eastern Air Command as an integrated operational headquarters in December 1943 posed new management questions to the newly created air evacuation system. This was especially true because the Troop Carrier Command was established on 15 December with headquarters at Comilla and control over the U.S. 1st and 2d Troop Carrier Squadrons and the RAF No. 177 Wing with the RAF Nos. 31, 62, 117, and 194 Squadrons. In January 1944, the 27th Troop Carrier Squadron would arrive from the United States and the 315th Troop Carrier Squadron would

be activated in India; on 13 March 1944, the four American troop carrier squadrons would be joined in the 443d Troop Carrier Group. Early in 1944, moreover, Colonel Philip G. Cochran was bringing an especially-organized force from the United States for operations with the proposed long-range penetration into Central Burma. First called the 5318th Air Unit (Prov.) and later the 1st Air Commando Group, the air complement of Cochran's organization included a striking force, a transport force (25 C-47's and C-64's), a light plane force (100 L-1's and L-5's, and 4 YR-4 helicopters), and a glider force. When not employed in special operations, the transports were available to the Troop Carrier Command. In view of the formation of an integrated Troop Carrier Command and its impending augmentation, Colonel W. F. DeWitt, the Air Surgeon, Eastern Air Command and Army Air Forces, India-Burma Sector asked the Eastern Air Command whether the 803d Medical Air Evacuation Squadron should be assigned to the Troop Carrier Command and the air evacuation squadron would be expected to fly aboard RAF planes and evacuate British troop casualties. In response to these questions, the Eastern Air Command ruled that Troop Carrier Command would be responsible for evacuating casualties from forward airfields to the terminal airfields of the Air Transport Command. The Eastern Air Command also stated that the United States would

provide medical services in North Burma and the British would be similarly responsible in South Burma. It was assumed, however, that troop carrier planes carrying supplies forward would evacuate casualties.<sup>14</sup> By omitting reference to the matter, the Eastern Air Command evidently intended that the 803d Air Evacuation Squadron would continue to be attached to the Air Transport Command to perform Hump, intra-India, and Northern Combat Area Command evacuation.

From the establishment of the Troop Carrier Command, the most pressing concern of its commander, Brigadier General William D. Old, was to support the operations of Lieutenant General Sir William Slim's Anglo-Indian Fourteenth Army in the Arakan and east of Imphal. In general, the U. S. 1st and 2d Troop Carrier Squadrons supported the Northern Combat Area Command, while the remainder of Troop Carrier Command provided logistical assistance to Fourteenth Army. When the British XV Corps commenced its offensive in the Arakan in January 1944, troop carrier aircraft were employed to backload casualties from such forward fields as Taung Bazaar, Ramu, and Bawli Bazaar. Almost at once, casualty evacuation gave General Old trouble. All transport planes landing in the forward areas required fighter cover, but British army medical units were so slow in loading casualties that the fighter escort

often ran short of fuel and had to depart the area. On numerous occasions, Troop Carrier Command was asked to evacuate patients from forward airfields but found none requiring evacuation when planes arrived. British army medical units provided some medical flight attendants but not enough. At first, two RAF Tiger Moths belonging to the Third Tactical Air Force and nine L-5's of the <sup>air</sup> six<sup>+</sup> commando force brought wounded men out of combat airstrips, but the number of planes was insufficient, and, by mid-February, Colonel Cochran needed to recover his L-5's to prepare for the Wingate expedition into Central Burma. As a further complication for General Old, the Southeast Asia Army Group was making a study of the practicability of diverting three troop carrier C-47's to a regular air evacuation mission. This group figured that three Dakotas could evacuate the same number of casualties as a hospital ship, which would otherwise be required in the Southeast Asia Command. Troop Carrier Command <sup>patently</sup> did not have the three C-47's to spare from operational commitments.<sup>15</sup>

As a result of the pressures upon him, as well as the fact that he was charged with forward area air evacuation without possessing capabilities, General Old asked the Eastern Air Command on 6 February 1944 to attach the 803d Medical Air Evacuation Squadron to Troop Carrier Command. The Eastern Air Command, however, was not willing to

transfer the 803d Squadron to Troop Carrier Command until the command was able to take over all evacuation routes in the theater, an eventuality which would never come about. Meanwhile, ATC would continue to control the 803d Squadron, and, in order to expand its intra-India services, the 803d Squadron was allotted a C-46 hospital plane on 26 March which made thrice-weekly schedules to Karachi. In an Eastern Air Command operational directive issued to Old on 18 February, General Old was directed to use transport and communication aircraft for evacuating the casualties of the Fourteenth Army. Until RAF medical units could be provided, the Fourteenth Army would receive and hold casualties at forward and rear airfields. The Third Tactical Air Force was to provide fighter cover for air evacuation operations. In order to provide light-plane evacuation capabilities, the Eastern Air Command promised to provide Anson or Dominic light communications planes which were to be attached to the transport squadrons. No additional aircrews would be provided for the light planes.<sup>16</sup> In February, five Anson aircraft modified to take stretcher cases were assigned to the RAF No. 62 Transport Squadron. Neither General Old nor Air Marshal Sir John Baldwin, Commander of the Third Tactical Air Force, liked the decision to assign light aircraft to the transport squadrons. Both officers noted that Ansons would not be acceptable for

forward air evacuation since the low-powered planes required about the same length runway as a C-47. Fox Moth or L-5 type planes were needed. General Old noted with dismay that no pilots were being provided despite the fact that the RAF transport squadrons were already understaffed. Air Marshal Baldwin strongly protested that forward air evacuation was an operational matter; he could not insure the safety of light planes in forward areas unless the planes were under the operational control of his combat air groups. For the time being, however, the Eastern Air Command was unwilling to modify its operational directive.<sup>17</sup>

Although the Southeast Asia Command did not recognize it at first, the intensive fighting in the Arakan in January and February 1944 marked the first phase of a Japanese offensive which was to be aimed at Imphal. The subsidiary Japanese attack was supposed to isolate the British XV Corps. As had been the case a year earlier, the Japanese infiltrated and established roadblocks to cut off British units. Having recognized the value of air transport, General Slim called on Troop Carrier Command to fly supplies and additional troops into the Arakan. Instead of strangling British units, the Japanese infiltrators soon ran out of supplies and were ground up by British attacks. The little detachment of Tiger Moths and L-5's lent mobility to the movement of friendly troops

by evacuating casualties to the transport field at Ramu: in three days in mid-February, for example, they brought out 192 wounded men from east of the Mayu Ridge. In eighteen days, the little planes were said to have evacuated more than 400 casualties from the Mayu Ridge area. Troop Carrier planes which dropped or landed supplies picked up casualties and returned to Comilla or Chittagong. A total of 191 casualties were evacuated by air from the Arakan front in January, and 666 were lifted during February. By the end of February 1944, air supply and air evacuation had enabled the XV Corps to defeat the first prong of the Japanese offensive.<sup>18</sup>

The struggle in the Arakan had scarcely subsided when on 5/6 March 1944 the Second Wingate expedition was flown beyond Japanese lines into the Wuntho-Bhamo area of Central Burma. The purpose of the long-range penetration was to cut the communications of the Japanese forces opposing the Northern Combat Area Command's advance toward Myitk-yina. According to plan, airlift and logistical support for the expedition would be provided by Troop Carrier Com and the 1st Air Commando Group. Recognizing the divided air command involved, General Stratemeyer designated Air Marshal Sir John Baldwin as the Eastern Air Command representative to coordinate all air operations in support of the expedition. For deception purposes,

Major General Orde C. Wingate's force was known as the 3 Indian Division, but all but one of its five battalions were Chindits. Supported enroute by air drops, one battalion of long-range penetration troops marched 450 miles overland from Lado to the objective area. From the airfield at Lalaghat on the night of 5/6 March, Troop Carrier and air commando planes began the gliderborne movement of the first echelon of troops to a clearing near Rail Indaw called "Broadway." At the last movement, air photographers showed that a second clearing called "Picadilly" could not be used because of Japanese obstructions. Light planes reached "Broadway" early on 6 March and evacuated several injured men to Taku airstrip, where no arrangements had been made to receive them. Early on the evening of 6/7 March, one of the first C-47's to land reinforcements on the new airstrip at "Broadway" returned other casualties to the designated reception airfield at Sylhet.<sup>19</sup>

Utilizing other troops flown to "Broadway" and a temporarily-used strip prepared at "Chowringhee" as well as the battalion which had trekked in from Lado, General Wingate within a few days built positions of strength within Central Burma. By mid-March, one of these positions called "White City" was established athwart the Japanese road and rail routes leading northward to Kyaukyina. While

arranging to have his two remaining brigades flown in to a new stronghold called "Aberdeen," General Wingate was killed in an airplane crash on 24 March. Command of the expedition passed to Major General W. D. A. Lentaigne, and by 12 April the last of the two additional brigades had been flown in. More pressing requirements for air transports at besieged Imphal had delayed this reinforcement. Supplied solely by air-dropped and air-landed supplies loaded aboard transports at Sylhet and Agartala, up to thirty columns of special troops harassed the Japanese in the area Indaw-Bannauk-Pinlebu during March, April, and May. The "Flying Sergeants" of the 1st Air Commando Group evacuated casualties incurred by the columns in hit-and-run fighting with the Japanese. On other occasions in March, sitting patients were snatched from jungle strips in gliders. To test a helicopter in combat, Colonel Cochran had one of his YR-4's flown from Lalaghat to "Aberdeen." From this point the YR-4 penetrated into enemy-held territory four times on 23 April to rescue the injured survivors of a light plane crash. This was the first combat air evacuation employment of a helicopter. According to original plan, the Chindits were good for only ninety days of intensive operations within the enemy's lines. In the second half of May, the onset of rainy weather prevented the use of unimproved jungle strips and complicated supply drops. Since the time had

come to remove the Wingate force, one brigade was airlifted back to India. The other brigades were directed to join Northern Combat Area Command forces at Myitkyina. Before doing so, however, the brigades had to dispose of their accumulated sick and wounded. In another of many successful experiments done during the expedition, two RAF Sunderland flying boats were brought to the upper reaches of the Brahmaputra River whence they flow down the Hukawng and Mogaung Valleys and landed on Lake Indawgyi, near Indaw. Flying repeated trips over this route during June, the two flying boats successfully evacuated 506 casualties of the 3 Indian Division.<sup>20</sup>

Only a few days after the Wingate expedition had been flown to Central Burma, the Allies were engaged in a life or death struggle to defend the major base of Imphal against an all-out Japanese ground assault. The Allies had always realized that the ground lines of communication running southward from the Assam railhead at Dimapur through Kohima to the main base at Imphal and to outposts at Tiddim and elsewhere in the Chin Hills were vulnerable to enemy attack since they ran roughly parallel to the front. On 8 March 1944, the Japanese began a three-division attack which was intended to capture Kohima and besiege Imphal. Having anticipated the Japanese attack, General Stilwell's Fourteenth Army plan called for the British-Indian IV Corps to fall back to

Imphal, where it was to be reinforced by troops to be flown in to Imphal from the now inactive Arakan front. The fresh British-Indian XXXIII Corps would assemble at Dimapur and the two corps would crush the Japanese offensive. Employing nearly 155,000 men the Japanese soon laid siege to Kohira which stubbornly refused to fall, and took strong positions in the hills and mountains surrounding the plain upon which Imphal was located.<sup>21</sup>

Whether the Fourteenth Army could succeed in repulsing the all-out Japanese offensive depended upon the air transport effort which could be mustered by General Old's Troop Carrier Command. Never before had the success of a major ground campaign depended so completely upon air transport. At the outset, Troop Carrier Command's strength of four AAF (443d Group), and four RAF (No. 177 Wing) transport squadrons was insufficient to the requirements put on it, since two squadrons had to continue to support the Northern Combat Area Command's drive on Myitkyina, three squadrons had to supply the 3 Indian Army (Chindits) in Central Burma, and XIV Corps troops in the Arakan also required air supply support. Back in the United States, two new combat cargo groups were being formed for service in the CBI, but these groups were not scheduled for deployment before the autumn of 1944. Thanks to the mobility of air transport airpower, however, Troop Carrier Command was able to meet its

requirements. Between 18 March and 1 June, Admiral Mountbatten diverted twenty C-46's belonging to ATC from the "Hump" to work with General Old. Rather than to permit the diversion of still more planes from the "Hump", the <sup>U</sup> S. Joint Chiefs of Staff offered the loan of four C-47 squadrons from Italy. Early in April, the 64th Troop Carrier Group (with the 4th Squadron attached) and the RAF No. 216 Transport Squadron reached India, where they remained until 8 June. Meanwhile, back in the United States, the AAF accelerated the training of the 3d Combat Cargo Group, whose four C-46 squadrons began to be operational in India on 6 June 1944.<sup>22</sup>

Although the increased capabilities contributed to the successful accomplishment of the air transport mission during the critical months of March through June 1944, the situation also demanded the most efficient management of always scarce air transport effort. Each day, the Fourteenth Army made its air transport requirements known to Troop Carrier Command, which ordered the missions flown. General Stratemeyer would have been the last to deny the efficiency of Troop Carrier Command's direction of the airlift effort, but he nevertheless realized the anomaly of the situation wherein General Slim had to secure his air transport support from General Old and his air combat support from Air Commodore Baldwin. For this reason, Troop Carrier Command was

subordinated to the 3d Tactical Air Force on 2 May and was abolished on 4 June 1944. After this, the Fourteenth Army dealt directly with the 3d Tactical Air Force for both combat and transport air support. Utilizing sound management practices, the air transport effort initially moved reinforcement troops to the IV Corps at Imphal, assisted in the concentration of the XXXIII Corps at Dimapur, and then settled down to meet the voracious supply requirements of the 118,000 troops in Imphal, who would have no overland supply routes until the Imphal-Kohima-Dimapur road was opened on 22 June. During the four months of siege, Imphal received some 21,600 tons of airlifted supplies.<sup>23</sup>

Not the least of the contributions of air transport to the successful defense of Imphal was an improvised medical air evacuation system which removed virtually all men who became sick or wounded, preventing the accumulated casualties from becoming a burden to the defense forces. Prior to the siege, two British hospitals were removed by air from Imphal ~~early in the campaign,~~ thus lightening the administrative overhead there. As the siege began, the Royal Army Medical Corps (R.A.M.C.) No. 64 Field Ambulance, with the No. 29 Motor Ambulance Section attached, transported patients from the frontlines to holding stations and then dispatched them by air to British hospitals at Comilla, Chittagong, and Agartala. Troop carrier planes which landed

supplies evacuated the patients, but, on occasions, special evacuation missions had to be scheduled. Thus on 4 and 5 April, General Old approved the air evacuation of 1,400 casualties from Comilla and Chittagong to Calcutta. At this time these forward hospitals were overflowing and trains and ships were operating at capacity. Casualties were given first priority for flights out of Imphal, and 10,439 sick and wounded men were evacuated by air during the siege. The monthly casualty air evacuations rose from 744 in April, to 4,400 in May, and to 5,295 in June. The improvised air evacuation system worked, but it manifested undesirable defects. Since there were no nursing orderlies available, patients got no medical care while in flight. On only a few occasions, a RANC medical orderly flew with special cases. Late in April, General Old complained of a noticeable lack of preparation for dispatching patients which kept transport aircraft waiting at Imphal. This delayed the airlift. ATC crews who ferried loads of 35 to 45 patients to Chittagong in March and April reported that medical attendants there were slow in unloading the sick and wounded. This not only held up the airlift effort but caused suffering to sick and wounded men who waited aboard planes in the extremely hot and humid weather.<sup>24</sup>

While British and Indian forces were battling the Japanese early in 1944, American and Chinese troops were

hotly engaged in North Burma. In support of these operations, the three flights of the 803d Medical Air Evacuation Squadron at Chabua found plenty to do, and, in fact, the personnel of the flights soon faced combat exhaustion. Using the three C-47's and one C-46 allocated for medical evacuation, the flights at Chabua flew ~~fifteen~~<sup>15</sup> regularly-scheduled trips each week. These trips evacuated patients from installations in Assam to the 111th Station Hospital at Chabua, moved patients from Chabua to the 112th Station Hospital at Calcutta, and also transported patients from either Chabua or Calcutta to the 181st General Hospital at Karachi. Whenever necessary, patients were collected from other stations along these routes. Thus, to assist in disposing of British casualties from the Imphal front in April, the Chabua-to-Calcutta medical air evacuation flight picked up patients at Jerhat and dropped them off at Coxilla.<sup>25</sup>

By far the greatest part of the 803d Medical Air Evacuation Squadron's work, however, was done in the Hukawng and Mogaung Valleys of North Burma where Brigadier General Frank D. Merrill's U. S. 5307th Composite Unit and Chinese armies were driving toward Myitkyina. Without known exception every wounded soldier, American or Chinese, evacuated from the forward area in North Burma was transported by aircraft during part of his journey. In the majority of

cases, liaison planes of the 71st Liaison Squadron and the 5th Liaison Squadron (when it arrived at Shaduzup from the United States on 30 April 1944) "gathered in" the casualties from improvised outlying strips and flew them to the nearest transport field. During February 1944, the 803d Squadron made one or two evacuation flights to Shingbwiyang airfield each day, and by the end of the month hospital planes were evacuating patients from a new strip at Taihpa, only seven miles behind the fighting lines. At least two hospital planes began to go to Maingkwang each day in March, and at the end of the month a new forward transport field opened at Shaduzup. Each hospital plane going to Burma delivered medical stores and other supplies. Total monthly patient evacuations of the 803d Squadron progressed steadily upward each month--362 in January, 872 in February, 1,946 in March and 2,748 in April 1944. In April, nearly 40 percent of the 803d's evacuees were freshly-wounded Chinese, and it was almost routine to have wounded men in the hospital at Lodo--175 miles from the front--within a few hours after they were wounded.<sup>26</sup>

In the battles for North Burma, General Stillwell's Northern Combat Area Command held the initiative, and the attack was to continue even though the Fourteenth Army was fighting hard to save Imphal. To provide fresh troops in North Burma, Air Transport Command planes which would

otherwise have returned empty from China began on 5 April to deliver at <sup>S</sup>Lookerating a fresh Chinese division from Yunnanyi. Troop Carrier planes flew the Chinese on to Maingkwan. While fresh Chinese troops opposed the Japanese in the Mogaung valley, Stillwell sent Merrill's Marauders on an end-around March, and on the morning of 17 May the exhausted and disease-ridden Americans swept over Myitkyina South Airfield, which lay about three miles west of the town. When glider-borne engineers had repaired the field, regular transport landings began on 18 May. In response to a request for a hospital plane, one of the 803d's C-47's arrived on 18 May carrying its standard complement of a flight surgeon, two nurses, and a technician. Japanese fighters appeared while the hospital plane was being loaded, and the strafing attack holed the plane and wounded most of the aeromedical people. Despite damage to the plane and their wounds, the aeromedical personnel elected to load the plane and to complete their mission to Shingbwyang and Ledo before seeking surgery for themselves.<sup>27</sup>

The sudden capture of Myitkyina Airfield offered great advantages to the Northern Combat Area Command, but hard fighting in monsoon weather was to continue before the Mogaung valley would be cleared and the town of Myitkyina would be captured. The die-hard Japanese dug in and inflicted heavy casualties. Old jungle diseases and a new mite-

typhus sapped Allied strength. The two liaison squadrons continued to give the kind of service which had made them famous. The home station of the 71st Squadron was at Ledo, but operating detachments flew out of the advanced fields at Tingkaw<sup>e</sup> Lakan, Warazup, and Shaduzup in Burma. Based at Myitkyina Airfield from 17 May, the 5th Liaison Squadron operated continuously during the siege. Operating from outlying jungle strips, rice paddies, and trails, the squadron's L-1's and L-5's brought 2,150 sick and wounded men to Myitkyina for further evacuation by transport planes. Many of these patients came from Mogaung airstrip which was too swampy to permit C-47 landings. Ground officers could not adequately express their appreciation for the liaison pilots. "When we had wounded, no matter how tough the setup," said one of General Merrill's officers, "whenever we hollered, they came."<sup>28</sup>

Earlier in the North Burma campaign, the 803d Medical Air Evacuation Squadron generally evacuated casualties in its three regular C-47 hospital planes which belonged to ATC. As the fighting centered at Myitkyina and in the Mogaung valley, this policy had to be changed. The original three C-47's were worn out and were replaced in May, but one of the newer hospital planes soon crashed on takeoff at Myitkyina with <sup>27</sup>twenty-seven Chinese patients aboard. Two of the patients died, apparently from shock. Beginning in

May, moreover, there were too many patients for the hospital planes to handle. To meet the problem, the 803d Squadron devised a novel solution: each morning the hospital planes loaded extra technicians who were "spotted" at the transport fields in North Burma. The hospital plane picked up all patients who were ready when it arrived at a field. The technicians who remained behind got the patients who were brought to the field later on during the day loaded aboard troop carrier C-47's and accompanied them back to Ledo or Dinjan. If no patients turned up during the day, the technicians rode back to Ledo on an empty cargo plane late in the evening. Using these procedures, the 803d Squadron evacuated new monthly peak totals of sick and wounded patients: 5,781 in May, 5,162 in June, 4,735 in July, and 6,488 in August 1944. Earlier in the campaign, the 803d had evacuated mostly Americans and Chinese, but in July its personnel were also caring for the remnants of the 3 Indian Army--Chinits, British, Ghurkas, Kachins, and West Africans, who were taken to the British hospital at Dinjan.<sup>29</sup> When the capture of Myitkyina marked the beginning of the end of organized Japanese resistance in North Burma, the people of the air evacuation system could take pride in the highest possible praise they received for meritorious performance of their humanitarian and utilitarian mission.<sup>30</sup>

During the same months in which the main body of the 803d Medical Air Evacuation Squadron was working so hard at

Chabua, Flight C of the 803d found little employment for its specialties at Kunming. "That China flight," protested Major Kaplan, "has done absolutely nothing."<sup>31</sup> Because of its small size and continued reliance upon air base dispensaries, the Fourteenth Air Force evacuated only 392 patients by air up through April 1944. Most of these patients were moved by Fourteenth Air Force Transport Section C-47's while they were making regular runs. Medical technicians of Flight C sometimes provided care in flight but their main employment was in Fourteenth Air Force dispensaries. Early in its stay at Kunming, Flight C provided personnel to accompany patients being returned across the "Hump," but the 803d's personnel at Chabua soon took charge of these flights. With the expansion of the 95th Station Hospital at Kunming and the establishment of a disposition board there, only those patients who were being "boarded" to the United States had to cross the "Hump." Because of the dangers involved in "Hump" flights, moreover, flight nurses were not allowed to make trans-Himalayas flights as a matter of routine after the spring of 1944.\* Both as a

\*On 4 October 1944, having heard that flight nurses were still accompanying patients over the "Hump," General Stratemeyer wrote Major General Claire L. Chennault, Fourteenth Air Force Commander, that he did not believe it "advisable to subject these girls to the hazards of Hump flying." In reply, General Chennault thought "Hump" flying not nearly so dangerous as Atlantic crossings but he assured Stratemeyer that nurses crossed the Himalayas only in emergencies and such would continue to be the case. (Ltr., Stratemeyer to Chennault, 4 Oct. 1944 and Chennault to Stratemeyer, 18 Oct. 1944)

result of the situation and of policy, the six flight nurses of Flight C found themselves generally limited to ground duty where their services were most needed. General Stillwell had never been willing to allow Army nurses to go to China, and the Chinese nurses employed there could not always understand English. The flight nurses were thus invaluable for service in Fourteenth Air Force hospitals and dispensaries. Colonel Gentry kept three of them on virtually full-time duty in his dispensaries, and the other three were employed first at Kunming and then at a new hospital opened in May 1944 at Chengtu in a wing of the West China Union University Hospital.<sup>32</sup>

Even though medical air evacuation was sparingly employed in China during 1943 and early in 1944, at least two outstanding missions revealed the daring and efficiency of 803d Squadron personnel. Shortly after their arrival in China, while performing routine evacuation in a transport loaded with fuses, medical technicians passed over an auxiliary airfield when they saw a crippled B-25 which had been badly shot up during an East China Sea sweep. The C-47 landed and took aboard a badly wounded crewman, who was given medical care while the transport proceeded to the field at which the fuses were delivered. That evening the C-47 was knocked out by Japanese strafers, but the medical technicians cared for the wounded man through the night and

accompanied him to Kunming on another plane some days later.<sup>33</sup> In one of the most spectacular rescue-evacuation missions of World War II, Major Kaplan came from Chabua to head a rescue party which went by Jeep, pack animal, and finally by boat to remote Lanping, China, near the Tibetan border, to offer medical assistance to <sup>Lt.</sup> Lieutenant Robert Esselhoeft, who had been stricken with paralytic poliomyelitis while on a mapping expedition. Arriving at Lanping on 2 July 1944, Kaplan's party made an improvised respirator while coolies hewed out a crude runway which permitted Major F. G. Welch of the Fourteenth Air Force's 69th Composite Wing to fly in an L-5 and to evacuate Wesselhoeft to Yunnanyi Air Base. Major Welch flew the plane with one hand and worked the improvised respirator with the other. At Yunnanyi, 803d Squadron personnel took over and flew the patient to Calcutta, where he was placed in an iron lung and evacuated over Air Transport Command routes to Washington.<sup>34</sup>

3. All-Out Aeromedical Evacuation in China, Burma, and India.

During the summer monsoon season of 1944, both in Southeastern Asia and in China new command and organizational developments were under way looking toward a more effective prosecution of the war against the Japanese. Changes in the aeromedical evacuation system were in the offering.

Some three factors affected these reorganizations: the XX Bomber Command was deploying strategic B-29 Superfortress <sup>g</sup>in groups to bases at Ch<sup>h</sup>ingtu, China, for long-range assault against the Japanese homeland; Japanese ground armies were being worsted in North and North-Central Burma but other Japanese armies were advancing along the Hankow-Canton Axis in Central China; and the organization of the Eastern Air Command required readjustment to make it conform with its tactical responsibilities. Underlying all the reorganizations was the matter of national interests which had influenced organization in China, India, and Burma from the beginning of the war.

As a result, Generalissimo Chiang Kai-shek's insistence, General Stillwell was relieved on 18 October 1944, and in the following weeks the CBI was split into two theaters: <sup>14.</sup> Lieutenant General Daniel I. Sultan assumed command of U. S. Army Forces, India-Burma Theater on 27 October, and <sup>15.</sup> Lieutenant General A. C. Wedemeyer assumed command of U. S. Army Forces, China Theater, on 31 October. On 16 April 1944, General Stratmeyer had moved Headquarters, Army Air Forces, India-Burma Sector, CBI Theater from New Delhi to Calcutta and on 27 October 1944 the organization was necessarily renamed Headquarters, Army Air Forces, India-Burma Theater. Other reorganizations--of which those involving air transport and air evacuation squadrons were significant to

aeromedical evacuation--had preceded the division of the CBI theater. In order to augment the transport capabilities of the Fourteenth Air Force, General Stratemeyer transferred the 27th Troop Carrier Squadron to China in May. The 71st Liaison Squadron also sent a detachment to China which was the basis for the activation of the 19th Liaison Squadron. The Transport Section of the Fourteenth Air Force was augmented and redesignated as the 322d Troop Carrier Squadron on 9 September 1944.<sup>35</sup> In order to provide separate air task forces for operations in Burma, General Stratemeyer reorganized the Eastern Air Command on 20 June 1944. At this time, the U. S. Tenth Air Force was restored as a combat command under Major General Howard C. Davidson, and the 443d Troop Carrier Group (with the 11th Combat Cargo Squadron attached) was assigned to the Tenth Air Force for operations in North Burma. On 14 September, the Eastern Air Command organized the Combat Cargo Task Force to include the 1st Air Commando Group, the 1st Combat Cargo Group, and the RAF No. 177 Transport Wing. Under Brigadier General Frederick W. Evans, the Combat Cargo Task Force was responsible for providing support to the British Fourteenth Army. Upon their arrival in the theater, the 2d Air Commando Group and the 3d and 4th Combat Cargo Groups provided additional air transport capabilities which were from time to time allocated to the Tenth and Fourteenth Air Forces and to the Combat Cargo Task Force.<sup>36</sup>

Changes in the air evacuation system accompanied the other reorganizations in China, Burma, and India. From the start of operations in the theaters, Major Kaplan had been dissatisfied with the employment of Flight C, 803d Medical Air Evacuation Squadron in a ground mission in China, but Colonel T. C. Gentry, the Fourteenth Air Force Surgeon not only defended the employment but put through a request for the assignment of a separate squadron for China. In view of the overwork of the personnel of the 803d's flights in Assam, Lieutenant Colonel<sup>LT.</sup> Edward A. Abbey, ATC India-China Wing Surgeon on 30 June 1944, asked for the return of Flight C from China; General Stratemyer not only concurred in the request but asked General Stillwell for authority to assign the newly arriving 821st Medical Air Evacuation Squadron to duty in Assam. General Stratemyer stated that air evacuation personnel should be used for their primary function and not for the operation of hospitals and dispensaries, which was a Service<sup>S</sup> of Supply function. When it departed at Bombay on 5 July 1944, the 821st Squadron had Army Air Forces orders to go to the Fourteenth Air Force, and General Chennault stated that he wanted one of the squadron's flights immediately to operate the hospital which the Services of Supply had evacuated at Kweilin. Chennault also wished to redesignate the 803d's flight (which was working in the hospital at Chengtu) as an 821st

flight. Until they were needed in China, the other 821st flights could remain on duty in India. General Stratemyer was unwilling to agree that air evacuation units should be used for ground duties, and in the end he got his way. As a compromise, Stratemyer urged the Services of Supply to send American ground nurses to China. The personnel of Flight C, 821st Squadron proceeded by air to China and relieved Flight C, 803d Squadron which soon returned to Chabua. The 821st Squadron (less Flight C) was attached on 26 July to the ATC India-China Wing, and on 10 August it proceeded to Chabua where its personnel began to operate with the nurses and technicians of the 803d Squadron.<sup>37</sup>

Before April 1944, aeromedical evacuation in China had been quantitatively small, but, beginning in May 1944, the XX Bomber Command and the Fourteenth Air Force increasingly employed air evacuation in support of their respective missions. Arriving at Chengtu in April, Lieutenant Colonel<sup>17</sup> James H. Hammond, Surgeon of the Advance Echelon, XX Bomber Command, noted that the four-airfield complex was to be served by a provisional station hospital which Colonel Gentry was establishing at the West China Union University Hospital--six miles from the nearest of the airfields. The roads in the area were rough and nearly impassable in rough<sup>18</sup> weather. Each airfield was served by a new-type medical dispensary aviation, but these dispensaries had to have

some reliable means of evacuating to the larger station hospital in Chengtu. Colonel Hammond therefore submitted a request for the modification of two UC-45B utility transports as ambulance planes and for the services of two <sup>2-3</sup> 302d Medical Air Evacuation Squadron technicians. The first UC-45 arrived on 14 June, just in time to cover the ~~first~~ B-29 attack against the Japanese homeland. Subsequently the little transport plane was kept on constant alert at Chengtu, and in case of a crash or other necessary evacuation mission the hospital plane delivered patients to the airfield nearest the station hospital. During June, the UC-45 conveyed <sup>14</sup> fourteen sick and <sup>5</sup> five injured men to the Chengtu hospital. Because of fuel shortages the planes were restricted to use in real emergencies, but they carried an average of about <sup>16</sup> sixteen patients a month.<sup>38</sup> The evacuation of patients to general hospitals in India caused the Chengtu echelon of the XX Bomber Command little difficulty. At first, such seriously ill patients were usually flown out in a returning B-29 with one of the medical technicians accompanying them. To further this work, the 803d Squadron ~~evacuation~~ sent two evacuation teams to Chengtu on 6 September 1944. Thereafter, a nurse accompanied each load of seriously ill patients, while ambulatory or other patients not seriously sick were often accompanied only by a technician. Although the B-29's often flew at 23,000 feet altitudes crossing the Himalayas,

the planes were pressurized to a pressure altitude of 8,000 feet and none of the patients apparently suffered ill effects.<sup>39</sup>

After months of relative inactivity in China, Japanese ground armies on 26 May 1944 commenced an offensive south of the Yangtze River which would in a little more than six months open a land corridor from Hankow to Canton. In the summer of 1944, the Fourteenth Air Force lost five bases in central China, and still other airfields were in imminent danger of capture. Of necessity, all airfields in Central China and those <sup>a</sup>further east which were threatened with capture had to be evacuated of their sick and wounded. Only skeleton medical crews remained at the eastern base dispensaries. To meet the requirement, the Fourteenth Air Force replaced the flight nurses in the hospital at Chengtu with Chinese nurses and employed the full capabilities of Flight C, 821st Medical Air Evacuation Squadron in its primary duty. On a few occasions, B-24 and B-25 bombers evacuated casualties, but most evacuation flights were flown by the C-47's of the Fourteenth Air Force Transport Section (322d Troop Carrier Squadron) which delivered supplies forward from Kunming and returned patients to the station hospital there. In the roll-up of Central China bases between May and September 1944, the Fourteenth Air Force evacuated by air 623 sick and wounded men.<sup>40</sup>

The Japanese advance in China continued through the autumn and winter of 1944 and in February 1945 the Fourteenth Air Force lost the last of its airfields in East China. In April, however, the Chinese Sixth Army, which had been trained in Burma and flown back to China the previous autumn, with strong air support from the Fourteenth Air Force, met and defeated a Japanese ground offensive aimed toward Changking and Kunming. Even though ground fighting thus continued in China, the volume of aeromedical evacuation did not again reach the levels of the summer of 1944. In order to provide all "Hump" tonnage to the Chinese armies and the Fourteenth Air Force, the XI Bomber Command withdrew its forces from Chungtu bases in January 1945, thus ending air evacuation from this area. During the summer of 1944, moreover, the Fourteenth Air Force had evacuated most patients from forward-area dispensaries, and only new sick and wounded men had to be transported after that time. Flying out of Kunming aboard regular cargo planes, Flight C, 821st Squadron, provided care for 716 patients evacuated by air in the months from October 1944 to June 1945. Because of operational fatigue, the flight nurses were relieved from duty in the China theater on 1 June 1945. At this time, the Fourteenth Air Force planned that subsequent air evacuation would be attended by enlisted medical technicians with the help of

medical officers from the various bases, Except for one incident, Fourteenth Air Force air evacuation was relatively routine for the remaining war months. On 29 June 1945, the 95th Station Hospital at Kunming was flooded, necessitating the removal of patients. To meet the emergency, the AIC India-China Division sent forward two medical officers and <sup>25</sup>twenty nurses and technicians of the 803d Squadron who superintended the movement of 250 patients to the 142d General Hospital at Calcutta aboard the division's new C-54 aircraft. The ease with which so many sick and wounded men were flown across the high Himalayas was a fitting climax to air evacuation in China.<sup>41</sup>

In the last year of the war, aeromedical developments in the Southeast Asia Command and India-Burma Theater benefited from increased capabilities but generally followed the patterns which had become familiar. Two "systems" continued in effect: the "American system" utilized Air Transport Command and Tenth Air Force resources in support of the Northern Combat Area Command, and the "British system" employed the Combat Cargo Task Force in support of the British Fourteenth Army. In each of the combat areas of Burma, practically every sick and wounded man who was evacuated from the front<sup>\*</sup>lines to rear area hospitals was moved by air. After a steady build-up during 1944, medical air evacuation in India-Burma reached figures of almost 16,000 monthly during the first quarter of 1945.<sup>42</sup>

The reorganization of the Eastern Air Command announced by General Stratemeyer on 20 June 1944 and the arrival of the 821st Medical Air Evacuation Squadron in the theater on 5 July 1944 had a substantial effect upon the aeromedical evacuation system in Burma and India. Attached for the time being to the ATC India-China Wing on 26 July, the 821st Squadron (less Flight C) moved to Chabua where its personnel worked with the nurses and technicians of the 803d Squadron evacuating casualties from Burma and in India. In context with the theater air reorganization, General Stratemeyer's Army Air Forces, India-Burma Sector on 17 August 1944, designated its Surgeon, ~~Colonel~~ Clyde L. Brothers, as Theater Air Evacuation Control Officer and charged him to coordinate all air evacuation activities within the theater. The ATC India-China Division was made responsible for all intra<sup>theater</sup> air evacuation from station hospitals to general hospitals, and its Surgeon, <sup>Lt.</sup> ~~Lieutenant Colonel~~ Edward A. Abbey, was designated Assistant Air Evacuation Control Officer and instructed to coordinate all air evacuation activities along ATC routes in China and from China to India. As had been the custom, the Fourteenth Air Force remained responsible for air evacuation within China, but the Tenth Air Force was now made similarly responsible for all air evacuation within its operational area in North Burma. According to

this concept, transport aircraft of the Tenth Air Force (and, by implication, those of the Combat Cargo Task Force) would not evacuate casualties further into the communications zone than their own base of operations.<sup>43</sup> The separation of the China and India-Burma Theaters on 27 October 1944 did not change this overall organization: Colonel Brothers became Surgeon, Army Air Forces, India-Burma Theater, and continued to be the Theater Air Evacuation Control Officer. The ATC India-China Division continued with its responsibilities and the Tenth Air Force and Combat Cargo Task Force were responsible for air evacuation within their areas of operational responsibility.<sup>44</sup>

Although announced in August 1944, the division of air evacuation responsibilities in North Burma between the ATC India-China Wing and the Tenth Air Force did not actually take effect for several months. There were several reasons for this, the principal reason being that the campaign to clear Burma of Japanese forces as far south as Lashio could not begin until the summer monsoon ended. Using familiar techniques which included the ATC hospital planes (two C-47's and two C-46's) supplemented when necessary by troop carrier planes, the 803d and 844th Squadrons shared medical air evacuation trips during the autumn and lifted patients from Myitkyina and Tinkaw Sakan to Shingbuiyang, Ledo, and Chabua each day. Periodic flights from

Chabua to Ranchi, and from Calcutta to Karachi continued. With the establishment of disposition boards at the 95th and 111th Station hospitals in August patients no longer had to be transferred from Assam to the 263d General Hospital at Calcutta, but could be flown directly to Karachi. To handle the trip from Calcutta to Karachi, however, the 803d Squadron maintained a detachment at Calcutta. Operating far below peak capacity, the 803d and 821st Squadrons evacuated 2,674 patients in September and 2,956 in October.<sup>45</sup>

Having established its forces in the Myitkyina area, the Northern Combat Area Command in mid-October 1944 launched the U. S. 5332d Brigade, the British 36 Division, and the Chinese First and Sixth Armies on a drive to clear North Burma. As the campaign got underway, General Davidson moved Tenth Air Force headquarters to Myitkyina on 13 November, and, on 26 November the 821st Medical Air Evacuation Squadron (less Flight C) was attached to the Tenth Air Force. Within a few days, the 821st Squadron moved to Ledo where it began to work with the 443d Troop Carrier Group. During November, the 803d and 821st continued to work together and offered flight care to 3,017 patients evacuated from Burma to India and intra-India. After its months of apprenticeship to the 803d Squadron, the <sup>821st</sup>~~811th~~ Squadron had its own job in Burma in December, and it was

also required to furnish personnel for the ATC trans-India evacuation. Because of exhaustion from combat flying, all nurses and three flight surgeons of the 803d Squadron were returned to the United States, and the 821st placed a medical officer, nine nurses, and nine technicians on duty with the 803d Squadron for the regular trans-India evacuation flights. When they assumed responsibility for the Burma evacuation, the Tenth Air Force and 821st Squadron employed two 315th Troop Carrier Squadron C-47's as hospital planes for shuttle trips to strips where casualty densities were greatest. Each day a "West Run" hospital plane flew to Sahmaw and Mawlu, and an "East Run" hospital ship flew to Monauk, Bhamo, and Myitkyina. The evacuation fields were as far forward as C-47's could land; late in December, Mawlu was discontinued as an evacuation field in favor of Katha which had recently been put into operation. Each plane carried a flight surgeon, two flight nurses, and three to four medical technicians. Chinese casualties were taken to Shingbujiyang; British, Indian, and Burmese casualties to Dinjan; and American casualties to the 20th General Hospital at Lodo. Both trans-India and from Burma, the 821st Squadron evacuated 3,434 sick and wounded men in December 1944.<sup>46</sup>

As had been the case in earlier Northern Combat Area Command campaigns, liaison pilots provided shuttle services

from almost any relatively flat jungle clearing in the frontlines during the drive toward Lashio. Preparatory to the campaign, the Tenth Air Force placed the 5th and 71st Liaison Squadrons under the 1st Liaison Group (Provisional) and, having arrived from the United States, the 115th Liaison Squadron began operating under the improvised group on 24 November 1944. Based far forward with detachments at hurriedly-cleared landing grounds which were often under enemy fire, the liaison pilots flew L-1, L-4, and L-5 aircraft to evacuate 157 patients in October, 959 in November, and 482 in December 1944. In theory the little puddle-jumper aircraft were supposed to require 1,000-to 1,500-foot strips for landings and takeoffs but on numerous occasions (mostly rescue or evacuation missions) all three types of planes were flown in and out of improvised strips less than 500 feet long under decidedly unfavorable circumstances.<sup>47</sup>

Late in December 1944, the Chinese Sixth Army with its 14th and 22d Divisions had to be flown to China to defend Kunning against an apparently impending Japanese ground offensive, but the Northern Combat Area Command's campaign in North Burma continued southward against bitter but dwindling Japanese resistance. Liaison pilots evacuated 1,313 casualties in January, 791 in February, and 473 in March 1945.<sup>48</sup> Using the two regularly scheduled medical

evacuation C-47's in January, the 821st Squadron made daily evacuation flights to Myitkyina, Mawzin, Yanbo, and Katha, and to Myitkyina, Bhamo, and Panghsan. When necessary, the medical air evacuation flights dropped technicians off at some of these forward airfields to accompany patients dispatched later in the day in cargo C-47's. The squadron evacuated 2,419 patients from Burma and 748 within India during January 1945. Relieved of the trans-India routes by the arrival of 203d Squadron replacements early in the month, the 821st Squadron pushed its two scheduled air evacuation circuits as far south as Baha and Kutkai to evacuate 3,489 patients during February 1945. The capture of Lashio on 7 March and Mong Hsat on 9 March virtually ended the North Burma campaign. Extending its operations into Mong Hsat, Monglong, and Lashio, and now using two new C-47 hospital planes--"The Holly Cholly" and "The Miss Nightingale II"<sup>1</sup>--the 821st Squadron evacuated 2,823 patients to hospitals in Bhamo, Myitkyina, and Lashio during March 1945. As the campaigning in North Burma drew to a close, the 821st Squadron used only "Miss Nightingale II" during April to clear 1,021 patients out of forward area hospitals. In May, the 821st continued to fly the single plane on the route Shinbuiyang, Tingkawh Sahan,

<sup>1</sup>"The Miss Nightingale II" had been purchased and given to the AAF for use as a hospital plane by the Women Pioneers Association of America.

Myitkyina, Bhamo, Lashio, but only 826 patients were evacuated. With mixed emotions on 29 May 1944, the 821st's nurses received their orders to return to the United States. American and Chinese ground operations were ending in Burma.<sup>49</sup>

Concurrently with the American and Chinese air-ground campaigns in North Burma, General Slim's British-Indian Fourteenth Army was engaged in liberating Central Burma, the Arakan, and finally South Burma, including the port of Rangoon, from Japanese occupation. Providing air transport and troop carrier support to the British ground forces was the responsibility of the Anglo-American Combat Cargo Task Force, organized at Comilla on 14 September 1944 under command of Brigadier General Frederick W. Evans. In accordance with Admiral Mountbatten's wishes, the Third Tactical Air Force was inactivated on 21 November 1944, and thereafter the RAF No. 221 Group provided tactical air support to the XV Corps in the Arakan and the No. 224 Group to the Fourteenth Army.<sup>50</sup> In the planning stage for the British campaigns, considerable attention was given to all aspects of medical air evacuation from Burma. In order to maintain the high morale of troops in extended campaigns it was highly desirable that casualties should be evacuated from the frontlines as quickly as possible. Up until June 1944, the RAF had not been able to take over its

assigned responsibility for air evacuation in Burma, but, in July, the Air Ministry undertook to supply personnel which would permit the eventual organization of nine Casualty Air Evacuation Units--No. 7 through No. 15 CAEU's-- which were to handle the sick and wounded of all services who were to be evacuated by air. Each CAEU comprised a RAF medical officer, about forty RAF medical airman, and varying numbers of Indian personnel. Each unit could hold overnight up to 200 patients at a dispatching or receiving airfield, and, an Air Ambulance Orderly Pool on the base transport airfield was to provide nursing orderlies on every designated aircraft evacuation trip.<sup>51</sup>

The organization of the aeromedical evacuation system centered at the Combat Cargo Task Force headquarters in Comilla, where Squadron Leader Gordon Evans reported as RAF Senior Medical Officer in charge of medical air evacuation. Squadron Leader Evans would have liked to have had special ambulance aircraft allotted, but Air Ministry policy and shortages of transports prevented this. To handle the Army responsibilities for air resupply, the combined Army Air Transport Organization (CAATO) had its headquarters with the Combat Cargo Task Force. Each fortnight, the Fourteenth Army and XV Corps notified CAATO of its projected requirements for casualty evacuation and a necessary number of C-47 sorties were allocated as

"designated aircraft evacuation sorties," which evacuated casualties after landing personnel or supplies in the forward areas. If casualties at forward airfields exceeded projections, the Army or Corps notified CAATO by priority signal 48 hours in advance specifying the number of sitting and lying casualties to be lifted.<sup>52</sup> At mid-afternoon each day the Combat Cargo Task Force notified responsible CAEU's of the estimated time of arrival of designated evacuation aircraft on the following day. Recognizing the inefficiency of employing liaison planes to lift single casualties, the Eastern Air Command hoped to make maximum use of C-46 or C-47 aircraft for casualty evacuation from advanced airheads. As a matter of policy, Army units were charged to develop liaison strips into transport strips as quickly as possible and to make maximum use of vehicular jeep ambulances to transport patients to transport airheads. Beginning in September, however, the RAF was allocated a total of 100 L-5 liaison planes, and the Air Command Southeast Asia allotted eight L-5's to each RAF transport squadron together with additional pilots and maintenance personnel. These planes, together with those of the RAF communications squadrons and the liaison squadrons of the 1st and 2d Air Commando Groups, would be available for front<sub>l</sub>ine evacuation to forward transport airstrips. It was assumed that Army units would

build forward liaison strips and signal firm numbers of casualties to be lifted from them, permitting an adequate number of L-5's to be flown forward to accomplish the task.<sup>53</sup>

Up until September 1944, 48,784 British casualties had been evacuated by air from Burma and in support of British Fourteenth Army campaigns in Central Burma, the Arakan, and to Rangoon between September 1944 and the end of May 1945 an additional 99,684 casualties were evacuated by air from forward airstrips to Comilla, where the patients were forwarded by surface transport to other hospitals. Although aeromedical evacuation thus made an integral contribution to the allied victory in Burma, the system did not work out exactly as planned. A large number of light aircraft were supplied for casualty-handling duty, but only about one-third of the total number of casualties evacuated were lifted by light aircraft, while two-thirds were evacuated by standard transports.<sup>54</sup> Early in the campaign, monsoon floods of September prevented the employment of liaison planes since forward strips were underwater, but the clearing weather of October 1944 brought an appreciation that the projected employment of liaison sections of RAAF air transport squadrons was too ponderous to be practicable. The Third Tactical Air Force pointed out that the employment of light aircraft depended upon a rapidly changing tactical situation and that it was not practicable

to control and operate light aircraft in the manner of transport squadrons at remote bases. Accordingly the AAF liaison squadrons and the RAF communications squadrons handled frontline evacuation.<sup>55</sup> Had the war continued into Malaya the RAF proposed to form liaison aviation personnel and planes into independent self-sufficient flying units to reinforce group communications squadrons for casualty evacuation.

In support of its campaigns, the British Fourteenth Army's policy was to locate airfields approximately <sup>50</sup>fifty miles apart along the line of advance of each of its corps. According to plan, the Casualty Air Evacuation Units should have been responsible both at emplaning and disemplaning airfields, but these RAF units suffered from scarcities of personnel and equipment and were slow to become operational. At the end of March 1945, only two CAEU's had become operational, but most of the other units began work in mid-April 1945. The number of nursing orderlies in the air ambulance orderly pool at Comilla was so short that it was not unusual for these men to fly up to 200 hours a month.<sup>56</sup> Despite the scarcity of required RAF medical technicians, the deliveries of casualties to India in the same C-46 or C-47 transport plane that had carried supplies to Burma proved completely practical. In the older C-47's warped stretcher brackets

caused some trouble, but newer C-47's with web<sup>p</sup> fittings gave no difficulty. From October 1944 through May 1945, Combat Cargo Task Force transports evacuated more than 68,500 casualties from Burma. Only one patient died in flight, and the only accident occurred on 24 June when a C-47 crash carried twenty-four patients to their death. Those were small losses when compared to the deaths which would have resulted had air evacuation not been available.<sup>57</sup>

Effective in late November 1944, when the Tenth Air Force assumed responsibility for aeromedical evacuation in North Burma, the India-China Division, Air Transport Command remained responsible only for inter-theater evacuation between China and India and for intra-theater evacuation which included flights connecting Ledo, Chabua, Calcutta, and Karachi with necessary way stops. Employing especially designated C-46's and C-47's as hospital planes, the India-China wing evacuated Chinese patients from Ledo to Rangahr; shuttled American patients between Ledo, Chabua, and Calcutta; and carried Americans dispositioned to the United States between Chabua and Calcutta and Karachi. When it began to fly C-54 aircraft from Bengal to Kunming late in 1944, the India-China Division lifted patients dispositioned from China directly to Barrackpore where they were turned over to the 142d General Hospital in Calcutta. Plans were also made to utilize C-54 aircraft

returning to the United States to evacuate patients from Calcutta to Karachi, but the arrival and departure of these planes was too uncertain.<sup>58</sup> Air evacuation over the Himalayas from China was not regularly scheduled but was provided on demand. The India-China Division also accomplished emergency air evacuation whenever the necessity arose.

During January 1945, when the 803d Medical Air Evacuation Squadron was temporarily bereft of flight personnel, the India-China Division held strictly to its scheduled air evacuation routes and lifted only 166 patients. Early in February, however, replacement flight surgeons and flight nurses reported to the 803d Squadron and were stationed at Chabua and at the detachment kept at Dum Dum Airfield, Calcutta. The latter detachment handled two weekly evacuation flights from Calcutta to Karachi. Because of an increased flow of dispositioned cases over the Calcutta to Karachi route, air evacuation totals of the India-China Division rose to 340 patients in February and 258 in March. In mid-April, the 803d's commander was requested to evacuate 460 Chinese patients from Rangahr to Ledo and the task was smoothly accomplished at a rate of 100 patients a week without interfering with routine evacuation. As a result, 686 patients were lifted in April and 549 in May. With the conclusion of the Allied

campaign in Burma, the India-China Division lifted 454 patients in June and 1,085 in July. The latter month's total reflected the emergency movement of 250 men from Kunning's flooded hospital to Calcutta. Following the surrender of Japan, the India-China Division generally assumed responsibility for evacuation in both Burma and China. The evacuation of recovered prisoners of war from China, Java, Sumatra, Saigon, and Singapore swelled August evacuation totals to 1,273 patients and September totals to 1,181. Using C-54 aircraft for most evacuations in these last months of World War II, the 803d Squadron efficiently accomplished requirements laid upon it. On 4 October, for example, 368 patients were evacuated from Kunning to Calcutta in one day. At the conclusion of September's evacuations, Colonel Oliver K. Niess, now the India-China Division Surgeon, could report that "air evacuation was accomplished in a highly satisfactory manner."<sup>59</sup>

4. Air Evacuation Supports the Attack toward the Philippines

In support of Allied counteroffensives in the South and Southwest Pacific theaters of operations aeromedical evacuation of casualties had begun on an improvised basis in 1942. Arriving in the South Pacific in February 1943, the 801st Medical Air Evacuation Squadron had been attached to the

South Pacific Air Transport Command for operations during 1943. Reaching the Southwest Pacific in June 1943, the 804th Medical Air Evacuation Squadron ultimately moved forward first to Port Moresby and then established an echelon at Madzab in New Guinea. The 804th Squadron was assigned to the Fifth Air Force's 54th Troop Carrier Wing. In both theaters during 1943, the two evacuation squadrons had given good service despite the newness of the air evacuation technique and a general distrust of it by many air and ground officers. Medical air evacuation squadron personnel in the Solomons and in New Guinea were forced to sell their services to medical officers who were often reluctant to dispense with less-efficient but time-tested surface evacuation of casualties.

Although the personnel of the <sup>80</sup>801st and 804th Medical Air Evacuation Squadrons doubtless did not know the grand strategy involved, forces of the Southwest Pacific in southeastern New Guinea and those of the South Pacific in the Solomons were fighting along converging axes in order to isolate the Japanese stronghold at Rabaul, New Britain, early in 1944 and prepare the way for a drive to the Philippines. Both the 801st and 804th Squadrons were gaining experience which would better qualify them to support harder fighting ahead, but, inasmuch as most of the South Pacific forces would be assigned to the Southwest Pacific

Area during 1944, the system and techniques for aeromedical evacuation worked out by the 804th Squadron would be used in the ultimate battle for the Philippines.

Looking back over his first several months experience, Major Walter S. Miller, Jr., commander of the 804th Medical Air Evacuation Squadron, remembered that school officials at Bowman Field had not been able to answer the riddle of how an air evacuation squadron ought to be assigned and controlled in a theater of operations. The air evacuation service was too new for the school officials to have any answers on this subject.<sup>60</sup> Since the United States Army Services of Supply (USASCS) was responsible for all patient evacuation in the Southwest Pacific Area, the 804th was initially assigned to this organization. USASCS ordered each of its logistical base commanders to provide local air evacuation flight surgeons with daily rosters of patients requiring air evacuation and to provide strip-side shelters and necessary transportation to meet incoming planes. On 16 October 1943, the 804th Squadron was finally assigned to the Fifth Air Force, which promptly assigned it to the 54th Troop Carrier Wing. Since the 54th Wing considered air evacuation to be an integral part of its mission, the assignment was in some ways appropriate. The Fifth Air Force, however, was made the responsible headquarters for "the planning and execution of transportation

of patients by air" and "coordination with the USASOS of movement of patients by air." In line with this responsibility, the Advanced Echelon, Fifth Air Force requested the assignment of the 804th directly to it, but the Fifth Air Force wished to keep the advanced echelon free from administrative responsibilities and disapproved the request. Arrival of a second medical air evacuation squadron and the organization of a Royal Australian Air Force evacuation unit in the spring of 1944 caused the Advanced Echelon of the Fifth Air Force to request the organization of a medical air evacuation group headquarters to provide centralized management for air evacuation. The Fifth Air Force refused to consider the proposal and ruled that the 54th Troop Carrier Wing's Surgeon was "directly responsible for the central control supervision and operation" of the 804th and 820th Medical Air Evacuation Squadrons. An Air evacuation board later pointed out that the Surgeon, 54th Troop Carrier Wing was untrained in air evacuation and was "hardly in a position to effect proper coordination between General Headquarters SWPA, USASOS, and Air Force Headquarters and the Air Evacuation Squadrons."<sup>61</sup>

Lacking a centralized controlling agency which could have coordinated air evacuation capabilities and requirements with USASOS and the U.S. Sixth Army (which was beginning operations in New Guinea) the 804th Medical Air

Evacuation Squadron in early 1944 continued to maintain its headquarters and main body with the 54th Troop Carrier Wing at Port Moresby and to maintain detachments at Nadzab and Finschhafen. The forward detachments placed nurses and technicians aboard troop carrier planes bound for the combat airstrips in the Markham and Ramu Valleys of New Guinea and for Cape <sup>3</sup>Alon<sup>u</sup>cester on New Britain. The main body at Port Moresby made forward flights to New Guinea bases in 54th Wing planes and also evacuated long-term hospital patients aboard Directorate of Air Transportation<sup>2</sup> planes to general hospitals in Australia. Although American patients flowed rearward from Cape <sup>3</sup>Alon<sup>u</sup>cester, most of the 7,588 patients evacuated in January and the 3,850 patients evacuated in February 1944 were Australian casualties from Markham and Ramu valley fighting. Especially in the forward areas death often brushed close to air evacuation personnel, but it did not take its first victims until 6 March 1944 when Lieutenant Gerda Mulack and Sergeant Ralph Mowry were lost aboard a C-47 between <sup>1</sup>Nadzab and Saidor.<sup>62</sup>

Unknown to the 804th Squadron's personnel, who only suspected that the pull in ground operations during February 1944 was a harbinger of heavy fighting ahead, General Douglas MacArthur was preparing to spring the U. S. Sixth Army loose on a series of invasions up the northeastern coast of New Guinea. In a surprise amphibious landing on

Los Negros Island in the Admiralties on 27 February, the U. S. 1st Cavalry Division touched off the northward attack. Knowing nothing of this impending invasion, the 804th Squadron had no plans for evacuating casualties from Los Negros but, on 25 March, Captain Geoffrey P. Wiedeman went from Nasaab to Momote Airfield to arrange formal air evacuation channels instead of the hit-or-miss procedure used up until then. Since Japanese fighters were feared, the 804th for a few days in early April evacuated patients from Momote aboard several old E-17 planes which the 54th Wing often used for troop carrier work in dangerous areas. With the establishment of fighter cover, C-47's soon took over the task. Also indicative of expanding campaigns and requirements for air evacuation was the arrival of the 820th Medical Air Evacuation Squadron at Milne Bay from the United States on 13 March. Subsequent to the assignment of the 820th to the 54th Troop Carrier Wing, the 820th's nurses flew to Port Moresby on 19 March to work with the 804th Squadron. On 27 March, Captain Hugh M. Crum<sup>a</sup>ay, an experienced flight surgeon of the 804th, took command of the 820th Squadron, and, on 4 April, the 820th completed a movement to Port Moresby. The 804th Squadron proceeded to Nasaab on 6 April, where the Advance Echelon, Fifth Air Force and the 54th Troop Carrier Wing had located their headquarters and were planning air participation in the

campaigns to come. Except for the new incidence of 806 casualties lifted from Monote, March was a relatively quiet month for air evacuation and only 3,630 patients were evacuated by air.<sup>63</sup>

Early in April, the 54th Troop Carrier Wing's medical air evacuation procedures began to be affected both by impending operations in the forward areas and by the beginning of a roll up of logistical installations in Australia. Before this time, 804th Squadron air evacuation leaders had seldom learned about impending operations before they took place. Very little advance planning, if any, was done for aeromedical evacuation from a new base before it was captured, despite the fact that air evacuation was generally needed <sup>most</sup> ~~fast~~ in the early stages of an operation. Learning of the forthcoming invasion operations scheduled for Aitape and Hollandia, Major Miller arranged to send small air evacuation parties headed by Captain Lee Snycer and Captain Thornton Boileau in with the landing forces at Hollandia and Aitape. These air evacuation parties landed on 22 April, but found little to do amidst the confusion ashore. At both places casualties were amazingly light, and, at any rate, the air evacuation parties could do nothing until airfields were captured and repaired. The first casualties were airlifted from Tadji Airfield at Aitape on 29 April, and, on 30 April, an evacuation began from Cyclops Airfield

inland from Hollandia. Although they had learned a good bit about Army operational problems, Captains Snyder and Boileau agreed that their presence in the invasion areas had not hastened air evacuation.<sup>64</sup>

Early in April, while the 303d Squadron was concerned about Hollandia and Aitape, the 820th Medical Air Evacuation Squadron was concerned over logistical changes in the rear areas. To support operations on the northern coast of New Guinea, USASOS was developing major hospital centers at Finchhafen and Lae. Early in the month, air evacuation from Port Moresby to Australia ceased, except for special missions which could be flown in Directorate of Air Transport planes with medical attendants provided by Australian hospitals. On 20 April, moreover, aeromedical evacuation across the Owen Stanley mountains to Port Moresby was also discontinued. Since it now lacked employment<sup>at</sup> Port Moresby, the 820th Squadron moved to Nadzab on 9 May where its personnel began to work under the management of the 304th Squadron. Some Australian personnel were already working with the 304th Squadron, and, in July, the newly organized RAAF No. 1 Medical Air Evacuation Transport Unit would bring its two flight surgeons, ~~fifteen~~<sup>five</sup> nurses, and ~~thirty-five~~<sup>five</sup> airmen to Nadzab to work with the 304th Squadron.<sup>65</sup>

At the air evacuation center in Nadzab, Major Miller now possessed a strong capability for evacuating patients

from forward-area invasion objectives. As yet, however, the 804th Squadron had not found the answers to two problems. Sixth Army combat surgeons had little appreciation of the advantages and requirements of medical air evacuation. The 804th, moreover, still needed some means of reducing the interval between an invasion and the beginning of organized air evacuation from the new base. Even before Captains Snyder and Boileau had returned from their expeditions at Hollandia and Aitape, it was beginning to be evident that an early beginning of organized air evacuation from an invasion point depended upon reliable communications established very early. The 54th Troop Carrier Wing on 21 April adopted a plan which solved the communications problem: two of the first C-47's to land at a new airfield would transport a small wing radio section which would immediately open communications with wing headquarters. Fifth Air Force air liaison parties which accompanied all invading task forces were also instructed to forward requests for medical air evacuation as soon as they got ashore and learned of them. Another communications plan assisted the base surgeons at Lae and Finschhafen in preparing to meet evacuation aircraft. The 54th Wing's operations officer agreed to specify planes which would be backloaded with air evacuees and to report the estimated times of arrival of the evacuation flights at Nadzab or

Finchhafen. If an estimated time of arrival went away in the air by more than an hour, the flight leader of the evacuation flight was instructed to report a new time to the nearest fighter sector which forwarded the information. So far as Major Miller could tell, the air evacuation system was prepared for the hard and bloody campaigns to come.<sup>66</sup> Now only one problem of air evacuation remained unsolved: how to teach Sixth Army units the advantages and requirements of air evacuation. Reporting that "Sixth Army units seemed totally ignorant of our services," and noting that existing theater directives concerned only rear-area evacuation, Major Miller submitted through channels on 16 May a suggested directive which proposed to make the Fifth Air Force and Sixth Army mutually responsible for preparing an air evacuation plan prior to each new invasion.<sup>67</sup>

The new plans for aeromedical evacuation were soon subject to test, for General MacArthur ordered an almost immediate advance from Hollandia to little Wakde Island and the adjacent Sarani coast, with a D-day of 18 May, and a further advance to Biak Island, with an invasion date of 27 May 1944. Everything worked splendidly at Wakde. Captain Howard H. Grady took an 620th Squadron Detachment there on 25 May and made arrangements for a holding station on the airstrip. Air evacuation nurses accompanied

four C-47's forward on 26 May and evacuated the first casualties. The fight on Jakde itself produced few wounded but soon wounded men from the <sup>S</sup>Zardi coast were brought to the island airstrip and sent southward.<sup>68</sup> American troops landing at Biak on 27 May, however, encountered fanatical Japanese resistance. Mite-borne scrub typhus of a type not previously met, appeared in epidemic proportions. Captain David D. Fried of the 804th Squadron had bid for the job of taking an air evacuation detachment to Eosnek Airfield on Biak, but for many days the Japanese shelled the strip and prevented its use. While awaiting an opening at Biak, the main personnel of the 820th Squadron moved to Hollandia on 13 June to prepare for all-out air evacuation as soon as Eosnek was secured or a new airfield was completed on Cwi Island, adjacent to Biak. Arriving at Biak on 20 June, Captain Fried soon discovered that the 92d Evacuation Hospital located on Cwi was overflowing with patients, some of whom had no beds and were still on their stretchers. Learning of the crisis, the 820th staffed fourteen C-47's at Hollandia and sent them to Cwi on 21 June. To the consternation of the flight surgeon, however, the U.S. I Corps Surgeon would not permit air evacuation. A hospital ship was scheduled to arrive on 25 June. According to Captain Fried, the Corps Surgeon said that "the boys would want beer which would be served on the hospital ship."

The air evacuation crews returned empty-handed. From 26 to 28 June, aircraft were used to <sup>or</sup> move patients, but on the latter date the evacuation officer of the 92d Hospital told Fried that he again had orders to hold all patients for a hospital ship that would arrive about 1 July 1944.<sup>69</sup>

The experience at Cwi convinced the Fifth Air Force that Eighth Army and USASOS <sup>o</sup> medical installations were not making effective use of aeromedical evacuation. Statistics of patients airlifted told the same story: despite active campaigning, only 2,839 patients had been airlifted in April, 2,594 in May, and 3,885 in June. Air evacuation surgeons (including General Grant) thought it astounding that men could be held for several unnecessary days in an overcrowded field hospital in danger of ~~hospital~~<sup>the</sup> air attack when they could have been flown to a definitive hospital within hours.<sup>70</sup> This was the lack of understanding which Major Miller had sought to overcome, but Major Miller unfortunately would not be able to take a protest to the Eighth Army. Asked to convey a special load of eighteen psychotic patients from Madzab to Milne Bay, Major Miller, <sup>LTJG</sup> Lieutenant Kathleen R. Dial, and Sergeant C. C. Ramsey were aboard a C-47 which ran into bad weather west of the Owen Stanleys and eventually had to crash land on Fisherran's Island near Port Moresby. Most of the patients were strapped down and escaped harm, but the three

medical attendants were severely injured and had to be evacuated to the United States.<sup>71</sup> Captain Geoffrey F. Niedeman took command of the 804th Squadron, and, on 6 July, Niedeman and Captain Crunay, commander of the 820th Squadron, went to Finschhafen to discuss air evacuation with the Sixth Army's Surgeon. The surgeon was in Hollandia, but they presented their case to the Sixth Army's evacuation officer. They argued that air and water evacuation had to be coordinated. Because troop carrier planes operated in the forward areas, they could most efficiently evacuate casualties there. The hospital ships ought to be evacuating the base section hospitals to still more rearward areas. Because both planes and ships were evacuating in the forward zone, the base section hospitals at Finschhafen and Lae were overcrowded. The Sixth Army evacuation officer had already reached these same conclusions and agreed that forward-area evacuation could best be performed by air.<sup>72</sup>

As Southwest Pacific landings on Newber Island on 2 July and at Cape Sansapor on 30 July 1944 marked a successful conclusion of the New Guinea campaign, the 54th Troop Carrier Wing's medical air evacuation squadrons encountered increasing demands for their services and new problems deriving from the long distances which patients had to be flown. Early in July, Captains Niedeman and

Crumay agreed that the 820th Squadron would establish all its personnel at Hollandia and handle the air evacuation of any place forward of Hollandia. For the time being, the 804th and the RAAF No. 1 Unit would handle air evacuation from Wakde, Tadjil, Iae, and Madzab. This would continue until such time as it was appropriate for the 804th Squadron to "leap frog" forward to Biak, where USA303 was going to build a new hospital center in preparation for the initial stages of the Philippines invasion. According to agreement, the 820th Squadron sent the air evacuation detachments to Hounfoor and Sansapor, and on 7 August it moved its nurses to Hollandia, thus undertaking completely independent operations. In view of the long distances between the forward outpost at Cape Sansapor and the general hospital at Lae and Finschhafen, the 87th Station Hospital was established at Hollandia as the first <sup>9</sup>in-transit air evacuation hospital in the Southwest Pacific. The purpose of the hospital was to hold transient patients overnight. Some hospital ships continued to work in the forward area, but air evacuation totals nevertheless inclined upward to 5,926 patients in July and 8,279 in August 1944.<sup>73</sup>

In the first three-quarters of 1944, while the 804th and 820th Squadrons were evacuating casualties of war in New Guinea, the veteran 801st Medical Air Evacuation Squadron served with Marine medical personnel to perform

211

the same function in the South Pacific battlezone. Like the 403d Troop Carrier Group, the 801st was assigned to the Thirteenth Air Force, but both organizations were under the operational control of the South Pacific Air Transport Command (SCAT), which was a Marine command. Personnel of the 801st often fretted during 1943 with the way that the Marine command managed air evacuation in the Solomons, but eventually the squadron resigned itself to furnishing personnel to a system that it did not control. Two factors probably influenced the happier relationships: on 12 December 1943, Captain Wilbur A. Smith took command of the 801st and he subsequently established excellent mutual relations with Colonel A. C. Koeneke, USMC, who became SCAT commander in January 1944. In the early spring of 1944, most of the 801st's original flight surgeons and flight nurses were rotated to the United States and replaced by new people. Stationed at Embarras Strip Two at Espiritu Santo, New Hebrides, until 8 May 1944, when it moved to Guacalcanal, the 801st Squadron provided flight attendance for 12,061 patients transported in Air Force and Marine planes during the months of January through May 1944. Only one tragedy marred the record of the 801st in the period: on 18 May a Marine Air Group 25 C-47 with Lieutenant <sup>1st Lt.</sup> Eloise M. Richardson aboard disappeared on a flight out of Bougainville. The plane was not carrying patients at the time.<sup>74</sup>

The formal transfer of the Thirteenth Air Force from the South Pacific to the Southwest Pacific coincident with the activation of the Far East Air Forces on 15 June 1944 marked the beginning of a transitional period of activity for the 801st Medical Air Evacuation Squadron. The old South Pacific Air Transport Command was dissolved on 3 July 1944, and concurrently the Solomons Combat Air Transport Command (also abbreviated as SCAT) was established to comprise Marine transport squadrons VMJ-152 and VMJ-153. The new SCAT was charged to maintain required air transport between Guadalcanal and the Admiralties until the Air Transport Command took over the route. Not knowing the exact fate of his squadron, Major Wilbur Smith chose to continue to operate as before with SCAT and to bring patients from Elira, Green, Bougainville, New Georgia, and the Russell Islands. The activity proved important when the hospitals in the Russells filled up with patients brought there by ship from the fighting in the Marianas. Receiving sudden orders to move by water transport from Guadalcanal to Biak on 17 September, the 801st Squadron sent its equipment forward but continued in operation in the South Pacific until 14 October 1944. In its interim operations in the South Pacific between 1 June and 14 October the 801st cared for 4,888 patients in flight. Having established its camp at Biak, the 801st Squadron

was attached to the Fifth Air Force and the 54th Troop Carrier Wing effective 7 October 1944.<sup>75</sup> Within a few days, Major Smith learned that his veteran squadron would soon be engaging in operations in the Philippines.

5. Aeromedical Evacuation Realizes its Potentialities in the Philippines

Several more months of preliminary operations lay ahead, but the basic air reorganizations looking toward the invasion of the Philippines began with the activation of the Far East Air Forces on 15 June 1944. Lieutenant General George C. Kenney assumed command of the Far East Air Forces, and the former Fifth Air Force Headquarters in Brisbane, Australia, became the Headquarters of the Far East Air Forces. The old Advance Headquarters, Fifth Air Force became Headquarters, Fifth Air Force. The Far East Air Force's other major air force--the Thirteenth--was coming from the South Pacific in several increments. As a result of the new designations, Colonel Robert E. Simpson (who had succeeded Colonel Bascom L. Wilson on 11 March 1944) became Surgeon of the Far East Air Forces and Lieutenant Colonel Alonzo Elavers became Fifth Air Force Surgeon.<sup>76</sup> Even though the top-level Far East Air Forces should have seemingly been able to pursue more vigorous policies in regard to the management of aeromedical evacuation, such was not the case. All evacuation

of casualties was the province of the USAFCS theater surgeon, and, as late as March 1945, Colonel I Simpson stated that neither he nor any of his representatives had ever attended a conference in the USAFCS surgeon's office. Because of a lack of formal high-level coordination, air evacuation continued to be "a hit or miss proposition." Although the action met resistance, Colonel Simpson on 2 June 1945 finally brought Major <sup>W</sup>Gray into the Far East Air Force Surgeon's office and charged him to take plans and coordinate all matters concerning air evacuation.<sup>77</sup>

Despite the organization of the Far East Air Forces, aeromedical evacuation for the Philippines invasion continued to be a by-product of theater air transport functions, and plans for it were necessarily related to theater air transport organization. With a strength of four troop carrier groups (317th, 374th, 375th, and 483d) by June 1944, the Fifth Air Force's 54th Troop Carrier Wing was the main theater air transport force, but the Thirteenth Air Force also possessed a single troop carrier group (403d). Even when all these groups were committed to forward area airborne and air resupply operations they would not be sufficient. Allotted by the Joint Chiefs of Staff, the 3d Air Commando Group and the 2d Combat Cargo Group accordingly reached the theater in November

and December 1944. As an additional augmentation of intrinsic capabilities, larger C-46 transports began to replace older C-47's in the troop carrier groups in September 1944. When the troop carrier groups moved forward some transport organizations would be required to cover the rear areas of the South and Southwest Pacific theaters. Organized in July 1944, the Air Transport Command's Southwest Pacific Wing began to fly regular schedules to the rear of Nadzab and the Admiralties and it would extend its routes northward as fighting progressed. One more chain of actions completed air transport reorganizations: the old Directorate of Air Transport was dissolved on 3 October 1944 and its American components were assigned to a provisional wing which became the 322d Troop Carrier Wing on 30 December 1944. Comprised chiefly of the transferred 374th Troop Carrier Group, the 322d Wing was assigned to the Far East Air Service Command for air logistical airlift support on 3 January 1945.<sup>78</sup>

"Frankly, we were a little confused as to the logic behind the directions for air evacuation from the Philippines," wrote Captain Leopold J. Snyder of the 804th Squadron. "As time went on," he added, "we became more confused and less able to see the aforementioned logic."<sup>79</sup> In an effort to clarify liaison, representatives of the Sixth Army and 54th

Troop Carrier Wing agreed on 17 September 1944 that eight to ten days prior to an impending task force invasion the Sixth Army's evacuation officer would so notify the 54th Troop Carrier Wing's Surgeon who would designate one of the three air evacuation squadrons to make plans to handle the evacuation and to send an advanced party by water transportation with the landing force.<sup>80</sup> Planning for the Philippines operation and for the preparatory invasion at Morotai Island on 15 September, involved a forward deployment of air evacuation squadrons. Since hospital centers from Pinckhafen and Lae were moving to Biak, the 801st Squadron from Guadalcanal and the 804th Squadron from Madzab were to be located on Biak. According to the plan of the invasion, Sixth Army troops would land at Leyte on 20 October. A team from the 820th Squadron and a wing radio team would land from surface craft at Leyte on 22 October and prepare for the first landings of troop carrier planes on 25 or 26 October. The balance of the male component of the 820th would arrive by ship at Leyte on about 19 November. Pending movement to Leyte, nurses of the 820th Squadron would be divided between the 801st and 804th Squadrons. Since the 820th Squadron would be out of action while in transit, the 801st and 804th Squadrons would have to manage evacuation from Morotai, Sansapor, Biak, Cwi, and New Moor. Since C-47 aircraft <sup>could</sup> would not fly directly

from Biak to Leyte, moreover, they would have to stage either through Morotai or Angaur or Peleliu Airfields in the Palau Islands (invaded by Marines on 15 September, simultaneously with Morotai). Since Angaur and Peleliu Airfields offered advantages, the 804th Squadron was charged to move a detachment there at least three days prior to the first C-47 landings on Leyte. Going up from Biak, troop carrier planes would remain overnight at Angaur. Next morning, they would fly to Leyte, unload cargo and pick up patients, and fly back to Peleliu where they would again remain overnight. The 17th Field Hospital at Peleliu would care for the patients overnight and on the third day the C-47's would return them to Biak. Remaining behind at Nadzab, the RAAF Air Evacuation Unit would evacuate patients from Hollandia, Nadzab, Wakde, and Tadjil.<sup>81</sup>

Even though the medical air evacuation squadrons had begun deploying to Biak, the 804th, 820th, and RAAF No. 1 <sup>U</sup>MEF evacuated 6,344 patients by air in September 1944. After a long delay while an airfield was built, an 804th detachment went to Morotai with the first troop carrier flights on 4 October. As has been seen, the main body of the 801st Squadron reached Biak on 4 October, and, by 7 October, the 804th Squadron was completely in place at the new station. On 8 October, the 804th Squadron formally took over evacuation from Biak, leaving the 820th Squadron

little to do while it prepared for its movement to Leyte. So far all appeared to be going well, but on 16 October the 54th Troop Carrier Wing had startling news. For some reason a mix-up in loading at Makde (a higher priority unit apparently pre-empted the space) placed the 820th's advance detachment and the radio team aboard a vessel which would not reach Leyte until 1 November whereas troop carrier planes were supposed to begin landing at Tacloban Airfield by 26 October. In order to meet this unforeseen situation, the 801st Squadron agreed to send a detachment by air to Leyte and to take over the detachment on Morotai, thus releasing one of the 804th's most experienced flight surgeons who would take charge of air evacuation activities at Peleliu and Angaur. On 23 October, Captain Thornton I. Boileau departed for Angaur and Peleliu with twelve enlisted men. This party soon met difficulty because the Palau Island Command would not permit the 54th Wing radio detachments to operate and communications back to Biak were uncertain. On 27 October, Captain DeWitt C. Kissell and three technicians departed by air for Leyte, but his plane had a minor accident at Angaur and he had to remain there until 3 November when another empty C-47 could be sent forward from Biak. Learning of Kissell's predicament, Captain Boileau went to Tacloban Airfield with the first flight of transport planes to land there on 31 October. Back at Biak on 29 October, the flight nurses of the 820th Squadron arrived

from Hollandia and were equally divided between the 801st and 804th Squadrons.<sup>82</sup>

Air evacuation from the Leyte beachhead had gotten off to a poor start, and it improved only slowly. Severe Japanese suicide air attacks accompanied by torrential rains prevented a planned rapid development of landing strips around the inland town of Burauen. The 54th Troop Carrier Wing soon had to reduce its planned thirty-six C-47 landings a day at crowded Tacloban to twenty and actually averaged a few less than this each day during November. All troop carrier planes had to remain overnight in the Palaus and the three-day flights to cover the 585 miles from Biak to the Palaus and the 690 miles from the Palaus to Leyte ate up troop carrier capabilities. Not all of the C-47's returning from Leyte carried casualties: on the morning of 19 November, for example, thirty-six C-47's left Tacloban with unused space for up to 250 patients. On-shore at Leyte, however, Captain Kissell reported good reasons why air evacuation was not working. "Air evacuation can only be carried out when you have a definite airline service and proper communications," he said. "We had neither and so failed in our mission." Army surgeons simply could not afford to depend upon irregular troop carrier schedules, and chose to evacuate many of their casualties to hospital accommodations on ships which unloaded

off Leyte. There were other complications: despite the fact that the Air Transport Command employed nurses aboard its C-54's which lifted U. S. XXIV Corps casualties from Tacloban to Saipan, the Fifth Air Force would not permit its flight nurses to go into Leyte. This placed a severe burden on the surgical technicians of the 801st and 804th Squadrons and probably deprived newly-wounded casualties of adequate medical care. (One badly-burned man died in flight between Pololiu and Biak.) Medical air evacuation still worked well in the rear areas, but, chiefly because of its handicaps at Leyte, monthly totals of patients airlifted dropped to 3,487 in October and to 2,193 in November 1944.<sup>63</sup>

Finally getting ashore at Leyte, the advance detachment of the 820th Medical Air Evacuation Squadron assumed responsibility for air evacuation from Tacloban Airfield on 11 November 1944, and, by 23 November, the main body of the 820th Squadron began pitching its camp near Fifth Air Force headquarters at Burauen. Since troop carrier airfields were supposed to be built here, the Burauen location was theoretically correct, but the airfields could not be built in boggy terrain and the 820th was thus cocooned by muddy roads from Tacloban. Quite shortly, although he was only the commander of the 820th and he thought a properly appointed air evacuation officer at a higher level should

have been responsible, Major Crum<sup>o</sup>way was forced to make most command decisions dealing with medical air evacuation. Because the task force commander requested it, Major Crum<sup>o</sup>way sent a flight surgeon and a medical evacuation detachment to land with assault troops at Mindoro<sup>o</sup> Island on 15 December, and, on 20 December, he went with a technician to evacuate the first casualties from the new invasion point. On 15 December, Colonel Beavers and Major Crum<sup>o</sup>way finally obtained permission for flight nurses to come to Leyte. Before the nurses arrived on 22 December, arrangements were made to keep a rotating pool of about ten nurses at Burauen. A shuttle service by L-5 aircraft between Burauen and Tacloban was to be flown each day to take evacuation teams to the operating airstrip. Each day, nurses and technicians came from Biak via the Palau and replaced the flight team who took out patients from Tacloban. Learning on 23 December that the U. S. 77th Division was having difficulties evacuating its casualties from the Ormoc area on the western coast of Leyte, Major Crum<sup>o</sup>way went aboard a C-47 which was going to make a pioneer landing at Valencia airstrip. The strip was short and often muddy, but between 24 December and 17 January 1945 more than 600 casualties were removed by C-47 planes. Major General A. D. Bruce, the 77th Division's commander, expressed his deep appreciation for the evacuation, which saved his wounded

men an arduous three to four day trip to hospitals in eastern Leyte. During December, 54th Troop Carrier Wing flights between Biak and Tacloban were improved by the installation of a wing radio station in the Palaus. The better communications permitted closer scheduling of C-47 aircraft. With increasing air evacuation from Leyte and continued routine evacuation in the rear areas, Far East Air Forces planes lifted 4,271 patients during December 1944.<sup>84</sup>

When Sixth Army troops landed at Lingayen Gulf on the northwest coast of the main Philippine Island of Luzon on 9 January 1945, Southwest Pacific aeromedical evacuation began to show better operating capabilities than had been manifest in the first confused months of fighting on rain-soaked Leyte Island. Captain George L. Ray and a 620th Squadron went ashore at Lingayen on 11 January, and an air evacuation holding hospital was quickly established at Mangaldan Airstrip. This was to be the last of the "assault" landings of air evacuation parties, for experience had demonstrated that these specialists needed to arrive no sooner than the first flights of troop carrier planes. At Lingayen, moreover, initial casualties were so slight that the first troop carrier planes which landed on 16 January found no patients to evacuate.<sup>85</sup> Throughout the month, the 820th Squadron evacuated 427 patients from Luzon to Leyte, either directly or via Mindoro, but, in preparation

for more extensive operations on Luzon, the 804th Squadron began to move to Mindoro. An advance detachment of the 804th took over at Mindoro on 17 January, and, on 31 January, the whole 804th Squadron reached that station. Unlike other moves, the 804th brought the seven flight nurses it had retained after releasing the other nurses assigned to it for rotation to the United States.\* Although still stationed on Leyte, the 820th Squadron moved its camp from inland Burauen to the vicinity of Tanuan Airfield, the new troop carrier facility on Leyte's eastern coast. Evacuation from Luzon and Mindoro and within Leyte contributed to the total achievement, but the majority of the 4,434 patients handled by the three evacuation squadrons during January 1945 were transported between Leyte and Biak, either by way of the Palaus or sometimes directly by C-46's which were making the flight non-stop. No patients were lost in flight during the month, but a C-46 carrying Lieutenant <sup>LT</sup> Thelma LaFare of the 820th and Sergeant Robert E. Oliver of the 804th disappeared somewhere between Paloliu and Tacloban on 25 January.<sup>86</sup>

The Sixth Army's landings at Lingayen Gulf on 9 January 1945 marked the beginning of the largest ground battle to

\*In the early months of 1945, the 804th and 820th Squadrons released their combat-fatigued flight nurses and received replacements from the United States.

be fought in the Southwest Pacific. To exploit the ground advance southward through Luzon's central plains, General MacArthur ordered two more principal assault landings. In support of the first of these additional landings on the Zambales coast of western Luzon, the 80th Squadron flew an evacuation detachment to San Marcelino Airfield on 4 February and evacuated casualties either to Mindoro or Leyte. The second supporting landing was a combined amphibious attack at Masugbu and an airborne assault at Tagaytay Ridge, both in Batangas province southwest of Manila. Beginning on 4 February, the 804th and 820th Squadrons lifted casualties from an improvised airfield on the beach at Masugbu, and later they picked up some wounded from the columns marching toward Manila from an airstrip at Ibus. On 5 February, the 804th Squadron assumed responsibility for the operation of the air evacuation detachment at Mangaldan Airstrip on Lingayen Gulf.<sup>57</sup> In order to free the Fifth Air Force's troop carrier and air evacuation squadrons for forward area operations, the Southwest Pacific Wing of the Air Transport Command began evacuating casualties from Leyte to Biak in February and performed the whole mission during March 1945.<sup>58</sup>

During its campaigns on Luzon, the Sixth Army followed the policy of retaining men who could be restored to duty

<sup>57</sup> See Chap. XI, p. 11.

within sixty days and evacuating its more serious cases to Leyte. Since Luzon was a large land mass, with relatively poor transportation media, the 54th Troop Carrier Wing's C-46's and C-47's were soon used to transport casualties intra-Luzon. Early in February, for example, the 804th Squadron had men aboard C-47's which landed on Dewey Boulevard in <sup>or</sup> Manila and lifted wounded men to the field hospital on the central plains at Rosales. Soon, however, a crude field in the suburbs at Quezon City--actually a 3700-foot length of Quezon Boulevard--served as the transport facility at Manila. For more than a week, the 309th Bombardment Wing employed an 820th Squadron flight nurse and air commando C-47's to run a shuttle evacuation service from Quezon City to Mabalacat, an airstrip near Clark Field and Fort Stotsenburg in the central plains. Seeking a better management of the growing intra-Luzon patient lift, the 804th Squadron moved from Mindoro to Fort Stotenburg<sup>^</sup> on 23 March and thereafter employed its personnel principally for evacuation work within Luzon. Given an adequate necessity, the old C-47's proved able to land and take off from exceptionally short surfaces. With 804th men aboard, for example, a C-47 in May successfully evacuated <sup>it</sup> ten men from a 2,000 foot strip hewn on a mountainside near Santa Cruz on Luzon's northwest coast. With a slight amount of help from 820th personnel, the 804th Squadron reported that

by June 1945, C-46's and C-47's had lifted some 18,605 patients within Luzon.<sup>88</sup> This total was a tabulation of monthly evacuation squadron reports; the Sixth Army, however, reported that 12,294 casualties were lifted by C-47's within Luzon.

Quite early in the Luzon campaign, Sixth Army troops found themselves fighting in terrain rugged enough and far enough removed from hospitals to make rotor ambulance travel a severe ordeal to sick and wounded men. As soon as the 3d Air Commando Group's 157th, 159th, and 160th Liaison Squadrons assembled their L-5B liaison planes, the three squadrons were made available to the Sixth Army. Each of the little planes could carry a single stretcher case in addition to a pilot. First operational on 9 February, the L-5B's evacuated wounded men from Corregidor Island in Manila Bay when paratroopers landed there on 16 February. In order to simplify control and maintenance, the three squadrons were soon based at Clark Field and joined together under the 5th Liaison Group (Provisional). Each day, requests for air evacuation missions were passed by ground units to the Sixth Army's central medical control section which informed the liaison group of the patients to be moved and priorities for movement. Usually operating in detachments at forward airstrips, the liaison pilots landed at the frontlines and lifted patients to field hospitals or

to central collection points where they could be picked up by motor ambulances or standard transport planes. Twenty to thirty of the small planes customarily evacuated patients each day from as many as forty front<sup>line</sup> airstrips, and they lifted 17,599 patients on Luzon during the five months of February through June 1945. Because enough L-5B's were not available for local air evacuation (medical air evacuation was the first priority task but maintenance of the small planes was a terrific problem) the 5th Liaison Group obtained six C-61A Horseman utility transports late in April. As in Europe, these planes could operate only between better prepared airstrips, but they had lifted 1,180 patients by the end of June 1945. The little evacuation planes customarily delivered needed medical supplies to front<sup>line</sup> units, and they flew surgical specialists to remote sites to care for patients who could not be moved.

Some idea of the magnitude of the intra-Luzon airlift may be seen from a comparison of it with motor ambulance achievements. The Sixth Army reported that 31,073 patients were airlifted within Luzon while its motor ambulances moved a total of 129,565 patients on Luzon. When the Luzon campaign was ending, the Far East Air Forces stated that the use of liaison type aircraft to augment motor ambulance evacuation had proven practicable, and it recommended that the evacuation plan of a field army should include small

planes whenever possible. The Sixth Army called the "phenomenal growth" of light plane evacuation the "outstanding feature" of the medical service during the campaign. This service brought seriously wounded cases to hospitals sooner and it also provided evacuation of some troops who were inaccessible by ambulance.<sup>89</sup>

General hospitals were not opened at Manila until 10 June 1945 and did not fully function for several weeks after this. More serious cases requiring special attention or more than sixty-days hospitalization were accordingly evacuated to Leyte throughout the Luzon campaign. Troop carrier C-47's began to ferry men and cargo into Lingayen airstrip on 16 January, and 320th Squadron technicians accompanied the first flight of transports which landed there. At first, however, air evacuation from Luzon was a "feast or famine" business. With no attempt at coordination, USASOS sent hospital ships to Luzon, and, when these vessels were available, Sixth Army surgeons customarily suspended air evacuation. Several other factors complicated early air evacuation from Luzon. At first, the 804th Squadron evacuated patients to Mindoro, where they had to be trans-shipped next day to Leyte. When C-47's and C-46's began to fly directly from Leyte to Luzon, the movement of patients from Luzon to Mindoro ceased, and new allocations of air evacuation responsibilities were made.

As has been seen, the 804th Squadron moved to Fort Stotsenburg on 23 March and for some time devoted its efforts almost exclusively to intra-Luzon air evacuation. At this same time, Captain Paul H. Cronenwett, who had assumed command of the squadron on 6 January, moved the 801st Squadron from Biak to Leyte, and personnel of the 801st joined those of the 820th Squadron in the evacuation runs to the Philippines.<sup>90</sup>

With the establishment of medical holding facilities at Pangaloan, Clark, and Quezon City Airfields--the main inter-island evacuation fields during March and April--the only factor handicapping air evacuation was adverse flying weather. In one spell of bad weather in March occurred the only two fatal accidents of the Luzon air evacuation effort: a C-46 carrying Lieutenant Martha Black and Corporal Delbert Beery of the 820th and thirty patients from Mabalacat on 10 March crashed in northern Leyte killing all aboard. Two days later, on 12 March, while escorting twenty-eight patients in a C-46, Lieutenant Beatrice Nemler and Sergeant John Hudson of the 804th were lost at sea somewhere between Mindoro and Leyte. Both accidents were caused by weather, and the 54th Wing promptly ordered that patients would be evacuated only under contact flight conditions.\* Since

\*Despite the fact that the C-46 had advantages for air evacuation including a roomy cabin and ability to carry more patients, air evacuation personnel in the Southwest Pacific were alarmed by these accidents and chose thereafter to use less efficient C-47's whenever possible. Air crews, who talked about the unsafeness of the new C-46's also contributed to the fears of the air evacuation personnel.

weather conditions could not be exactly anticipated, the flight rule hindered exact scheduling of evacuation plane arrivals and departures. During April, Sixth Army casualties increased both from battle and disease, and the air evacuation squadrons modified their plan of operations to handle more patients. To take advantage of transports now based at Clark which went empty to Leyte for cargo, the 804th Squadron began to place technicians aboard the planes and to lift patients from Clark and Mangaldan. Leyte-based transports with 801st or 820th Squadron attendants aboard lifted casualties from Quezon City Airstrip and from Nielson Field, which replaced Quezon City as the Manila air evacuation center in May. Using this system, casualties could be loaded in early morning hours before the heat of the day set in.<sup>91</sup>

For the most part, the air evacuation flights between Luzon and Leyte were easily accomplished as a by-product to cargo hauling. Since the 500 mile flight from Lingayen Gulf to Tanuan or Dulag Airfields could be made in a little more than three hours, freshly wounded men were often transported by air while they were still under anesthetic. When required, special planes were scheduled to meet emergencies. On 13 March, for example, a volunteer 57th Troop Carrier crew flew a Marine corporal through almost impossible weather to Leyte. All the way, Lieutenant Mary Wiggins

and four medical technicians of the 804th administered oxygen and continuous artificial respiration to the man, who was suffering from paralytic bulbar poliomyelitis. The patient was in good condition when he was placed in a respirator at the 126th General Hospital.<sup>92</sup> In routine and emergency flights, the medical air evacuation squadrons reported that in the period through June 1945 they evacuated 1,377 patients from Luzon to Mindoro and 27,482 patients from Luzon to Leyte. The Sixth Army, however, reported that 25,761 patients were evacuated from Luzon by air. Either total was a significant achievement for aeromedical evacuation and compared favorably with the total of 11,955 patients which the Sixth Army reported were evacuated from Luzon by water transport.<sup>93</sup>

Unlike the island-hopping campaigns in New Guinea, American forces were required to liberate the Philippines, and, in February 1945, the Eighth U. S. Army and the Thirteenth Air Force began a series of campaigns designed to establish positions on Palawan and on the <sup>Z</sup>Lamboanga peninsula of Mindanao, to reconquer the central islands of Cebu, Bohol, and Negros, and finally to liberate the large southernmost island of Mindanao. The Eighth Army intended to evacuate to Leyte hospitals all sick and wounded men who could not be restored to duty within thirty days; in the initial invasions, casualties could be placed aboard medical-

staffed landing ships, but after they were ashore troops would depend upon air evacuation. All phase<sup>s</sup> of air support in the Southern Philippines, including air evacuation, <sup>was</sup> ~~was~~ the responsibility of the Thirteenth Air Force. With this task in mind, the Thirteenth moved the 801st Medical Air Evacuation Squadron to Dulag Airfield on Leyte between 10 and 29 March and, in April, the 403d Troop Carrier Group began to deploy forward to Leyte. The Thirteenth also made its 25th Liaison Squadron available to support the ground troops on the several islands. The L-5A's and L-5B's would work in several separate detachments.<sup>94</sup>

Eighth Army troops went ashore on Palawan on 28 February and at Zamboanga on 10 March. Following the capture of airfields at each place, patients were awaiting transportation at Zamboanga on 24 March and at Palawan on 26 March. Since the 801st Squadron was not ready to operate, the 820th Squadron secured planes from the 54th Wing and flew both missions. Early in April, as it began to operate at Leyte, the 801st Squadron sent detachments to Palawan, Zamboanga, and Cebu, but its flight crews shared evacuation missions with the crews of the 820th. This made sense, for the evacuation of the southern and central Philippines was not large enough to occupy a whole squadron. At both Palawan and Zamboanga, the Eighth Army found air movement preferable to other forms of evacuation: 366 patients

were flown from Palawan and 1,628 from <sup>Z</sup>Aarboanga. Air evacuation from Panay was accomplished directly to Leyte by C-47's, and patients from Negros were flown in L-5's to Panay for subsequent air evacuation to Leyte. Because of a delay in capturing Lahug Airfield on Cebu, patients from this island were flown in L-5's to nearby Mactan Island, where C-47's picked them up. Effective from Lahug Airfield on 10 May, a daily C-47 evacuation flight lifted patients to Leyte. Landing unopposed on the southwest coast of Mindanao on 17 April, the U. S. X Corps would find an especial need for air evacuation in its weeks of campaigning, for Mindanao was the second largest island of the Philippines. The 25th Liaison Squadron (less flights which remained on Palawan and Leyte) accompanied invasion troops into Mindanao and began flying from Malabang Airfield on 20 April. On the following day, C-46 and C-47 planes began evacuations from Malabang. In April, May, and June, the little L-5's evacuated frontline casualties to hospitals or to airfields for off-island flights. Standard transports continued to fly into Malabang until mid-May, when a number of larger fields were captured: Del Monte (18 May), Maranag (18 May), Libby (20 May), and Valencia (23 May). As crumbling Japanese resistance at the end of June 1945 marked the end of the Mindanao campaign, the Eighth Army reported that the little L-5's had evacuated a total of 693 patients while

the C-46's and C-47's had transported 3,769 patients to Leyte hospitals. "Air evacuation," reported the Eighth Army Surgeon at the end of the Mindanao campaign, "is essential to successful medical service."<sup>95</sup>

In the early phase of the Philippine invasions the Biak hospital center had supported forward operations. Early in 1945, new hospitals on Leyte received most patients from the Philippines but, without relief, the Leyte hospitals would have been overcrowded. Accordingly, medical air evacuation flights were continued to Biak. Early in 1945, moreover, American forces continued to be based at Morotai, and the sick and wounded had to be evacuated by air to Biak. From 1 January through 7 March, the three air evacuation squadrons and the 54th Troop Carrier Wing lifted a total of 4,917 patients from Leyte to Biak. Based at Biak, with a detachment at Morotai, during this period, the 801st Squadron performed most of this patient lift. When it moved to Leyte in March 1945, the 801st Squadron continued to maintain its detachment at Biak, and, using 403d Troop Carrier Group planes, this detachment evacuated a total of 2,199 patients from Morotai, 330 from Sansapor, and 218 from Koenfoor to Biak in 1945. Air evacuation was the sole means of transporting the sick and wounded from these rear-area bases. After beginning operations in February 1945, the air Transport Command's Southwest Pacific

Wing completely took over the aeromedical evacuation airlift from Leyte to Biak effective on 8 March 1945. This airlift continued until May 1945 when the trans-Pacific air evacuation terminal was shifted from Biak to Leyte.<sup>96</sup>

During the height of the Philippine campaign in the first six months of 1945, the 54th Troop Carrier Wing and the three air evacuation squadrons lifted a grand total of 60,908 sick and wounded men. Air evacuation was the principal method of transporting casualties. Aeromedical evacuation not only saved lives by bringing patients rapidly to definitive hospitalization, but it also vastly simplified the logistical problem of hospitalization and evacuation.<sup>97</sup> With fighting in the Philippines drawing to a close and plans for the invasion of the Japanese Micronesia looking up for the winter of 1945-1946, the Far East Air Forces began to deploy the 54th Troop Carrier Wing and its two air evacuation squadrons to Okinawa. Benefiting from the centralized planning of Major Hugh H. Crumway, who became Air Evacuation officer in the Surgeon's Office Far East Air Forces, on 2 June 1945, the 820th Squadron moved from Leyte to Okinawa late in June and prepared for action. During the forward deployment, the 820th's nurses were attached to the 804th Squadron on Luzon, and during July 1945 the 801st and 804th Squadrons evacuated 9,679 patients for a relatively "quiet" month.<sup>98</sup>

The establishment of a Far East Air Forces Air Evacuation Officer again proved to have been a wise step forward when Japan's suddenly-announced capitulation on 10 August 1945 required an almost immediate promulgation of a plan for evacuating Allied prisoners of war from Japanese prison camps. Largely in routine operations early in August, the 801st and 804th Squadrons evacuated 6,272 patients in August. With the surrender of Japan, almost immediate "Blacklist" plans announced new roles for air evacuation. On 22 August, the 804th Squadron was ordered to fly northward to join 820th Squadron at Motubu Air Base on Okinawa. Effective on 24 August, the 801st Squadron was directed to assume responsibility for all air evacuation in the Philippines.<sup>99</sup>

Under the direction of the Eighth U. S. Army, which was designated as the American ground occupation force for Japan, the evacuation of Repatriated Allied Military Personnel (RAMP's) from Japan demonstrated a good coordination of air and water evacuation resources, but Major Crurway, the Far East Air Forces air evacuation officer, and Captain Howard H. Gradis, temporarily designated as Fifth Air Force air evacuation officer, nevertheless found a need for constantly changing plans when they reached Atsugi Airfield, near Tokyo, late in August. All recovered personnel with any medical disability would be evacuated through medical

channels. Seriously-ill patients would be placed on hospital ships and carried directly to the United States. Moderately-ill patients would be flown to hospitals on Guam and Saipan. All other patients would be evacuated by air via Okinawa to the Philippines. The U. S. Navy evacuated its own recovered personnel. As prisoners arrived in unforeseen numbers from unknown prison camps, air evacuation became somewhat hectic, but, beginning on 1 September, the 804th and 820th Squadrons evacuated 221 garrison patients and 29,674 "RAMP's" during the month. On the Japan to Okinawa leg, ATC C-54's and 54th Wing C-46's and C-47's were used exclusively, but B-24 heavy bombers converted to troop lift supplemented the transports on the Okinawa to Manila leg of the journey. The employment of the bombers gave added transport capabilities but three B-24 accidents resulted in the death of twenty-nine repatriates, the only losses in the tremendous troop lift. In order to expedite the evacuation the 804th Medical Air Evacuation Squadron moved to Tachikawa Air Base near Tokyo on 15 September, but next day typhoon weather forced suspension of all evacuation flights from Japan to Okinawa. On 21 September, the 820th Squadron also moved to Tachikawa, but during the period of bad weather most remaining repatriates had been evacuated by hospital ship and air-evacuation work dwindled as operations entered the post-hostilities period.<sup>100</sup>

Chapter VI

AEROMEDICAL EVACUATION BY THE AIR TRANSPORT COMMAND,  
1944-1945

1. World<sup>a</sup>-wide Air Transport Command Expansion

Under the command of Lt. Gen. Harold I. George, the Air Transport Command had managed a remarkable growth to become the War Department's world-wide air transport agency during 1942 and 1943. In these years, however, intercontinental air transport continued to be an emergency means which supplemented normal seaborne logistical support. As the war progressed, air transport would continue to be an essentially scarce commodity, but the demands of global air mobility nevertheless dictated an increased employment of air transport to connect the Continental United States with theaters of operations overseas.

As a result of these global requirements, the Air Transport Command grew remarkably in 1944 and 1945. On 30 June 1942, the Air Transport Command began operations with approximately 11,000 officers and enlisted men. At the end of March 1943 its strength was more than 60,000. On 31 July 1944, the Air Transport Command comprised 125,000 officers and enlisted men, and by the end of the war its

total strength surpassed 200,000.<sup>1</sup> In these same years the Air Transport Command received a tremendous augmentation of major transport aircraft from expanded American production. The Air Transport Command received a share of the 2,360 C-46 transports delivered by Curtiss-Wright in 1944 and 1945. Employing a new factory in Chicago and its old plant at Santa Monica, California (which ceased light-bomber production in December 1944), Douglas<sup>2</sup> provided 355 C-54 transports in 1944 and 703 in 1945. The four-engine C-54's became the main intercontinental transport of the Air Transport Command. In December 1943, the fledgling Air Transport Command possessed 112 C-87's, 76 C-54's, 247 C-46's, and 247 DC-3's; in December 1944, the growing command had 301 C-87's, 347 C-54's, 695 C-46's, and 946 DC-3's; and, at the war's end in August 1945, the mature command held 177 C-87's, 839 C-54's, 729 C-46's, and 1,341 C-47's.<sup>2</sup> The twin-engine C-46's and C-47's were useful to the Air Transport Command on relatively short-range routes, but the globe-girdling C-54's represented the Command's main trans-ocean capability. Except for the war-time development of the C-54, the Air Transport Command might never have attained its major stature in the armed services.

During 1943 the Air Transport Command had made a

beginning in aeromedical evacuation by lifting a grand total of 5,507 patients, including 3,260 patients returned to the United States from overseas theaters. So far, the War Department accepted aeromedical evacuation from out-of-the-way theaters such as Alaska, but it had no apparent realization that trans-oceanic air evacuation could be more than an adjunct to "normal" evacuation by water. In 1943, a total of 63,563 patients (95.5 percent of all patients returned to the United States) were brought to the United States by water. Nearly all serious cases were transported home by troop transports or hospital ships; few of the patients handled by the Air Transport Command were said to be seriously ill or seriously injured. Under these circumstances, there were reports that Air Transport Command wing commanders were reported to have manifested little concern for their aeromedical evacuation responsibilities.<sup>3</sup>

After long study, the Army Service Forces began to recognize in late 1943 that sufficient hospital ships, or even less-desirable medical facilities on troop transports, would not be available to repatriate the casualties which could be expected from expanding American operations scheduled for 1944. Having observed the steady expansion of trans-oceanic air evacuation during 1943 and knowing that

the Air Transport Command had brought 682 patients home in December of that year (10 percent of the total), the Army Service Forces on 2 March 1944 suggested that trans<sup>P</sup>oceanic air evacuation be expanded, possibly enough to reduce the requirement for additional hard-to-obtain hospital ships.<sup>4</sup> Given this display of interest by the War Department, the Air Surgeon's Office was not slow to move. A draft staff study was prepared which showed that three C-54's could transport the same number of patients each month from the United Kingdom to the United States as an immensely more expensive hospital ship, and with a much smaller requirement for medical personnel. Information from the Air Transport Command indicated that three factors would give it added capabilities for moving patients from Europe and the Mediterranean: projected deliveries of new C-54's would increase the lift on these routes, a new airfield was becoming available in Portugal's Azores Islands which would shorten air routes, and (now that overseas<sup>✓</sup> aircraft buildups were nearing completion) fewer high-priority ferry pilots were returning to the United States.<sup>5</sup>

Since the Army Air Forces was already responsible for the development, planning, and operation of air evacuation between overseas<sup>✓</sup> theater and the United States, and within

the United States, no new War Department directives were required to implement augmented air evacuation. The augmentation, however, was dependent upon policy and capabilities of the Air Transport Command. Early in March 1944, the Air Surgeon's Office proposed to issue a directive that all patients would be given a higher priority for air transportation than duty personnel, except such duty personnel as might be declared essential by the War Department for other military operations. Feeling that its ferry pilots had to be given first priority for return to the United States, the Air Transport Command would not concur with this.<sup>6</sup> The Air Transport Command had already agreed, however, that patients would be handled before any ~~number~~ <sup>file</sup> other ~~than No. 3~~ priority passengers and would not be displaced while en route; and, of course, theater authorities could award a higher priority to individual patients requiring urgent medical treatment in the United States.<sup>7</sup>

As the Air Transport Command projected its patient airlift capability for the latter half of 1944, consideration of the configuration of its C-54 aircraft <sup>was a limiting factor. The C-54 aircraft</sup> already in service could accommodate only <sup>15</sup> ~~thirteen~~ litter patients, most of the litters being secured in the aisles. In early trans-Atlantic flights, the North Atlantic Wing figured that C-54 A's

could carry <sup>10</sup> ten litter patients plus approximately 3,000 pounds of mail and package cargo. With Evans <sup>stanchions</sup> or web-type litter supports, each C-54 could accommodate at least <sup>24</sup> twenty-four litter evacuees, if its entire capacity was so utilized. To convert the C-54A's to the Evans litter supports would require six days per aircraft, with a consequent reduction in trans<sup>oceanic</sup> airlift while the plane was out of commission. The Air Transport Command was reluctant to reduce the airlift, but by March it issued orders to install Evans <sup>stanchions</sup> in all C-54A's flying North Atlantic air routes. Beginning in June and July 1944, moreover, the C-54B aircraft produced by Douglas came equipped with Evans canvas troop seats and web-type litter supports.<sup>3</sup> Employment of the C-54's with Evans <sup>stanchions</sup> or web-strap litter supports would approximately double the Air Transport Command's patient-lift capabilities.<sup>11</sup> Although the webbing-strap litter supports worked well on C-46's and C-47's, flight nurses experienced with Evans

\* (Air Intelligence Contact Unit Rpt., AIF Redistribution Station No. 2, Subj: Equipment: Evans Litter Supports - C-54 Aircraft, 27 July 1945.)

stanchions and web-strap supports on C-54's greatly preferred the Evans installation for long trans<sup>P</sup>ocean crossings. The Evans stanchions seemed more stable, and aeromedical attendants could work on either side of a patient.<sup>?</sup>

In its initial overseas aeromedical evacuation operations the Air Transport Command was assigned the 808th Medical Air Evacuation Squadron, which, in October 1943, was divided by flights between the South Atlantic and the Africa-Middle East Wings; Flights B and C, 805th Medical Air Evacuation Squadron, which in the winter of 1943-~~1944~~ were assigned to the Alaskan and Central African Wings; and the 822d Air Evacuation Squadron, which joined the North Atlantic Wing in May 1944. Coincident with the assumption of responsibilities for air evacuation in the Continental United States, the flights of the 823d and 824th Medical Air Evacuation Squadrons were assigned to the Air Transport Command. In July 1944, the 825th Squadron (less its Headquarters) was assigned to the North African division. In addition to these assigned units, medical air evacuation squadrons assigned to theater air forces overseas were frequently attached to ATC wings. Initially, the Air Transport Command anticipated no difficulties from these

multifold command relationships, but they gave trouble as the patient airlift increased. Tenuous control of attached personnel complicated the scheduling of air evacuation flights. The standard medical air evacuation squadron, moreover, was designed to work in theaters of operations with troop carrier wings and it had excessive administrative overhead for an airline-type operation which primarily required flight teams. For this reason, the Air Transport Command on 21 October 1944 secured authority to disband the medical air evacuation squadrons which were assigned or committed to it, and to activate the 830th Medical Air Evacuation Squadron. On 5 November 1944, the 830th Squadron was activated with a headquarters at Gravelly Point, Virginia, and a total of ~~thirty-eight~~<sup>38</sup> flights attached to ATC wings around the world. Each flight consisted of a flight surgeon, six flight teams, and one each enlisted medical administration and supply technician. The virtue of this structure lay in the fact that the number of operational personnel could be easily augmented without adding unwanted administrative personnel. By the end of 1944, the 830th Squadron had ~~forty~~<sup>40</sup> flights, and in January 1945,

\* In accordance with this action, the 805th, 808, and 822d through the 828th Medical Air Evacuation Squadrons were disbanded.

the Air Transport Command attempted to secure the transfer to the 830th of those theater air evacuation squadrons which the ATC employed on an attached basis.<sup>9</sup> As will be seen, the theaters were generally reluctant to yield control of their evacuation squadrons, but in April 1945 the 830th squadron was enlarged to 56 flights and in July it was further increased to 78 flights. In the summer of 1945, preparatory to the projected invasion of Japan, the Air Transport Command requested that the 830th be expanded to 90 flights. By the time that the War Department approved this action, however, the war's end had eliminated the necessity for it.

In response to the wishes of the Army Service Forces that aeromedical evacuation would supplement hospital ships for inter-continental evacuation of patients, the Air Transport Command during 1944 provided itself with the personnel and planes that it required for the expanded mission. Within the United States, the Air Transport Command also developed a patient airlift to supplement over-worked hospital trains. For the most part, however, Air Transport Command aeromedical airlift was always secondary to the forward delivery of

air passengers and cargo. Within the overseas wing -- which became divisions in mid-1944 -- aero medical airlift generally followed the patterns of routes devised for air cargo flights. As appropriate for a global airline, each wing or division meshed its operations with its neighboring wings or divisions, but each of the wings or divisions nevertheless had unique developments in the field of air evacuation.

## 2. Air Evacuation on South Atlantic Air Routes

Air Transport Command aero-medical evacuation flights through the Caribbean, South Atlantic, and Africa-Middle East Wings reflected Allied victories in battle. During 1943 the circuitous route through and from Africa to Florida was necessary because of a lack of Mediterranean bases, shortages of four-engine planes, and the threat of Nazi U-boat action. In 1944, the acquisition of more bases in North Africa and the increasing use of four-engine aircraft, which could span the Atlantic without the intermediate stops required by smaller aircraft, permitted a gradual straightening of air routes and a shift of traffic from the far southern stations to more direct points.

The assignment and deployment of the 308th Medical Air Evacuation Squadron to the Africa-Middle East and South

Atlantic Wings early in October 1943 permitted the beginning of organized air evacuation over the South Atlantic air transport route. Headquarters of the 808th Squadron and its "A" and "B" flights were established at Natal, Brazil, and these organizations were responsible for evacuating patients along the air route between Accra and the 36th Street Airport, Miami, Florida. Stationed at Accra, on Africa's west coast, the 808th's "C" and "D" flights accompanied patients from Casablanca or across the central African route from Cairo and Khartoum to Accra or from Karachi to Accra.<sup>10</sup>

In December 1943, Flight C of the 808th was transferred to the North African Sector and, in February 1944, Flight C of the 805th Medical Air Evacuation Squadron reported to the Central Africa Sector at Accra.

Despite some early developmental problems, the South Atlantic and Africa-Middle East Wings by the end of 1953 were operating a well-balanced air evacuation organization which by no means was operating at capacity. The Central Africa Sector had some early trouble forwarding news of patient arrivals at its stations, for security rules prohibited radio transmissions from planes to towers; it solved the problem by sending a book message to all route stations, whether the plane was supposed to land at them or not, giving

pertinent data. In case of unanticipated landings, station flight surgeons knew to meet the planes. From the beginning of air evacuation in 1943 through 30 June 1944, the South Atlantic Wing evacuated 3,480 patients from or through its stations and the Central Africa Sector evacuated a total of 1,922 patients. Most of the Central Africa Sector patients (1,213 of them) originated at Karachi, from which point the patient lift expanded markedly beginning in March 1944.<sup>11</sup>

Although the evacuation of patients over the South Atlantic was progressing smoothly in the spring of 1944, new bases and longer-range aircraft made the old routes through equatorial Africa and around the northern coastline of South America obsolete. Coincident with the augmentation of the North African and North Atlantic Divisions beginning in April 1944, fewer and fewer patients traveled the routes of the Central African and South Atlantic Divisions. The Central African Division evacuated 283 patients in July and 293 in August 1944 (mostly enroute from Karachi to the United States) but after 1 September 1944 the North African Division handled the patients from the Middle East and Asia. All Central African Division activities were transferred to the North African Division in August 1944 and thereafter during the war the Central African Division handled only the few patients

which originated at its own stations.<sup>12</sup> In view of the changing route of air evacuation, the South Atlantic Wing transferred Flight A of the 808th Medical Air Evacuation Squadron to the North African Wing on 15 June 1944 and thereafter handled the declining patient load with the Headquarters and Flight B of the 808th. The volume of patients lifted decreased markedly (only 745 patients being handled between 1 July and 30 September 1944), but in September 1954 the U.S. War Department approved a plan for the evacuation by air of approximately <sup>20</sup>thirty Brazilian patients a month from Italy to Natal, via Casablanca and Dakar. The patients would be flown to Dakar in C-46's and to Natal in C-87's. In order to assume responsibility for in-flight care of their countrymen, a detachment comprising a Brazilian flight surgeon, <sup>12</sup>twelve nurses, and <sup>15</sup>twelve enlisted men reported to the South Atlantic Division for an informal three-week training course. The 808th Squadron personnel gave the theoretical and operational training required, and the Brazilian evacuation crews flew at first with nurses of Flight B of the 808th. In accordance with the reorganization of A/C air evacuation personnel, the old 808th Squadron flight was redesignated as a flight of the 830th Medical Air

Squadron in November 1944, but the flight subsequently found only a small and routine employment and was generally understrength in the last months of the war. Accompanied by Brazilian attendants, the first group of Brazilian Expeditionary Force wounded was flown to Dakar and Natal on 31 October 1944. This patient airlift continued until the end of hostilities in Italy and approximately 500 Brazilian wounded were flown home. Other than the evacuation of a few plane<sup>loads</sup> of Americans from Africa and intra-division movements, American air evacuation in the South Atlantic Division was at a virtual standstill in the last year of world war II.<sup>13</sup>

Unlike the Central African and South Atlantic Divisions, the Caribbean Division of the Air Transport Command continued to be actively concerned with evacuation throughout World War II. With its headquarters at Morrison Field, West Palm Beach, Florida, the Caribbean Wing supervised air transport activities at the 36th Street Airport (Miami Army Airfield) and Homestead Field at Miami, Borinquen Field on Puerto Rico, Waller Field on Trinidad, and Atkinson Field in British Guiana. In the autumn of 1943 and the spring of 1944, Atkinson was a regular stop for air evacuation flights from the South Atlantic. Sometimes, air evacuation flights touched

down at Waller Field. All South Atlantic flights, however, debarked their patients at Miami. After April 1944, curtailment of aeromedical evacuation on the South Atlantic Route reduced air evacuation flights through Waller and Atkinson, but Miami Army Airfield continued to be a terminal for the North and Mid-Atlantic Air routes, especially during winter months when flight conditions were poor over the northern Atlantic. The great majority of patients brought to Miami arrived in C-54's from Casablanca via the Azores and Bermuda. The major function of the ATC base unit at Miami was to receive patients and provide for their transfer to the AAF Regional Hospital at Coral Gables, Florida. Securing advance notice of the arrival of aeromedical evacuation planes in time to concentrate ambulances at the flight line was a long-time problem which was solved at Miami in two ways. Since the ATC thirty-minute notice was insufficient, the operations office at Miami required in-bound planes to radio in at the half way point from their last station and give exact information on their patient load. Early in December 1944, two tropical-type shelters, each capable of holding <sup>12</sup> twelve litter patients, were assembled on Miami's flight line. Patients would be made comfortable in these shelters while awaiting the arrival of ambulances or the departure of planes.

Earlier figures for patient debarkations at Miami were not available, but, from 1 July 1944 through 30 September 1945, a total of 11,751 sick and wounded men were successfully delivered at Miami.<sup>14</sup>

3. Evacuating European Theater Casualties

With the exception of occasional evacuations by air to the United States, the European and North Atlantic Wings of the Air Transport Command were seldom called upon for air evacuation during 1943. In April 1943, Colonel H. C. Grow, the Eighth Air Force Surgeon, asked for permission to return ambulatory Air Force patients to the United States by air, but the European Theater of Operations disapproved. At this time there was a backlog of higher-priority personnel requiring return space to the United States. As a test case, on 1 November 1943, however, <sup>14</sup>fourteen repatriated American prisoners of war were evacuated from Prestwick, Scotland, in a seventeen-hour C-54 trip across the North Atlantic. This was the first evacuation of an entire planeload of casualties from the European Wing.<sup>15</sup>

The European theater's chief surgeon continued to wish to evacuate helpless patients by hospital ship, but plans for Operation "Overload" in Europe made it evident in Washington that enough hospital ships, or even medical facilities

on water transports, would not be available to lift battle casualties from the United Kingdom to America.<sup>16</sup> As has been seen, the Air Transport Command began to mobilize its resources early in 1944. Under its surgeon, Colonel Duran H. Summers, the European Wing's chief concern was to establish air evacuation personnel and temporary medical holding facilities at Prestwick, Scotland, which would be the point from which patients would debark by air from the European theater. Lt. Col. Raymond J. Lipin took charge of the Prestwick air evacuation center, and the D Troop Carrier Command agreed to lend a medical air evacuation squadron for duty at Prestwick.<sup>17</sup> On 28 May, the 811th Squadron reported to Prestwick, and it was replaced by the 816th Squadron on 4 July. In response to the European Division's request for two medical air evacuation squadrons at Prestwick, the 806th and 819th Squadrons arrived there on 28 and 29 August.<sup>18</sup> While the Ninth Air Force welcomed the use of its unemployed air evacuation squadrons for trans-Atlantic operations, it was not willing to transfer them permanently to the Air Transport Command.<sup>19</sup>

Since its task was to operate the trans-Atlantic air routes and airlift, the North Atlantic Wing and Division's preparations for the semi-medical airlift were extensive.

From the earliest days of the war, the old North Atlantic air route had gone northeastward from Maine via Newfoundland, Labrador, Greenland, and Iceland into Scotland. Early in 1944, however, Portugal at last permitted the United States to open airfields in the Azores. In January, the North Atlantic Wing had opened stations on a new mid-Atlantic air route at ~~Lajes~~ <sup>Lajes Field</sup> ~~airport~~ in the Azores and at Kindley <sup>Field</sup> Field on Bermuda. By employing military and contract-carrier C-54's based on the eastern seaboard of the United States, the Air Transport Command could efficiently evacuate patients brought to Frestwick from Europe, or to the Azores from the Mediterranean, the Middle East, and the China-Burma-India theater. In the winter season, planes could avoid the bad weather of the North Atlantic by flying from the United Kingdom to the United States via the Azores. On 29 March 1944, the North Atlantic Wing ordered its station commanders at Goose Bay, Labrador, Harmon Field at Stephenville, Newfoundland, Keels Field at Keflavik, Iceland, and at ~~Lajes~~ <sup>Lajes Field</sup> ~~airport~~ in the Azores to give "considerable thought" to the development of in-transit medical facilities for an expansion of air evacuation. Patients would require medical care, food, and shelter during routine and emergency stops at these stations. Installation of Evans litter

*at Lajes Field - see "Lajes Field" in the "Lajes Field" report of 1/1/44 - see "Lajes Field" report of 1/1/44 - see "Lajes Field" report of 1/1/44*

stanchions was ordered in all C-54A aircraft operating in the North Atlantic Wing. Since the C-54's stood too high off the ground to permit efficient manual loading and unloading of litter patients, all North Atlantic Wing stations locally<sup>2</sup> manufactured adapters which permitted the use of fork lifts for the task. The wing evacuation plan drawn up by Colonel Gordon G. Bulla, the wing surgeon, was designed to adapt normal transport routes to air evacuation. Stephenville and the Azores would be the main intermediate points, and medical air evacuation personnel would be stationed there. Evacuation teams from the United Kingdom and North Africa would accompany patients to Stephenville and the Azores. La Guardia and Mitchell<sup>1</sup> Fields would be the main port of debarkation for patients in the United States. When the 822d Medical Air Evacuation Squadron reported for duty on 6 May 1944, detachments of a flight surgeon and two enlisted men were sent to Meeks Field and La Guardia, one flight was sent to <sup>La Guardia</sup> La Guardia, and three flights were located at Stephenville.<sup>20</sup>

Early in 1944 the North Atlantic Wing was prepared to undertake vastly expanded trans-oceanic air evacuation, but it received few requests to move patients. Finally, in May, the wing got the opportunity to test its system under a heavy

load. The Mediterranean theater was reportedly still "not too favorably inclined toward trans-Atlantic air evacuation," but, in preparation for D-day in Normandy, the European theater decided to clear its hospital beds in the United Kingdom by evacuating all patients whose period of hospitalization was expected to exceed 180 days. On four days during May, 1,276 patients were landed at Presque Isle, LaGuardia, and Mitchel Fields.<sup>21</sup> Because of the 180-day evacuation policy announced for the European theater, aeromedical evacuation saw no sudden increase when Allied forces invaded Europe. On 24 June, however, a C-54A touched down at Mitchel Field carrying the first wounded men from Normandy - ten litter and four ambulatory cases. In June, the North Atlantic Wing transported 1,486 patients to the United States - 1,288 of them from the United Kingdom.<sup>22</sup>

Despite the relative smoothness of the new large-scale air evacuation operations, the North Atlantic Wing encountered several problems. In the European theater, an Air Priority Board, comprised of high-level logistical officers, met each month and allocated so much air transport space for the following month to the evacuation of patients. For example, the air evacuation quota for July 1944 was set at 3,000

patients. The Allied Forces Headquarters in the Mediterranean, however, professed an inability to make such definite space allocations for aeromedical airlift, and the evacuation out of Casablanca to the <sup>zones</sup> was sporadic and tended to pile up on one or two days during the week. In June, few patients were evacuated from the Mediterranean, with the result that the evacuation flight at ~~Lagos~~<sup>Lima</sup> had little to do while the flights at Hermon Airfield were working hard. During the second week of July, <sup>17</sup> seventeen C-54's carrying 326 patients passed through ~~Lagos~~<sup>Lima</sup> enroute from Casablanca to Stephenville. This placed a very heavy load on the air evacuation flight at ~~Lagos~~<sup>Lima</sup>. Since heavy loadings of patients arriving at ~~Lagos~~<sup>Lima</sup> and at Stephenville depleted the number of North Atlantic Division evacuation personnel at those bases, evacuation teams from Europe and the Mediterranean frequently had to accompany patients on a twenty-two hour flight all the way to the United States.<sup>23</sup>

Despite some growing <sup>f</sup>gains, trans-Atlantic air evacuation became an increasingly large mission of the North Atlantic Division during the summer of 1944. During July, 3,385 patients were evacuated through the division. Nearly all of these flights were uneventful, but, on 26 July, a Trans-World Airline (TWA) C-54 was lost in bad weather somewhere between Weeks Field

and Stephenville with all persons aboard including eighteen litter patients. This would be the only loss of medical evacuees on the Atlantic airlift during World War II. In August, 3,240 casualties were returned to the United States, and, on 26 August, the 10,000th patient to be evacuated by air over the Atlantic arrived at Mitchel Field. The patient was an infantryman and a litter case who had been wounded on the Italian front and had been evacuated from Naples via Casablanca, the Azores, and Stephenville.<sup>24</sup>

Early in August 1944, Brig. Gen. L. G. Fritz, Commander of the North Atlantic Wing, began to study plans for the execution of the air evacuation mission during the bad weather of the approaching winter. On 1 September, moreover, the C-54's operating to India over the South Atlantic and Central African routes would begin to fly the mid-Atlantic route through Bermuda and the Azores. In preparation for winter weather over the North Atlantic, General Fritz proposed to <sup>use</sup> ~~use~~ the stop-over for all aerial evacuation during the cold weather months when turbulence, exposure to cold during layovers, and increased possibilities of disaster in forced landings would jeopardize patients on the North Atlantic route. With approval from the Air Transport Command, the North Atlantic Wing announced that, beginning on 15 September, ten planes would operate daily from

Prestwick to Stephenville direct and thence to New York; eight planes would operate daily from Casablanca through <sup>Lajes</sup> ~~Lajes~~ to Stephenville and thence to New York; one plane would fly daily from Casablanca through <sup>Lajes</sup> ~~Lajes~~ to Stephenville and thence to Presque Isle, Maine; and five or six planes would proceed daily from Casablanca through <sup>Lajes</sup> ~~Lajes~~ and Bermuda to Miami. Effective on 1 November, all planes carrying patients would be routed through <sup>Lajes</sup> ~~Lajes~~ to Bermuda and thence to New York or Miami.<sup>25</sup> The planes would return to Prestwick, however, by the North Atlantic route.

The new schedules for air evacuation demanded changes in the location of the flights of the 822d Medical Air Evacuation Squadron. Because of increased traffic, the Azores needed more flight teams. In order to augment aeromedical personnel on the mid-Atlantic flight, the North Atlantic Wing in September obtained two flights of the newly trained 829th Medical Air Evacuation Squadron and divided them between <sup>Lajes</sup> ~~Lajes~~ and Bermuda. Further to augment North Atlantic capabilities, a rotating pool of four European Division medical air evacuation teams was established at Stephenville on 13 September. These teams took patients from other European teams, who rested at Stephenville and then continued to New York. Because of a

reduction of space for European casualties to a maximum of 2,000 that month and the re-routing of patients from India through the Azores, the 3,590 sick and wounded men which the North Atlantic Division transported in September 1944 were fairly equally divided between men who came from Casablanca and from Prestwick.<sup>26</sup> In view of increased availability of hospital ships and a pressing requirement to return war-weary combat aircrews to the United States by air, the European Theater Air Transport Board reduced the Air Transport Command's commitment to evacuate patients to 1,500 casualties during October. Chiefly because of the reduced requirement, the North Atlantic Division lifted only 2,566 sick and wounded men in October 1944.<sup>27</sup>

During the autumn of 1944, the North Atlantic Wing had planned to route all air evacuation aircraft through the Azores and Bermuda and thence either to Miami or New York beginning on 1 November 1944. On a visit to Europe in September, Maj. Gen. C. I. Smith, the Air Transport Command's chief of staff, had committed the ATC to another project: the evacuation of 2,000 patients a month from Orly Airfield at Paris directly to the United States, by-passing the United Kingdom altogether. Getting badly-battered Orly Airfield ready for air evacuation would take time, but, according to plan, all patient traffic

was scheduled through <sup>Lis</sup> Leipzig and Bermuda effective 1 November. Within a few days, this routing had to be made subject to change. Because strong headwinds often made the Azores to Bermuda flight impracticable, Stephenville was used as an alternate so that planes would not be detained on the ground in the Azores. The changed schedules necessarily demanded some changed locations for air evacuation personnel of the wing. With reduction of the patient load, the European Division pool of evacuation teams at Stephenville was relieved, and European Division personnel accompanied patients only from Prestwick to <sup>Lis</sup> Leipzig. The two flights of the 829th Medical Air Evacuation Squadron were based at Kindley Field, Bermuda, and two flights of the 822d Squadron were located at <sup>Lis</sup> Leipzig. Single flights of the 822d were at Stephenville and Ford Totten, New York (West Mitchell <sup>L</sup> and LaGuardia Fields). The aero-medical crews were shuttled between their base and the next station and returned to their own base. Apparently because of fewer casualties available for transport, the North Atlantic Division transported only 1,792 patients in November 1944, of whom 1,147 originated in Europe. 23

The European Division of the Air Transport Command opened a base unit at Orly Airfield, six miles south of Paris, on 9 September 1944, and planned to make the base the main ATC

terminal on the continent of Europe. According to one estimate, the ATC should have begun evacuating patients from Orly on 15 October, but shortages of logistical support would not permit regular turn-about of C-54 aircraft, and more time was needed to manage for medical facilities. The onset of what would be one of the bitterest winters in the history of Paris further complicated the beginning of extensive ATC operations at Orly. Colonel Lipin, who had been in charge of air evacuation at Prestwick, moved to Orly as base surgeon, and medical arrangements took shape. Situated four miles north of Orly, in bomb-blasted school buildings, the U.S. 1st General Hospital eventually provided 460 beds for holding patients awaiting air evacuation. The 806th Medical Air Evacuation Squadron, which had served trans-Atlantic duty from Prestwick earlier, arrived on temporary duty at Orly on 6 December. Military C-54's, flying "Crescent" schedules from Wilmington, Delaware, and "Snowball" schedules from Presque Isle, Maine, were going to perform the patient lift from Paris via the Azores. On the afternoon of 7 December 1944, air evacuation began from Orly when a C-54 took off with sixteen wounded patients. Seven C-54's departed with patients on the next seven days, but then a week of solidly impossible flying weather halted all air evacuation from Orly. After this weather continued to be

marginal, but, during December 1944, Orly nevertheless dispatched a total of twenty-two planes with 351 patients.<sup>29</sup>

Although the North Atlantic Wing used the mid-Atlantic route to evacuate 2,202 patients in December 1944, the adverse weather and deficiencies in turn-around maintenance facilities at Orly Airfield permitted evacuation of only 1,055 patients from the European theater. New flight schedules, moreover, posed some difficulties. Medical air evacuation from Prestwick to <sup>Lajes</sup> ~~Lajes~~ had to continue, but after 5 December transport flights from <sup>Lajes</sup> ~~Lajes~~ to Prestwick were discontinued and air evacuation personnel from the European Wing had to return to Prestwick via Paris. The need to use Stephenville on Newfoundland as an alternate to Kindley Field, Bermuda, meant that patients required more protection from the cold weather of the northern latitudes. Additional blankets and comforters were too bulky for the amount of warmth they furnished, and they presented a tremendous laundering problem. As a temporary solution, the Air Transport Command sent a large shipment of Quartermaster-issue sleeping bags to the Azores. These half-length zipper-closing bags were unsuitable for patients with leg injuries, but they served fairly well for many other patients. In most cases, however, C-54 cabin heaters maintained enough warmth so that the sleeping bags were not needed. With warming

weather in the spring of 1945, however, the North Atlantic Division would cease to use the bulky sleeping bags.<sup>30</sup>

During the latter months of 1944 the establishment of general hospitals on the European continent created a large reserve of patient beds, which were adequate to absorb considerable numbers of patients who would otherwise have had to have been evacuated to the United States. The all-out German offensive mounted during December 1944, however, inflicted heavy casualties and demanded increased evacuation. On 11 January 1945, the European theater stated the policy that all men who could not be returned to duty within 120 days would be evacuated to the United States.<sup>31</sup> The surface vessel transport lift allocated to the European theater could return 20,000 patients a month, but the theater needed to evacuate 24,000 a month. Recognizing the emergency, the theater Air Priority Board allotted air space to 1,500 patients in January and to 2,000 in February 1945.<sup>32</sup> Working hard in the periods of good weather in the first and last weeks of January, the North Atlantic Division moved 2,380 patients to the United States. In the month, Orly outstripped Frestwick as the point of departure from the European theater, as it would continue to do during the remaining months of the war. On the eastern seaboard of the United States, local weather conditions and heavy patient

traffic early in January made for hectic moments. Patient reception facilities in the New York area became overcrowded and planes with patients had to be diverted to Wilmington, Dow, Grenier, Presque Isle, and Westover Fields. Late in the month, many evacuation planes were forced to unload patients at Presque Isle, and this station's base hospital was seriously overloaded. Despite continuing bad weather, air evacuation was in full-swing at Orly on 1 February 1945, when the 815th Medical Air Evacuation Squadron relieved the 806th there. The North Atlantic Wing evacuation schedule called for the dispatch of one C-54 with eighteen litter patients each day from Prestwick and three C-54's each with sixteen litter patients each day from Orly. Using these schedules, 2,295 patients departed the European theater in February, and, with other patients added in the Azores, the North Atlantic Division transported 2,981 sick and wounded men to the United States.<sup>33</sup>

While the Air Transport Command had met its assigned quotas for patient evacuation from Europe, the Supreme Headquarters Allied Expeditionary Forces wanted air transportation for 4,000 patients a month.<sup>34</sup> Attaining such a capability would require more planes for the Atlantic airlift, but the North Atlantic Division began to plan an expansion of its patient airlift to 5,000 a month, with 4,300 patients of the total to

originate in Europe. To accomplish the expansion with the least congestion to existing facilities, the North Atlantic Division scheduled flights of ambulatory patients from Prestwick via Iceland and started dispatching two litter planes a day from Prestwick over the old North Atlantic route on 24 March. European Division aeromedical evacuation personnel accompanied patients from Prestwick to New York. Added evacuation flights loading at Orly travelled the mid-Atlantic route. At one time during March, the C-54's were evacuating so fast from Orly that station personnel could not cut orders fast enough. In a space of nine and one-half hours on Easter Monday, 2 April, twenty-five litter C-54's were dispatched with 389 patients from Orly in a record operation for C-54 transports. The all-out evacuation followed several days of bad weather. In a peak month up until that time, 4,604 patients were evacuated from Orly and Prestwick during March, but the record was shattered in April, when 5,406 patients were lifted from the two stations. Altogether, in April 1945, the North Atlantic Division airlifted 6,196 patients to the United States. The emphasis upon aeromedical evacuation during this month was well illustrated by the fact that two out of every three west-bound C-54's departing Prestwick in April carried full loads of sick and wounded men.<sup>35</sup>

Early in 1945, the approach of victory in Europe and the added importance of the aeromedical evacuation mission caused changes in the North Atlantic and European Divisions. The European Division took command of all ATC stations in Italy on 1 February 1945, and in March a detachment of air evacuation teams went from Orly to Naples to handle local air evacuation flights flown to Casablanca in C-47's. Late in April, a general reorganization of medical air evacuation units was also effected in the North Atlantic and European Divisions. Late in December 1944, the North Atlantic Division had disbanded the ~~latter~~ flights of the 822d and 829th Medical Air Evacuation Squadron and had reactivated them as six flights of the 830th Medical Air Evacuation Squadron. Subsequently, three additional flights had been assigned to the division. Effective on 1 May 1945, these nine flights were attached to the European Division and were divided between Prestwick and Orly Airfields. Effective on 10 May, the European Division also <sup>due to</sup> ~~received as assigned units~~ the 810th, 814th, and 815th Medical Air Evacuation Squadrons <sup>from the 1st Troop Carrier Command</sup>. These squadrons were disbanded and <sup>reformed as</sup> ~~reformed as~~ <sup>twelve</sup> numbered flights of the 830th Medical Air Evacuation Squadron, and these flights were divided between Prestwick, Orly, and Naples. In addition to the 830th flights, the 817th Medical

Air Evacuation Squadron (of the D' Troop Carrier Command) was attached for trans-Atlantic flights from Orly Airfield.<sup>36</sup>

The assignment of all AIC aeromedical evacuation resources in the Atlantic to the European Division looked toward what would be the largest month of the trans-Atlantic aeromedical evacuation effort. As the war in Europe was ending, the War Department wanted to evacuate as many sick and wounded men from Europe as possible before air and naval resources were redeployed to the Pacific. In May 1945, the evacuation policy of the European and Mediterranean theaters was accordingly lowered to 60 days. The concentration of air evacuation flights at Orly and Prestwick allowed the North Atlantic Division to institute a shuttle system for air evacuation personnel. To commence the system, pools of evacuation teams were initially located at each evacuation station on the North Atlantic and mid-Atlantic routes; after this, evacuation teams leaving Orly and Prestwick flew only one leg of the journey and were then placed at the bottom of the flight roster at the next station. After about 24-hours, the team's names came up to the top of the station roster and it proceeded on the next leg of the trip. At the end of the trip, the teams received 24- or 48-hour rest leaves (the length depending on activity in the system) in the United States before reporting for return directly to Orly or

Frestwick. The shuttle system insured that all personnel flew the 100 hours a month which was the desirable time, and all participated in the entire evacuation operation, and all were enabled to return regularly to the United States.

The only problem in the system was to devise a way to replenish the pool at the Azores, for North African Division air evacuation teams continued to turn-around there. Five special teams were eventually added to the pool at <sup>Lis</sup> ~~Lis~~ to relieve evacuation personnel on planes arriving from Casablanca.<sup>37</sup>

Using the new shuttle system in the latter part of the month, the North Atlantic Division evacuated the war's peak monthly trans-Atlantic total of 7,247 patients in May 1945. In this month more than 80 per cent of the westbound passengers from Frestwick were patients. Of May's peak total, 6,984 of the patients originated in Europe, but, with the conclusion of hostilities, the air evacuation from the European Wing tapered downward to 5,606 in June, 5,883 in July, 5,479 in August, and 1,931 in September. The reduction of patient lift from Europe in September was caused by a concentration of C-54's in Pacific for employment in the airborne occupation of Japan. With the conclusion of hostilities, however, the flow of casualties naturally diminished. On 1 August 1945, evacuation

out of Prestwick ceased and air evacuation personnel there and in the pool at Vee's Field on Iceland were transferred to Orly Airfield at Paris, the originating point of the sick and wounded being flown to the United States. By mid-September 1945, the weekly rate of air evacuation from Europe was stabilizing at 350 to 500 patients a week. The aeromedical evacuation effort from Europe was entering its post-war phase.<sup>38</sup>

#### 4. Aeromedical Evacuation from the Mediterranean and India

Early in World War II Axis control of the Mediterranean had forced the Air Transport Command to establish its routes to the Middle East through the Caribbean, the South Atlantic, and Equatorial Africa. During 1943, Allied victories in North Africa, Sicily, and Italy, together with the acquisition and development of air base rights in the Azores permitted the Air Transport Command to plan shorter routes to the Mediterranean and the East. Looking toward this end, ATC's Africa-Middle East Wing was divided into North African and Central African Sectors on 7 June 1943, and on 15 December 1943 the two sectors became wings and the old Africa-Middle East Wing was discontinued.<sup>39</sup>

At its creation, the North African Wing became responsible for the operation of certain scheduled air transport flights in the North African theater, under the supervision of the Mediterranean Air Transport Service, and for the operation of the

ATC inter-theater route from Dakar to Marrakech to Algiers to Tripoli to Cairo to Lydda to Abadan and to Karachi. In order to handle the small amount of inter-theater aeromedical evacuation underway, Flight C of the 808th Medical Air Evacuation Squadron in December 1943 went to Cazes Airfield at Casablanca and sent a small detachment to Payne Field at Cairo, Egypt. The chief function of the Payne Field detachment was to provide in-flight medical care for patients evacuated from the Persian Gulf Command to Cairo and for these and other patients evacuated from Cairo to Casablanca. Routine evacuation was not extensive: an average of one planeload of sick men each week from Abadan in the Persian Gulf Command and two or three loads of patients a week from Cairo to Casablanca moved within the North African Division. Any patient requiring air evacuation to the United States was specially scheduled for movement. Between 1 January and 3 May 1944, however, Flight C evacuated 689 patients within the North African theater and 254 patients to the United States.<sup>40</sup>

As Allied forces moved from North Africa to Italy in the spring of 1944, the North African Wing of the Air Transport Command expanded its intra-theater mission. In March 1944, the Mediterranean Air Transport Service also turned over trans-Mediterranean airline services to the ATC and to the RAF

Transport Command, and on 7 March the North African Wing inaugurated regular operations to Capodichino Airfield at Naples. Taking advantage of the new airfield at <sup>Lajes</sup> ~~Lajes~~ in the Azores, the Air Transport Command in February 1944 inaugurated a C-54 "Crescent" service which originated at Wilmington, Delaware, extended through Newfoundland and the Azores to North Africa and went thence across North Africa and the Middle East to India.<sup>41</sup> Anticipating an increase in medical air evacuation work, the North African Wing received the 808th Medical Air Evacuation Squadron's Flight D as replacement for Flight C (which returned to base) on 28 May, and, on 27 June, Flight joined Flight F at Cozes Airfield, Casablanca. On 4 June, the Mediterranean Allied Air Forces, citing a shortage of hospital ship platoons, requested the North African Wing to undertake air evacuation from Italy to the United States, and, within a few days, the North African Theater of Operations (NATOUS) established a requirement for the movement of <sup>18</sup> eighteen litter patients a day from Naples to the United States, commencing on 20 June 1944. To accomplish the mission, the North African Wing planned to commit three C-47 aircraft to fly daily schedules to and from Naples and Casablanca via Oren; the third plane was a "second by" at Naples which would additionally make afternoon evacuation flights between Foggia-Terzi and Naples.

At Casablanca, the patients would be trans-shipped to the United States aboard C-54's.<sup>42</sup> Several "Crescent" C-54's were apparently equipped with web-type litter straps for the trans-Atlantic patient lift. In addition to these military C-54's, Pan American Airways began to fly two round trips a week with C-54's between Miami and Casablanca via Ecuador and the Azores, and these planes could be made available for aero-medical airlift.<sup>43</sup>

The North African Wing was prepared to commence air evacuation from Naples as provided on 20 June, but, for some reason, MATOUSI had not coordinated the program with the Air Priorities Board at Allied Forces Headquarters, and this board initially objected to the diversion of airlift involved. Early in July, however, the Priorities Board authorized the North African Wing to move a test lot of 300 patients from Naples to Casablanca, using the return capabilities of a regularly-scheduled C-47 flight. When the test worked smoothly, the Priorities Board directed the North African Wing to move 600 patients a month from Naples to Casablanca using a daily-scheduled C-47 flight, starting on 19 July. In order to provide in-flight medical care for this air voyage, Flights A and B of the 808th Medical Air Evacuation Squadron moved to Naples. Each day, an air evacuation team accompanied up to twenty

litter patients on board the C-47 which departed Naples at 0630 hours, stopped long enough at Genoa for the patients to receive a hot lunch, and landed at Casablanca at approximately 1710 hours in the afternoon. As a further outgrowth to the Naples evacuation in August, the North African Division was directed to evacuate up to 1,000 patients a month from Italy to Casablanca, including Brazilian patients who, as has been seen, were to be subsequently evacuated from Casablanca to Dakar <sup>by</sup> C-46 aircraft. To accommodate the added patients, the North African Division soon began to employ web-belt equipped C-46's on the Naples to Casablanca evacuation lift.

During the first full month of aeromedical work -- August 1944-- the North African Wing evacuated a total of 825 patients.<sup>44</sup>

At the same time that it was beginning to evacuate casualties from Italy, the North African Division was also preparing to handle aeromedical evacuation from Karachi to the United States, for, on 1 September 1944, all Pan American Airways C-54's would begin to fly from Miami to Karachi, via Bermuda, the Azores, and North Africa. To handle the load from Italy and to prepare for evacuation from India, the four flights of the 825th Medical Air Evacuation Squadron were assigned to the North African Wing on 21 July 1944. At first, three of the flights were stationed at Casablanca and one at Ceixo, but,

with the beginning of the evacuation from India, one of the flights moved from Casablanca to Karachi.<sup>45</sup> In preparation for the expanded air evacuation mission, the North African Division considered that it had made adequate plans, but the sudden increase in patients together with a shore grounding of trans-Atlantic C-54's in late September 1944 gave rise to severe scheduling difficulties. In order to prevent an overloading of the holding facilities in the 56th Station Hospital at Casablanca in case of bad weather between that section and the Azores, the Peninsular Base Section at Naples held up patients when requested, but Hastings Hill in India was too remote to permit such a close coordination of patient movements. During September 1944, air evacuation totals jumped to 1,436 patients, but, in the third week of the month, C-54's at Casablanca were temporarily grounded for mechanical difficulties and the local holding facilities were soon seriously overcrowded. The difficulty was shortly overcome, and, during October 1944, the North African Division successfully evacuated a total of 1,407 patients.<sup>46</sup>

Largely because of a reduction in casualties received from Italy, air evacuation work sharply declined on the North African Division beginning in November 1944. In context with the reorganization of such units throughout the AEC, the

Flights of the 808th and 825th Medical Air Evacuation Squadrons assigned to the North African Division were discontinued effective 5 November 1944 and were reinstated at their current locations as numbered flights of the 830th Medical Air Evacuation Squadron. Continuing the already familiar schedules, air evacuation teams at Karachi accompanied patients to Cairo with a refueling stop at badan; teams at Cairo took over for the journey to Casablanca, making a stop at Castel Benito, Tripoli, where patients were fed; and nurses and technicians from Casablanca escorted sick and wounded men to the Azores. The two flights of air evacuation personnel at Naples escorted patients to Casablanca. Returning to their stations on a priority two basis, the flight attendants normally managed their turn-arounds without difficulty. In February 1945, air evacuation teams experienced some delay returning from Cairo to Karachi, but enough of them filtered back to keep the reduced evacuation airlift going. The only other problem during the winter season was the continued inability of the Karachi detachment to provide three blankets for each litter patient dispatched to the United States. According to standard procedure, originating stations were charged to draw upon theater water-shipped stocks to supply litters and blankets to accompany patients all the way to the United States. At times in January and February

1945, however, Cairo had to supply blankets for patients arriving from Karachi insufficiently prepared for the journey to the United States. Other than for these complications, North African Division air evacuation followed a slow but measured pace: 515 patients in November 1944, 915 in December 1944, 789 in January 1945, and 711 in February 1945.<sup>47</sup>

After a winter of reduced activity, North African Division aeromedical evacuation began an upward trend in March 1945 as American troops in Italy and Burma prosecuted offensives to end the war. At Naples, following the assumption of authority over Italian AMG operating locations by the European Wing, the two 830th Squadron flights were relieved for rotation to the United States by the arrival of two medical officers and twelve evacuation teams from the 815th Medical Air Evacuation Squadron on 15 March. With the resumption of campaigning in Italy, these teams accompanied two C-47 flights daily from Naples to Oron and to Casablanca. Receiving its patients from Karachi and Naples, the North African Division gave aeromedical airlift to a total of 3,614 sick and wounded men during the months of March through May 1945. At the ending of the war in Europe, patients evacuated by the North African Division declined to 882 in June and to 978 in July 1945. After August,

air evacuation markedly decreased each month so that by the autumn of 1945 only one hospital plane a week came through Cazes Airfield from India.<sup>48</sup>

5. Trans-Pacific Air Evacuation

Activated on 5 January 1943 with headquarters at Hickam Field, Hawaii, the Pacific Wing of the Air Transport Command supported the several theaters and theater air forces in the broad reaches of the Pacific: the Central Pacific and Seventh Air Force, the South Pacific and Thirteenth Air Force, and the Southwest Pacific and Fifth Air Force. Although Brig. Gen. William O. Ryan, the wing commander, knew that his mission required the development of military airlines throughout the Pacific, his resources in 1943 were little more than the C-87 aircraft flown by contract carriers -- Cons Airways and United Air Lines. To meet specific intra-theater needs, air evacuation was developed by Fifth and Thirteenth Air Force troop carrier authorities in New Guinea and in the Solomons during 1943. In these early months, however, no American offensives were prosecuted in the Central Pacific, and, in this Seventh Air Force area, moreover, distances between islands were so vast as to make it difficult for twin-engine troop carrier transports to operate. Chiefly because of its lack of adequate capabilities, the Pacific Wing from March to November 1943

transported an average of only twenty-two patients a month, the majority being transferred from Australia to the United States.<sup>49</sup>

Up until the autumn of 1943, long-range air evacuation in the Pacific had not caught the imagination of the theater commanders, but when Central Pacific planners began work on plans for Operation "Galvanic" -- the invasion of Makin, Tarawa, and Apemama Atolls in the Gilbert Islands -- air evacuation assumed new significance. The base hospitals supporting this invasion would be in Oahu, almost 2,000 miles from the Gilberts. This would be a long voyage aboard naval ships for seriously wounded men. Air transportation for sick and wounded men would be a necessity. To provide forward area air transport services, the Central Pacific Combat Air Transport Service (CENCATS) was organized at Funafuti from air units provided by the Seventh Air Force, the Marines, and the Navy. A C-47 detachment of the 19th Troop Carrier Squadron together with Marine C-47's and C-53's would operate between <sup>the</sup> atoll ~~and~~romes, while Navy PB2Y's would serve the newly captured atolls until airfields were built on them. Funafuti, however, was 2,307 airline miles from Oahu, and this would be the link over which the Pacific Wing would need to evacuate patients. In order to provide capabilities for medical evacuation, the Air Transport

Command assigned ten crews and five C-54A aircraft, each equipped with Evans stretchers to carry twenty-four patients, to the Pacific Wing. Simultaneously, the 809th and 812th Medical Air Evacuation Squadrons, which were ready at Bowman Field, were assigned to the Seventh Air Force. Moving to Hamilton Field by commercial air, the 809th Squadron was transported aboard the five air evacuation C-54's to Hickam on 11 and 15 November 1943. After a more arduous journey by train and boat, the 812th Squadron joined the already-operating 809th in Hawaii on 21 December 1943.<sup>50</sup>

The Marines were scheduled to land on Tarawa Atoll on 20 November 1943, and Major Andrew D. Henderson, commander of the 809th Medical Air Evacuation Transport Squadron, lost no time in deploying his squadron. A flight surgeon, six surgical technicians, and two clerks went to Funafuti, and a second detachment comprising a flight surgeon, six nurses and six technicians, and two clerks established an evacuation center at Canton. One C-54A was posted to Canton. On 18 November, the 809th Squadron evacuated sixteen survivors of two B-24 crashes from Funafuti for its first missions, but requirements placed upon it following the beginning of the invasion of the Gilberts were relatively light. According to plan, enlisted surgical technicians of the 809th flew

forward to evacuate patients in CENCATS planes and other patients were brought to Funafuti by surface vessel. When sufficient sick and wounded men accumulated at Funafuti, two nurses and two technicians accompanied the C-54 from Canton, picked up the casualties, and returned to Canton, where two relief nurses and one technician came aboard to accompany the plane back to Hickam. Meanwhile, another C-54 took station at Canton, bringing replacement nurses and a technician forward. Despite the smoothness of this air operation, Funafuti was off the most direct sea lanes to Hawaii (it was 704 miles southeast of Tarawa) and few vessels brought casualties there. Pending the completion of airfields in the Gilberts, moreover, most CENCATS planes could not land in the combat area. In November, only four evacuation missions with seventy-two patients were completed by the 809th Squadron, and, in December 1943, the 809th and 812th Squadrons completed only ten missions with 175 patients.<sup>51</sup>

The occupation of the Gilberts were preliminary to a major thrust into the Marshall Islands which was to begin on 1 February 1944 with the invasion of Kwajalein and Majuro Atolls and would conclude with the capture of Eniwetok Atoll. In order to get further forward, the 809th Squadron moved its air evacuation center from Canton to the recently-completed Mullinix

Field on Ella Island, Tarawa Atoll, on 5 January 1944. Using their pooled resources, the 809th and 812th Squadrons now flew evacuation missions directly from Oahu to Tarawa with the return leg via Canton, and, benefiting from a field in the combat area and a regularly-scheduled once-a-day hospital flight between Oahu and Tarawa, the two squadrons made twenty-five C-54 flights to evacuate 367 sick and wounded men during January 1944. In February, as campaigns began in the Marshalls, nurses joined the forward air evacuation center which had been moved to better facilities on Betio Island of Tarawa Atoll, and, instead of returning via Canton Island the C-54's soon began to refuel at Johnston Island, thus straightening and shortening the route between Oahu and Tarawa. The evacuation station at Canton was abandoned after 27 February and the personnel there moved to Tarawa. In support of the fighting in the Marshalls, CENCATS planes and surface vessels brought some casualties to Tarawa. Twenty-seven air evacuation missions lifted 285 patients to Oahu during February and forty-three missions so transported 408 patients during March, but, once again, most casualties from the Marshalls were evacuated to Oahu's general hospitals by returning troop transports and hospital ships.<sup>52</sup>

Both in preparation for forthcoming invasions of the Marianas Islands and in order to originate air evacuation closer to the source of patients, a detachment of the 812th Squadron went to Kwajalein early in March and a similar detachment of the 809th Squadron proceeded to Eniwetok on 1 April 1944. Surgical technicians of the two detachments flew aboard Marine and Army planes of the Transport Air Group (the former CENCATS) planes and returned patients to Tarawa, where C-54's with nurses aboard lifted them on to Oahu. In April, twenty-nine C-54 flights carried 436 patients to Oahu. Since Tarawa and Kwajalein were approximately the same distance from Oahu, the logical route for patients was directly from Kwajalein to Hickam, but housing for nurses was not available at Kwajalein. On 6 May, the 812th Squadron nevertheless moved the central evacuation center from Tarawa to Kwajalein. Thereafter, during May, flight surgeons and surgical technicians were assigned as medical attendants aboard the C-54's. This was an inefficient use of scarce flight surgeons, and, while the surgical technicians gave adequate service, the Pacific Wing favored the use of flight nurses as attendants whenever possible. Patients evidenced more confidence in flight nurses than in medical enlisted men. Benefiting from the proximity

of Kwajalein to the combat area, however, the C-54's flew forty missions to evacuate 512 patients to Hawaii during May. On 1 June, quarters had been completed for nurses on Kwajalein and nurses were again assigned to evacuation flights.<sup>53</sup>

In the spring of 1944, the Pacific Wing of the Air Transport Command was providing excellent long-range air evacuation services to central Pacific forces. At the same time that the five C-54A's and the 809th and 812th Squadrons were evacuating casualties from the Gilberts and Marshalls, other regularly-scheduled trans-Pacific ATC flights evacuated 719 sick and wounded men from the South and Southwest Pacific Theaters to the United States. Air evacuation personnel from squadrons in these theaters accompanied the patients to Hamilton Field, California. Up until May 1944, air evacuation operations in the Pacific Wing lacked over-all coordination, and even the evacuation in the Central Pacific was not as effective as it might have been. Although the five C-54A's committed to air evacuation were operated by the Air Transport Command, the Seventh Air Force issued the orders for their operations. The Central Pacific air evacuation squadrons were also assigned to the Seventh Air Force. Early in January 1944 General Ryan protested that the employment of five C-54's

exclusively for air evacuation was a waste of valuable planes and aircrews; in reply, the Air Transport Command reiterated that the primary purpose of the C-54's was for air evacuation but that they might be used for other purposes when the Seventh Air Force did not schedule them for air evacuation. Since the 809th and 812th Medical Air Evacuation Squadrons were assigned to the Seventh Air Force, they could not be used to accompany patients on ATC planes from the South and Southwest Theaters, even though their full capabilities were not occupied in the Central Pacific.<sup>54</sup>

Well into 1944 a shortage of four-engine transports limited the services which the Air Transport Command could provide to the South and Southwest Pacific theaters of operations, but by mid-1944 such transport aircraft were becoming more plentiful. In these same months, moreover, the projected reassignment of forces from the South Pacific theater, together with projected northward and westward attacks to the Philippines, left an important residual air transport mission vacant in the rear areas of the South and Southwest Pacific which could best be filled by the Air Transport Command. Preparatory to the activation of the Far East Air Forces on 15 June 1944, and the forward deployment of the Fifth and Thirteenth Air Forces, Air Transport Command representatives on 13 April 1944 reached

an agreement to provide 100 C-47's for operations to the rear of the troop carrier terminals in the Southwest Pacific. Activation of the Army Air Forces, Pacific Ocean Areas, on 1 August 1944 created a similar over-all Army Air Headquarters in the Central Pacific. Effective on 1 July 1944, the Pacific Wing was redesignated as the Pacific Division, with command jurisdiction over the West Coast Wing, the Central Pacific Wing, and the Southwest Pacific Wing. The activation of the Central and Southwest Pacific Wings was officially effected as of 1 August 1944.<sup>55</sup>

The projected expansion of the Pacific Division and impending operations in the Pacific Ocean Areas necessitated revisions in the aeromedical evacuation system. By War Department order on 17 May 1944, control of the five aeromedical C-54A's was returned to the Air Transport Command, and responsibility for air evacuation in the Pacific Ocean Areas was placed in the Pacific Wing. By agreement with the Pacific Ocean Areas, five C-54 aircraft and six PB2Y-3's of the Navy were committed to the Marianas operations. In view of the heavy commitment for air evacuation from Saipan, the ATC allotted five additional C-54B planes with ~~webbing~~<sup>webbing</sup>-strap equipment to the Pacific Wing on 19 June. In July, the Pacific Division traded the older

C-54A evacuation planes for five new C-54B's, each of which could carry twenty-eight patients in web-strap litter supports. With this fleet of especially-committed evacuation C-54's, the Pacific Division felt able to meet normal demands for long-range evacuation of patients from the Pacific Ocean Areas and Southwest Pacific to Hickam and from Hickam to the United States. Within a few months, however, the Pacific Division was not only employing its ten special C-54's but also a substantial portion of the back-haul capabilities of its regular C-54 schedules into Hawaii and the United States for aeromedical evacuation.<sup>56</sup>

In addition to the procurement of new aircraft, General Ryan sought to establish firmer control over the medical air evacuation squadrons. The 809th and 812th Squadrons would continue to be assigned to the Army Air Forces Pacific Ocean Areas, but they were attached to the Pacific Wing for operations on 6 June 1944. Exercising its operational control, the Pacific Division sent a detachment of the 809th Squadron to Australia during June. Quite soon, however, it was apparent that two medical air evacuation squadrons could not handle long-range air evacuation in the Pacific. In response to General Ryan's urgent request, the 828th Medical Air Evacuation Squadron reached Hickam on 28 August, where it was assigned to

the Pacific Division. Two flights of the squadron were attached to the Central Pacific Wing and two to the Southwest Pacific Wing. In August, both General Ryan and Lt. Col. Kermit H. Anderson, the Pacific Division's surgeon, pointed out the anomaly of the situation in which two air evacuation squadrons were attached and one was assigned to the Pacific Division. The air evacuation squadron organization, moreover, was unsuited to long-range ATC operations. The ATC needed separate air evacuation flights to station at its en-route base units; it did not need the large amount of administrative overhead authorized to three squadrons. Colonel Anderson proposed the organization of a flexible Pacific Division medical air evacuation group, with a small headquarters section and a large flight section. Colonel<sup>er</sup> Walter S. Jensen, the AAFPOA surgeon, and General Grant in Washington agreed that Anderson's plan was worthy of adoption, but the Pacific Ocean Areas theater was unwilling to transfer its two squadrons, and the plan could not be put into effect.<sup>57</sup> The organization of air evacuation personnel would continue to concern the Pacific Division.

During the short periods of intensive fighting in the atolls of the Gilberts and Marshalls, casualties had been

shockingly heavy, but they had not accumulated in large numbers over a period of time and were most conveniently returned to Hawaii by surface craft. Pacific Wing resources committed to air evacuation had not been fully employed during the spring of 1944. Beginning with the invasion of the Marianas-- starting with Saipan Island on 15 June 1944 and soon followed by the invasion of nearby Guam and Tinian --the Pacific Ocean Areas forces would be engaged in extensive land battles over a period of weeks rather than days. The Pacific Ocean Areas estimated that as many as 800 casualties, to be brought to the 812th's Squadron's Kwajalein air evacuation center by boat and by the Transport Air Group, would require aeromedical evacuation during the first week of Saipan operations and that some 200 patients would subsequently be evacuated by air to Hawaii. As soon as possible, the Pacific Wing intended to open an air evacuation station on Saipan, whence its C-54's could lift patients to Hickam with only the customary refueling stop on Johnston Island.<sup>58</sup>

Air evacuation from the Marianas was to be far more extensive than the Pacific Ocean Areas foresaw, for the battles were to be among the bloodiest of the Pacific War. Almost immediately after "H-hour" on D-day at Saipan -- 15 June 1944 --

naval vessels began returning casualties to Eniwetok, where an air evacuation surgeon checked them for flight back to Kwajalein in Transport Air Group planes. Other patients were returned directly to Kwajalein by surface vessel. At the main Kwajalein air evacuation center, Major D. E. Losasso, the 812th Squadron's commander, screened patients for transport aboard the three C-54's which departed each day for Oahu with medical evacuees. Aided by one flight from the 809th Squadron, air evacuation teams of the 812th Squadron worked at highest pitch to accompany 812 patients on the 2,113 mile, twelve-hour flights to Oahu during June. On 28 June, the 812th also sent a detachment of enlisted technicians forward to Saipan to accompany patients now being lifted from the battle zone by Transport Air Group C-46's.<sup>59</sup>

Early in July, the Pacific Division was requested to increase its rate of air evacuation in order to make room in forward hospitals for casualties anticipated in campaigns soon to begin on Guam and Tinian. As many as thirty-two patients were placed on board each of the C-54B's and four aeromedical flights were scheduled from Kwajalein each day. When hospitals at Oahu became overcrowded, the Pacific Division between 27 July and 15 August ran an extra C-54 evacuation flight between Kwajalein and Guadalcanal, where hospital facilities could be

made available. During this interval, 809th Squadron air evacuation teams which had accompanied Southwest Pacific patients as far as Oahu were routed back through Kwajalein to serve aboard the C-54 trips to Guadalcanal. During July, 812th and 809th air evacuation teams evacuated 1,460 patients from Kwajalein to Oahu and 74 patients from Kwajalein to Guadalcanal. During the first half of August, the Pacific Division evacuated 454 patients from Kwajalein to Oahu and another 253 to Guadalcanal, but on 15 August the 812th Squadron was able to move its evacuation center from Kwajalein to Saipan and during the second half of the month 612 patients were evacuated over 3,385 mile route from Saipan to Hawaii with routine stops at Kwajalein and Johnston. Upon its arrival on Saipan the 812th air evacuation center took over the enlisted technicians who had since 28 June given commendable care to some 750 casualties who had been returned to Eniwetok and Kwajalein aboard Transport Air Group planes.<sup>60</sup>

"Air evacuation is of prime importance here. They cannot do without it," reported Colonel Walter S. Jensen, surgeon of the Army Air Forces Pacific Ocean Areas, on 23 August 1944.

"I can't help feeling a little satisfaction, perhaps revengeful," he added, "when I remembered the statement, 'Air evacuation<sup>61</sup> has proven impracticable.'" Originally, air evacuation

across the Pacific had been considered to be something of an exceptional task, to be accomplished with special aircraft. In the Central Pacific in September 1944, however, General Ryan made efforts to integrate air evacuation into his regular business. Although the 821st Squadron could not be disbanded, its surgeons, nurses, and technicians were attached to the ATC base unit at Saipan on 15 September. The 821st returned to Hawaii as a records-keeping unit. Beginning in mid-August, medical air evacuation on the northern evacuation route was performed from Saipan by <sup>12</sup>twelve C-54 aircraft based at Hamilton Field, California, and flown by Ferrying Division crews. Originating at Hamilton, two planes a day proceeded through Hickam, Johnston, and Kwajalein to Saipan where they delivered passengers and freight and loaded air evacuees. Patients evacuated from Saipan were attended by Saipan aeromedical evacuation personnel to Hickam where they were off-loaded for hospitalization. Air evacuation personnel from Hickam accompanied other patients loaded there to Hamilton Field. On a few occasions during September special evacuation flights were sent to Saipan, but the regular evacuation system lifted most of the 1,325 patients transported from Saipan to Hickam during the month.<sup>62</sup>

Most patients airlifted on the trans-Pacific routes, in the spring and summer of 1944 originated in the Central Pacific, but the activity had begun to grow in the fledgling Southwest Pacific Wing of the Air Transport Command. In July 1944 the detachment of the 809th Squadron which had established itself in Australia provided attendants for 258 patients who were evacuated from the South and Southwest Pacific to the United States aboard regularly-scheduled transport flights. Assisted at first by the Thirteenth Air Force's 801st Medical Air Evacuation Squadron, Southwest Pacific Wing C-47's took over the air evacuation shuttle in the South Pacific and lifted 290 patients from Guadalcanal to Espiritu Santo. The first phase of the Solomons evacuation was designed to clear Guadalcanal hospitals to receive Marianas casualties brought there by C-54's from Kwajalein, but early in August the Pacific Ocean Areas decided to make use of air evacuation and the Guadalcanal hospitals in support of the invasion of the Palau Islands on 15 September 1944. During July, a 1,000-bed naval hospital was installed on Manus Island in the Admiralties, and a 100-bed holding hospital was placed at the airstrip on nearby Los Negros Island. Reaching its authorized strength of 100 C-47's in August, the Southwest Pacific Wing allocated sixteen transports specifically to the air evacuation mission on the Admiralties-New

Caledonia Axis, and with Major Hugh E. Wild in charge of the mission, a detachment of newly-arrived 828th Medical Air Evacuation Squadron personnel was located at Carney Field, Guadalcanal. Continuing to clear the Guadalcanal hospitals, the Southwest Pacific Wing carried 385 sick and wounded men to the general hospitals at Espiritu Santos<sup>o</sup> during August.<sup>63</sup>

The Pacific Ocean Areas plan for evacuation of casualties from the Palaus involved the transportation of sick and wounded men to Manus by surface vessels and the clearing of the Manus hospital by air transport to Guadalcanal, Espiritu Santo, and New Caledonia. Patients requiring more than 120-days hospitalization would be further evacuated to the United States. In the original plan, air evacuation from Nomote Airfield on Los Negros was scheduled to begin on September 19 but initial casualties in the Palaus were not as heavy as anticipated and air evacuation did not begin until 22 September. During the last week of September, however, 983 patients were flown from Los Negros to Guadalcanal, and one C-47 trip daily transferred the overflow at Guadalcanal to Espiritu Santo and Tontonta. Throughout the operation, the weather was best described as "predominantly stinko," and the C-47's had to fly circuitous routes from Los Negros to avoid Japanese antiaircraft guns still known to fire from Rabaul and Bougainville. Before the conclusion of the Major part of the Manus evacuation on

26 October, 1,268 patients were lifted from Los Negros during October, and the large general hospitals at Espiritu Santo received 890 patients flown southward from Guadalcanal. The only mishap on the Manus operation occurred on 26 September when a C-47 carrying twenty-four litter patients made a forced landing on Bellona Island, south of Guadalcanal. Only one patient was seriously injured, with a cut from a thrown propeller which crashed into the cabin and severed his trachea, but by swift work Lt. Mary L. Hawkins, the flight nurse, devised an apparatus which kept his throat free of blood and saved the patient's life. All of the patients were removed to Guadalcanal by a destroyer on the following day. For the Southwest Pacific Wing the Manus evacuation project was the first large-scale evacuation task, and it furnished invaluable experience for future operations of a similar nature.<sup>64</sup>

Originally, the Air Transport Command had announced that its planes would not be prepared to transport psychotic patients, but in the South and Southwest Pacific in the summer of 1944 psychoneurosis became a problem of importance among men who had long served in tropical areas remote from civilization. Unless such patients were rapidly evacuated to the United States they tended rapidly to deteriorate. In August 1944, the Southwest Pacific surgeon assembled seventy-two psychotic patients at

at Port Moresby and asked that they be evacuated by air to the United States. Initial efforts to evacuate these excitable men were a failure: the patients were inadequately sedated at the hospital, they arrived too early at the airstrip, and mechanical difficulties delayed take-off time. The patients became highly excited, and the mission had to be cancelled temporarily. This fiasco caused the Air Transport Command to issue new rules for the evacuation of psychotic patients. No more than five such men could be evacuated per plane, and an additional enlisted attendant had to be added to the air evacuation team transporting psychotics. In October 1944, when the Pacific Division agreed to lift 150 psychotic cases a month from the South and Southwest Pacific, the Air Transport Command undertook to procure thirty-six enlisted psychiatric attendants and these men joined the Pacific Division in December 1944. The work soon proceeded smoothly, and between March and December 1945, the Air Transport Command evacuated 5,094 psychotic and 11,803 psychiatric patients on its world-wide routes without a single fatality. All divisions transported psychiatric patients, but most were transported by the Pacific Division. It was particularly noticeable that the condition of most psychiatric patients improved remarkably when they were placed aboard planes bound for the United States.<sup>65</sup>

Late in September 1944, the Southwest Pacific theater requested the Air Transport Command to make preparations to evacuate 100 patients a week to the United States. Early in October, this evacuation requirement was increased to 1,000 patients a month and later in the month the total was increased to 2,000 a month. The Southwest Pacific planned to bring its casualties by troop carrier plane and boat to Biak, where needful cases would be dispositioned to the United States. Casualties from Pacific Ocean Areas forces, lent for the Leyte operation, were to be returned by air to Saipan and Hawaii. Additional medical air evacuation personnel would be required to handle such a load, and, on 28 October, the ATC promised that a total of seven medical air evacuation squadrons would be made available to the Pacific Division. Not all of this strength was needed at once, and obtaining and arranging it required time. Provided with replacement personnel in the United States, Flights C and D of the 829th Squadron (which had been assigned to the Central African Division) arrived in the Pacific on 10 October, as did two casual medical air evacuation flights. In accordance with the world-wide ATC reorganization of such units, the lettered flights of the 828th and 829th Squadrons were disbanded on 20 November 1944 and the personnel was assigned to six flights of the 830th Medical Air

Evacuation Squadron. In December, six additional flights of the 830th Squadron joined the Pacific Division. The 809th and 812th Medical Air Evacuation Squadrons remained assigned to the Army Air Forces Pacific Ocean Areas and attached to the Pacific Division; in January 1945, the 831st Squadron also arrived from the United States for assignment to AAFPOA and attachment to the Pacific Division. In accordance with its practice, the Pacific Division divided the lettered flights of the AAFPOA squadrons and the numbered flights of the 830th Squadron between its base units at Hickam, Saipan, Biak, and Guadalcanal.<sup>66</sup> The ~~thirty-six~~ enlisted psychiatric attendants were similarly divided between these stations. As the aeromedical evacuation functions of the Pacific Division leaped to large importance, the medical function was augmented in the division's headquarters at Hickam Field. On 17 November 1944, Colonel Robert S. Brua was designated division surgeon, and Lt. Col. Kermit H. Anderson, who had previously held the assignment, was named Division Air Evacuation Officer.<sup>67</sup>

With totals of 5,655 patients evacuated in September and 6,089 in October 1944 marking a successful evacuation effort, chiefly from the Palaus, the Pacific Division of the Air Transport Command awaited the beginning of the Southwest Pacific's invasion of the Philippines at Leyte Gulf on 20 October 1944.

On 31 October, Lt. Col. Lester O. Crago, the Southwest Pacific Wing's surgeon, sent a medical air evacuation detachment including Captain Reginald C. Randall, and Master-Sergeant Lon G. Thomas along with the Wing detachment headed by Major Hugh E. Wild to Tacloban Airfield to organize the ATC air evacuation operation. Because of strong Japanese air attacks against the beachhead and naval battles fought off-shore, transport flights to Tacloban were slow to begin. Arriving from Saipan aboard the first C-54 which brought mail and cargo and an air evacuation team on 9 November, Captain Virgil L. Gully helped load the plane with twenty-eight casualties and remained behind with the ATC detachment. After 9 November, the Central Pacific Wing continued to dispatch a daily C-54 from <sup>S</sup> Saipan to Leyte, and on 1 December the schedule was increased to two C-54's a day. On 15 December, the ATC initiated one through-trip a day from Hamilton Field in California to Leyte, replacing one of the C-54 shuttle flights from Saipan. Especially in the early weeks, the air evacuation from Leyte triumphed over great adversity but the operation was so regular that it brought great prestige to the ATC. Because of Japanese air attacks (a C-54 was damaged by bomb fragments on 14 November), the C-54's were allowed one hour in which to unload cargo and load patients at Tacloban. To conserve time, all patients scheduled for return to the

Central Pacific were screened in advance and moved to a small holding station about a mile from Tacloban. Once aboard the C-54, the sick and wounded men were flown the 1,255 miles to Saipan where they received medical care in a holding hospital before being flown via Kwajalein and Johnston Island to Hickam for definitive treatment. The Central Pacific Wing C-54's also transported sick and wounded men from Saipan and points east to Hickam: thus in early November, 411 Navy men wounded in the fleet actions off the Philippines (many were badly burned) were flown from Kwajalein to Oahu. By the end of January 1945 nearly all XXIV Corps (Pacific Ocean Areas troops) casualties had been removed from Leyte, and, starting on 29 January, all casualties from Leyte were evacuated to Biak.<sup>68</sup>

According to the Southwest Pacific Theater's air evacuation plan in support of the Philippines campaigns, the Southwest Pacific Wing moved the ATC evacuation point from Nadzab to Biak on 15 November 1944. To take care of the rearward New Guinea bases, the wing began a C-47 round-robin shuttle evacuation flight out of Biak on 21 November. With the closing of the intertheater terminal at Nadzab, patients could be flown from Biak to Hickam either by way of Guadalcanal and Canton Islands or over the new and shorter route by way of Guadalcanal, Tarawa, and Johnston. Because of slow movement of patients from the

Philippines, the first trans-Pacific flight of evacuees did not leave Biak until 26 November and only 182 patients were evacuated during that month. In December 1944, 974 men were evacuated to the United States from Biak. A sudden influx of casualties from the Philippines coupled with a rerouting to the Central Pacific of several trans-Pacific flights caused a backlog of 920 patients awaiting transportation at Biak on 9 January 1945, but, fortunately, the Pacific Division soon met the problem by routing a C-54 flight scheduled for Hamilton to Saipan to the Hamilton to Biak route instead. After this, there were no more crises in the evacuation operation, although the work increased for several months. Taking over the intra-theater evacuation from Leyte to Biak with a planned capability of 1,000 patients a month, the Southwest Pacific Wing's C-47's lifted 943 patients along this route in February, 1,261 in March, and 55 in April 1945. Simultaneously, trans-Pacific airlift moved from Biak to the United States 1,077 patients in February, 1,134 in March, and 1,296 in April 1945. The  $\frac{1200}{2}$  a month patient airlift commitment from Biak employed some two C-54's each day; in addition to other patients, each C-54 generally carried five psychotic patients who were accompanied by the special psychiatric technician. As Biak hospitals closed down, trans-Pacific evacuation operations from that station were

concluded on 4 May 1945 and only emergency evacuation cases were handled from there afterward.<sup>69</sup>

Early in 1945, while it was evacuating casualties from the Philippines through Biak, the Pacific Division was also serving an expanding air evacuation effort in the Pacific Ocean Areas. Trans-Pacific schedules were inaugurated into Guam during January 1945, and construction of quarters for nurses and air evacuation personnel was begun promptly. When the 831st Medical Air Evacuation Squadron was assigned to AAFPOA and attached to the Pacific Division on 20 January, its Flights C and D were promptly dispatched to Guam.<sup>70</sup> Late in 1944, the U.S. Navy had established a school for training flight nurses and pharmacist mates for air evacuation duty at Alameda, California, and it planned that the Naval Air Transport Service would take over the transportation of Navy and Marine sick and wounded.<sup>71</sup> When the Marines invaded Iwo Jima on 19 February, the Naval Air Transport Service was not yet prepared for extensive trans-Pacific operations, and the evacuation of Iwo casualties was a cooperative endeavor of the Transport Air Group and the Central Pacific Wing of the Air Transport Command. Mustering a strength of three Marine transport squadrons and the 9th Troop Carrier Squadron, the Transport Air Group began landing on Iwo Jima during the first week of the invasion

and it returned some 725 wounded men to the Marianas. Navy flight nurses and pharmacist mates accompanied patients from Iwo Jima. Other sick and wounded men were evacuated to the Marianas by surface vessel. On 25 February 1945, the Pacific Division flew the first Iwo Jima casualties from the Marianas to Hawaii. Although the Naval Air Transport Service also lifted casualties to Hawaii, the Pacific Division evacuated 2,603 patients from Guam and 2,548 from Saipan during March 1945. In April 1945, it evacuated 975 patients from Guam and 648 from Saipan. The vast majority (96 per cent in March) of Iwo Jima patients evacuated by ATC flights were Marine or Navy personnel. The large-scale evacuations from the Marianas coincided with a most active month of such operations from Biak, and the Pacific Division during March 1945 lifted a peak total up to that time of 9,577 patients.<sup>72</sup>

Since heavy fighting was expected, the U.S. Tenth Army desired C-54 evacuation as soon as possible after its invasion of Okinawa on 1 April 1945. Transport Air Group, Air Transport Command, and Naval Air Transport Service planes would share the work of evacuating casualties over the 1,420 miles of open water to the Marianas, and Air Transport Command and Naval Air Transport Service C-54's and R5D's (Navy C-54's) would transport the sick and wounded to Hawaii. All of the ATC flight nurses at Guam

volunteered for the hazardous flights into the combat area at Okinawa. On 8 April, the Tenth Army requested C-54 flights to newly-captured Yontan Airfield, and the Central Pacific Wing sent forward its pioneer C-54, accompanied by the Wing Surgeon, Major<sup>s</sup> John J. Van Buren<sup>s</sup> and Flight Nurse Lt. Jo Nabors. The plane also brought an advance detachment of the ATC base unit and a fork-lift for loading freight or patients. Held up in landing for forty-five minutes while enemy fighter planes were in the area, the C-54 took off from Yontan to Guam at 1300 hours with sixteen<sup>16</sup> litter patients aboard. Beginning a friendly rivalry (which several years later would be seen to be an undesirable duplication of services) a Naval Air Transport Service R5D had landed at Yontan a few minutes before the C-54 and it also evacuated a full load of sick and wounded men. By 15 April, the Pacific Division was operating three trips daily. The Transport Air Group instituted regular hauls to Okinawa on 18 April. Almost all transport aircraft returning from Okinawa lifted back<sup>3</sup> loads of sick and wounded casualties from the fierce fighting which raged on the island.<sup>73</sup>

Because of a shortage of hospital beds on Okinawa during the first six weeks of the bitter campaign, the Tenth Army dispositioned to the Marianas many men requiring as little as two weeks of hospitalization (so called "white" casualties).

During April 1945, however, casualties were lighter than anticipated, and, sharing with NATS the patients steadily fed into the <sup>30</sup>thirty-bed Yontan holding station by the Marine III Amphibians Corps Evacuation Hospital, the Pacific Division evacuated only 1,249 patients on <sup>4 1/2</sup>forty-six C-54 trips during April. Early in May, bloody battles before Naha and the enemy's Shuri line defenses caused the Pacific Ocean Areas to establish a quota of 250 patients for air evacuation a day (90 by ATC and 160 by Naval Air Transport Service) regardless of in-bound cargo allocations. In an effort to stay the drain of "white" casualties, however, the Tenth Army ordered its field hospitals to hold as many of these men as possible. Muddy roads on Okinawa also hindered the movement of wounded men to Yontan. As a result of both causes, the Pacific Division evacuated an average of only <sup>70</sup>seventy patients a day from Okinawa during the first two weeks of May. Early in the third week of May, Marine and Army liaison planes had begun to transport single stretcher patients, thus <sup>3</sup>by-passing roads made impassable by spring rains. Tenth Army hospitals, moreover, were overflowing. At this juncture, when it was reaffirmed that 250 patients a day would require air evacuation, the Pacific Division scheduled six air evacuation planes a day. As a result of the increased activity, the Pacific Division evacuated 2,565 patients from Okinawa to

the Marianas in 116 trips. The Okinawa campaign came to a close in June 1945, and patients evacuated from Okinawa by the Pacific Division declined to 1,718 in June and to 1,216 in July 1945. By 30 June, 30,848 patients, or almost <sup>8</sup>80 percent of battle casualties, had been evacuated from Okinawa -- about half by air and half by ship.<sup>74</sup>

Earlier in 1945, the Southwest Pacific Wing of the Air Transport Command had evacuated patients from Leyte in the Philippines to Biak for embarkation on trans-Pacific C-54's, but, effective on 1 May 1945, the trans-Pacific originating point for Southwest Pacific evacuees was officially transferred from Biak to Tacloban Airfield on Leyte. After 4 May, patients originating in New Guinea were moved via Biak to Leyte for hospitalization or evacuation. Coincident with the change in the evacuation point, two daily C-54 flights which had been flying to Oahu via Biak, Manus, Tarawa, and Johnston were routed from Leyte to Oahu via the Marianas, Kwajalein, and Johnston. According to agreement with the United States Army Services of Supply, the Air Transport Command would for a planned period of three to five months maintain a capability for evacuating a maximum of 1,750 patients a month from Leyte to the United States: this number of patients would be the more serious cases,

and ambulatory patients would be evacuated homeward by water transport. At Tacloban, patients were received from the 126th, 133d, and 118th General Hospitals and held in a <sup>20</sup>twenty-bed tent on the line until they could be loaded. An average of two C-54's a day, or 57 flights during the month, evacuated 1,481 patients from Leyte through the Marianas to the United States in May 1945.<sup>75</sup>

Desiring to become operational at Manila as soon as possible, the Southwest Pacific Wing laid plans for the development of a major air terminal there, only to find itself unable to secure an airfield for the purpose. For some time, ATC C-47's operated with troop carrier planes into Grace Park Airstrip and then shifted its operations into Nichols Field. In April 1945, ATC flight nurses from Leyte found quarters in a classroom of St. Joseph Academy in Manila, and, on 10 May, the ATC C-47's began to share in the task of evacuating patients from Nichols to Leyte. Because the runways at Nichols were not long enough for C-54's, the Southwest Pacific Wing did not plan to begin trans-Pacific air evacuation from Manila until about 1 July, when the Nichols runway would have been extended to 6,000 feet and other facilities, including nurses quarters, would be ready. As general hospitals began to open

in Manila late in May, however, some 400 special patients a month required air evacuation directly to the United States, and, on 1 June, the Nichols runway could serve C-54's. On 1 June, the Pacific Division accordingly routed two C-54 flights daily to Manila, and then to Leyte, and on four days a week one C-54 flight returned to the United States from Manila. Because of a delay on the part of the Manila hospitals in preparing patients for trans-ocean voyages, the first patients were not evacuated by air from Nichols for the United States until 8 June. Lack of holding facilities at Nichols inconvenienced the operation, but in June 1945 the Pacific Division evacuated 350 patients from Manila and 1,264 from Leyte. In July 1945, 414 patients were evacuated to the United States from Manila and 1,504 from Leyte.<sup>76</sup>

Early in 1945 the steadily increasing tempo of trans-Pacific air evacuation from the Western Pacific necessitated changes along the Air Transport Command routes to the West Coast of the United States. Visiting Hawaii late in January, Maj. Gen. Norman T. Kirk, The Surgeon General of the Army, stated that patients should be selected for long-distance air evacuation according to priorities in this order of precedence: maxillo-facial cases, peripheral nerve injuries, amputations,

fractures of long bones after consolidation and casting, abdominal wounds with colostomies, severe skin disorders, enucleated eyes, and psychotics. This was a matter of policy for adoption by the Southwest Pacific and Pacific Ocean Areas theaters; the Pacific Division merely transported suitable patients who were released to it by theater medical disposition boards.<sup>77</sup>

A greater problem (and one never adequately solved) to the Pacific Division of the Air Transport Command was the ordering of its aeromedical evacuation resources for intra- and inter-theater evacuation. At the start of its evacuation operations, the Pacific Division had assigned flight nurses and technicians to base units at forward and en-route bases, but the continued assignment of such personnel to remote ATC stations became tedious and unpopular to the personnel so assigned. On 17 February 1945, the Pacific Division accordingly revised its standard operating procedure and established a central medical air evacuation operations agency at the 1521st AAF Base Unit in Hawaii to control the dispatch of all medical air evacuation flight personnel throughout the trans-Pacific routes of the Division. All but three flights of the Division were attached to the 1521st; the other three flights were attached to stations in the Southwest Pacific Wing for

intra-wing evacuation. The Pacific Division continued its efforts to secure the assignment of the flights of the 809th, 812th, and 831st Medical Air Evacuation Squadrons, but Washington ruled that casualty evacuation was a theater responsibility and that the theater commander ought directly to control air evacuation resources.<sup>78</sup>

In the late spring of 1945, as Pacific Division Air Evacuation totals reached 10,203 in May and 10,327 in June (the latter month's total being the peak for the Division during World War II), the Pacific Division effected a still more centralized air evacuation organization. Effective on 22 May, the Pacific Division Provisional Medical Air Evacuation Unit was organized with headquarters in Hawaii and under command of Lt. Colonel Kermit H. Anderson. All medical air evacuation personnel in the division were attached to the provisional unit, except for one flight which continued to be attached to the Southwest Pacific Wing. Centralization of all personnel employed in trans-Pacific air evacuation effort at Hawaii allowed the discontinuation of the old system whereby air evacuation teams had shuttled back and forth between remote Pacific bases. Under the new rotational trans-Pacific system only flight surgeons and chief nurses were attached to base units for any length of time; replaced promptly by teams

dispatched to forward bases from Hawaii, air evacuation teams moved progressively closer to the west coast of the United States. With 24-hour rest stops at en-route bases, each air evacuation team made the entire trans-Pacific run. After reaching the United States, the teams rested forty-eight hours, before returning to Hawaii to repeat the cycle. The system permitted evacuation personnel to fly approximately the same number of hours each month.<sup>79</sup> Although the new system permitted a more effective employment of resources, the Pacific Division was for the first time in June 1945 forced to decline requests for air evacuation because of shortages of flight teams. This factor, as well as plans for the invasion of Japan, indicated a need for more air evacuation flights and <sup>15</sup> ~~fifteen~~ new 830th Squadron air evacuation flights reached Hawaii between 29 June and 14 August. Because of the urgency, some of the flight nurses in these flights reported directly from Paris without home leave in the United States. Despite agreement from AAFPOA that the flights of the 809th, 812th, and 831st Squadrons ought to be assigned to the Pacific Division, such action was not authorized in Washington until 3 November 1945, when the need for it was long past.<sup>80</sup>

The vast expansion of trans-Pacific air evacuation in 1945 also demanded the expansion of holding stations along

Pacific Division air routes. In January, the Pacific Division secured the commitment of 100 beds in the Hickam station hospital for holding air evacuation patients awaiting flights to the United States. This space was on the second and third floors of the hospital and was served by a single elevator. Accordingly, the Pacific Division requested the construction of a permanent type 250-bed holding unit more convenient to the flight line. Permanent construction was disapproved, but on 11 June 1945 a new 250-bed holding station was opened in converted wooden barracks buildings near Hickam's flight line. For the operation of the holding station, the ATC provided general-duty nurses and medical enlisted men. At the start of Pacific air evacuation operations, patients transported to the United States were disembarked at Hamilton Field, near San Francisco. To relieve the crowded facilities there, the station hospital at the new inland Fairfield-Suisun, (California) Air Base was designated as an 100-bed debarkation hospital on 10 January 1945. During peak periods in May and June 1945, patients had to be landed at Mills Field, San Francisco, and at Mather Field, and, in preparation for the invasion of Japan, the AAF authorized the construction of a 670-bed aerial debarkation hospital at Fairfield-Suisun, where construction was begun in June. In the late spring of 1945, an extensive

plan was begun to provide 150-bed quonset-type holding wards at Kwajalein, Guam, Saipan, Okinawa, and Manila. This work, together with the new hospital at Fairfield-Suisun, was cancelled when Japan capitulated in August 1945.<sup>81</sup>

Much of the Pacific Division's aeromedical evacuation expansion of 1945 was undertaken in context with plans for an Allied invasion of Japan scheduled to begin in the autumn of 1945. Following completion of the Okinawa campaign and major phases of the Philippines campaigns, air evacuation cases handled by the Pacific Division declined from the 10,327 patients lifted in June to 9,571 in July 1945. Aeromedical evacuation continued at reduced but respectably large numbers early in August, but, following Japan's capitulation, the commitment of all Pacific Division C-54's to preparation for and execution of the airborne occupation of Japan reduced August's total of evacuees to 4,819. To be in immediate readiness for the evacuation of repatriated allied prisoners of war (RAMP's) from Japan, the Pacific Division established pools of flight nurses and medical technicians at Guam, Saipan, and Manila. Responsibility for the evacuation from Japan was assigned to the Far East Air Forces, but the first two evacuation C-54's reached Atsugi Airfield/<sup>near Tokyo,</sup> on 9 September 1945, and began evacuation flights to the Marianas that day. The Pacific Division also furnished another C-54 to evacuate

ambulatory patients to Manila. Including 384 PAMP's, the Pacific Division evacuated 5,211 patients in September 1945. From the formal inception of the operations in the Pacific in November 1943 through 30 September 1945, the Air Transport Command had evacuated a grand total of 107,849 patients in 1,989,914 patient flying hours. <sup>182</sup> Having demonstrated its worth in wartime, trans-Pacific air evacuation was going to continue on a reduced scale in the post-war occupation of Japan and other Pacific outposts.

6. Aero<sup>1</sup>medical Evacuation in the Continental United States

From the start of World War II, aeromedical evacuation developments within the Continental United States and in the territorial possessions of Alaska and <sup>11</sup>Panama, were marked by improvisations to meet local circumstances. In May 1944, the Army Air Forces made the Air Transport Command's Ferrying Division responsible for air evacuation of patients within the Continental United States, but the system established by the Ferrying Division did not entirely supplant local air evacuation performed by other air commands, during the remainder of World War II.

Within the United States, movements of casualties of training accidents and patients requiring medical treatment

not available in their immediate vicinity normally made use of rail and motor ambulance transportation. Even in the United States, however, surface transportation proved too slow, and locally-available aircraft were required to cover the miles between remote stations and station or general hospitals. In order to evacuate critical patients from its training fields to the central hospitals at Randolph Field or Fort Sam Houston, at San Antonio, Texas, the Central Flying Training Command in 1942 authorized its station commanders either to use locally-available planes or to request the dispatch of one of the command's administrative B-18's or <sup>C</sup> B-60's to pick up the patient. Early in 1943, when the flying training program reached its peak, the command received twelve L-1C liaison aircraft and stationed them at each of its training fields. In the latter part of 1944 the L-1C planes were required for overseas service and were replaced by six UC-64's equipped as air ambulances with facilities for four litter patients. These planes were stationed at fields where they could logically serve the greatest number of persons and upon request were dispatched by post surgeons to pick up patients and fly them to the nearest appropriate Army hospital. In serious cases, both a medical officer and a nurse were sent on evacuation flights.<sup>83</sup>

25

Air evacuation in the continental air forces initially employed locally-available planes, which in time were, in some instances, replaced by committed aircraft. During 1944 some air evacuation was accomplished by the AAF Tactical center at Orlando, Florida, which employed one C-47 aircraft and a medical air evacuation flight on detached service from Bowman Field.<sup>84</sup> On 4 August 1944, one C-47 was assigned to the First Air Force's Medical Department to move patients within that command, and by the end of 1944 a total of 198 patients had been moved by this service.<sup>85</sup> Because of poor railway schedules, the Third Air Force on 22 December 1944 assigned a C-64 airplane ambulance to the three regional hospitals at Barksdale, Hunter, and Drew Fields, and these planes were available to local medical regulating officers for flights to pick up emergency patients at outlying fields. Locally-available station nurses, who had completed air-evacuation training, accompanied the planes. The C-64's were exchanged for C-47's early in 1945, and these planes moved approximately <sup>30</sup>thirty seriously ill and emergency cases each month to the regional hospitals at Barksdale, Drew, and Hunter Fields. No effort was made to move routine patients by air except <sup>i</sup>on a few cases involving exceptionally long distances and poor railway connections.<sup>86</sup>

The experience of the Caribbean Air Force, which was redesignated as the Sixth Air Force on 6 March 1942, was marked by a great reliance upon air evacuation even for routine medical cases. This air force's defense installations were widely scattered on the land masses and islands off Central America and road and rail communications were virtually non-existent. Evacuation from outlying air-warning stations were of necessity accomplished by a combination of boat and air. Transportation of patients from outlying airfields to Albrook, Howard, and France Fields in the Canal Zone -- from which patients were moved by motor ambulance to the large Army hospitals in the area -- was normally performed by C-47 aircraft of the 20th Troop Carrier Squadron as backhaul to regularly scheduled mail and supply flights. Emergency requests for air evacuation were made by radio or wire to the Sixth Air Force Surgeon who was responsible for securing the necessary flight services from the Panama Air Depot, to which the 20th Squadron was assigned. Patients requiring air evacuation to the United States were lifted from Albrook Field. During the months between January 1943 and May 1945, some 852 patients were evacuated by air within the Sixth Air Force.<sup>87</sup>

Except that the problem was one of Arctic cold instead of tropical heat, the aeromedical evacuation story in the Eleventh

Air Force in Alaska beginning in 1944 was similar to that of the Sixth Air Force. Following the conclusion of the Aleutians campaign in the autumn of 1943,\* the Eleventh Air Force's mission was a defensive one which was performed by units at dispersed stations. In order to get troop carrier organizations "out of the freight-hauling business," the Army Air Forces would have liked to have withdrawn the Eleventh Air Force's 54th Troop Carrier Squadron and to have turned all transport in Alaska over to the ATC Alaskan Division, but the War Department overruled the motion.<sup>88</sup> As a result, the Eleventh Air Force's 1st Medical Air Evacuation Flight (Separate), which was the redesignation of old Flight A, 805th Medical Air Evacuation Squadron, on 20 December 1944, furnished the personnel for intra-Alaska and some inter-theater air evacuation but utilized ATC planes for the task because these planes had cabin heat and other comforts. Stationed at Elmendorf Airfield, the Eleventh Air Force evacuation teams made monthly rotational cycles from that base to points along the Aleutian Chain and to Seattle. All patients were generally assembled at Adak, whence they were returned to Elmendorf, and thence, if necessary, flown down the coastal air route to

\* See Chap. III, pp. 170-177.

Seattle. From 1 January to 1 May 1944, the Eleventh Air Force evacuated 447 patients by air, and from 1 May 1944 to 1 July 1945 it evacuated 1,104 patients intra-Alaska and 1,450 to the United States. Throughout 1944 and early in 1945, the Flight B, 805th Medical Air Evacuation Squadron -- which was redesignated Flight 1, 830th Squadron, on 28 November 1944 -- was assigned to the Alaskan Division of the Air Transport Command and provided flight attendants for the relatively few patients evacuated over the mid-Alaska flight route from Fairbanks via Edmonton to the United States. These arrangements held good until 15 June 1945 when the Alaskan Division began to fly C-54 aircraft from Seattle to Fairbanks via Elmendorf Field at Anchorage. At this time, the ATC evacuation flight was divided between Anchorage and Fairbanks and took over C-54 evacuation to Seattle, and the Eleventh Air Force evacuation flight was transferred to Adak and limited its activities solely to the evacuation of patients from the Aleutians to Elmendorf Airfield.<sup>89</sup>

During the first few years of World War II, several commands in the United States performed air evacuation for training and utilitarian purposes. In view of the fact that the large Desert Training Center in Southern California was sparsely served by hospitals, the IV Air Support Command was

allotted a C-47 and three L-1B aircraft for employment as air ambulances in the autumn of 1942. Flight C, 805th Medical Air Evacuation Squadron reported on detached service at Thermal Airfield, Indio, California, in March 1943. In the course of maneuvers, the liaison planes picked up sick or injured men in the field, and the C-47 flew patients to appropriate general hospitals in the Southwest. In June 1943, maneuvers in the Area were nearing completion, and the air evacuation flight was returned to Bowman Field for assignment over seas.<sup>90</sup> The I Troop Carrier Command and the school of Air Evacuation occasionally provided C-47 aircraft and air evacuation personnel for emergency flights within the United States, and, in January 1944, the two organizations undertook the first large-scale air evacuation operation to be flown in the United States. At Charleston, South Carolina, Stark General Hospital was overcrowded by the sudden arrival of two hospital ships from the Mediterranean. Since hospital trains could not be obtained on short notice, General Grant asked the I Troop Carrier Command to fly the patients to five other general hospitals. The School of Air Evacuation provided flight nurses and technicians, and in <sup>10</sup>ten working days between 7 and 19 January, three C-47's made <sup>29</sup>twenty-nine trips to fly 661 patients from Charleston to the five other hospitals in the South and Southwest. Lt. Gen.

Brehon Somervill, commander of the Army Service Forces, congratulated General Arnold for the facility with which the whole matter was handled.<sup>91</sup>

The demonstration of the capabilities of air evacuation within the continental United States came at an opportune time, for the Army Service Forces in the spring of 1944 were wondering how they would be able to handle the flood of casualties which was expected from the American invasion of Europe and from more active ground battles in the Pacific. According to the Surgeon General's Office, 28,000 patients a month were expected to begin to arrive at the Seattle, San Francisco, Los Angeles, Boston, New York, Hampton Roads, Charleston, and New Orleans ports of debarkation and an additional 2,000 patients would need to make secondary movements from one hospital to another in the United States. The Army Medical Service did not have enough railway hospital cars to accommodate 30,000 patients a month. It could use standard Pullman cars to make up the deficit, but the Army Service Commands did not have the personnel needed to staff the additional cars. In view of the impending logistical emergency, the Surgeon General asked the Army Air Forces to provide domestic air evacuation for such patients as could not be transported by rail.<sup>92</sup>

Having received the requirement to undertake domestic air evacuation of patients, Major General David N. W. Grant and the Air Surgeon's Office lost no time making plans to accomplish the mission. Apparently the I Troop Carrier Command declined to accept the responsibility,<sup>93</sup> but Lt. Col. R. L. Meiling, chief of the Air Surgeon's Operations Division Evacuation Branch, got affirmative answers when he presented the problem at a conference with Air Transport Command representatives on 15 April 1944. The ATC's Ferrying Division had just begun to operate several military airlines in the United States and it could also assume the air evacuation mission. On 15 April, the ATC temporarily allocated <sup>12</sup> twelve C-47 aircraft to the Ferrying Division, and the School of Air Evacuation provided four medical air evacuation flights for detached service <sup>±</sup> at the Ferrying Division bases at Wilmington, Delaware, and Memphis, Tennessee. On 19 April, the Ferrying Division began several special air evacuation projects which, in a week, relocated 737 patients within the United States. On three days, beginning on 16 May, 640 patients were airlifted from New York to hospitals nearer their homes.<sup>94</sup>

After the period of preliminary operations, the Air Transport Command permanently assigned the domestic air evacuation mission to the Ferrying Command on 26 May 1944, and an

AAF regulation published on 6 June 1944, established the complete system necessary for domestic air evacuation. To provide central direction for domestic air evacuation an AAF Medical Regulating Office was established in the Hospital and Evacuation Branch, Operations Division, Air Surgeon's Office under the supervision of Colonel Meiling. Lt. Col. Robert H. Looney was assigned as the first AAF Medical Regulating Officer on 14 June 1944, and he would hold the position until he was relieved on 1 September 1944 by Lt. Col. F. I. Ball. This office was charged to make plans and policies and to issue daily instructions for the movement of patients by air within the United States. Designated as debarkation hospitals were the AAF hospitals at Presque Isle and Dow Field, Maine; Grenier Field, New Hampshire; Bradley Field, Connecticut; Westover Field, Massachusetts; Great Falls Field, Montana; Hamilton Field, California; Mitchel Field, New York; Bolling Field, D. C.; and Coral Gables, Florida; and the Army Service Forces general hospitals at Staten Island, New York (Halloran); San Francisco, California (Letterman), and Charleston, South Carolina (Stark). Promptly upon arrival at these hospitals from overseas, patients would be screened to determine their definitive hospitalization needs at hospitals nearest their homes. Using prearranged codes, debarkation officers reported screening results to the

AAF Medical Regulating Officer, who also received daily reports of bed credits available to him at all government hospitals in the United States. The AAF Regulating Officer made assignments of patients to specified hospitals and made necessary arrangement with the Ferrying Division for their air transportation. The Debarkation hospitals were informed where patients would go and when aircraft would call for them. Receiving hospitals were notified to be ready to accept patients. At first all communications <sup>between</sup> Washington and the debarkation hospitals were handled by telephone, but on 25 August 1944 a teletype network provided faster and more accurate communications.<sup>95</sup>

As the initial goal, the Army Service Forces had indicated that the Ferrying Division should move some 700 patients a month. Such a task could be performed by <sup>12</sup> twelve C-47's and two each medical air evacuation flights which were officially assigned to the Ferrying Division bases at Wilmington, Delaware, and Memphis, Tennessee on 27 May 1944. In early June, two additional flights of air evacuation personnel were assigned to each of the bases at Romulus, Michigan, and Palm Springs, California. In July, <sup>12</sup> twelve additional C-47's were detailed to air evacuation duty. Within a few months additional air evacuation flights were added: by 7 December 1944, when the Ferrying Division flights were organized into the 830th Air

Evacuation Squadron, three medical air evacuation flights were based at Wilmington, three at Romulus, six at Memphis, and four at Palm Springs. Many of the nurses in these flights had been rotated home from overseas<sup>✓</sup> air evacuation duty. By December 1944, ~~forty-nine~~<sup>49</sup> C-47's were committed to air evacuation -- <sup>10</sup> ten based at Wilmington, <sup>7</sup> nine at Romulus, <sup>19</sup> nineteen at Memphis, and <sup>11</sup> eleven at Palm Springs. Following the loss of a C-47 in an accident in February 1945, only <sup>47</sup> forty-eight evacuation planes remained. In the spring of 1945, however, the Ferrying Division obtained additional bases which placed the air evacuation functions nearer the principal debarkation hospitals: on 25 March, the evacuation planes and people from Palm Springs moved to Stockton Army Airfield, California, and on 25 June 1945 the Wilmington detachment moved to Fort Dix Army Air Base, New Jersey. In July 1945, the air evacuation planes and flights moved from Memphis to Fort Dix, and on 11 August three additional flights of the 830th Squadron were activated at this east coast evacuation base.<sup>96</sup>

When the air evacuation mission was officially assigned to it on 26 May 1944, the Ferrying Division planned to exercise close control of planes and personnel assigned to all evacuation purposes. Colonel<sup>9</sup> ~~Andress~~<sup>8</sup> G. Oliver, Ferrying Division's Surgeon,

had over-all responsibilities for directing domestic air evacuation, but Captain Hugh W. Savage reported to Ferrying Division headquarters in Cincinnati, Ohio, on 29 May, to serve as coordinator of air evacuation in the command's operations section. On 21 November 1944, Major Hampton C. Robinson, Jr., would assume these duties. From the AAF Medical Regulating Officer in Washington, the Ferrying Command's operations section received by telephone requirements in regard to patients to be moved, availability dates, and the identity of the dispatching and receiving hospitals. Receiving this data, the Ferrying Command would prepare a flight plan and cut special orders directing the movement of planes and people to accomplish the mission. A number of ground rules affected the performance of the domestic air evacuation missions. Medical authorities restricted flights carrying air evacuees to eight hours and thirty minutes, and, to avoid night delivery of patients, flights at night were prohibited. The nature of air evacuation thus prohibited scheduled operations. For most movements, provisional evacuation units were established consisting of a commander, an operations officer, an engineering officer, an adjutant, and several mechanics. Together with a flight surgeon, the provisional unit went to the evacuation field about forty-eight hours prior to the

arrival of evacuation planes to make all preliminary arrangements. The evacuation planes always staged forward to the evacuation field the day before an evacuation flight was scheduled. Early on the morning, the provisional unit commander informed the flight surgeon of the readiness of the planes to receive patients. After the planes were prepared to take off, the operations officer gave the flight surgeon an estimated time of arrival of the flight at the station at which the planes would remain overnight. This information was telephoned ahead so that patients could be received and cared for overnight. Once planes were en route, many factors might interrupt their planned schedule. Receiving hospitals thus not infrequently complained that they were not getting proper notice of the arrivals of evacuation planes. To relieve this situation, the AAF and Army Service Forces authorized their hospitals to receive collect long-distance telephone calls from personnel concerned with the movement of patients by air. Air evacuation personnel were now able to telephone ahead and alert the next receiving hospital on their route of the approximate time that the patients would arrive. Following the delivery of the last patients, the evacuation crews and planes returned to their home base where the provisional evacuation unit was dissolved, the crews

rested, and the planes received necessary servicing.<sup>97</sup>

The project system of scheduling evacuation flights through Ferrying Division continued to serve for the smaller evacuation hospitals and for the evacuation of patients between general hospitals in the interior of the United States. But the system was too slow to accommodate the flood of patients who arrived from overseas at Mitchel, beginning in July 1944. In that month, for example, the average patient was held at Mitchel for five days, and, in early August as many as 1,100 patients awaited evacuation at one time. At a meeting at Mitchel on 11 August, Ferrying Division representatives agreed to undertake a daily evacuation of 150 patients from this east coast debarkation hospital. A provisional evacuation unit together with two flight surgeons and three medical clerks was placed on detached service at Mitchel by the Ferrying Division. Each day the provisional unit at Mitchel received patient disposition orders from the AAF Medical <sup>Requesting</sup> office, and the provisional commander, employing planes and personnel based at Memphis, wrote orders dispatching planes and crews on evacuation flights. The Ferrying Division received information copies of the provisional unit's orders so that the planes could be profitably used on backhaul trips where appropriate. The amount of time that a patient remained

at Mitchel was reduced to an average of thirty-six hours and the backlog of patients was quickly dissolved.<sup>98</sup>

Following these established procedures, the Ferrying Division gave good air evacuation service on the East Coast during the autumn and winter of 1944, despite the arrival of a steadily increasing volume of air transported casualties from Europe. Mitchel Field was the largest single receiving and dispatching point for patients arriving from overseas. The AAF Regional Station Hospital at Mitchel was designated as a 400-bed debarkation hospital in June 1944, and it augmented its holding space by converting several barracks and bachelor officer quarters to holding facilities. In order to keep Mitchel from becoming swamped, however, the C-47's had to evacuate patients each day in about the same numbers as new patients arrived from overseas, and the domestic air evacuation effort met this objective during the winter of 1944-1945 by lifting about 100 patients a day.<sup>99</sup> In addition to the evacuation of patients from ports of debarkation in the east, the Ferrying Division redistributed patients between general hospitals. In two days, ending on 6 October, 18 C-47's and personnel from the air evacuation detachment at Romulus Airfield moved 508 patients from over-crowded Oliver General Hospital at Augusta, Georgia, to various destinations throughout

the country. One of the few accidents which would mar the Ferrying Division patient airlift occurred on 12 August 1944, when a C-47 carrying patients from Charleston crashed on take-off at Memphis, Tennessee. Cockpit flames caused the death of the pilot and severe injury to the Co-pilot and engineer but no patients were injured. After the accident, only one of the <sup>21</sup>twenty-one patients elected not to continue the trip in another C-47.<sup>100</sup>

Early in January 1945 a continuing increase in the number of patients arriving in the United States caused the Army to abandon its policy of attempting to hospitalize patients at the hospital nearest their homes, thus simplifying the air evacuation mission. The number of casualties lifted by Ferrying Division C-47's, however, grew to 4,800 in January, to 5,344 in February, and to 6,740 in March 1945; and, in March 1945, the Ferrying Division estimated that at a peak later in 1945 it might have to transport as many as 16,000 patients a month.<sup>101</sup> To handle this mission by itself, the Ferrying Division would have required additional capabilities. Under a new commander, Brig. Gen. W. D. Old, the I Troop Carrier Command had already indicated a willingness to participate in domestic air evacuation for the purpose of crew-training, and the Department of Air Evacuation, now at Randolph Field, Texas,

also required on-the-job training for replacement flight nurses and surgical technicians. Beginning in October 1944, the I Troop Carrier Command maintained an average of <sup>12</sup>thirteen transports and <sup>15</sup>fifteen crews at Randolph for use in domestic air evacuation. At first, the Randolph air evacuation planes worked wherever necessary, but, after February 1945, the Randolph activity became solely responsible for all major air evacuation from the AAF Regional and Convalescent Hospital at Coral Gables, Florida.<sup>102</sup> In an effort to secure added utilization of the planes serving the Eastern United States, the Ferrying Division on 9 February 1945 eliminated the provisional evacuation unit at Mitchel Field. Presque Isle and Bangor, Maine, debarkation hospitals were now receiving large numbers of casualties from overseas, and the Ferrying Division could no longer commit aircraft specifically to Mitchel Field. Beginning on 9 February 1945, all flight plans for East Coast evacuation missions were formulated at Ferrying Division headquarters in Cincinnati.<sup>103</sup>

Despite complaints of delays in domestic air evacuation from Mitchel Field,<sup>104</sup> the new system whereby Ferrying Division headquarters controlled all domestic air evacuation in the Eastern United States ultimately proved its worth by increasing

aircraft utilization. Making most movements east of the Mississippi during April 1945, the Ferrying Division employed <sup>15</sup> forty-eight C-47's to move 8,920 patients. Aircraft stopped at 64 airfields to serve <sup>9</sup> General hospitals, at nine airfields to serve air debarkation points, at three airfields to serve <sup>3</sup> Army Service Forces hospitals, at <sup>11</sup> eleven airfields to serve AAF Regional Station hospitals, ~~for a total of 161 facilities~~ served. <sup>2</sup> Nationwide, the Ferrying Division airlifted 9,527 patients in May, 10,791 in June, and 9,721 in July 1944. The concentration of air evacuation planes and personnel from Wilmington and Memphis at Fort Dix, New Jersey, in June and July 1945 placed air evacuation capabilities nearer sources of patients on the East Coast and reduced unproductive flying. In spite of all-out flying, however, the Ferrying Division still could not transport patients away from Mitchel, New Castle, Presque Isle, Dow, and Grenier Fields as fast as the C-54's could land them there. Accordingly, in late July, arrangements were made for the transportation of "excess" patients landed at Mitchel to <sup>1</sup> Holloran General Hospital by ambulance. This improvised arrangement eliminated an apparent necessity to slow down the flow of patients from Europe. <sup>105</sup>

Because of the distances involved, the elevation of the Rocky Mountains, and the project method of handling patients

domestic air evacuation developments on the West Coast of the United States were unique from the start. Using facilities in the AAF Regional Station Hospital at Hamilton Field, California, the Fourth Air Force activated a Debarkation Hospital on 7 July 1944, but, on 7 September 1944, a large permanent barracks near the aircraft parking ramp was opened as a 305-bed debarkation hospital. Late in 1944, the West Coast Wing of the Air Transport Command began employing 200 beds in its station hospital at Fairfield-Suisun Airfield, California, as an air debarkation hospital. C-54's in-bound from Hawaii often found better landing weather inland at Fairfield-Suisun than on the coast at Hamilton. Flying from Palm Springs, California, the air evacuation detachment of four flights of air evacuation personnel and eleven C-47's began to perform evacuation missions on 7 June 1944. Like the other detachments of the Ferrying Division, Palm Springs air evacuation people were subject to receive orders to go to any part of the United States to lift patients, but the detachment was principally employed from its beginning in air evacuation operations from Hamilton Field and Fairfield-Suisun. Because of the success of the provisional air evacuation unit at Mitchel Field, however, the Ferrying Division

established a similar unit at Hamilton Field on 13 November 1944, with authority to <sup>use</sup> ~~unite~~ flight plans for the detachment at Palm Springs in order to handle air evacuation from San Francisco and Fairfield-Suisun Airfield.<sup>106</sup>

Although the provisional air evacuation unit at Hamilton Field continued to control the West Coast air evacuation effort when the similar unit at Mitchel was disestablished on 9 February 1945, the domestic air evacuation load on the West Coast was hard to handle with a limited number of C-47's which <sup>only during daylight hours. Patients are never patient.</sup> could transport patients, received from overseas remained at Hamilton for up to five days awaiting C-47 domestic air evacuation, and, in February 1945, available holding facilities at Hamilton and Fairfield-Suisun were seriously overcrowded when C-54's unloaded far more patients than could be shipped out in C-47's. The most immediate solution was to expand West Coast holding facilities. In January 1945, the Fourth Air Force made <sup>50</sup> fifty-beds available at Portland Airfield, Oregon, to serve patients brought southward from Alaska, and, on 15 February, the conversion of another large barracks at Hamilton Field provided space for an additional 300 patients. Two hundred debarkation beds were added at Hamner Field, Fresno, California, but this facility was too far from Hamilton

and Fairfield-Suisun to be greatly useful. Patients would have had to have been flown there by C-47's and subsequently to have been picked up and redistributed by other C-47's. The West Coast Wing of the Air Transport Command opened an overnight 80-bed holding station at Mills Field, San Francisco, to accommodate C-54's which sometimes landed there, and it opened a 100-bed holding station at Mather Field, Sacramento, California, when it took over the airfield. Construction of large and ultra-modern military hospital with beds for 670 air evacuees was approved for Fairfield-Suisun in June 1945, but work was stopped on this hospital on 14 August 1945.<sup>107</sup>

The movement of the Ferrying Division's air evacuation detachment from Palm Springs to Stockton Field, California, on 25 March 1945 brought the planes and personnel used for this work much closer to the debarkation hospitals at Hamilton and Fairfield-Suisun. The Ferrying Division was nevertheless committed to move more patients from California bases than it had capability to move under existing operating rules. Since an estimated total of 16,000 patients a month would require domestic air evacuation once American troops invaded Japan, the Ferrying Division began to seek immediate means of expanding the effort -- particularly from the West Coast. The

Ferrying Division fully understood that scheduled flights would have permitted the best utilization of its scarce C-47 air evacuation capabilities, but such operations would have involved some night flying by patients and deliveries of patients to some receiving hospitals at night. On 19 April 1945, the Air Transport Command again disapproved domestic air evacuation flights during hours of darkness. Since scheduled military air transport cargo flights were often not filled on their return trips, (especially the eastbound return from the West Coast) the Ferrying Division made preparations to use these scheduled carriers for transporting ambulatory patients. In preparation for this new development, the traffic function in air evacuation flights was transferred on June 25 from the operations section to the priorities and traffic section in Ferrying Division headquarters. The first scheduled daylight transcontinental air evacuation flight left Mitchel Field on 1 August, westbound via Topeka and Ogden. The first eastbound scheduled trip began from Hamilton on 8 August, with remain overnight patient stops at Tucson, Dallas, and Greenwood, Mississippi. Cargo flights operating as air evacuation movements followed procedures governing air evacuation and carried a flight nurse and medical technician. Patients were flown only about eight hours a day and

had overnight rest stops at en-route stations. Use of these flights greatly assisted in the reduction of the backlog of 108 patients on the West Coast. Further to assist the West Coast air evacuation effort, four newly activated medical air evacuation flights and eight C-47's (replacing the same number removed from air evacuation service at Romulus) were assigned to the ATC base unit at Long Beach, California on 21 August. These crews and planes staged forward to Hamilton or Fairfield-Suisun to pick up loads of patients.

Planning for expansion of the domestic air evacuation effort included not only designs to accommodate increasingly heavy Pacific war casualties but also a formal system for evacuating patients from AAF bases to AAF regional hospitals in the United States. In order to provide better medical care and to effect savings in medical specialist skills, the Air Surgeon's Office proposed to station troop carrier aircraft at designated AAF regional hospitals to transport patients from satellite station hospitals to the larger installations.<sup>109</sup> In May 1945, tentative arrangements were made whereby <sup>85</sup>eighty-three <sup>I</sup>Troop Carrier Command C-47's would be stationed at <sup>S</sup>Jedalia Army Airfield, Missouri, and George Field, Lawrenceville, Illinois, for domestic air evacuation operations under control of the

Ferrying Division. In June 1945, the Ferrying Division also announced that its fleet of air evacuation C-47's might be increased from ATC resources by the addition of <sup>32</sup>thirty-two C-47's. To provide air evacuation personnel for the expanded effort, <sup>17</sup>ninety-seven flight nurses arrived from a short course at the School of Aviation Medicine on 7 July 1945 for three weeks of post-graduate training at Ft. Dix, Romulus, and Stockton. <sup>110</sup>When these nurses were organized into units, the Ferrying Division possessed <sup>20</sup>thirty flights of the 830th Medical Air Evacuation Squadron -- <sup>15</sup>fifteen at Fort Dix, <sup>4</sup>four at Long Beach, and <sup>11</sup>eleven at Stockton. <sup>111</sup>

Employing its <sup>40</sup>forty-eight air evacuation aircraft, the Ferrying Division of the Air Transport Command lifted 8,920 patients in April 1945, 9,527 in May, 11,072 in June, and 9,721 in July 1945. The total for June was the largest monthly total of domestic air evacuation during the war period, and when Japan sued for surrender the domestic air evacuation totals trended downward to 7,644 in August and to 5,955 in September 1945. After the war's end, the Air Surgeon's Office would implement its plan to locate a troop carrier C-47 at each of the <sup>12</sup>twelve AAF Regional Hospitals -- the deployment taking place on about 15 October 1945. When the war ended, however, the Ferrying Command dropped all plans to augment its <sup>48</sup>forty-eight air

evacuation C-47's. Instead, the command soon began to reduce the number of people and planes committed to domestic air evacuation.<sup>112</sup>

48

Routinely employing forty-eight air evacuation C-47's and a maximum of 13 flight surgeons, 153 flight nurses, 120 medical technicians, and 25 clerks, the Ferrying Division of the Air Transport Command transported a total of 103,356 patients within the United States between 19 April 1944 and 30 September 1945.<sup>113</sup> Each patient was flown an average of 1,388 miles, and only one patient died in flight, a man who was suffering from a far advanced disease when he was loaded aboard the evacuation aircraft. The only flight accident recorded by the C-47's caused no injury to the patients or medical crew-members. In addition to the domestic air evacuation provided by the Air Transport Command, the School of Aviation Medicine's Air evacuation detachment and other miscellaneous AAF commands provided air transportation for 9,808 patients in the months from October 1944 through September 1945.<sup>114</sup> Air evacuation of patients within the United States permitted good utilization of scarce medically-trained personnel, and it was popular with regional receiving hospitals because it eliminated the peak workloads which always accompanied the arrival of hospital trains. The receiving hospitals also noted that patients arrived in better condition and expressed pleasure with air evacuation.<sup>115</sup> Although

domestic air transportation of patients had proven medically beneficial, the Army Air Forces as yet had effected no comprehensive system for accomplishing the mission. Necessarily handled for the most part on an unscheduled basis, air evacuation was wasteful of scarce airplane flying time. The mission would have been more efficiently accomplished on a scheduled basis. Both the Air Transport Command and the I Troop Carrier Command independently participated in domestic air evacuation. Neither command had sole responsibility for the mission. In the post-war period, both of these problems would demand solution.

Chapter VII

AIR EVACUATION BETWEEN WORLD WAR II AND KOREA

1. Aeronautical Evacuation Accomplishments of World War II.

"We evacuated almost every one of our forward hospitals by air, and it has unquestionably saved hundreds of lives -- thousands of lives," stated General of the Army Dwight D. Eisenhower on 16 June 1945, after his return from Europe. General Eisenhower placed air evacuation in a class with sulfa drugs, penicillin, blood plasma, and whole blood as a chief factor in cutting the mortality rate of battle casualties.<sup>1</sup> Summing up lessons of World War II, the General Board of the United States Forces in the European Theater reported: "Air evacuation provides many advantages over other forms of evacuation and its use should be continued and expanded."<sup>2</sup>

The general statements of the accomplishments of air evacuation could be satisfactorily corroborated. In the thirty-nine months from September 1942 through November 1945 the Army Air Forces transported a grand total of 1,338,717 sick and wounded patients. The striking growth of AAF air evacuation was demonstrated: the monthly average of patients transported was 14,000 for 1943, compared

to 45,000 for 1944, and 56,000 for 1945. The largest monthly patient airlift of World War II came in April 1945 when 133,000 patients were lifted. Despite a continuous expansion in combat-zone air evacuation, the death rate of patients in flight dropped from six per 100,000 during 1943 to 1.3 per 100,000 during 1945. A break-down of the patients airlifted after 1 January 1944 (when more exact medical records were kept) gave a further indication of the nature of the accomplishments of AAF aeromedical air evacuation. Of 1,165,190 patients evacuated by air after 1 January 1944, 44.9 per cent were litter patients, and 34.6 per cent were actual combat casualties. The Army Ground Forces and the Army Service Forces contributed 69.9 per cent of the patient load, the Army Air Forces 6.4 per cent, the Navy and Marine Corps 4.1 per cent, and the Allies (mainly British) 16.6 per cent. Of the 1,165,190 patients transported by air, 1,901 required oxygen therapy and 154 blood plasma while in flight.<sup>3</sup>

Prior to World War II, medical authorities in the United States and abroad had feared that many patients might be endangered by flight, but the wartime experience had demonstrated that air evacuation of casualties presented many advantages to patients. No other facility offered the

compare to a seriously sick or wounded man that air transport provided. The speed of air transport markedly reduced the total evacuation time required to afford a patient the facilities of a general hospital. Speed of air transportation considerably reduced the mortality rates of patients suffering from head and abdominal injuries. Provided air superiority was maintained and cases were properly selected, air transportation had a degree of safety not equalled by other methods of transportation. The morale of patients and of effective troops was enhanced by a knowledge that rapid evacuation by aircraft and subsequent hospitalization was available within a few hours from the battle lines. A high quality of medical care could be carried out in aircraft while patients were en route. Finally, air evacuation had proven practicable from isolated or inaccessible areas where other means of transportation were neither suitable nor available. Air evacuation had also proved logistically feasible: over the same time and distances in the Pacific, 17 C-54 aircraft proved able to carry over six times as many patients as one hospital ship, and in doing this only 122 medical personnel (including six doctors) were required for air movement against 185 medical personnel (including fourteen doctors) employed on a hospital ship.<sup>4</sup>

Contrary to pre-war thinking, the experience of World War II indicated that there were only a few medical contra-indications to aeromedical evacuation. Speaking of his experience in Europe, Colonel <sup>1</sup>Erving <sup>2</sup>Bergquist stated: "We finally agreed that any patient who could be moved could be evacuated [by air]."<sup>5</sup> Medical personnel who had received adequate instruction in the care of patients while in flight enabled the Army Air Forces to fly patients safely with almost any kind of disorder, at lower altitudes (less than 3,500 feet). In the rare instances where high-altitude flights were required, selection of casualties had to be carefully made to avoid the deleterious effects of lowered oxygen and barometric pressures. Only a few classes of patients were not acceptable for air evacuation at lower altitudes. These classes included: patients in moribund or semi-moribund state; patients in such poor condition that any means of evacuation would have been hazardous (unless potential life-saving measures could be reached only by air transport); patients whose diseases presented a health menace to others aboard the plane; patients in shock; patients suffering from a recent attack of coronary occlusion or angina pectoris; and patients with severe anemia. Employing sedation, restraints, an extra male attendant,

and maximum loads of five patients per plane, the AAF had been able to transport psychotic patients by air. Through prompt return by air to the United States, complete cures were said to have been assured for 85 per cent of overseas mental cases.<sup>6</sup>

Despite the demonstrated advantages of aeromedical evacuation in a global conflict, air evacuation systems had been beset by limitations and disadvantages during World War II. Reluctance of the Army Medical Department to accept the possibilities of air evacuation required the transportation of many thousands of hospital beds and medical impedimenta to overseas theaters. In every theater, air evacuation had been ultimately accepted not because of its medically beneficial aspects but only as a tactical necessity and even then as an adjunct to "normal" surface means of evacuating patients. Handled as a backhaul concomitant to aerial resupply operations -- which had secondary importance to tactical air operations -- aeromedical evacuation operations were seldom systematized and were usually offered on an "as available" basis. The weather, the availability of aircraft, and the availability of airfields also adversely affected air evacuation. Under such circumstances, the General Board of the European

Theater of Operations stated that air evacuation could not be depended upon with any degree of certainty. In the European Theater, moreover, ground medical units were never able to depend upon an automatic exchange of property with evacuation aircrafts, particularly for such heavy and bulky items as litters, blankets, and splines. Unless air evacuation were to be recognized as a primary mission of air forces, and planes outfitted for the function, the General Board of the European Theater visualized no reduction in requirements for motor ambulances, hospital trains, and hospital ships.<sup>7</sup>

The function and the responsibility for holding patients while they awaited air transportation had not been standardized in any theater during World War II.

During World War II, AAF experience with aero-medical evacuation had been quantitatively large but fundamentally limited in scope. From the Aero Medical Laboratory at Wright Field, Colonel W. R. Lovelace in 1946 pointed out that research into the most effective organization for air evacuation had been limited because air evacuation was a combined operational (Air Force) and medical (Medical Corps) problem. Air evacuation research, Lovelace pointed out, should concern the fundamentally

different categories of problems: the short flight from the combat zone to combat theater hospitals and the long-range transoceanic flight from the theater to the zone of interior. Problems concerning the equipment, care of patients, and selection of patients were quite different for the short and long flights. Colonel Lovelace and his associates also demonstrated that the Air Force needed to concern itself with research into the medical aspects of patient transportation at altitudes higher than 3,500 feet. The effects of high altitude upon patients suffering from lesions of the brain, abdominal disease, thoracic, and cardio-vascular disease needed to be determined. Extensive research was required to simplify the equipment needs of air evacuation and to meet the demands accompanying changes in designs of aircraft.<sup>8</sup> Whether they had served with the Air Transport Command or the troop carrier forces, these nurses returning to the United States for demobilization had specific suggestions concerning air evacuation equipment. With few exceptions, the returnees recommended that box lunches and cold rations were poor food for sick or injured men. They recommended that patients should be provided with hot and nourishing food while they were aboard evacuation planes.<sup>9</sup>

Limitations under existing organizational situations had been encountered, but the transportation by air of 1,338,717 patients represented a remarkable accomplishment for a handful of dedicated Air Force medical officers who had persuaded Air Force officers to provide the planes and ground force leaders to accept aeromedical evacuation during World War II. Foremost of these Air Force medical officers was Major General David H. W. Grant, the Air Surgeon, who had led the tremendous effort. "General Grant," said one of his associates, "will go down in history as a bright and shining light, a forward looking individual -- one who had imagination, and who put his ideas into very definite effect."<sup>10</sup> The leaders in the Air Force medical service admitted that air evacuation had manifested limitations during World War II, but most of these limitations grew out of the fact that aeromedical transport work had been relegated to an importance secondary to cargo transport. "Instead of transportation of cargo being the primary function of all air transport units," recommended Colonel Lovelace, "it is advisable to form an air-evacuation air transport unit, the primary function of which is air evacuation and the transportation of medical supplies...to forward areas or to places where an emergency such as a flood, earthquake or

epidemic occurs.<sup>11</sup> Speaking of the air evacuation of World War II, Colonel M. S. Koite, Surgeon of the Air Transport Command, said: 'He may be a little prejudiced... but I think the results are pretty self-evident that any other means of evacuation on the surface... is obsolete and archaic. We have to adapt ourselves to this new form of air evacuation and convince other people that this is the best method of taking care of patients.'<sup>12</sup>

2. Post-War Air Evacuation Developments, 1945-1946.

As the wartime Army Air Force demobilized and began the process of rebuilding for postwar requirements, Major General David M. W. Grant would continue to serve as the Air Surgeon until January 1946 when he began terminal leave preliminary to retirement. Taking General Grant's post in January, Major General M. C. Grow formally became the Air Surgeon in April 1946 when Grant's retirement was effective. Like his pioneering predecessor, General Grow favored the establishment of a definite armed forces system for air evacuation, but the Army Air Forces was not yet willing to move in this direction. In the postwar Air Force, General of the Army Henry H. Arnold announced that the AAF would continue to evacuate patients by air under the primary control of the Air Surgeon. As a guide line

for planning, General Arnold stated that foreign zone of interior air evacuation would continue as dictated by requirements of theater commanders; that domestic air evacuation would continue on a reduced scale in order to support the transoceanic effort; and that didactic and practical training would continue on a reduced scale. This policy amendment did not reflect the full desires of The Air Surgeon, who believed that aeromedical evacuation should be accorded a more important role in the shrinking armed forces medical establishment, but it was accepted as the "best possible solution" for the time being.<sup>13</sup>

The principal result of the AAF policy on aeromedical evacuation was to continue this function's relationship to the Air Transport Command and to troop carrier aviation organizations. American air policy would continue to foster the development of a strong civil air fleet, but the AAF also desired to maintain a global Air Transport Command and theater troop carrier forces. In a policy statement, the War Department indicated on 20 July 1945 that the Air Transport Command should be responsible for providing intertheater air transportation and should not engage in the operation of intra-theater air transport services.<sup>14</sup> On 5 October 1945, General Arnold stated that

the Air Transport Command would be retained in the interim Air Force on a continually reducing basis and that it would be stabilized in the post-war Air Force to provide routine flying service between the United States and its overseas bases. General Arnold also desired that the ATC should always operate, either transcontinental or intercontinental, on a "model airline" on a scheduled basis in order to provide a proving ground for testing new air transport equipment and techniques. The ATC would continue to be directly responsible to the AAF, but, within the United States and in overseas theaters, General Arnold stated that troop carrier forces would be a part of tactical air forces.<sup>15</sup>

As early as July 1945, the War Department began to replace C-54 and additional C-47 aircraft to American civil air lines in order to maintain a strong civil air fleet and to relieve the AAF of the responsibility for operating a number of channels of air transport.<sup>16</sup> Rather than to incur criticism for purchasing newer transports at the same time that it was releasing transport planes to the civil air lines, General Arnold directed on 27 August 1945 that the AAF would reduce its procurement objectives for transport planes "to the absolute minima for development purposes."<sup>17</sup> In the post-war period, both the Air

Transport Command and the troop carrier forces underwent a rapid reduction which was even more severe than foreseen in ACP planning.

At the height of its wartime operations in August 1945, the Air Transport Command's nine divisions had operated 3,705 transport aircraft on every continent. In its ~~wartime~~ <sup>post-war</sup> planning, the Air Transport Command undertook to consolidate the North Atlantic, Caribbean, and South Atlantic Divisions into a single Atlantic Division; to merge the European, North African, and India portion of the India-China Division; to assign the China portion of the India-China Division to the Pacific Division, and to have a new Continental Division absorb the Ferrying and Alaskan Divisions. In accordance with these plans, the Atlantic Division was established on 20 September 1945 and included the areas formerly occupied by the North Atlantic, South Atlantic, and Caribbean Divisions. On 28 February 1946, the Ferrying Division was redesignated as the Continental Division, and, effective 1 April 1946, the new division assumed control of the residual operations of the inactivated Alaskan Division. On 12 January 1946, the China Wing was redesignated to the Pacific Division, and, on 15 February, the India-China Division was formally discontinued when the India Wing was assigned to the

North African Division. In May 1946, the North African Division was reduced to wing status and placed under the jurisdiction of the European Division. In the Pacific, a provisional Japan Wing was redesignated as the Japan Wing on 16 January 1946, and, after experimenting with a wing-base organization, the Pacific Division reorganized on 10 April 1946, with subordinate wing headquarters: the Western Pacific Wing, with headquarters first at Cebu and soon at Tokyo, represented a combination of the former Southwest Pacific, China, and Japan Wings; the West Coast Wing which was established at Hamilton Field was redesignated as the Eastern Pacific Wing, and moved its headquarters to Fairfield-Suisun, California; the Central Pacific Wing was dropped and the wing-base at Hickam was placed directly under the Pacific Division. All of these reorganizations were the result of sound planning, but budgetary limitations soon forced additional consolidations which were less soundly conceived. As of 26 September 1946, the Continental Division was consolidated with the Atlantic Division, under the latter's designation. The Atlantic Division became responsible for all of the Continental Division's operations except those to Alaska, which were assumed by the Pacific Division. In a further economy move on 1 July 1947, moreover, the Atlantic

Division assumed control of the European Division, which was reduced to wing status. In the postwar demobilization and reconstitution, the Air Transport Command by June 1948 had reached a peak strength of six divisions and 680 aircraft, not all of which were transport planes.<sup>18</sup>

At the peak of its World War II strength early in 1945, the Army Air Forces had possessed a total of 243 tactical groups, of which 32 were troop carrier groups. According to its postwar plan, the AAF expected to taper down its tactical strength of 105 groups, including 11 troop carrier groups, to a minimum stabilized strength of 75 groups, of which 10 were expected to be troop carrier groups. In order to assume control of the troop carrier groups in the Continental United States, the IX Troop Carrier Command assumed command at Scott Field, Indianapolis, Indiana, on 5 November 1945 vice the inactivated I Troop Carrier Command. Following the decision to use the term "command" to apply to major Air Force organizations, the IX Troop Carrier Command moved to Greenville Army Air Base, South Carolina in January 1946 and was inactivated on 31 March 1946. At this time, the Third Air Force (Troop Carrier) was activated at Greenville to assume the mission of the old IX Troop Carrier Command. By the autumn of 1946,

however, only two troop carrier groups remained in the United States. No longer able to maintain the luxury of a headquarters to control two groups, the AAF inactivated the Third Air Force (Troop Carrier) on 1 November 1946 and placed continental Troop carrier groups under the Ninth Air Force. Unable to maintain its strength on reduced appropriations, the United States Air Force after its creation on 18 September 1947 gradually dwindled downward so that by 1950 it included only 48 groups, of which only 6 were troop carrier groups. Three of these troop carrier groups, moreover, were equipped with C-54 aircraft and were better suited for strategic air transport than for classic troop carrier functions.<sup>19</sup>

Seen from the vantage point of the Air Surgeon's Office in Washington, the global aeromedical system passed through a series of overlapping phases which ranged from peaks of achievement in the summer and autumn of 1945 to a state of "an almost complete collapse" by December 1945. With the cessation of battles in Europe, three center medical air evacuation squadrons were transferred effective on 10 May 1945 to the AAF's European Division for trans-Atlantic employment and were disbanded and reformed as flights of the 830th Medical Air Evacuation Squadron. The

806th Medical Evacuation Squadron remained at Villieoublay Airfield near Paris with assignment to the 306th Transport Wing for post-war intra-theater air evacuation in Europe. The remaining theater air evacuation squadrons in Europe were redeployed to the United States for reorganization and further service in the Pacific. While the squadrons awaited redeployment many of their personnel made cross-Atlantic flights with the Air Transport Command. After August 1945, however, cross-Atlantic airlift of patients declined sharply, for the majority of the backlog of patients had been removed from Europe by all-out air and truck evacuation, and C-54 aircraft were being concentrated in the Pacific.<sup>20</sup>

In the theater of operations in Asia and the Pacific, none of the medical air evacuation squadrons from Europe saw action because of the atom-bombing of their redeployment and the sudden collapse of Japan in August 1945. In preparation for a projected invasion of Japan, moreover, most of the Asiatic and Pacific theaters had already been disposing of their long-term patients, and the absence of an accumulation of sick and wounded men permitted a fairly rapid demobilization of medical air evacuation squadrons. Stated for retention in the Far East, the 801st Medical Air Evacuation Squadron remained assigned to the Thirtieth Air

Force in the Philippines. The Fifth Air Force's 804th and 820th Squadrons handled a heavy load of repatriated Allied military personnel from Japan in September 1945, but inter-  
 charter air evacuation then became minimal and both squadrons were inactivated at <sup>Yokota</sup> ~~Yokota~~ Air Base in Japan in March 1946.<sup>21</sup> In India in August 1945, the 821st Squadron was released as surplus, but in India and China the 803d Squadron continued to provide enlisted technicians to receive very patients lifted on troop carrier or air transport planes. On 16 December 1945, the AIC's Utility Division began to evacuate patients from China through Shanghai; now the few remaining personnel of the 803d Squadron were transferred to the AIC's 830th Squadron and the 803d was inactivated.<sup>22</sup> In December 1945 in the Pacific, the 809th, 812th, and 831st Medical Air Evacuation Squadrons which had been long attached to the AIC's Pacific Division were assigned to it and were disbanded and reformed into 830th Squadron Flights.<sup>23</sup>

In the United States, the end of World War II cut short various plans which were about to expand the domestic aeromedical transportation services provided by the AIC's Ferrying Division and the I Troop Carrier Command. Both for purposes of training and utility, the I Troop Carrier

Command's 434th and 439th Troop Carrier Groups continued to provide <sup>12</sup> ~~sixteen~~ C-47's and crews to the School of Aviation Medicine for special air evacuation flights, and the number of detached planes was further increased in October 1945 when a single C-47 and aircrew was stationed at each of the <sup>12</sup> ~~twelve~~ AIC regional hospitals to handle local air evacuation. Employing 48 C-47 aircraft and 30 flights of the 330th Medical Air Evacuation Squadron which were stationed at Fort Dix, Stockton, and Long Beach, the AIC Ferrying Division continued to provide most of the special air mission capability for lifting patients from points of aerial debarkation to hospitals in the interior of the United States. After the war's end, domestic air evacuation patient loads declined sharply from 5,449 patients lifted in October, to 3,697 in November, and to 1,797 in December 1945. Declining requirements permitted cutbacks in the air evacuation forces. The Ferrying Division released 18 air evacuation C-47's as surplus on 5 November, and, on 1 December 1945, the Ferrying Division obtained the airfield at Topeka, Kansas, which it expected to make "the hub of activity for all air evacuation in the United States." During the winter of 1945-1946, the Ferrying Division stabilized all its air evacuation strength at Topeka, finally employing 16 C-47's for the mission. The

Ferrying Division's air evacuation flights were located at Topok, together with all the remnants of other 830th Squadron evacuation flights which were excess to ATO requirements and awaited final disposition. When it took charge of troop carrier functions, the III Troop Carrier Command initially continued existing arrangements, but, in December 1945, the 349th Troop Carrier Group at Bergstrom Airfield, Austin, Texas, began to provide C-46 aircraft for cooperation on-call missions with the School of Aviation Medicine. These larger planes could handle patient-life requirements with fewer sorties than could the older C-47's.<sup>24</sup>

Although the AAF global air evacuation system continued to function in the months of demobilization following the end of World War II, the personnel capabilities of the system rapidly declined. In Europe in November 1945, the 806th Medical Air Evacuation Squadron possessed only six flight nurses and two enlisted medical technicians. In the Far East, the 801st Squadron had <sup>17</sup>seventeen nurses and seven enlisted technicians. The flights of the 830th Squadron working in the continental United States numbered a total of only six trained flight nurses and two medical technicians. For want of trained people, the Air Transport Command attached nurses and enlisted men with little experience in

air evacuation to the continental air evacuation flights at Topeka, Kansas. Shortages of nurses and technicians in the ATC's Pacific Division lengthened the time required to clear ensurbies from overseas hospitals in that area.<sup>25</sup>

When he entered the Air Surgeon's Office in January 1946, Major General Malcolm C. Crow took immediate steps to rebuild the ATC's air evacuation system. A first task was to reopen air evacuation nurse and technician training which had been suspended under wartime quotas at the School of Aviation Medicine in November 1945. Starting in February 1946 with <sup>12</sup> ~~twelve~~ students enrolled, the new flight nurse course was of nine weeks' duration. The first five weeks were didactic and the final four weeks consisted of supervised participation in actual aerial evacuation work. The air evacuation technicians' course of six weeks' duration was reopened with 77 students in June 1946. Numerous changes dictated by the experience -- including instruction on the care of psychotic patients -- were incorporated in both courses. In view of the importance of the work in the post-war Air Force, the School of Aviation Medicine was assigned to the Air University on 1 April 1946 without change of location. To strengthen the practical aspects of the air evacuation courses, the 131st Medical Air Evacuation

Squadron was reactivated as a combined operational and training unit at Randolph on 15 July 1946.<sup>26</sup>

Once training in air evacuation was reopened at Randolph in early 1946, the Air Surgeon's Office began to plan for post-war air evacuation in the continental United States. General Crow had two reasons for wanting a strong peacetime domestic air evacuation program. The Army Medical Corps was short of specialists, and, if rapid air transportation were available, patients could be moved to hospitals where particular specialist skills were concentrated. Air evacuation would again be vitally needed in a time of war, and the maintenance of a strong peacetime domestic air evacuation system would preserve an organization which could be rapidly expanded for war. Since special air evacuation missions had always been costly in terms of aircraft and personnel, the Air Surgeon's Office suggested two phases of post-war domestic air evacuation:

1. Scheduled airline operation between large hospitals, and feeder-line operation from these hospitals to points of origin or delivery of patients.<sup>27</sup>

The Air Staff of the Army Air Forces readily approved the plan of peacetime medical air transportation offered by General Crow, but several months of arduous

negotiations were to follow. Both troop carrier and air transport forces were in the throes of reorganization, and these commands found it difficult to make operational commitments. Because of curtailments in its strength, the IX Troop Carrier Command asked to be relieved of the responsibility for maintaining the <sup>11</sup> twelve C-47's at the <sup>12</sup> ~~RAF~~ Regional Hospitals, and, in February 1946, the Army Air Forces asked the Air Transport Command to submit recommendations looking toward its assumption of the entire domestic air evacuation work. As has been seen, the <sup>13</sup> sixteen air evacuation C-47's still used in the United States had been concentrated in the 3d Military Air Transport Group at Topeka, Kansas, during January 1946, and all <sup>14</sup> ~~the~~ <sup>15</sup> ~~the~~ <sup>16</sup> ~~the~~ <sup>17</sup> ~~the~~ <sup>18</sup> ~~the~~ <sup>19</sup> ~~the~~ <sup>20</sup> ~~the~~ <sup>21</sup> ~~the~~ <sup>22</sup> ~~the~~ <sup>23</sup> ~~the~~ <sup>24</sup> ~~the~~ <sup>25</sup> ~~the~~ <sup>26</sup> ~~the~~ <sup>27</sup> ~~the~~ <sup>28</sup> ~~the~~ <sup>29</sup> ~~the~~ <sup>30</sup> ~~the~~ <sup>31</sup> ~~the~~ <sup>32</sup> ~~the~~ <sup>33</sup> ~~the~~ <sup>34</sup> ~~the~~ <sup>35</sup> ~~the~~ <sup>36</sup> ~~the~~ <sup>37</sup> ~~the~~ <sup>38</sup> ~~the~~ <sup>39</sup> ~~the~~ <sup>40</sup> ~~the~~ <sup>41</sup> ~~the~~ <sup>42</sup> ~~the~~ <sup>43</sup> ~~the~~ <sup>44</sup> ~~the~~ <sup>45</sup> ~~the~~ <sup>46</sup> ~~the~~ <sup>47</sup> ~~the~~ <sup>48</sup> ~~the~~ <sup>49</sup> ~~the~~ 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during a single procedure month. By mid-March 1946, the Continental Division nevertheless submitted a domestic air evacuation plan involving 27 C-47's -- 15 to be based at Topeka for scheduled operations and 12 to be stationed at regional hospitals. Such a number of aircraft could accommodate up to 6,000 patients a month, and the Continental Division proposed to lift Veterans Administration patients as well as military patients. In preparation for implementing this plan, 15 newer-model C-47B aircraft were refurbished and assigned at Topeka in place of the same number of old C-47A planes. Within a few months, the Army Air Forces disapproved the commitment of so many aircraft to domestic air evacuation, but it suggested an alternate plan involving 18 C-47's -- 8 to be operated on twice-weekly schedules on four cross-continental routes out of Salina, Kansas, and 10 to be based for feeder services at as many airports in the United States. Coming events, however, were going to overtake the implementation of this plan.<sup>29</sup>

Although future plans were much in doubt, the Continental Division's 3d Military Air Transport Group at Topeka and the School of Aviation Medicine continued to perform domestic air evacuation missions during 1946 on a

special air mission basis as directed by the AF Medical Regulating Office in Washington. By early 1946 patients no longer arrived at airports of debarkation from overseas in great numbers, nor were many patients in need of transfer from one hospital to another within the United States. Under such circumstances, aircraft and crews flew many dead-head hours to pick up a few patients and then to return home from delivery points. Employing the seven flights of the 830th Squadron which remained at Topeka on 30 June 1946, the Continental Division transported only 4,982 patients from January through October 1946, for an average of approximately 500 patients a month. The largest single patient airlift occurred in June, when the Kennedy General Hospital at Memphis, Tennessee, was transferred to the Veterans Administration, and 450 military patients were redistributed to military hospitals by Topeka-based planes. During 1946 several of the air-evacuation teams at Topeka were especially trained and equipped to handle emergency movements of poliomyelitis patients. These teams went anywhere in the world that they were needed. From Randolph during 1946, air-evacuation personnel of the School of Aviation Medicine and later of the 831st Medical Air Evacuation Squadron flew special air evacuation missions, using C-46's or C-47's

from the 349th and its successor 62d Troop Carrier Group at Bergstrom Field, Austin, Texas. These flights combined medical evacuation and utility.<sup>30</sup>

Even before the new plan for medical air evacuation approved by the AEC could go into effect, it was overtaken by war economy moves within the Air Transport Command. On 26 September 1946, the AEC Atlantic Division assumed responsibility for the operations of the former Continental Division, and the Atlantic Division drew up a new plan for medical air evacuation transportation which would be put into effect. The Atlantic Division soon effected plans to employ C-54 air evacuation planes on transcontinental runs in the United States and Eric P. Hoar and C-47's for medical evacuation flights. The Atlantic Division assigned five air evacuation C-54's to Worcester Air Base, Massachusetts, which were charged to make twice-weekly transcontinental "San Juan" flights to and from Fairfield-Suisun Airfield, California. To provide medical attention on the "San Juan" C-54's and leader air evacuation service, the Atlantic Division divided the 830th Squadron's flights and the 18 air evacuation C-47's at Topsham into three equal detachments. One detachment went to Worcester Field, the second to Warner-Robbins Field, Macon, Georgia, and the third remained to operate at Topsham but



early in 1947. The American C-54's made scheduled flights between Westover Field, the Washington National Airport, Warner-Robins Field, Kelly Field at San Antonio, Texas, Biggs Field at El Paso, Texas, and Fairfield-Suisun, and then returned over the same route. The six evacuation flights and six C-47's based at Westover, Warner-Robins, and Lowry and the School of Aviation Medicine service at Randolph gathered or delivered patients to or from the main Savannah stops. The Atlantic Division also scheduled a weekly "Humanitarian" C-54 flight from the Panama Canal Zone to Brookley Field, Mobile, Alabama. The flight nurse and medical technician assigned to this flight took an earlier flight to Balboa, where they rested before returning aboard the "Humanitarian."<sup>32</sup>

Domestic air evacuation was now primarily an airline type operation, but the Atlantic Division was still able to mass planes and accomplish large-scale patient movements. In six days ending on 20 January 1947, 250 patients who had debarked from a hospital ship were moved by air to destination hospitals from McChord Air Base. On 16 April, two air evacuation C-47's lifted medical supplies and air evacuation personnel from Randolph to Texas City, Texas, which had been nearly demolished by the explosion

of a ship in the harbor. After delivering supplies, the air evacuation planes flew injured patients to hospitals outside the disaster area. In the greatest single day's mass evacuation since World War II, a C-54 and 18 C-47's lifted 202 patients from Hamilton Field on 22 July. To have moved these patients to their varied destinations by means of the single Army hospital train in service would have required not less than 200 weeks. Personnel of the 831st Squadron from Randolph participated in the patient airlift from Hamilton, and, in August, these technicians and nurses employed AEC planes to transfer a large number of psychotic patients from the Veterans Administration hospital at Little Rock, Arkansas, to another Veterans Administration hospital at Des Moines, Iowa. Counting both the scheduled and special air evacuation missions, the Aeronautic Division provided transportation to 18,322 patients within the United States during 1947.<sup>33</sup>

During the first four months of 1948, the AEC Aeronautic Division's domestic aeromedical airlift system continued to gain in reliability and in acceptance. Patients entered the United States at Moscow, Fairchild-Suisun, Spokane, Washington, Crane Field, Monterey, and Mobile, Alabama, and were quickly moved to their destinations

by the domestic trunk-line and feeder service. Patients were also moved to hospitals and between hospitals in the United States by means of the feeder system and trunk line. Above four engines, cable wire handled each route from small section hospitals to general hospitals. Given the advantage of rapid patient movement, many hospitals developed into specialized centers: brain surgery patients, for example, were flown to Walter Reed in Washington, D. C., respiratory cases to Fitzsimons General in Denver, amputees to Brooks General at San Antonio, Texas. Working 24 hours a day and seven days a week, the Atlantic Division's domestic air evacuation system transported 6,699 patients in the months of January through May 1948. The system was not yet perfect: the air evacuation detachment at Lowry Field, for example, could have functioned more efficiently at West Airfield on the West coast such as Fairfield-Suisun or Hamilton. But the system was nevertheless serving its purpose successfully.<sup>35</sup>

Development of a sound system of care and medical evacuation within the United States occupied much of the attention of The War Relocation Authority during 1946 and 1947, but provision of air evacuation services to American occupation forces overseas was not neglected. According to

concern, air evacuation services in Europe were to be the combined concern of the European Air Transport Service (Provisional), which was established on 1 October 1945, and of the European and Atlantic Divisions of the Air Transport Command. Pending the withdrawal of American troops from those areas, the North African Division would continue to handle necessary patient evacuation from India, the Middle East, and North Africa. As a planning objective, the Air Transport Command wished to confine its European overseas air evacuation operations to the removal of patients from <sup>to</sup> Orly Airfield, Paris, France, to the United States.<sup>35</sup>

In the fiscal year ending 30 June 1946 a reduction in the number of patients requiring air evacuation in Europe permitted the Air Transport Command and the European Air Transport Service to work out more permanent arrangements. Assigned to the European Air Transport Service which station at Villacoublay Airbase, Paris, the 806th Medical Air Evacuation Squadron's decreasing numbers and technical no flew special missions aboard troop carrier planes. Between October through December 1945, the 806th Squadron handled only 873 patients, and, from January through April 1946, the squadron provided in-flight medical care for only 174 sick and wounded. Some patients were picked up in Great

Britain and France, but most were transported from Germany to Orly Airfield. Because of its slim strength, the 806th Squadron had no people to accompany patients still being flown out of Naples, Italy to Casablanca for return to the United States. The 17C European Division accordingly maintained a direct line of flight across the Naples until December 1943 when the patient movement ended. At Orly Airfield, the European Division embarked fewer and fewer patients during the return of 1945, and only 2,099 patients were loaded at Orly for New York in the months of October through December 1945. Early in 1946 the patient load further declined, and only 455 were embarked at Orly for the United States in the months of January through April 1946. Since it could handle its duties with only two C-54 flights a week, the European Division relieved all but three of the 830th Squadron air evacuation flights assigned to it.<sup>36</sup> As had been the case during the war, the C-54's from Orly served the Atlantic Division route to the Azores, Bermuda or Newfoundland, to Mitchell Field.

In the winter of 1945-1946, the 17C North African Division employed one 830th Squadron air-convoy flight to accompany a few patients who were carried aboard a regularly-scheduled transport flight on legs between Gibraltar and

Nuremberg, Nuremberg to Cairo (where patients rested a day), and from Cairo to Paris. Patients originating in Casablanca were flown above a regular transport flight to the Azores.<sup>37</sup> Other patients requiring more specialized diagnosis or therapy than could be afforded within the Iceland, Greenland, or Newfoundland Base Commands were evacuated to the United States either in the through-flying C-54's from OCAF, or in special airer Co in the event of an emergency.<sup>26</sup>

In the spring of 1946 new patterns of air evacuation began to emerge as medical groups were concentrated in Europe, principally in Germany. On 31 May, the 106th Squadron moved to Wiesbaden, Germany, where its principal duty was to see gray patients flown to the group exercise plants back to OCAF. This was a tough, the AFG Luceplan Division would control over the dispatched operations of the 106th North Atlantic Division. With the movement of forces to Germany, the size of the holding unit near OCAF Airfield was reduced to only 20 beds, and the Air Transport Command was asked to schedule C-54 flights out of OCAF regularly in order to prevent overcrowding of the medical holding unit. In the course of 1946, the Atlantic Division had difficulty providing exact schedules for air evacuation plans: for one thing, the Chief Section of the Luceplan Chapter

could not specify how many patients might regularly need evacuation from Germany, and, for another, C-54 experience in the European Division was poor and scheduling "guaranteed" flights of any kind was difficult. In June 1946, the Atlantic Division was assigned responsibility for air evacuation from Europe, and, in August, the Atlantic Division began to fly one scheduled "Benefactor" C-54 flight per week from Westover Field to Germany, via Southampton and London, and return. Eachbound, "Benefactor" carried freight and passengers, and it returned to Westover with medical evacuees. Moving to Manich Air Base in September, the 806th Squadron's nurses and technicians continued to accompany patients to Germany. This phase of the squadron's work ended on 11 December, however, for "Benefactor" began to take patients from the newly-completed Rhein-Main Field at Frankfurt, Germany.<sup>39</sup>

Reduction in American troop strength and the concentration of forces at a few large bases in Germany, early in 1947 eliminated most requirements for inter-theater air evacuation. During the first four months of the year, the 806th Medical Air Evacuation Squadron handled only 10 patients, and, to save scratch, the European Air Transport Service inactivated the squadron on 3 May 1947.<sup>40</sup> Departing Westover each Monday, weather permitting, the Atlantic

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Division's "Benefactor" C-54 flight transported/military traffic to Rhein-Main and received a normal load of 20 patients from the 97th General Hospital for return to the United States. Early in 1947 two of the medical air evacuation flights from Rhein-Main were transferred to Westover, but one flight remained attached to the European Division to accompany the land-bound patients. After leaving Germany, "Benefactor" remained overnight at <sup>Lajes</sup> Lajes in the Azores for crew and patient rest and then returned to Westover via Stephenville, Newfoundland. During 1947, Stephenville became the holding point for patients moved there from bases north of Newfoundland; these patients were lifted to the United States in guaranteed space aboard "Benefactor." When it assumed command over the European Division (concurrently reduced to wing status) on 1 July 1947, the Atlantic Division made no changes in the "Benefactor" system. During the month, however, the remaining medical air evacuation flight at Rhein-Main Airfield was transferred to Westover. Air evacuation teams from Westover now deadheaded east on "Benefactor," and accompanied patients on the land-bound return leg. 11

With air evacuation from Europe proceeding smoothly, the Atlantic Division continued the scheduled patient

airlift from Rhein-Main to Westover during the latter part of 1947 and the first part of 1948. In September 1947, adverse weather and maintenance troubles caused irregular "Benefactor" runs and a backlog of patients built up at Frankfurt, but the Atlantic Division promptly scheduled an extra C-54 as long as it was needed to eliminate the excess patients at Rhein-Main. To avoid cold weather on the northern route, "Benefactor" was routed through Bordeaux instead of Stephenville during December 1947. Because of a reduction in winter transportation from Europe, the Atlantic Division added a second C-54 evacuation flight to the "Benefactor" schedule. This plane went once a month from Westover to Fort Lyautey, North Africa, to Rhein-Main, and return. Without great difficulty, the Atlantic Division returned an average of 120 patients a month from Europe to Westover during the first four months of 1948.<sup>42</sup> Air evacuation from Europe had become a smoothly operating function which gave satisfaction to everyone concerned.

In view of the rugged terrain, adverse weather, poor surface conditions, and the way island bases running out into the Kuriles, regular air evacuation within and from Alaska would continue to be of primary significance in the post-war period. After the conclusion of hostilities,

American group although in Alaska no records, but a simultaneous reduction in land medical facilities extended the continuance of air evacuation services. As a result of procedures, the Alaska Air Command sought to hold to a 90-day evacuation policy and to direct air evacuation into one "medical" theater to be performed within Alaska and the "strategic" evacuation of patients from it to the United States by the Air Transport Command.<sup>43</sup>

Under Alaska medical air evacuation was the responsibility of the 1st Medical Air Evacuation Flight whose personnel flew in aircraft of the 54th Troop Carrier Squadron under the supervision of the Alaska Air Command's mission. In June 1945, the 1st Flight was stationed at Adak, which was the hub of transportation in the Aleutian chain. As a result of routine, the Alaska Air Command kept the three flight crews of the 1st Flight working between Adak and Nome Anchorage as Anchorage. Routinely, one air evacuation trip was scheduled the first part of each week to pick up patients at Sitka, Kodiak, Umanak, and Cold Bay and to evacuate them to the 1830 General Hospital at Anchorage. The plane that made this flight remained at Anchorage to evacuate patients from Nellyton, Nulato, and Airbault to the 1830 Hospital. It was replaced by the

were then arriving at Anchorage. Under this plan, which  
 remained into effect through 1946 and 1947, the carriers shifted  
 approximately once a week, and one carrier was always at Adak,  
 one at Anchorage, and one was in flight. The only major  
 difficulty presented to the intra-theater medical airlift  
 was a frequent lack of proper handling in the troop carrier  
 planes; many times, evacuees were delayed when a plane's  
 loading system failed. In a few instances, wind and weather  
 prevented landings at island airfields, but, with a  
 few isolated exceptions, all emergencies were evacuated  
 within 24 hours of the receipt of a request for evacuation.<sup>44</sup>

After 15 June 1945, the Air Transport Command was  
 responsible for airmedical evacuation from Alaska, as well  
 as from other sections in Canada. Because of changes in  
 Air Transport Command organization, responsibility for airmedical  
 airlift from Alaska and Canada was transferred from  
 the inactivated Alaskan Division to the Continental Division  
 effective on 1 June 1946 and to the Pacific Division on 16  
 October 1946. Located in the post-war period at Anchorage,  
 Alaska, but transferred to Great Falls Air Base, Montana,  
 on 1 June 1947, Flight 1, 830th Medical Air Evacuation  
 Squadron, provided the in-flight medical attention required  
 by patients transported from Anchorage over the coastal

Flight route to McChord Field at Tacoma, Washington. Despite the changes in command, the air evacuation procedures from Alaska changed very little. The Alaska ushers had an assigned quota for daily air evacuee trips per month, and once a week patients were placed aboard a regular C-54G passenger flight at Elmendorf Field and were flown southward to Tacoma, where they were transferred to the Madigan Central Hospital, Fort Lewis, Washington. While Flight I was at Anchorage, medical attendants joined patients there, but, when it moved to Great Falls, the medical personnel departed northward and made the round-trip flight from Great Falls to Elmendorf to McChord to Great Falls. Patients originating at services in Great Falls were transported directly to Great Falls, where they were loaded in a standard military transport flight to the Regional Hospital at Spokane, Washington. In 1947, however, the domestic air evacuation service assigned by the Atlantic Division began to transport the chest and head patients who usually required evacuees from Great Falls to Spokane each week.<sup>45</sup>

Aeromedical evacuation had been well-developed in the Pacific during World War II, and it would continue to serve American forces during the occupation. United States forces in Japan, Okinawa, and the Philippines were soon

served by regional level medical facilities and surgical  
 transportation, but occupation forces in Korea were  
 isolated. Early in 1946, the Fifth Air Force Surgeon,  
 Colonel M. A. Byrne, drew up plans for medical air evacua-  
 tion of sick personnel from locations in Japan and Korea.  
 Through the 50th Medical Air Evacuation Squadron based in  
 the Philippines, Colonel Byrne arranged to place these  
 flight nurses on temporary duty at Mishima Air Base,  
 Japan, with the 317th Troop Carrier Group, which continued  
 the charge to provide medical air evacuation from Korea.  
 Since the air evacuation function from Korea was soon seen  
 to be of primary importance, the responsibility of the <sup>501st</sup> ~~662nd~~  
 Squadron was transferred to Tachikawa in September 1946,  
 and one flight continued to Clark Air Force Base on Luzon  
 to handle local air evacuation requirements in the  
 Philippines and the Ryukyus. Throughout 1946 four-  
 engine air evacuation functioned in a "highly satisfactory" man-  
 ner. 46

In view of the fact that the 50th Medical Air Evacuation  
 Squadron hospital series in Japan, air evacuation's prin-  
 cipal mission in the Far East during 1947 was to serve outlying  
 garrisons, and the number of patients transported by air  
 was fairly small. During December 1947, for example, 201

patients were transported by air and 149 of these patients were lifted from Kingo Airfield at Seoul, Korea. Most of these patients were embarked at Inchon, for hospitalization in the Tokyo area. Flying in 317th Group aircraft, personnel of the 801st Medical Air Evacuation Squadron made two regular air evacuation flights to Kingo each week during most of 1948, but, with the reduction in United States forces in Korea, the number of flights was reduced to one a week. In addition to its primary, airdift duties, the ~~801st~~ <sup>801st</sup> also provided occupational medical care for dependents in the Technical area. Including the work of personnel on temporary duty on Guam and Okinawa, the 801st accompanied 2,180 patients to flight during 1948.<sup>47</sup>

Post-war <sup>trans-Pacific</sup> medical air transport would continue to be of importance, and plans for it were prepared at a conference assembled by the United States Army Forces in <sup>the</sup> Western Pacific (AFWPAC) at Manila on 25 September 1945. Here it was agreed that the Air Transport Command would provide regularly scheduled C-54 evacuation flights from the major air terminals in the Far East. With the resumption of air evacuation flights on 3 September 1945, two C-54 flights left Manila each day with evacuees. On 26 October 1945, scheduled air evacuation trips were

commenced from Asugi Air Base, near Tokyo. By November 1945, almost all war-inflicted casualties had been removed from the Far East, and the Pacific Division of the Air Transport Command began to prepare itself for its regular post-hostilities evacuation tasks. Within the Pacific Division, the Western Pacific Wing would be responsible for embarking patients at the major air terminals: Nichols and later Clark Field on Luzon, Asugi and then the new Hameda Airfield at Tokyo, and Hameda Field at Cebu. The patients would be embarked by the Eastern Pacific Wing at Fairfield-Maisan Airfield, California. During November and December 1945, all Pacific Division air evacuation flights were returned to the central section at Nichols Field, Hawaii; and, following the last personnel mobilization action in May 1946, the Pacific Division received five flights of the 830th Medical Air Evacuation Squadron. To handle flights in the Western Pacific, the Pacific Division dispatched air evacuation teams to an air evacuation pool at Cebu, and here, after about 24-hour wait, the teams were dispatched to Tokyo or Manila to pick up patients.<sup>49</sup>

From the start of its post-war trans-Pacific aeromedical airlift program, the Pacific Division sought to employ for aeromedical evacuation regularly-scheduled C-54

passenger aircraft of which certain case-bound trips were reserved for air evacuation. The maximum loading for air evacuation trips was established at thirty patients, and the number of general patients was restricted to a normal load of five patients. An extra medical technician continued to accompany mental patients. During the spring of 1946, the Pacific Division scheduled four C-54 trips per week for air evacuation, three per week (90 patients) from Tokyo and one per week (30 patients) from Manila. Guam and Kwajalein added additional patients to the Manila load when it came through with less than 30 patients aboard. In February and March 1946, the number of air evacuees transported by the Pacific Division suddenly dropped to 250 and 154. The Pacific Division was having difficulty with maintenance and found it hard to make time schedules, and Army medical officers preferred to use hospital space aboard Army transports. With improving maintenance, C-54 schedule reliability increased and more patients were transported by air beginning in March 1946, but the arrival of two hospital ships at Tokyo during July led the Pacific Division to originate only one air evacuation flight there each week. Disturbed by the lack of stabilized air evacuation conditions, Colonel Oliver K. Niles, the Pacific

division's Surgeon visited the Surgeon General of the Army Forces Pacific (AFCPAC) in Tokyo during July, 1946, and as a result confidencés in the aircraft were 25 per cent of all patients transported from the Western Pacific could be moved by air. The utilization of definite quotas of patients to be evacuated benefited scheduling, and, during 1946, the Pacific Division evacuated a total of 4,074 patients.<sup>59</sup>

Having changed to afford serviceable air evacuation during the transitional year of 1946, the Pacific Division of the Air Transport Command afforded exceptionally reliable overseas air evacuation services throughout 1947 and early 1948. The Air Force Command, following a 120-day evacuation policy, established a definite air quota of 150 patients per month from Japan and 60 patients per month from Manila. The Pacific Division and the rest of patients from Cor. to 50 per month. In Tokyo, the 42nd General Hospital and the 36th General Hospital (the latter handling psychotics) processed patients for air transportation from Honshu air base. Manila patients were sent from the 16th General Hospital at Fort McArthur, to Nichols Field and (after April, 1947) to Clark Field for flight. Cor. patients were sent from the 163d General Hospital to Haganon Field. The Pacific Division scheduled and air

evacuation flights weekly from Tokyo and one direct from Manila. Patients from Cebu were added on a space-available basis to the flights from Tokyo or Manila. The comparatively few patients originating in Shanghai were usually evacuated to Guam on regularly-scheduled flights. Air evacuation teams were now dispatched from Hawaii to the point of origin of patients early enough to receive 24 hours' rest before departing with patients. In some instances, the air evacuation crews stopped at the same enroute base stops as did flight crews and were replaced on a "three in - three out" basis by other air evacuation crews who had had their rest periods. All patients arriving in Honolulu from the Western Pacific were held over at the Tripler General Hospital for from 24 to 48 hours. To handle the patient load to the United States, the Pacific Division customarily designated four air evacuation flights a week between Hickam and Springfield-Suisun. The average patient from the Far East completed the westward flight at Springfield-Suisun after 36 hours flying time.<sup>50</sup>

Given definite airlift quotas for patients and stabilizing operational capabilities, the Pacific Division of the Air Transport Command transported 4,374 patients during 1947 and 1,668 patients during January through May

1948. Paradoxical action fairly easily overcame the few difficulties which were encountered. Early in 1947, for example, Tokyo failed to dispatch an abnormally large number of severely-disturbed patients. Under ordinary circumstances, the Air Transport Command had long preferred to carry no more than five psychotics per plane load of patients, but the Pacific Division discovered that its air evacuation team could handle five severe psychotics (loaded litter) and five ambulatory psychoneurotics in a loading. The air evacuation team, however, was increased with two extra medical technicians. In October 1947, as Tokyo seven litter patients were embarked with "authority as well," and several of these men suffered aggravation to their physical disabilities when they left the plane at scheduled stops. As a correction measure, the Pacific Division surgeon reiterated previous instructions that litter patients must be dressed in pajamas and handled as litter cases. Early in 1948, the Pacific Division assigned a medical officer, two flight nurses, and two enlisted technicians at Haneda to supervise the screening and loading of patients. Possessing only two wards with 66 beds for air evacuees at Fairfield-Suisun Airfield, the Eastern Pacific Wing not infrequently met difficulties when searching

happened to disrupt the domestic "Severnian" airline which conveyed the in-coming patients to hospitals throughout the United States. Slated for completion in 1949, however, was a new and ultra-modern hospital at Fairfield-Suisun which would provide adequate accommodations for patients debarked from overseas.<sup>51</sup>

Despite the inevitable disruption of demobilization and the task of rebuilding the post-war Air Force -- which emerged as the United States Air Force on 18 September 1947 -- aero-medical transportation functions had survived and had grown in the months between September 1945 and May 1948. During 1946, the Air Transport Command lifted 12,075 patients including 6,001 in the United States and 6,074 overseas, or from overseas to the United States. During 1947, it lifted 24,267 patients, of whom 18,322 were transported domestically and 5,945 overseas or from foreign origins to the United States. In the five months of 1948 ending with May, the Air Transport Command provided aero-medical transportation to 12,462 patients -- 8,699 within the United States and 3,763 to the United States from overseas.<sup>52</sup> Under the new Military Air Transport Services, aero-medical transportation would be still further expanded.

3. The Military Air Transport Service Expands 'Aeromedical  
Transport.

The National Security Act of 1947 -- which established the United States Air Force within the National Military Establishment -- stated the principle that like functions of the military services should be unified. One of the first fruits of unification was the consolidation on 1 June 1948 of the Air Transport Command and the Travel Air Transport Service into the Military Air Transport Service, which would be known as MATS. Under its organizational directive issued by the NSAS, MATS was charged to furnish air transportation to all agencies of the national military establishment and to authorize personnel and agencies. Specifically, MATS was made responsible for the transportation by air of personnel (including the evacuation of sick and wounded), material, mail, strategic materials and other cargo...." The MATS mission, however, did not include responsibility for Air Force troop carrier functions; the critical air transportation of airborne troops and the supply of units in forward areas. Several categories of Army air transport were also exempt from MATS control: air transport required for fulfilling the Army's mission, for service, instruction, and distribution, and for operations



... of the ... in the United States, except when a ... for ...

Although the National Military Establishment and its successor Department of Defense favored the economy and medical benefits of neurological concision, the fate of the Air medical service remained in doubt for several years after unification, one idea being that the Air Force could be served by the existing Army and Navy medical corps. Finally, on 12 May 1949, Secretary Johnson directed that the Air Force assume responsibility for its own medical support, except for general hospitals. At the same time, Johnson created a Medical Service Division within the National Military Establishment. Effective on 1 July 1949, the USAF Medical Service came into being, and former Army medical personnel (including the medical air evacuation squadrons' people) were transferred to the Air Force. As it had been General Grov's duty to direct the transitional phase of the Air Force's medical service from the USAF to the USAF, so now a new USAF Surgeon General -- Major General Harvey C. Henderson -- took charge in Washington in November 1949. Now vested with an increased mission responsibility and better control of assigned personnel, the United States

Air Force and the Military Air Transport Service looked to a more effective organization for accomplishing air evacuation. At this same time, the consolidation of Army, Navy, and Air Force evacuees also demanded a central medical regulating office to control the flow of patients to and from armed forces hospitals and the establishment of common procedures in joint publications. Issued on 28 March 1950, a joint Army, Navy, and Air Force regulation (Army Regulation 40-535, Chief of Naval Operations Letter 20236, and Air Force Regulation 160-52) governed the inter-theater air evacuation of patients for all three services. The charter for an Armed Services Medical Regulating Office was approved by the Secretary of Defense on 25 October 1950, and the ASIRO began to function in December 1950. Located in Washington, the ASIRO comprised Army, Navy, and Air Force medical administrative officers, and it served as a clearing house for the receipt of requests and the issuance of instructions to move patients.<sup>55</sup> Representing another step in unification, the USAF School of Aviation Medicine at Randolph Air Force Base, Texas, began to train all flight nurses for the Navy in 1949. In 1950, 20 Navy nurses and 17 Air Force nurses graduated from the school in that year.<sup>56</sup>

Even before the organization of MATS, the Air Transport Command had been seeking a more effective organization for its air evacuation forces and the establishment of the Military Air Transport Services necessitated a still further re-  
organization and relocation of medical air evacuation units. Since World War II, the Air Transport Command had preferred to maintain a Headquarters, 830th Medical Air Evacuation Squadron which, from Washington, nominally supervised many numbered air evacuation flights at field stations. The 830th could, of course, exercise very little control over its detached flights, and, in the interest of improved administration, the Air Transport Command effected a provisional reorganization. The 830th Squadron Headquarters would remain with MATS Headquarters as it moved from the Washington area to Andrews Air Force Base, Maryland, but on 2 March 1948, Medical Evacuation Squadrons A and B (Provisional) were organized within the 830th. Medical Air Evacuation Squadron A (Provisional) was established at Hickam under the Pacific Division, with control over flights 1 through 6 of the 830th Squadron. All of these flights were at Hickam, except flight 1 which was at Great Falls, Montana. Medical Air Evacuation Squadron B (Provisional) was established at Washington Air Force Base

under the Atlantic Division, with control over flights 7 through 16 of the 830th Squadron. Two of these flights were located at Newark-Liberty Air Force Base, and the other flights were at the cover. From the beginning of domestic air evacuation, the C-47's and C-54's used for this work had been maintained in accordance with other air transport organizations in several locations in the United States, but, on 1 June 1973, the 830th Air Evacuation Squadron was organized at Westover Air Force Base, with headquarters at the Biggs, B. at Langley, the Newark-Liberty, and the Randolph Air Force Base. This squadron has since then provided the air evacuation planes employed in domestic air evacuation flights personnel.

57

The organization of the Military Air Transport Service marked the beginning of an expanded aerial evacuation mission and expanded organization of the national air evacuation system. Earlier the USAF had discontinued the division because of a variety of problems, but USAF established the Continental Division on 1 July 1978 with headquarters at Kelly AFB, San Antonio, Texas. As has been the case with its predecessor in title, the Continental Division was to be responsible for domestic air transport operations in the United States and to Alaska. Accordingly,

As soon as the Continental Division became functional, the Atlantic Division rushed to transfer the air evacuation units and the domestic air evacuation mission to it. Effective on 1 September 1948, Medical Air Evacuation Squadron 3 was discontinued and flights 7 through 16 of the 830th Medical Air Evacuation Squadron were transferred from the Atlantic to the Continental Division without initial change of station. According to agreement, medical air evacuation units of the Continental Division would be employed by the Atlantic Division for its continuing air evacuation between Main-Main and Westover and Pearle and Brookley AFB, Mobile, Alabama. As the Atlantic Division had long desired to do, the Continental Division was able to transfer the two medical air evacuation flights from Torry to Fairfield-Suisun AFB on 16 December 1948. And in this same span of time, the Military Air Transport Service formulated plans to reorganize the old 830th Medical Air Evacuation Squadron as a table of distribution group. According to plan, MATS activated the 1450th Medical Air Evacuation Group vice the 830th Medical Air Evacuation Squadron at Andrews AFB, Maryland, on 24 February 1949. Assigned to the new group were the 1451st Medical Air Evacuation Squadron at Kelly, the 1452d Medical Air Evacuation Squadron at Westover, and the 1453d Medical

Air Evacuation Squadron at Hickam. The 1451st and 1452d Squadrons were attached 'for reporting control' to the Continental Division and the 1453d Squadron was similarly attached to the Pacific Division.<sup>58</sup> At Incewells AFB, the 1450th Medical Air Evacuation Group headquarters attempted rather unsuccessfully to exercise command over the widely separated squadrons. After several months, the 1450th Group was discontinued and the Squadrons were transferred to complete command jurisdiction of the Continental and Pacific Divisions on 6 September 1949.

Simultaneously with the transfer of the medical air evacuation personnel, USAF also transferred the 930th Air Evacuation Squadron and its detachments from the Atlantic to the Continental Division on 1 September 1948. While the detachments remained temporarily where they were, the 930th Squadron was moved from Maccover to Kelly AFB effective on 6 September. Preparatory to the move, the transcontinental 'Sawbuck' C-54's had begun to base at Kelly on 1 August. During October 1948, the air evacuation transport organizations were reorganized: the 930th Air Evacuation Squadron at Kelly was redesignated the 1734th Air Transport Squadron (Air Evacuation); the 1732d Air Transport Squadron (Air Evacuation) was organized at Maccover;

the 1733d Air Transport Squadron (Air Evacuation) was organized at Lowry; the 1734th Air Transport Squadron (Air Evacuation) was organized at Randolph; and the air evacuation transport detachment at Warner-Robins was organized into the 1727th Air Transport Squadron (Special). Before this, on 1 September 1948, the air evacuation transport detachment at Biggs AFB had been discontinued, and, in December 1948, the 1733d Air Transport Squadron (Air Evacuation) moved from Lowry AFB to the <sup>new</sup> ~~new~~ base at Travis AFB-Suiton, California. At the time of their organization, the Continental Division did not provide a common parent group for the air evacuation transport squadrons; instead, they were assigned to the most desirable air transport group which could control them.<sup>59</sup>

Like other AFS organizations, the air evacuation services offered by the Continental Division would be affected by the diversion of aircraft to the Berlin Airlift which began on 29 Jun 1948. As a matter of fact, however, air evacuation was the only AFS function which would hold up against the pressing demands for more and more air transport capabilities to supply beleaguered Berlin, and AFS would derive air capabilities only from the Continental Division's air evacuation establishments only which

considerable reluctance. When he assured control of the entire air evacuation in the summer of 1948, the Continental Division orders for changes in operations as possible. The Sacramento C-54's were based at Kelly, but the Sacramento three-daily trans-continental schedule operated between Macomber and Fairfield via Collins, Wickenburg, Robins, Kelly, Biggs, and March. Overnight stops were made at Kelly in both directions and aircraft and crew changes were made at Kelly. Once a week, a C-47 air evacuation schedule followed a northern route from Fairfield-Suisun to Spotsy Hill AFB, Kansas, via Hill, Louzy, Cheyenne, Rapid City, Custer, Kearney and Fort Riley. On this same day, another C-47 air evacuation schedule ran westward from Macomber to Spotsy Hill via Wright-Patterson, Selkridge, Willing, Chance, Scott, Topsho and Fort Leavenworth. Each plane remained overnight at Spotsy Hill and exchanged passengers as needed. Once a week, a C-47 schedule ran between Fairfield and Great Falls, Montana, via McChord and Spokane. Macomber, Wickenburg, Randolph, and Fairfield-Suisun continued to be the stations for direct air evacuation C-47's and en-route holding points for the Sacramento flights. In addition to the four general holding points, all general hospitals also functioned as holding points, as did

most large surgical hospitals along the route. Using these techniques and schedules, MATS transported 12,309 patients within the United States during the months of June through December 1946. In the shorter period of time MATS was responsible for the domestic patient airlift, the Continental Division lifted 10,679 patients in 236 C-54's and 1,165 C-47 flights, totaling 13,001 flying hours.<sup>60</sup>

By the beginning of 1949 all scheduled four-engine MATS schedules, except the San Antonio run, had been suspended for the execution of the Berlin airlift, and, effective on 1 October 1948, the Semeria had been reduced to a one-engine schedule. In February, 1949, however, the Berlin Airlift required 20 four-engine, and the Semeria C-54's had to be sent to Europe to help with this effort through the Gulf War. Having lost her C-54's, the Continental Division in April 1949 commenced a new schedule of C-47 flight direct routes to span the continent. The C-47's flew direct round trips over individual flight legs, known as Phoenix-Ohio, Phoenix-Ohio to Kelly, Kelly to Davis-Fordham 13, Tucson, Arizona, and Davis-Fordham to Field-Houston. Each of these flights made two stops at way-stations. In the same time four other C-47 direct flight schedules were instituted:

from Hascover to S J'y Hill, Kansas, and return; from S J'y Hill to Fairfax-Johnson and return; from Fairfax-Johnson to Chase Falls and return; and from Warner-Robins to Beta's Court, Memphis, and return. Each of these flights made regular and occasional overnight stops as well as flag stops en route. Air evacuation authorities were of a unanimous opinion that C-47's were unsatisfactory for continuous air evacuation operations, but the C-47 service was nevertheless continued until September 1949 when five C-54 aircraft became available after the end of the Berlin Air-Lift. Effective on 16 September, chronologically unassociated General Services schedules replaced the C-47 Humanitarian flights. These schedules were continued throughout the year, but in December 1949 the C-54 roundtrip flights between Kelly and Hascover were designated "Strawhat", the roundtrip flights between Kelly and Fairfax were called "Lighting", and the through-flight between Hascover and Fairfax was named the "Humanitarian."<sup>61</sup> Although the Berlin Air-Lift had caused complications in the domestic air evacuation effort, the Continental Division nevertheless transported 22,329 patients during 1949 -- the first full year of unified military service.<sup>62</sup>

Up until 1949, no one specific agency within the Air Transport Command or the Military Air Transport Service had been responsible for cerebical evacuation activities -- which had been a combined operations and medical activity. Secretary Johnson's announcement on 7 September 1949 that cerebical evacuation of military patients could be accomplished whenever possible gave added emphasis to the mission within MATS. Overall supervision of the cerebical evacuation mission within MATS was vested in the Surgeon, (Colonel Wilford T. Hall), and an air evacuation division was established to coordinate the function.<sup>63</sup> Within the United States special aircraft had long been ~~carried~~ <sup>carried</sup> for air evacuation, but in order to preserve their suitability for other missions they had never been significantly modified for the air evacuation function. Patients and air evacuation personnel often complained that the C-47's employed for the medical flights were uncomfortable, and, in the autumn of 1949, Captain George R. Donley, Group Maintenance Officer at Kelly AFB, proposed a modification plan for the air evacuation planes. On 12 January 1950, USAF ordered the recommended changes made in 24 C-47's. The modification of these VC-47's included a cream-color painting of the interior of the planes, provision of more even cabin heat, covering

of the floor with <sup>1</sup>inches, and construction of a heavy-  
conforming bulkhead in the rear of the cabin just forward  
of the cargo doors.<sup>64</sup> The USIA action represented the first  
decision in the modern Air Force of a requirement for  
special air evacuation aircraft.

Early in 1950, the Continental Division of AHS con-  
tinued its combined C-54 and C-47 evacuation schedules, but  
a reduction in personnel together with increased cross-  
oceanic air evacuation requirements <sup>and</sup> ~~prompted~~ USIA to propose  
that continental air evacuation should be handled exclusively  
with C-47's. AHS objected that C-47's ought not to be em-  
ployed in scheduled operations over mountainous areas, and  
the Army, Navy, and Air Force agencies also requested that  
scheduled C-54 air-evacuation flights should be continued.  
USIA finally agreed that C-54 cross-oceanic evacuation within  
the United States would continue, but it provided that the  
flying hours would be out of AHS fleet capabilities.<sup>65</sup>

In December 1949, when the USIA was considering modifications  
to the air evacuation C-47's, USIA Surgeon General Anderson  
had formally proposed to AHS that seven C-54's which had  
been used or were scrapped inside to haul cargo to Berlin  
should be specially reconfigured for direct evacuation.  
In July 1950, USIA approved the modification of 30 C-54's to

includes special features. Planning was for air evacuation. The approved modification program originally included such items as special painting of the topose interiors of the cabins to reflect color here (the air evacuation C-47's were uniformly painted), provision of galleys for preparing prepackaged food, heater heating and ventilator systems, and automatic declassification.<sup>66</sup>

As the air force was providing special air-  
craft for air evacuation, USAF also undertook a consolida-  
tion of the units which the Continental Division employed  
in domestic air evacuation missions. Up until this time,  
medical personnel employed in nonmedical aviation had  
always been organized in medical squadrons, but, on 19 July  
1950, USAF discontinued the 1451st and 1432d Medical Air  
Evacuation Squadrons at Kelly and Westover. The medical  
personnel of the two squadrons was divided among the 1732d,  
1733d, 1734th, 1735th, and 1736th Air Transport Squadrons  
(Air Evacuation). The 1735th and 1736th Squadrons were  
concurrently organized at Brooksley and Ardough, but the  
1732d squadron moved to Brooksley on 10 August 1950. This  
reorganization represented the first integration of USAF  
operational and medical personnel into the same operating  
squadrons, but USAF explained that the change was designed

to reduce administrative overhead. As yet, MATS did not consider secondary evacuation to be a function separate from its general transport mission.<sup>67</sup> Continuing to operate scheduled C-54 and C-47 aircraft in its secondary manner, the Continental Division provided airlift for some 12,200 patients within the United States in the first half of 1950.<sup>68</sup>

Although the Continental Division of MATS was charged with responsibility for air transport to Alaska at its establishment on 1 July 1946, several months elapsed before it took over this mission from the Pacific Division. Since the 1501st Air Transport Wing had begun to fly the Great Circle route from Fairfield-Suisun to Tokyo via Alaska in the summer of 1946, Flight 1 of the 830th Medical Air Evacuation Squadron was transferred from Great Falls, Montana, to Fairfield-Suisun AFB on 1 August 1946. Air-  
evacuation assets of this organization went northward to Anchorage to accompany patients back to McGuire AFB, Washington. With the establishment of the Continental Division's 1451st Medical Air Evacuation Squadron, however, Flight 1 of the 830th was inactivated and its personnel was absorbed by the Fairfield detachment of the 1431st Squadron.<sup>69</sup> The air evacuation flight had hitherto been moved from Great Falls

to Fairchild-Bushnell before the termination of the Great Circle Route, that it necessary to send air evacuation cases on scheduled service from Fairfield to Great Falls to coincide with "Northern Cross" C-34 air evacuation flights over the regular "Wagon" course which routes passengers and freight from Great Falls to Anchorage, and returned patients from Anchorage to McChord.<sup>70</sup> As the best available, the Alaska Air Command's 1st Medical Air Evacuation Flight (Separate) and the charter troop carrier squadron returned patients from the Alutian chain to Anchorage. Following the end of the Berlin airlift and the expansion of the 1193rd Medical Air Lift Mission, however, the Continental Division instructed an air evacuation detail service into Alaska. Effective in February 1950, 1113th Army Air Transport Squadron MA-3 began to fly the "Northern Cross" flight from Bremerton to Alaska and return via McChord, Anchorage, and Kodiak. 1193rd Air Evacuation Squadron from Fairchild-Bushnell reorganized the flight, and the 1st Medical Air Evacuation Squadron (Separate) was activated on 24 January 1950. Within Alaska, 1193rd MA-3 now conducted 1st Medical Air Evacuation Squadron (Separate) to Chitko's 5005th USAF Hospital. At Alaska, the 1193rd Northern Cross C-34 lifted Navy patients to Kodiak for

evaluation and a decision whether or not to treat them locally or return them to the United States. In England, the 1948 plan picked up Army and Air Force patients requiring more than 120 days hospitalization and returned them to McChord. Army patients were unloaded at Springfield-Seymour.<sup>71</sup>

At the establishment of the Cominac Division, the Atlantic Division of MHS continued to be responsible for airlift and aero-medical evacuation operations between Brookley AFB, Mobile, Alabama, and France. Employing an air evacuation unit dispatched from Maxwell-Fobins on an earlier flight to the Canal Zone, the Atlantic Division utilized the redundancy of the C-54 Bessantierica flight to transport such patients as were available each week to Albrook Field back to Mobile. In August 1946, however, the Berlin airlift demanded the C-54's, and the Atlantic Division was compelled to cancel routine air evacuation from France. For several months, the Atlantic Division employed C-74 Globemasters based at Mobile for air evacuation trips to the Canal Zone on an 'as required' basis.<sup>72</sup> As soon as possible after the termination of the Berlin airlift, the Atlantic Division employed two return trips of the Brookley-Albrook "Panzerion" C-54 flight to lift patients. On 20

October 1949, however, the Continental Division assumed control over Caribbean operations and the air transport group at Mobile.<sup>73</sup> Although the Continental Division made no change in the evacuation evacuation schedule, it soon moved the air evacuation units from Warner-Robins to the more convenient location at Brookley. Effective on 1 February 1950, the Warner-Robins element of the 1451st Medical Air Evacuation Squadron and the 1727th Air Transport Squadron (Special) were moved from Warner-Robins to Brookley AFB. Brookley now became not only the terminal for air evacuation from Panama, but the hub for C-47 domestic pickup feeder service in the Southeastern United States. In addition to the air evacuation service to Panama, the Continental Division also conducted passenger service en route from Army AFB, Puerto Rico, to Mobile aboard a regular C-54 passenger flight.<sup>74</sup>

Medical air evacuation had always been an important phase of the Atlantic Division's transport mission, and it continued to be important in the summer of 1948 despite major revisions in the mission caused by the Berlin airlift and the creation of the Continental Division. The Atlantic Division continued to fly its C-54 transport schedules, and it employed Continental Division air evacuation units

based at Wiesbaden. These plans were sent out on regular schedules arranged so that one aircraft enroute to Germany, a second aircraft enroute from Rhein-Main Airfield to Frankfurt remaining on the ground for use on return trip, and a third aircraft enroute to the United States with patients. The flight route usually made the round trip in about a week, and the one-way flight from Frankfurt to Wiesbaden was normally made in about 12 hours including a 12-hour rest stop in the Azores. The once-a-week C-54 Bunshecon schedule was not changed during the Berlin airlift crisis, but the decision in September 1949 that all patients would be returned from Germany by air demanded that up to 300 patients would be transported from Rhein-Main to Wiesbaden each month. The required one-way for nine trips usually instead of four.<sup>75</sup>

Coinciding with its expanded mission, but after months of planning and preparation, the Atlantic Division began to employ C-121 Constellation aircraft on the air evacuation run from Europe. The inaugural Constellation medical air evacuation flight departed Rhein-Main, Germany, on 11 October 1949 carrying 19 litter and 16 ambulatory patients. The Constellation service could accommodate more patients (20 litter and 20 ambulatory) and the pressurized plane could fly higher and faster, thus avoiding much of the

rough weather that was usually encountered by C-54's on Atlantic crossings. Eventually Constellation <sup>service</sup> replaced the C-54 Skyraiders on the Benefactor flights. The Benefactor service with C-121's was set up in October 1949 on a twice-weekly basis. The planes were routed non-stop as a passenger service from Westover to Frankfurt and returned with air evacuees via <sup>L 1</sup> ~~the~~ <sup>76</sup>. Up until September 1950, air evacuation teams from the 1452d Medical Air Evacuation Squadron at Westover accompanied patients on the Benefactor flights, but, in a move designed to give the Atlantic Division its own air evacuation capability, MATS organized the 1454th Medical Air Evacuation Squadron at Rhein-Main Air Base, Germany, on 20 August 1950. Six officers and 12 airmen from Continental Division medical air evacuation squadrons reported to Rhein-Main in August, and on 5 September 1950 the squadron flew its first transoceanic air evacuation mission. In order to shorten the flying time of the air evacuation teams, the 1454th from the start of its operations employed one air evacuation team on the flight to Europe in the Azores, where an earlier team (which had returned) took over the remainder of the flight to Westover, whence the team members returned directly as passengers to Rhein-Main.<sup>77</sup>

In the spring of 1945 the Pacific Division of the Air Transport Command was actively maintaining regular transpacific air evacuation schedules from Tokyo, Manila, and Guam which transported approximately 25 per cent of Army and Air Force personnel requiring return to the United States. Since the World War transport service had also been flying air evacuation missions in the Pacific, the organization of MATS brought the Pacific Division added neurological capabilities and responsibilities. At Hickam, Air Force and Army flight nurses and technicians were pooled and assigned to the operational base maintained by Squadron 11 (Reserve) of the 330th Central Air Evacuation Squadron. Not only, air evacuation teams (one nurse and two technicians) located on flights on the basis of one flight technician from Hickam were also assigned. The only exception was the 17th Central Evacuation which received the air ambulance flight log from Hickam to Manila to be filled out after returning to Hickam. On the second trip, the teams sent directly to Tokyo, Manila, or Okinawa. Air Evacuation Flight from Tokyo, Okinawa, and Guam also assigned to check no one else than once with one log of a flight technician a base stop, and Guam, Manila, and Hickam were the usual base stops.

A flight was occurring from Tokyo to Manila, for example, was followed by a flight from Manila to Guam, the second was followed by Hojstain, and a third was followed the previous to Manila, where all activities were given about three days rest in Honolulu's Fighter General Hospital.<sup>78</sup>

Possessing a total of 19 military air evacuation units to draw upon, the Pacific Division was adequately provided with military personnel, but the diversion of squadrons and transport aircraft to the Berlin airlift caused a severe reduction of all trans-Pacific air transport operations -- including non-military evacuation -- in the autumn of 1948 and during most of 1949. In the last quarter of 1948, the Pacific Division lost well over 100 transport planes -- including its Navy Squadrons VR-6 and VR-8 -- for service in Europe, and it was compelled to borrow Navy, Marine, and troop carrier planes to conduct such priority functions as air evacuation. Early in November 1948, for example, the Far East Air Forces' 374th Troop Carrier Group took over all Pacific Division airlift between Guam and the air commands at Tokyo, Manila, Okinawa, and Singapore. USMC aircraft had a borrowed Marine transport squadron (VM-352) fly the route between Guam

and Hickam, and Nichols and Airfield-Suisun, but, in January 1949, extensive backlogs were accumulating at Hickam, and the Pacific Division found it necessary to utilize the services of JCS-1 (Mars) flying boats from the Fleet Logistics Support Wing to transport ambulatory patients from Honolulu to the Alameda Naval Air Station, California. Despite the scarcity of aircraft, the Pacific Division nevertheless transported an average of 199 patients a month to Hickam and an average of 299 patients a month from Hickam to California during the year ending on 30 June 1949.<sup>79</sup>

As transport aircraft recovered from Berlin in the latter part of 1949, the Pacific Division was able to restore its air evacuation services and then to expand the services adequately enough to accomplish the tasks performed by the hospital ship USS Popo, which had been operating in the Pacific since World War II. By the end of 1949 the Pacific Division was accomplishing all medical evacuation in the Pacific over except for isolated or less serious cases transported in the sick bays of military transport service vessels. Following the successes of the Communists in China, the Pacific Division ceased its operations to Shanghai in April 1949, but in October 1949 the 1503d Air Transport Wing at Funeo began to fly a weekly trip to

Air Force, Seoul, Korea, which evacuated patients on  
 the return trip as necessary. Gradually, as aircraft  
 returned from Europe, operations of 374th Troop Carrier  
 Group extend on MTS routes west of Europe and should out-  
 Pacific Division C-54 air evacuation flights were standardized  
 as one trip weekly from Tokyo to Hawaii, one week  
 from Guam to Hawaii, one weekly from Manila and Cebu  
 to Guam, and four trips a week from Hawaii to California.  
 Because of the increased evacuation from Tokyo, the 1453d  
 Tactical Air Evacuation Squadron on 20 February 1950 selected  
 personnel to establish a regular air evacuation route to  
 the West. To an effort to speed patient arrival, the  
 Pacific Division during March 1950 had several air evacua-  
 tion flights with C-54's directly from Manila to England  
 and from England to Wichita. These longer flights were  
 practicable only with loads of 18 patients, and they were  
 accordingly dropped in favor of the older and shorter  
 flights on which C-54's could carry 28 patients. As a  
 part of new developments, however, a MTS C-97A Super-  
 Courier on 1 June 1950 lifted 60 medical evacuees from  
 Wichita to Fairfield-Suisun in nine hours and twenty minutes.  
 The pressurized cabin permitted patients to be kept in com-  
 fort while flying at altitudes above 40,000 feet.



the USS Hope in the Pacific. Each of these hospital ships was said to have cost \$12,000,000 a year to operate. Since air transport rapidly moved patients to specialized medical treatment facilities, the Department of Defense during the latter part of 1949 was able to abandon 44 treatment facilities, and, on 1 February 1950, Secretary Johnson directed the incineration or reduction of 18 additional hospitals.<sup>52</sup> The medical benefits accessible through the clock-like precision of air evacuation were well illustrated in March 1949 when three-day old Cindy Lou Grisham, daughter of an Air Force officer in Japan, required immediate surgery for a tumor of the chest covering her spinal cord. At Manila International Airport, the infant was placed aboard a 374th Troop Troop carrier plane with Lt. Mary Grimes, USN Nurse Corps, in attendance. Within two hours after arrival at Hicken Field, Cebu, Cindy was airborne in a Marine Squadron VMD-352 P-30 (C-54) enroute to Hickam, with Lt. M. Reynolds, USN N.C., in attendance. She arrived at Hickam and was rushed aboard a Mars Flying boat under the care of Lt. Flora E. Manning of the 1453d Medical Air Evacuation Squadron, Fort Meade, Inver Air Station, California, to a tubance rushed her to the Leconte General Hospital. The entire rescue flight required about

fifty hours. 80. The United States Military Air Transport Service  
also had a special operation had become a specialty-operating  
system which enabled any military patient anywhere in the  
world to receive the best of care from the best of military  
medical specialists anywhere in the world.

Chapter VIII

THE IMPACT OF KOREAN HOSTILITIES ON AEROMEDICAL  
EVACUATION, 1950 - 1953

1. All-Out Tactical Air Evacuation in Korea, 1950 - 1951

Although the Joint Chiefs of Staff had directed the Air Force to establish "evacuation systems" for both the Army and the Air Force in May 1949 and the Secretary of Defense had announced the policy that aeromedical evacuation would be the primary means of transporting military patients, neither the Army nor the Air Force had given much sustained thought to the combat applications of aeromedical evacuation. The Military Air Transport Command had made great strides forward in the organization of an inter-theater and domestic system, but combat air evacuation was the function of tactical air forces and of troop carrier organizations and the USAF had received limited appropriations for these functions in the years since 1945. The many instances of large-scale battle-zone air evacuation in World War II were well remembered, but many persons regarded them as "heroics" rather than "as practical signposts in the future."<sup>1</sup> In the spring of 1950, Exercise "Swarmer" held in North

Carolina had tested air transport employment in support of a combat airhead, but patient air transport was not programmed until a few weeks before the exercise and was permitted to operate for only the first two days of the maneuver.<sup>2</sup>

In the early years of occupation, especially during the period when American forces had been stationed in Korea, air evacuation had been an important phase of the troop carrier activity of the Far East Air Force. Following the withdrawal of American troops from Korea in 1948, however, the evacuation of the sick of the small U. S. Korean Military Assistance Group had been undertaken by MATS. At the same time, the development of medical facilities in Okinawa, in the Philippines, and in Japan adequate to provide for all except the most serious cases had caused intra-theater air evacuation to be relegated to the level of a comparatively minor function.<sup>3</sup>

When the North Korean Communists invaded the Republic of Korea on 25 June 1950, the Far East Air Forces had only a few organizations which were suited for tactical aeromedical evacuation. Assigned to the Fifth Air Force with station at Tachidawa Air Base near Tokyo was the 374th

Troop Carrier Wing with its 6th and 22d Troop Carrier Squadrons; the 21st Squadron of this wing was stationed at Clark Air Force Base in the Philippines, where it was attached to the Thirteenth Air Force. Each of these squadrons was equipped with C-54 aircraft. During most of the ~~between~~ war years, the 801st Medical Air Evacuation Squadron had been stationed at Tachikawa, where a part of its personnel had worked in the base dispensary and had handled a progressively smaller number of routine, ~~air~~line type, air-evacuation missions each month. Other ~~flight~~s nurses and enlisted technicians were attached to various units in Japan to handle air-evacuation missions. Effective on 1 March 1950, Captain Thomas W. McNamara and the nine nurses and 10 airmen who manned the squadron were transferred into Flight 3 to remain at Tachikawa, and the 801st Squadron and its Flights 1 and 2 were transferred without personnel to the Philippines in order to provide additional personnel spaces for the Clark AFB Hospital. At Tachikawa, the personnel of Flight 1 were integrated into the 374th Medical Group of the 374th Troop Carrier Wing, and, effective on 7 April 1950, Captain McNamara became commander of the 374th Medical Group with additional duty as Commander, 801st Medical Air

Evacuation Squadron, Flight 3. One other organization had some medical air evacuation capabilities. Although aeromedical evacuation was not a primary part of its mission, the MATS Air Rescue Service's 3d Air Rescue Squadron was based with several detachments in Japan, and its H-5 helicopters and L-5 liaison planes sometimes flew "mercy" missions which conveyed emergency cases from field locations to places of adequate medical attention.<sup>4</sup>

Because of somewhat unusual circumstances, the first American aircraft to be lost to enemy action in Korea was a MATS C-54, and the first USAF planes to see combat action in Korea were not fighters and bombers but troop carrier aircraft. At Kimpo Airfield near Seoul on the morning of 25 June, four North Korean Yak fighters riddled a 105<sup>th</sup> 3d Air Transport Wing C-54 which was grounded for repairs. At the war's outbreak and until the decision of the United Nations to resist aggression in Korea, the only mission of the Far East Command and of the Far East Air Force was to evacuate American advisory group personnel and their dependents from the area of active hostilities. Within a few hours after the conflict began, the Joint Chiefs of Staff ordered General of the Army

Douglas MacArthur, Commander-in-Chief of the Far East Command, to provide logistical support to the Republic of Korea, and FEAF added this air cargo task to its air transport requirement. Equipped as it was with four-engine C-54's, the 374th Troop Carrier Wing was not ideally prepared to operate into the small airfields of South Korea. While the C-54's were evacuating Americans from Kimpo and Luxon<sup>S</sup>, the Fifth Air Force concentrated a miscellaneous collection of C-46's and C-47's from its wings and from MATS at airfields on Kyushu and commenced<sup>d</sup> operations into the smaller fields of South Korea. Arriving from the Philippines at Tachikawa on 1 July 1950, the 21st Troop Carrier Squadron left its C-54's there on 14 July and moved to Ashiya Air Base, Kyushu, where it took over the C-46's and C-47's of the 374th Troop Carrier Unit<sup>1</sup> (Provisional). By about 20 July, the battered airfields in Korea would no longer accommodate C-46's<sup>2</sup> and the 21st Squadron became an all C-47 organization.<sup>6</sup> According to a hurriedly improvised scheme of transport operations, the 374th Group's C-54's hauled men and supplies from Tachikawa to Ashiya and the 21st Squadron's C-47's completed the ferry mission to Korea.

In view of the fact that airlift was critically short and would only be used on high priority and emergency movements, General Headquarters, Far East Command directed that all requests for air transportation would be submitted to the FEAF Transport Operations, which would relay them to the Fifth Air Force's Troop Carrier Division for implementation. The Far East Command and FEAF agreed that available air transport tonnage would be allocated on a basis of 70 percent for ground forces and 30 percent for air forces.<sup>7</sup> In the emergency, the main impetus of air transport was from Japan into Korea, but backhaul air evacuation was requested quite early in the war. In Korea on 2 July, the Korean Military Advisory Group asked FEAF to arrange air evacuation for three sick men from Taejon Airfield. Existing records do not reveal the pilot of the first air evacuation flight from Korea, but the patients at Taejon were lifted by a 374th Wing C-47 sometime on 2 July.<sup>8</sup> On 4 July, as American ground troops were going into action in Korea, Lt. Gen. George E. Stratemeyer, the FEAF Commander, officially advised General MacArthur that FEAF was ready to perform air evacuation from the battle zone.<sup>9</sup>

During the first few weeks of the Korean war, the Fifth Air Force and the 374th Troop Carrier Wing handled

air evacuation as a concomitant to airlift operations. A detachment of 801st Squadron nurses and technicians was set up at Ashiya Air Base on Kyushu. Flying aboard 21st Troop Carrier Squadron C-47's, the air evacuation teams lifted sick and wounded men from the combat airfields at Taejon, Taegu, Pohang, and Pusan and conveyed them to Ashiya or Itazuke Air Bases, where they were unloaded and transported to the nearby 118th Station Hospital. This lift officially began on 7 July 1950. Since 374th Wing C-54's were returning northward from Ashiya and Itazuke generally empty, the possibility of using these planes for lifting patients to specialized hospitals in the Tokyo area was investigated on 10 July and soon put into practice. Flight nurses and enlisted technicians from 801st Squadron personnel at Tachikawa accompanied patients on these intra-Japan flights, which were generally arranged 24-hours in advance by the dispatching hospital.<sup>10</sup> By 10 September, the 374th Wing's C-47's and C-54's had evacuated 6,145 patients from Korea to Japan and intra-Japan.

Employing airlift from Korea to Ashiya or Itazuke, the 374th Troop Carrier Wing could get wounded men to a modern hospital in Japan in an hour, whereas several days was needed to move patients by surface vessel from the port

of Pusan. Up until 15 September 1950, however, 13,015 patients were evacuated from Korea, and, of this number only 3,855 (29.6 percent) were evacuated by the 374th Troop Carrier Wing. In this period, empty transport flights returning from Korea could have airlifted as many as 36,000 patients to Japan.<sup>11</sup> The U. S. Eighth Army in Korea had several reasons for its failure to employ air evacuation. As far as possible, the Eighth Army preferred to keep the sick and wounded in Korea. The Eighth Army surgeon estimated that nine out of <sup>10</sup> ten casualties could be returned to action without leaving Korea, and that a man transferred to Japan would require at least 30 days to return to his old unit after hospitalization.<sup>12</sup> During the summer battles around the United Nations defense perimeter in South Korea, the most advanced airfield at Taegu was eight miles from the Army mobile surgical hospital in Taegu City, and, because of poor roads and a shortage of motor ambulances, the Eighth Army preferred to move its casualties by train southward to the evacuation hospital at Pusan. Most patients requiring further evacuation waited at Pusan for ship transportation. The Pusan East Airfield was some distance from the city; no holding facilities were available at the flying field; and special arrangements had to

5-12

be made to evacuate each packet of patients by airlift. In this early period, the Air Force had not offered any sound program of air evacuation to the Eighth Army, and the Eighth Army, which had to program an orderly disposition of its sic<sup>ks</sup> and wounded, could scarcely afford to count on a "catch as catch can" program of air evacuation.<sup>13</sup>

While the Eighth Army surgeon was at best lukewarm toward evacuation in transport aircraft, he soon found a pressing need for front<sup>line</sup> air evacuation. Korea's terrain was a rugged combination of hills, mountains, and rice paddies, and the roads were extremely poor. Seeking to be of assistance on 7 July 1950, the 3d Rescue Squadron sent two L-5 crews and planes to Korea, but Mercy Mission No. 1, as the detachment was called, did little good, for the little liaison planes could not operate in the rugged terrain. In order to pick up downed airc<sup>rew</sup>men, the 3d Rescue Squadron sent an H-5 hel<sup>ic</sup>opter detachment to Taegu from Ashiya on 22 July, and these small hel<sup>ic</sup>opters, which would lift a pilot and technician plus two passengers in externally-attached capsules, were an immediate success. These planes could operate in mount<sup>ain</sup>s and rice-paddy terrain where liaison planes w<sup>o</sup>uld not function. They

were not only able to rescue downed airmen, but they also evacuated critically wounded soldiers from frontline aid stations to the 8076th Mobile Army Surgical Hospital at Miryang and the 8059th Hospital in Pusan. Early in August, General Partridge directed the 3d Squadron to station six of its nine helicopters in Korea. By 29 August, the Helicopter Detachment had evacuated 83 soldiers, many of whom would never have survived a ten to fourteen hour trip by motor ambulance to a field hospital, according to the Eighth Army surgeon.<sup>14</sup>

Looking back at the early experience in Korea, it was all too obvious that the Far East Command at the outset of hostilities should have had a comprehensive regulation governing the responsibilities of its command for aeromedical evacuation. Such a theater regulation did not exist and had not been issued; as a result, the air evacuation system came into being in response to sometimes peculiar requirements.<sup>15</sup> Taking command of the new FEAF Combat Cargo Command (Provisional) which was organized on 26 August 1950 specifically to handle the planned airborne phases of the forthcoming United Nations Command invasion at Inchon, Maj. Gen. William H. Tunner began to organize a theater air transport force capable of meeting

all the airlift requirements of the Far East Command -- including aeromedical evacuation. General Tunner insisted that the Far East Command Joint Air Priorities Board must allocate airlift capacity to using commands in tonnages, taking into consideration the importance of the commands to the accomplishment of the theater commander's mission. At cargo command headquarters, Army and Air Force liaison officers (known collectively as the Joint Airlift Control Organization) received, consolidated, and passed on requests from the using commands for the accomplishment of specific airlift tasks. Within cargo command headquarters, the Transport Movement Control section monitored and controlled all airlift operations. Centralized scheduling and continuous control permitted a small fleet of transport aircraft to accomplish all the many tasks of a theater airlift.<sup>15</sup>

Up until the organization of the FEAF Combat Cargo Command, aeromedical evacuation was judged to have had "a rather spotty history," but General Tunner directed his staff to see what could be done to improve the matter. On 9 September, Colonel Clyde L. Brothers, FEAF's Surgeon, Colonel F. C. Kelly, the Fifth Air Force Surgeon, and Major George Hewitt, Cargo Command's assistant director

traffic, visited airfields and army headquarters in South Korea to discuss air evacuation procedures. As soon after the 15 September invasion date at Inchon as Kimpo Airfield could be taken, the U. S. X Corps forces in central Korea would require up to three C-54's a day for evacuation of its casualties. In South Korea, the Eighth Army's evacuation hospital at Pusan, however, would continue to be the main source of airlifted patients. Since many patients were awaiting water transportation at Pusan, the Eighth Army welcomed the prospect of air evacuation from Pusan East Airfield, but only if the aeromedical evacuation could be executed in an orderly manner. The Eighth Army wished to evacuate to Japan all patients who could not be restored to duty within <sup>15</sup>30 days, and a general figure of 450 patients a day was specified as the air evacuation requirement from Korea to Japan.<sup>17</sup>

Since aeromedical evacuation was evidently to be a major task during the expanding United Nations Command's campaigns in South Korea, FEAF increased the medical component of the FEAF Combat Cargo Command. On 13 September 1950, Lt. Col. William H. McCarroll was placed on temporary duty as Combat Cargo Command's surgeon to supervise air evacuation. After several days' study, FEAF relieved the

511

Headquarters and Flights 1 and 2 of the 801st Medical Air Evacuation Squadron from service in the Philippines and transferred the units without personnel or equipment to Tachikawa Air Base for attachment to the FEAF combat cargo command. Many of the flight nurses of Flight 3 of the 801st had been due for rotation at the war's beginning and had flown constantly on the patient airlift; in August and September replacement nurses and other personnel arrived from the United States to relieve the exhausted veterans and to staff the 801st's units which came from the Philippines. To meet current and impending requirements, Colonel McCarroll temporarily assigned six nurses and six technicians to the Korean patient airlift and twelve nurses and twelve technicians to the evacuation lift intra-Japan. The numbers of patients were approximately equal on each of these routes, but the flying time was three times as great on the Japan run. The remaining seven nurses and seven technicians were held ready for emergency calls and for employment in the airlift which was to begin from Kimpo. Medical administrative officers and senior non-commissioned officers of the 801st were dispatched to the principal patient handling points in Japan and Korea to perform liaison with dispatching and receiving hospitals.<sup>18</sup>

At the same time that Combat Cargo Command's aeromedical resources were being augmented, General Tunner considered the planes which would lift sick and wounded men. At its formation, Cargo Command assumed operational control over the 374th Troop Carrier Wing, with its two squadrons of C-54's and one squadron of C-47's. It also took control of the 314th Troop Carrier Group which was arriving on temporary duty from the United States with C-119 Flying Boxcar aircraft. Finally, Cargo Command controlled the newly organized 1st Troop Carrier Group (Provisional) which was locally established at Tachekawa with two squadrons of C-46's and one squadron of C-47's, the latter planes being borrowed from Fifth Air Force tactical wings and soon returned to them when the squadron was discontinued. Since theater airlift resources would be limited during the Inchon landing, General Tunner also received permission to use whatever excess C-54 capacity which could be generated by the MATS 1503d Air Transport Wing. Except in an emergency, General Tunner did not wish to use C-119's for air evacuation: the planes were prime freight-haulers and their cargo compartments were too drafty and noisy for patient comfort. The C-54's and C-47's were best suited for airlift, and C-46's could be used. Since the C-47's of

the 21st Squadron had to be withdrawn for intensive air-borne training, C-54's would have to take over some of the patient airlift from Pusan East Airfield, and the Fifth Air Force was now willing to allow the heavy planes to use this field. General Tunner further decided not to set up particular crews for patient evacuation but to brief all crews on patient airlift requirements. Wherever possible, however, planes would be scheduled to pick up air evacuees at particular times of day in order that the patients could be ready for them. In order to assure that all available airlift needed for patient airlift from southern Korea was available, however, all transport pilots returning from Korea were instructed to call the airfield tower at Pusan East and ask if their aircraft <sup>were</sup> was required for air evacuation to Japan. If they were needed, they landed and loaded patients.<sup>19</sup>

Air evacuation procedures were still under development, but during September 1950 the FEAF Combat Cargo Command exploited centralized control, plus continuous field liaison, to make aeromedical evacuation the standard method of transporting sick and wounded personnel in the Far East. Early in September, while last-gasp North Korean

attacks raged around the Pusan perimeter defenses of the United Nations Command, the Eighth Army continued to deliver most of its patients to Pusan by train. Air-evacuation operations at Pusan East Airfield called in aircraft to meet all requirements, and if no transports were enroute back to Japan when patients were brought to Pusan Airfield special air evacuation planes were called for from the airfields on Kyushu. Patients were ordinarily flown from Pusan to Itazuke, and other planes -- principally C-46's -- flew the air evacuation lift from Itazuke to Tokyo or Osaka. In order to care for the more serious cases, a special C-54 aircraft operated directly from Pusan East Airfield to Tokyo. A few patients were evacuated by air to Itazuke directly from Taegu and Pohang Airfields. Following the United Nations invasion at Inchon on 15 September, the first transport aircraft arriving at newly-captured Kimpo Airfield on the afternoon of 19 September brought a special combat cargo support unit which included flight nurses and medical personnel of the 801st Squadron. The nurses set up a hospital tent and provided some care for the wounded while they waited airlift to Japan. As a matter of routine, Cargo Command committed three C-54 flights arriving at periodic intervals

each day at Kimpo for the evacuation of casualties to Itazuke, but other planes could be employed as needed. No patient was lost in the return flight to Japan, but unfortunately, before dawn on 26 September, a 374th Wing C-54 bound for Kimpo carrying military personnel and two flight nurses crashed in the Japan Sea after taking off from Ashiya. Many of the passengers including Captain Vera Brown drowned, but Lt. Jonita Bonham, even though injured herself, heroically assisted some of the passengers to survive. She was subsequently awarded a distinguished flying cross.<sup>20</sup>

Hard on the heels of the defeat of the North Korean Communists in South Korea, the United Nations Command ordered an advance into North Korea. The U. S. X Corps would load aboard ships at Inchon for another amphibious invasion -- this time on the northeastern coast of Korea at Wonsan. The U. S. Eighth Army would drive northward overland from Seoul to the North Korean capital, <sup>Py-</sup>Pyongyang. Earlier in Korea, the FEAF Combat Cargo Command had been able to maintain highly effective transport operations over the main channels from Ashiya and Pusan East or Seoul. The impending operations, as well as the occupation of South Korea, developed a need for intra-Korea

airlift operations. In a conversation with the Eighth Army Surgeon in Taegu on 3 October, General Tunner urged that patients should be flown directly to Japan hospitals from pick-up points rather than be airlifted from one point to another within Korea and then evacuated to Japan. The Eighth Army, however, still desired to keep as many patients as possible in Korea, so General Tunner promptly arranged an intra-Korea C-47 air evacuation shuttle from Suwon Airfield near Seoul to Pusan East Airfield where patients were screened for disposition. This C-47 shuttle run, flown by 21st Squadron planes detached daily for duty out of Taegu Airfield, continued until about 10 October 1950, when the 8055th Mobile Army Surgical Hospital opened at Seoul.<sup>21</sup>

Although air transport and air evacuation requirements were reduced in southern Korea as United Nations Command forces marched northward, a new type of shuttle airlift operations to the north was soon required. When Eighth Army troops captured the crude airstrip midway to Pyongyang at Sinmak, C-54's began to deliver supplies there on 17 October, and to evacuate patients to Seoul. On 21 October, C-47's operating out of Kimpo began to evacuate patients from Sinanju Airfield in far northwestern

Korea. The congestion at Pyongyang and Kimpo, plus the time needed to load patients, caused some airlift control officers to hesitate to release planes for air evacuation until late in a day's work, but the patient airlift progressed smoothly. Well before the U. S. X Corps got ashore through minefields at Wonsan, air transports began landing at Wonsan Airfield shortly after Republic of Korea troops captured the city on 12 October. Early in November, the X Corps surgeon indicated that one air evacuation C-54 a day from Yonpo Airfield near Hamhung to Itazuke would serve that command's ordinary requirements. To handle local airdrops and other missions, however, three C-47's were detached to Yonpo. In view of heavy transport commitments in the forward areas, the MATS 1503d Air Transport Wing in October began to provide two daily C-54 flights from Haneda to Pusan East to deliver high-priority traffic and evacuate patients on the return trip. As requirements at Pusan decreased, the MATS flight was routed from Tokyo to Kimpo with a return trip via Wonsan if air evacuees were in need of transport to Tokyo.<sup>22</sup> During October, the FEAF Combat Cargo Command moved 2,840 patients within Korea, 3,025 from Korea to Japan, and 2,590 within Japan.<sup>23</sup>

According to the pattern of aeromedical evacuation worked out by the FEAF Combat Cargo Command in September and October 1950, C-47's generally lifted patients from forward airfields to major airheads in Korea, C-54's conveyed evacuees to airfields in Kyushu, and C-46's handled most of the patient lift from Kyushu to the general hospitals on Honshu. The system was working it still showed its improvised origins, and Lt. Col. Allen D. Smith, who assumed command of the 801st Medical Air Evacuation Squadron on 16 November 1951, actively sought to iron out the system's defects. Although combat cargo support units had erected hospital tents near the flight lines at Kimpo and Pusan East to shelter patients awaiting aircraft, these were limited holding facilities at best. To speed the loading of air evacuation planes, moreover, holding units were required at all airfields. Believing that such was an Army function, Colonel Smith persuaded the Eighth Army and X Corps to set up holding facilities on the airfields at Sinanju and Yonpo. Holding tents were also set up at Pyongyang and Kimpo. Since its transfer to Japan, the 801st Squadron had been based at Tachikawa, but Colonel Smith took steps to get it transferred to Ashiya Air Base,

which was the site of the Headquarters, FEAF Combat Cargo Command. This movement was effected on 30 November 1950, with immediate benefit. In addition to his command of the 801st, Colonel Smith became the Surgeon of the Combat Cargo Command; and, located at cargo headquarters, the 801st was able to participate more closely in the scheduling of air evacuation planes.<sup>24</sup> During October and November, certain developments within the air unit complement of Cargo Command also affected air evacuation. Cargo Command was given operational control over the newly arrived Marine Squadron VMR-152 with R5D (C-54) aircraft on 12 October. These planes were available for aeromedical airlift purposes. On 10 November, the 437th Troop Carrier Wing which had just arrived from the United States joined the airlift with its C-46's from Brady Airfield on Kyushy. In order to relieve the detachment of C-54's at Kimpo for necessary maintenance, the C-46's of the 1st Troop Carrier Group (p) were transferred to Kimpo when the 437th Wing reached Japan. The 437th was now supposed to take over the aeromedical airlift within Japan, but most of its C-46's had arrived in the theater without litter straps. Within a few days, a few 437th Wing C-46's were equipped with the necessary litter straps, and this difficulty was alleviated for the

205

time being.<sup>25</sup>

The United Nations Command experience in Korea had proved the value of aeromedical evacuation in ground attack operations. At this early juncture figures could not be compiled on the actual number of lives that air evacuation had saved, but Dr. Richard Meiling, medical director of the Department of Defense, attributed the low death rate among United Nations casualties in Korea to air evacuation, the use of plasma, and the better coordination of military medical facilities. Morale benefits of air evacuation were plainly indicated on the faces of patients who were told that they were going to be airlifted from the battle area. Airlift also prevented the accumulation of patients at forward field hospitals.<sup>26</sup>

Air evacuation was important in the United Nations Command's attack in Korea, but it would be vital after 26 November 1950, when a surprise Chinese Communist intervention across the Yalu River turned the Eighth Army and X Corps attack into a precipitous retreat. So far as aeromedical evacuation was concerned, the Combat Cargo Command had to operate on two <sup>1 - 74</sup> points to evacuate Eighth Army patients from Sinanju and to extricate the X Corps' sick and wounded

50 -

from surrounded positions in the snow-covered mountains surrounding the Choshin reservoir in northeastern Korea. The Eighth Army crisis developed first and was first met by Cargo Command. On 27 November, Lt. Thomas J. McGinley, MSC, and four medical technicians went to Sinanju Airfield to supervise the evacuation, and all medical evacuation teams at Ashiya were dispatched to Sinanju on 28 November 1950. During the period between 26 November and the closing of Sinanju strip on 30 November, 2,688 patients were evacuated from the exposed field. Lieutenant McGinley went out on the last plane. An even more heroic action by the 21st Troop Carrier Squadron and enlisted technicians of the 801st Medical Air Evacuation Squadron succored men of the 1st Marine and 7th Infantry Division who were surrounded in the icy wastes of the Choshin Reservoir area of northeastern Korea. At Yonpo Airfield, Lieutenant McGinley supervised the air evacuation effort which between 1 and 8 December saw C-47's land at hurriedly prepared frozen-earth strips at Koto-ri and Hagaru-ri and shuttle some 4,689 sick and wounded men to safety. For the part they played in the evacuation of the X Corps troops, the 314th Troop Carrier Group (whose C-119's dropped supplies),

the 21st Troop Carrier Squadron, and the 801st Medical Air Evacuation Squadron, were simultaneously awarded Distinguished Unit Citations, the first such award to Air Force units in the Korean War.<sup>27</sup>

At the same time that the sick and wounded were being extricated from almost certain death at Sinanju, Koto-ri, and Hagaru-ri, other FEAF Combat Cargo Command planes were emptying the hospitals of Korea in preparation for the Communist onslaught. The situation at the Choshin Reservoir was too dangerous for nurses, but 801st flight nurses staffed the Marine R5D's and Air Force C-54's which landed at Yonpo Airfield and lifted Marine patients to Itami Air Base and Army patients to Itazuke. On the western front on 5 December, the Eighth Army wanted to evacuate all its forward hospitals. Using 131 C-46, C-47, and C-54 flights, Cargo Command lifted 3,925 patients, thus accomplishing the Korean War's largest single day of aeromedical airlift. So far as possible, flight nurses and enlisted technicians accompanied patients, but there were not enough<sup>u</sup> of them to serve all aircraft on this day of tremendous operations. In the emergency, the FEAF Combat Cargo Command needed to employ practically every C-46, C-47, and C-54 that it

possessed for air evacuation, but most 437th Wing C-46's still lacked litter straps and fittings and a hurried survey showed that this equipment could not be obtained in the theater. Moreover, it would hardly have been possible to have taken the C-46's out of service long enough to modify them had the parts been on hand. Fortunately, FEAF's urgent requirement for augmented airlift had already brought the 4th Troop Carrier Squadron's C-54's from the United States to Ashiya on 1 December, and the 61st Troop Carrier Group arrived at Ashiya with two squadrons of C-54's on 11 December. Those C-54's were equipped for lifting patients, and, on 17 December, Cargo Command accordingly issued orders that C-46 type aircraft would not be used for air evacuation except in extreme emergencies. Despite <sup>of</sup> some shortages in personnel and <sup>of</sup> equipment, the FEAF Combat Cargo Command had accomplished a tremendous aero-medical airlift: 16,429 patients were transported in November and 28,140 in December 1950.<sup>28</sup>

Continuing the procedures worked out by the disbanded FEAF Combat Cargo Command (Provisional) at its activation on 25 January 1951, the 315th Air Division (Combat Cargo) recognized theater air evacuation services as an important

557

part of its mission. Under the command of Brig. Gen. John P. Henebry after 8 February 1951, the 315th Air Division effected a closer control of the patient airlift services. With the activation of the new command, Lt. Col. Allen D. Smith became the 315th Surgeon, and served in an additional capacity as commander of the 801st Medical Air Evacuation Squadron. The 801st Squadron's executive officer and several enlisted men were also placed on temporary duty in the division surgeon's office. In view of the close relationship between the 315th Air Division and the 801st Squadron, the latter unit accompanied division headquarters when it moved from Ashiya Air Base to Fuchu (near Tachikawa Air Base) on 6 February 1951. In view of the fact that its personnel was habitually employed at many scattered "operating locations" in Japan and Korea, the 801st Squadron obtained authority to discontinue its three flights and to assign all personnel to the squadron headquarters to insure maximum flexibility.<sup>29</sup>

Early in the Korean war and sometimes during the critical days of November and December 1950, the FEAF Combat Cargo Command was not always able positively to schedule aircraft for air evacuation missions, but, despite the

bitterness of the ground war in the spring of 1951, better organization, liaison, and communications enabled the 315th Air Division to plan and implement orderly air evacuation. The air evacuation effort continued to be divided intra-Korea, Korea-to-Japan, and intra-Japan. Requirements for a following day's air evacuation were transmitted each day to the 315th Air Divisions air evacuation operations officer -- Major Charles E. Peterson (MSC) -- from the 801st's liaison officer at Eighth Army headquarters in Taegu for intra-Korea patient lift and for some direct lift from Taegu to Japan, from the Eighth Army evacuation officer at Pusan for the bulk of Korea-to-Japan lift, and from the Japan Logistical Command's hospital <sup>o</sup>regulating officer for intra-Japan movements. The 315th air evacuation operations officer consolidated the requests and submitted definite requirements to Transport Movement Control which scheduled air evacuation aircraft for the following day. The schedules were dissiminated to the 801st's various operating locations. Emergency requests could, of course, be made and handled at any time of day. During the Chinese Communist offensives, moreover, the 801st Squadron commonly placed air evacuation personnel on planes going forward even though requests for air evacuation had not

been received, for it knew that the severity of the fighting would demand their services.<sup>30</sup>

Following the loss of the major United Nations Command airfields at Kimpo and Suwon to the Communist New Year's Offensive, <sup>of 1951</sup> only short combat strips in the vicinity of the frontlines remained available and most intra-Korea airlift was accordingly performed with C-47 aircraft of the 21st Troop Carrier Squadron. Because of hazardous conditions, enlisted medical technicians generally provided in-flight medical care for the patients lifted by the C-47's from such forward fields in central Korea as Wonju, Chungju, Hoengsong, and Chunchon. At times in January, as fighting centered around Wonju, the accomplishment of patient air evacuation interfered with the delivery of supplies to the forward fields, but the Eighth Army gave precedence to aeromedical evacuation and got its supplies through airdrops. The utility of this airlift support was well illustrated on the morning of 13 February, when immediate airlift was required for some 600 patients at Wonju. By nightfall, all forward airfields had been cleared of patients, with a total lift of 818, including 40 out of Wonju. The original report from Wonju, <sup>†</sup> had been exaggerated. During the spring battles, nearly all sick and wounded men lifted from

forward airfields were unloaded at either Taegu or Pusan East Airfields for hospitalization or for clearance to Japan.<sup>31</sup>

Under the Eighth Army system of evacuation, patients requiring specialized treatment or more than 30 days' hospitalization were customarily dispositioned from Taegu or Pusan hospitals to Japan. Early in the war, acromedically staffed C-54's had lifted most patients from Korea to Itazuke, but to simplify intra-Japan patient movement the Japan Logistical Command requested that patients be flown directly to Tachikawa, Itami, and Itazuke on a 40-40-20 ratio. At Taegu and Pusan, patients were also screened for specialized treatment, so that head and chest cases went to Tachikawa for Tokyo, frostbite and hepatitis cases went to Itami for Osaka, and miscellaneous long-term hospitalizations to Itazuke for Fukuoka. During the spring, the C-54's not only made regular flights to evacuate from Taegu and Pusan, but they also responded to emergencies. A telephone call from the Eighth Army evacuation officer on 15 February, for example, launched an expedited movement of 1,365 patients from Pusan before midnight.<sup>32</sup>

The arrangement whereby the C-54's flew sick and wounded

men directly to hospitals of disposition in Japan was of medical value to the patients and also decreased intra-Japan airlift requirements. As the United Nations ground forces drove northward in the late spring of 1951, C-54's were able to operate into Hoengsong and Chunchon airfields on the central front and into Seoul and Kimpo Airfields on the western front. In order to spare patients the hardships of added movements and to cut down on airlift requirements, Colonel Smith strongly urged that patients be cleared from Seoul and Hoengsong directly to Japan. On 10 June, direct aeromedical airlift was resumed from Kimpo to Japan, but the Eighth Army would not clear patients out of Korea from Hoengsong. Thus the C-54's which delivered supplies at this active airfield picked up patients and carried them to Taegu or Pusan before returning to Japan.<sup>33</sup>

Although the ground fighting in the spring of 1951 was severe enough to defeat the Chinese Communist armies so badly that they sued for a truce in June, the casualties transported by the 315th Air Division in the period did not again equal the 28,140 sick and wounded men flown to safety by the FEAF Combat Cargo Command during December 1950.

During the months between 1 January and 30 June 1951, the 315th Air Division lifted a total of 83,673 patients -- 40,627 intra-Korea, 36,835 from Korea to Japan, 6,152 intra-Japan, and 59 from Japan to Korea. The latter persons included Korean troops who were sent back to their native land for hospitalization. In the transportation of these patients the 315th Air Division made 3,077 flights, all but a few with C-47 and C-54 aircraft.<sup>34</sup>

During the autumn of 1950 and the spring of 1951, 3d Air Rescue Squadron helicopter crews had continued to perform most front<sup>l</sup>ine air evacuation work. In view of the fine performance of the handful of H-5 helicopters in Korea, General Stratemeyer on 14 August 1950 requested USAF to organize and dispatch to Korea an evacuation and utility squadron with 25 H-5 helicopters, a flight surgeon, and medical technicians. Back in Washington, however, USAF Operations based its action primarily on the fact that very few helicopters were available. It obtained 14 H-5's for shipment to FEAF, but it observed that USAF planning for air evacuation "has not included the U. S. Army function of evacuation from front-line battle stations." Actually, according to the old inter<sup>o</sup>service agreement on liaison

aviation, either USAF or the Army could provide front<sup>line</sup> air evacuation services. Although he too doubted that USAF was committed to provide front<sup>line</sup> evacuation, Maj. Gen. Harry G. Armstrong, the USAF Surgeon General, urged that FEAF's request be met. On 21 August 1950, FEAF was accordingly informed that it would receive 14 additional H-5's which, however, would be assigned to the 3d Air Rescue Squadron.<sup>35</sup> At about the same time that General Stratemeyer made his request, the Eighth Army in Korea requested that it be provided organic helicopters. This request was favorably received by the Department of Army which placed heavy production orders for helicopters, and issued new organic helicopter allotments to ground force units. Helicopter ambulance units were also established.<sup>36</sup>

In view of the decision not to organize a USAF helicopter evacuation service, the 3d Air Rescue Squadron organized its helicopter unit in Korea as Detachment F on 30 August 1950. Under command of Captain Oscar N. Tibbetts, Detachment F combined an air rescue and air evacuation mission as it followed the ground fighting northward, moving from Pusan, to Taegu, to Seoul, and to Pyongyang. How the H-5 helicopters could best perform

frontline air evacuation was shown by trial and error: the best means for employing them appeared to be to detach one or more of them to forward surgical hospitals and to authorize the surgeon-in-charge to dispatch them in response to valid requests from the frontlines. Because of the scarcity of the rotary-wing aircraft they could be employed only to save such patients who were wounded so badly that they could not survive surface evacuation. The helicopters were also invaluable for the support of airborne operations: employing two H-5's and three L-5's from Pyongyang, Detachment F evacuated 47 injured paratroopers from the drop zones at <sup>12</sup>Sunchon and Sunchon during airborne assaults there on 22 and 23 October 1950. Before the Chinese Communist attack, Detachment F retreated first to Seoul and then to Taegu, rendering meritorious service to retreating ground forces. In mid-February 1951, when elements of the U. S. 2d Infantry Division were surrounded at the central Korean village of Chipyongni, six H-5's delivered critically needed medical supplies and took out the most serious casualties, each helicopter making three trips on the afternoon of 15 February. The next day, four H-5's weathered 40-knot winds and a blinding

snowstorm to evacuate 22 soldiers, bringing the two-day total to 52 evacuees. Altogether, Detachment F had evacuated 750 critically-wounded soldiers from the frontlines by 20 February 1951.<sup>37</sup>

Although he had been turned down earlier, General Stratemeyer on 16 January 1951 still was convinced that FEAF needed a helicopter air evacuation squadron, for service in Korea and for assignment to the 315th Air Division (Combat Cargo). USAF still was unable to meet FEAF's requirement for helicopters, but it directed that the 3d Air Rescue Squadron be brought up to a strength of 23 H-5's. Early in March 1951, however, USAF sent a larger YH-19 helicopter to Detachment F for service testing.<sup>38</sup> Using its H-5's and the single YH-19, Detachment F evacuated 148 wounded and injured paratroopers who had jumped in the airborne attack at Munsan-ni on 24 and 25 March 1951. Although Eighth Army units had begun to receive some helicopters and carried a part of the frontline air evacuation load, Detachment F still was accomplishing up to 85 percent of frontline patient pickups in the spring of 1951. By 5 April 1951, Detachment F had evacuated 1,423 wounded or cut-off soldiers from the battlelines. On 21 July, FEAF still maintained that it required a squadron

of H-19 helicopters in order to provide adequate frontline air evacuation services to the Army.<sup>39</sup>

After visiting the Far East in the spring of 1951, Maj. Gen. Harry G. Armstrong, USAF Surgeon General called the "remarkable achievement" of the 3d Air Rescue Squadron and of the 801st Medical Air Evacuation Squadron "one of the brightest chapters in the history our Air Force."<sup>40</sup> "For what is probably the first time in the history of warfare," wrote an American physician, "the surgeon has had an abundance of air evacuation transport offered to him without having to plead for it."<sup>41</sup> Speaking at the Annual Convention of the Association of Military Surgeons on 8 October 1951, Maj. Gen. George E. Armstrong, Surgeon General of the Army, noted that the greater availability of air transport had been responsible for several of the great advances in medical care which had taken place in Korea. Rapid evacuation of wounded men, according to General Armstrong, contributed to Korea's lowered death rate among casualties: in world war II, 45 deaths had occurred for each 1,000 wounded men, while in Korea the death rate was only 25 men from each 1,000 who were wounded.<sup>42</sup>

Without doubt the Far East Air Forces had made powerful contributions to military medicine by its development of aeromedical evacuation in Korea, but the system was "somewhat helter-skelter" because of a variety of circumstances. Service responsibilities dealing with air evacuation were not precisely defined, and the Far East Command issued no directive concerning tactical air evacuation during the first year of the Korean War. Which service was to accomplish forward aeromedical evacuation was in doubt. Air transportation, moreover, had been fitted into the Army's existing system for hospitalization and evacuation of casualties without thought as to whether the new transport medium might give more effective service under some more streamlined system. Shortages of medical personnel and obsolete medical tables of organization were matters requiring attention. Medical holding facilities at airfields were long non-existent and never adequate during the first year of Korean hostilities. The 801st Medical Air Evacuation Squadron operated under a table of organization and equipment approved in July 1944 and which was out<sup>u</sup>dated by conditions in Korea. The centralized theater air transport system operated by the FEAF Combat Cargo Command and the 315th Air Division (Combat Cargo)

permitted a single medical air evacuation squadron to accomplish more than several air evacuation squadrons working with several transport organizations in World War II, but, at the end of a year of war, the 801st Squadron still lacked the organization and the people that it needed.<sup>43</sup>

2. USAF Builds Theater Air Evacuation Systems, 1950-1953.

In the years between World War II and Korea, the USAF had made substantial progress in strategic air evacuation but little attention had been given to intra-theater or tactical air evacuation problems. In the Korean emergency, the Far East Air Forces had improvised a commendable system of theater air evacuation which gave splendid services with limited facilities and too few air evacuation personnel. As the war began in Korea, the USAF Medical Service had been caught short in many respects. In view of the emergency, Maj. Gen. Harry G. Armstrong, the USAF Surgeon General, had to expand the recruitment and training of medical air evacuation personnel. The USAF Medical Service also had to devise and implement a new system of aeromedical evacuation -- together with tables of organization and equipment -- for the accomplishment of all phases of theater air evacuation

including forward aeromedical evacuation. This system had to be tested in field maneuvers before it could be employed in the continued shooting war in Korea. The Far East, moreover, was only one theater concerned with air evacuation. The demonstration of Communist hostilities manifest in Korea, spurred the build-up of North Atlantic Treaty Organization (NATO) forces in Europe. In order that these European defense forces should attain war readiness preparedness, a system of theater air evacuation services had to be built in Europe. Each of these problems occupied the attention of the USAF Medical Services while the war was continuing in Korea.

At the beginning of the Korean war, the USAF Medical Service possessed only 1,088 Air Force nurses, of whom 83 were performing duty in FEAF and MATS air evacuation services. Because of shortages of trained flight nurses in the Far East, some FEAF flight nurses flew up to three air evacuation missions a day in periods of emergency. A large proportion of the MATS air evacuation teams on duty in the Pacific flew more than 300 hours in a month. To meet the emergency, the USAF Medical Service took several actions. At the School of Aviation Medicine the

831st Medical Air Evacuation Squadron was ordered inactivated on 19 October 1950 and its personnel was transferred to the school and to MATS. Still more flight nurses were needed, and, as a temporary expedient, general-duty nurses with no flight training were placed on flight status and performed duty under the supervision of trained flight nurses. Enlisted aeromedical technicians were also scarce, and it was necessary for USAF to levy quotas upon its major zone of interior commands for medical and surgical technicians to serve on temporary duty with MATS. Many of these men lacked air-evacuation training, but on-the-job experience under trained flight nurses soon allowed them to perform their new duty.<sup>44</sup>

In order to meet the requirements of the expanding USAF as well as the Korean war, the fledgling USAF Medical Service had to implement a medical recruitment and training program of considerable magnitude. So far as air evacuation was concerned, the key to the expansion was flight nurses, for these trained persons furnished medical experience to the air evacuation teams. From Washington, General Armstrong's office waged a strong recruitment program for the enrollment of registered nurses of ages

- 2

between 21 and 36 years who were physically qualified for flying and who would remain in the service for at least one year following completion of the flight nurse course. Many reservist nurses also volunteered for active duty.<sup>45</sup> In order to accelerate the program, the flight nurse course at the School of Aviation Medicine, Randolph AFB, was reduced in length from nine weeks to six weeks, but it was soon evident that Randolph did not possess the facilities necessary for expanded flight nurse and aeromedical technician training. The Air University therefore recommended that the training of flight nurses and air medical enlisted men should be transferred to Gunter AFB, Montgomery, Alabama, where housing and classroom facilities were available.<sup>46</sup>

Following USAF acceptance of the recommendation, the Gunter Branch, USAF School of Aviation Medicine was established on 29 September 1950 under command of Colonel Robert J. Platt, who would so serve until he was relieved by Colonel Benjamin A. Strickland, Jr., on 1 August 1951. Begun on 16 October 1950, the Gunter flight nurse course was of six weeks' duration and was scheduled for the enrollment of 60 flight nurses every seven weeks. Set up to begin on 1 January 1951 were an aeromedical technician's course (later called aeromedical apprentice course), an aeromedical

specialist's course, and a medical service technician's course, each for a planned enrollment of 100 per class. Enrollment in the flight nurse course was at a near maximum all during 1951 and seven classes were graduated, collectively comprising some 403 Air Force and Navy and a few foreign flight nurses. At the beginning of 1952, the flight nurse course was temporarily increased from 60 to 100 per class, but at mid-year the Navy completed its immediate flight nurse training objective and the classes were reduced to 40 students per class. During 1952, some 456 flight nurses were graduated at Gunter. During the first half of 1953, three classes graduated a total of 61 flight nurses at Gunter. Enrollment of airmen in the general courses at Gunter, in civilian institutional training programs, and in a number of more specialized courses instituted at Gunter satisfied the Air Force's requirements for trained medical technicians -- including the requirement for about 500 air evacuation technicians a year -- and for advancement of individual airmen in the medical career field.<sup>47</sup> Because of personnel turnover at the completion of service agreements, the USAF Medical Service would have difficulty maintaining its strength, but the increased training in the School of Aviation Medicine

nevertheless provided the skilled personnel needed by world-wide aeromedical evacuation systems during the Korean emergency.

Simultaneously with the attainment of expanded personnel procurement and training objectives, the USAF Medical Service, in collaboration with the USAF Tactical Air Command and based upon maneuver experience and information from overseas, was planning and organizing a tactical aeromedical organization for service in theaters of operations. The development of this system would not be a simple matter since it would require agreements between the Departments of Air Force and the Army. The tactical aeromedical organization would also have to be related to the form of organization of troop carrier wings with new, assault-type aircraft. As a planning objective the USAF Medical Service and the Tactical Air Command desired to attain the ultimate goal of an integrated aeromedical evacuation system in each theater, which would be built up as a composite of a number of aeromedical organizations which would meet differing local circumstances. Because of austerity of medical forces any such program would not be immediately accomplished in any theater.<sup>48</sup>

When the Far East Air Forces first recommended the

creation of helicopter evacuation and utility squadrons, USAF was reluctant to assume a type of aviation mission which many Air Force men believed "should most logically be a responsibility of the Army." Colonel Richard T. Knight, Commander of the Air Rescue Service, nevertheless recommended that the frontline "evacuation problem logically belongs to the Air Force and would provide an extension to the evacuation facilities presently being provided by MATS and Troop Carrier." Colonel Knight nevertheless felt that the mission was incompatible with normal air rescue tasks. Recognizing the utility of helicopters as personnel and cargo carriers, the USAF Tactical Air Command on 10 August 1950 requested authority to organize an experimental helicopter assault-transport squadron. On 23 September 1950, the Tactical Air Command further submitted draft tables of organization and equipment for an assault transport wing, which would include squadrons of conventional assault transport aircraft and other squadrons of rotary-wing aircraft. Such assault transport wings would be employed for airborne and other forward area operations, but theaters of operations would also normally possess standard troop carrier wings. Although

USAF had been reluctant to approve the activation of special helicopter evacuation squadrons, it was quick to accept the general tactical usefulness of the helicopter as an assault vehicle which could perform air evacuation as well as other tasks. USAF therefore approved the concept of the assault troop carrier wing, but because of production delays no helicopters would soon be able to equip any rotary-wing transport squadrons.<sup>49</sup> At the same time that the Tactical Air Command was devising a new organization for assault transport work, the USAF surgeon's office was planning new aeromedical tables of organization. On 29 June 1951, it secured approval for a new unit to be called the Forward Aeromedical Evacuation Flight which would normally comprise four male officers and 24 medical airmen and would be attached to troop carrier wings to provide in-flight care and treatment for casualties evacuated from forward areas by assault or rotary-wing transports.<sup>50</sup>

Even though it had as yet secured no helicopters, the USAF Tactical Air Command considered that USAF was responsible for the aeromedical evacuation of all sick and wounded men from the forward areas of military operations, and it was eager to test the new concepts of aeromedical

evacuation in the Army-Air Force joint Exercise "Southern Pine" which was to be staged in North Carolina during August 1951. At Sewart AFB, Smyrna, Tennessee, the Tactical Air Command accordingly organized a provisional helicopter transport squadron with two YH-12 helicopters which it borrowed from the Air Proving Ground Command. On 13 June, the Tactical Air Command also activated the 2d Forward Medical Air Evacuation Flight. To this regularly constituted unit was added a provisional unit which was capable of serving as a holding facility at the maneuver airhead.<sup>51</sup> In the planning for "Southern Pine" Army representatives asserted that the evacuation of casualties within a field army area was an Army function, but as a compromise it was agreed that both Army and Air Force methods of air evacuation would be used, with each service providing evacuation services for an approximately equal number of men. In the play of the air evacuation problem, the YH-12 helicopters lifted simulated U. S. 43d Infantry Division casualties from the frontlines to Maxton Air Base where they were received by the aeromedical holding station and dispatched to Pope AFB for transfer by ambulance to Fort Bragg Hospital. The Air Force system worked so effectively that the 43d Division's surgeon was able to

suspend all echelons of ground evacuation except the forward litter bearers, thus idling an estimated 600 persons and 100 vehicles of the Army medical service. Ground casualties were screened to prevent "over evacuation," but all legitimate casualties were rapidly moved, with as few stops as possible, to hospitals outside the combat zone. Maj. Gen. W. R. Wolfinbarger, Ninth Air Force commander, predicted that the Army "will be quick to realize . . . the far reaching effects of their medical establishment if they should agree to Air Force assumption of all medical air evacuation."<sup>52</sup>

But the Air Force would not be permitted to institute an integrated program of casualty evacuation, for the Army had already organized transport helicopter companies and wished to assume forward area air evacuation responsibilities. According to an agreement signed by Secretary of the Army Frank Pace and Secretary of Air Force Thomas K. Finletter on 2 October 1951 the Army was permitted to possess organic aircraft needed "as an integral part of its components for the purpose of expediting and improving ground combat and logistical procedures within the combat zone." The combat zone was understood to be an area from 60 to 75 miles deep to the rearward of the battle line.

The Air Force had the primary function of supplying airlift to the Army, but the Army could also employ its own aircraft to transport supplies, equipment, and small units within the combat zone.<sup>53</sup>

In order to provide practical experience from maneuver participation, the Tactical Air Command's Eighteenth Air Force activated the 1st Aeromedical Group on 28 November 1951, and this new unit incorporated the forward medical air evacuation flight, the aeromedical holding station, and a troop carrier medical group. In New York State in February 1952, the 1st Aeromedical Group participated in the Army-Air Force Exercise "Snow Fall." In this maneuver, Army helicopters lifted real and simulated casualties from the frontlines to the Army's forward medical facility, and the 1st Aeromedical Group employed Air Rescue helicopters to complete the rearward phase of the patient lift. The chief medical umpire in this maneuver questioned whether the Army was correct in insisting that air transported patients should be compelled to go through the Army's echelons of evacuation when they could be flown directly from a battalion aid station to a casualty staging facility and thence to definitive hospitals. In Texas during March 1952, the 1st Aeromedical Group also participated in Army-

Air Force Exercise "Long Horn," which again saw the Air Force limited to the evacuation of real and simulated casualties to the rearward of division clearing stations. Once again, the Tactical Air Command protested that casualties transported by air should not be compelled to travel from battalion aid station, to division clearing station, to mobile army surgical hospital before <sup>or</sup> being moved to more definitive hospitals. It also protested the inefficiency arising from a division of air evacuation responsibilities between the Army (in the forward area) and the Air Force (in the rear area). The Army, however, announced its desire to accomplish air evacuation of casualties within the field army area with Army aviation. The Air Force's arguments for rapid evacuation of casualties to definitive medical treatment through the mechanism of a theater-deep Air Force air evacuation system were not accepted by the Army. And, on 4 November 1952, Army dissatisfaction with the Pace-Finletter agreement led to the promulgation of a new Army-Air Force agreement on Army aviation. In this memorandum, the Army was assigned primary responsibility for aerial evacuation within the combat zone, which would normally be from 50 to 100 miles deep. The Air Force was responsible for the evacuation of casualties "from the initial

575

point of treatment or point of subsequent hospitalization within the combat zone to points outside the combat zone; and in airborne operations, the evacuation of all casualties, from the objective area until such time as ground link-up is attained."<sup>54</sup>

The field maneuvers in the United States had not resulted in the acceptance of a theater-deep and integrated theater air evacuation system, but the Air Force drew upon this experience together with reports from Korea to revise its organization for the accomplishment of the medical phase of theater air evacuation. The small organization called the Forward Medical Air Evacuation Flight which had been authorized on 29 June 1951 would continue to exist. Based upon suggestions of the 801st Squadron in the Far East, the USAF Surgeon's Office revised the old organization of the Medical Air Evacuation Squadron and on 1 May 1952 published a new organizational table for an Aeromedical Evacuation Squadron Tactical. This unit provided facilities and personnel for controlling the air movement and for providing in-flight medical care for casualty evacuees in fixed-wing transport aircraft in a theater of operations. Headed by a squadron commander who normally functioned as the surgeon of the troop carrier force, a squadron headquarters

503

supervised the activities of a minimum of five aeromedical evacuation flights and a like number of small aeromedical evacuation regulating-liaison flights. Based upon an agreement on somewhat different ideas offered by the Tactical Air Command and the USAF Surgeon's Office, a conference on 26 May 1952 devised a table of organization for an Aeromedical Evacuation Holding Group. This unit was designed to provide base-level medical service for the troop carrier wing to which it would normally be assigned and would also include casualty staging flights consisting of 25-bed holding facilities which could be assigned to any desired location in the combat or communications zone.<sup>55</sup> The completion of these tables of organization represented a step forward toward the establishment of comprehensive theater air evacuation services which would vary according to local circumstances and requirements. The units were cellular in structure and could be easily augmented, but the units themselves did not exactly represent an attainment of the USAF Surgeon's desires that all Air Force medical units should serve as "building-blocks" which could be logically placed together to provide necessary Air Force medical services.

Despite some augmentation at the time of the Berlin Airlift, the United States Air Force in Europe in the years after 1945 had been little more than an occupation force. The approval of a North Atlantic Treaty Organization in 1949 and the Communist assault in the Far East in 1950 vividly demonstrated the need for augmented combat air forces in Europe. On 24 December 1950, all USAF commands in the European Command were placed under the U. S. Air Forces Europe. In January 1951, the U. S. Twelfth Air Force was activated in Germany and the U. S. Third Air Force was activated in the United Kingdom. Following the inactivation of the 805th Medical Air Evacuation Squadron on 5 May 1947,\* USAFE had continued to move some patients from small bases to large hospitals by specially-scheduled C-47 flights but there were no organized medical evacuation teams and aircrews were unfamiliar with aeromedical procedures. Following withdrawal of transport aircraft from Europe to support the Korean war, air evacuation missions were performed in C-82 "Packet" aircraft -- an early version of the C-119 Flying Boxcar plane, which, like the latter,

\* See Chap. VII, p. 47.

was poorly suited for transporting sick or injured patients. Because of an increasing troop strength in the theater and a rising air evacuation requirement, Brig. Gen. William H. Powell, Jr., the USAFE Surgeon, took steps to formalize air evacuation. Accordingly, on 11 June 1951, USAFE activated the 1st Medical Air Evacuation Squadron with a reduced strength of nine officers and 20 enlisted men. The squadron was assigned to the Twelfth Air Force and was attached to the 60th Troop Carrier Wing at Rhein-Main Air Base. Employing C-82 aircraft from the 60th Wing, the new squadron on 1 July began scheduled evacuation flights to and from Paris, Berlin, and Burtonwood, England and made special flights throughout Europe on call.<sup>56</sup> In October 1951, a weekly air evacuation flight was added to Pisa, Italy. Although the 1st Squadron handled about 200 patients a month, the C-82 aircraft were uncomfortable for patients and frequent mechanical difficulties disrupted schedules. After many representations were made to this effect, the Twelfth Air Force on 29 December 1951 forbade the use of C-82's for patient evacuation and allocated six C-47 aircraft to the 60th Troop Carrier Wing for intra-Europe air evacuation.<sup>57</sup>

Simultaneously with the allocation of special C-47's for the function, USAFE on 29 December 1951 officially

charged the Twelfth Air Force with the performance of all intra-Europe air evacuation. Other than the fact that the C-47's were much better suited and more reliable for air evacuation flights, the officially-assigned responsibility made little change in Twelfth Air Force air evacuation operations. The 60th Wing and 1st Squadron continued scheduled flights with stops at Burtonwood, Lyneham, Berlin, Paris, Bordeaux, Laon, Chaumont, Toul, Stuttgart, Wiesbaden, and Neub<sup>f</sup>iberg. No passengers other than patients (or recovered patients returning to duty stations) were lifted on these scheduled air evacuation flights. Special flights were flown upon request to pick up patients at other points in Europe. Occasionally a C-82, C-119, or C-54 was employed for a special long-distance emergency evacuation, but Twelfth Air Force efforts to obtain a C-54 for these long-distance medical air evacuation flights <sup>was</sup> turned down. Operating largely on routine scheduled air evacuation missions, the 1st Medical Air Evacuation Squadron handled 2,667 patients during 1952.<sup>58</sup>

During most of 1952 the Twelfth Air Force was responsible for intra<sup>t</sup>heater air evacuation in Europe, but, during December 1952, USAFE decided to decentralize the system.

Sick and injured patients from the United Kingdom were moved to the USAF hospital at Wiesbaden for subsequent evacuation via Rhein-Main to the United States. Such a process made for too many moves of patients, whereas medical considerations of course benefit from as little movement as possible provided local facilities are acceptable for definitive medical care. Late in 1952, the build-up of USAF hospitals at Burtonwood, England<sup>el</sup>, and Chateauroux<sup>w</sup>, France, permitted desirable changes in the patient air movement patterns. In order to meet the new situation, General Powell decided to charge the Third Air Force with intra-United Kingdom air evacuation and to relieve the Twelfth Air Force of this responsibility. On 8 December 1952, the 3d Aeromedical Evacuation Flight was accordingly activated with assignment to the Third Air Force, attachment to the 59th Air Depot Wing, and station at Burtonwood, England. The 3d Flight was authorized a strength of six officers and 13 airmen, but it would be undermanned for some months. Effective on 20 December 1952, the 1st Medical Air Evacuation Squadron was reorganized<sup>and</sup> redesignated the 1st Aeromedical Evacuation Flight with continued assignment to the Twelfth Air Force, attachment to the 60th

Troop Carrier Wing, and station at Rhein-Main Air Base. The 1st Flight was authorized a strength of 10 officers and 33 airmen, but it also would be undermanned. Both of these new USAFE flights were organized according to various columns of the tables of organization for a flight of an aeromedical Evacuation Squadron Tactical.<sup>59</sup>

Remaining responsible for air evacuation operations in continental Europe, the Twelfth Air Force's 1st Aero-medical Evacuation Flight continued to fly scheduled missions aboard 60th Air Base Group C-47's during the first six months of 1953. The development of the USAF hospital at Chateauroux, France, permitted a change in evacuation routes whereby this hospital received all patients from French bases, and only certain categories of patients (including those to be evacuated to the United States) were brought to Wiesbaden. The Twelfth Air Force also began to evacuate Canadian patients for hospitalization at Wiesbaden or further evacuation to the United States. Because of the opening of new stations, the Twelfth Air Force's scheduled air evacuation flights from Rhein-Main served Landstube<sup>c</sup>, Chaumont, Chateauroux, St. Nazaire, Bordeaux, Berlin, Bremen, Hanover, Laon, Paris, Spangdahlem, Bitberg, Orleans, La Rochelle, Furstenfeldbruck, and Wiesbaden. Some of these

stations were served by twice-weekly C-47 flights and the others by once-weekly C-47 flights. From January through June 1953, the 60th Wing and 1st Flight flew 245 air evacuation missions to transport 1,519 patients a total of 466,141 miles without accidents or fatalities.<sup>60</sup> In the United Kingdom, the 3d Aeromedical Evacuation Flight utilized a single C-47 of the 59th Air Depot Wing for a routine air evacuation flight which each two weeks picked up patients at Wimpole Park and Burderop Park and returned them to Burtonwood. Emergency flights were also made to points in Scotland and Ireland. Effective on 15 December 1952, the MATS trans-Atlantic air evacuation flight stopped twice a month at Burtonwood to accept patients from the United Kingdom. Marking an efficient use of the single flight nurse and two airmen assigned to it, the 3d Aeromedical Flight transported 129 patients a total of 21,115 patient miles within the United Kingdom during the first six months of 1953.<sup>61</sup>

At the same time that the U. S. Air Forces in Europe were implementing a theater air evacuation system, the Far East Air Forces were adapting an air evacuation system which had stood the stress of all-out ground combat in Korea to a more stabilized ground combat situation which coincided with

the defeat of the Chinese Communist offensives and the beginning of truce negotiations at Kaesong on 10 July 1951. The performance of intra-theater air evacuation within the Far East Command would continue to be the responsibility of the 3d Air Rescue Squadron, the 315th Air Division (Combat Cargo), and the 801st Medical Air Evacuation Squadron. The pattern of air evacuation continued to be intra-Korea, Korea to Japan, and Intra-Japan. With the beginning of peace-talks, however, military casualties were reduced, forward hospitals became relatively permanent, and air evacuation became more routine. Despite some improvement in medical capabilities, the system of air evacuation which was largely improvised in the first year of the Korean war continued to function without great change. One reason for this was the fact that the Far East Command did not issue a theater directive on aeromedical evacuation until 18 December 1951, and this belatedly-issued directive merely confirmed the existing system, with all of its improvisations.<sup>62</sup>

Early in the Korean hostilities, Detachment F, 3d Air Rescue Squadron had pioneered in the employment of helicopters for frontline casualty evacuation. In time, this

organization was redesignated Detachment 1, 3d Air Rescue Squadron (22 June 1951), and as the 2157th Air Rescue Squadron of the 3d Air Rescue Group (1 March 1953), and its H-5 helicopters were replaced with larger H-21 helicopters. Army and Marine helicopters eventually assumed much of the frontline air evacuation work and the change in the nature of Fifth Air Force targets to deep-in interdiction objectives demanded a buildup of helicopter rescue services on islands off Korea's western coast, a position from which the helicopters could not serve as evacuation planes.

The USAF helicopters nevertheless continued to perform some frontline evacuations throughout the war, and altogether during the Korean hostilities USAF helicopters lifted more than 8,500 wounded persons from frontline positions either to mobile army surgical hospitals or to frontline airstrips for further air evacuation. Ordinarily, the rescue helicopters were stationed at Army field hospitals and flew forward on call. In December 1951 and February 1952, the Far East Air Forces sponsored a novel experiment which sought to determine whether the Navy hospital ship CONSOLIDATION could serve as a floating hospital for casualties incurred in fighting in the mountains of eastern Korea.

The CONSOLATION was equipped with a helicopter deck and anchored off the east coast of Korea. From the frontlines helicopters brought casualties to a forward airstrip at Pupyong-ni, where the wounded men were loaded aboard 21st Troop Carrier C-47's and flown over the mountains to a sea-shore strip at Sokchori. Here two helicopters ferried new patients to the CONSOLATION and returned other patients to Sokchori, whence C-54's flew them to Japan. In this experiment, 315 patients were handled without ill effects, but the procedure was abandoned on 24 January 1952 because of the excess patient handling involved.<sup>63</sup>

Transporting casualties lifted from forward airstrips, located almost always near mobile army surgical hospitals in the latter two years of the Korean war, was the task of the 315th Air Division (Combat Cargo) and the 801st Medical Air Evacuation Squadron. These movements continued to be closely coordinated through air evacuation operations of the 315th Air Division, which (following reorganizations in the theater in the autumn of 195<sup>2</sup><sub>A</sub>) received daily requests for air evacuation from the Eighth Army surgeon in Korea, the medical section of the Korean Communications Zone, and the medical regulating officer of the Army Forces Far East

in Japan. Based upon these assembled requests, 315th Air Division Transport Movement Control scheduled the necessary aircraft for medical air evacuation, if possible as the backload of a transport mission to the evacuation airfield. Aircraft were ordinarily scheduled a day in advance, but emergency lift was done at any time without regard to cargo.<sup>64</sup> Early in the Korean war the 801st Medical Air Evacuation Squadron had ignored its flight organization to station its personnel where it was most needed, and as has been seen, the USAF Surgeon's Office drew up the table of organization for an aeromedical evacuation squadron tactical on the basis of the 801st's recommendations. In order to provide the 801st with badly needed additional personnel, however, the 315th Air Division obtained authority and on 6 June 1951 reorganized the squadron according to changes in the World War II vintage table of organization and equipment to provide it with a squadron headquarters and six medical air evacuation flights. The squadron's personnel authorization was increased to 45 officers and 72 airmen. In the summer of 1951, the squadron kept its headquarters and operations functions at 315th Air Division headquarters, maintained detachments of nurses and air

evacuation technicians at Tachikawa and Ashiya, and kept medical service corps officers or senior noncommissioned officers on liaison duty at airfields and medical installations in Korea. Early in 1953 a part of the nurses and technicians from Ashiya were moved to the Seoul Municipal Airfield, which had become the main cargo command airhead in Korea.<sup>65</sup>

When truce talk beginnings were marked by sharp reductions in Eighth Army casualties in mid-1951, the 315th Air Division (Combat Cargo) issued orders that C-54 and C-47 aircraft would be employed for air evacuation over all routes and into all areas, with the C-47's to be employed into areas where the use of C-54's would not be operationally feasible or economical. The C-46 and C-119 aircraft were to be used only in cases of emergency.<sup>66</sup> For more than a year, the C-47's of the 21st Troop Carrier Squadron lifted casualties from frontline airfields to Seoul Airfield, Taegu Airfield, or Pusan East Airfield where the patients were turned over to Eighth Army or Korean Communications Zone hospitals. The C-54's of the 61st and 374th Troop Carrier Groups lifted patients from these airfields to Japan. During the last half of 1952, however, certain changes in the 315th Air

Division's aircraft complementation affected these arrangements. In brief, USAF provided the 315th with another wing of C-119 aircraft in exchange for the C-54's of the 61st Group and undertook to convert two squadrons of the 374th Wing to giant Globemaster C-124 aircraft. Brig. Gen. Chester E. McCarty, who took command of the 315th Air Division on 10 April 1952, was concerned with the effect of these changes on the Korean airlift, and Lt. Col. Jesse K. Grace, who took over as 315th Surgeon and 801st Squadron commander on 19 January 1952 had to ensure that the change of aircraft types did not hamper the smoothly-operating air evacuation system.<sup>67</sup>

In order to maintain its operational flexibility and its ability to operate into small forward airstrips, the 315th Air Division retained its C-47's and one squadron of C-54's. Effective on 1 December 1952, the 6461st Troop Carrier Squadron was organized at Ashiya to receive the personnel and C-47's of the 21st Troop Carrier Squadron. At Tachikawa, one of the 61st Group's squadrons was redesignated as the 21st Squadron with assignment to the 374th Troop Carrier Wing. The 6461st Squadron continued the frontline airlift and air evacuation functions for which the "old" 21st Squadron was famous. Flying from Tachikawa, the C-54's of

the "new" 21st Squadron continued to be available for air evacuation missions. The main problem, however, was to integrate the giant C-124's into the air-evacuation lift. During operational feasibility tests of a C-124A on 18 October 1951, three flight nurses and three flight technicians had accompanied 103 litter and 62 ambulatory patients on a two-hour flight from Pusan to Itami Airfield. This and other tests conducted that month showed that the huge plane could as a practical maximum carry 127 litter or 200 ambulatory patients and could be unloaded and loaded faster than several planes required to carry equivalent patient loads. It was also proportionately economical in its requirements for flight nurses and technicians. Patients liked the big aircraft, and the only possible adverse characteristic noted was a fear of aeromedical personnel that they would not be able to save all of their patients if a C-124 had to ditch at sea.<sup>68</sup>

The employment of two squadrons of Globemasters from Tachikawa promised to increase the 315th Air Division's airlift and air evacuation capabilities, but the giant planes proved to have both advantages and disadvantages when they were added to the Korean airlift late in 1952. The

C-124's could operate into the heavy-duty airfields at Seoul and Taegu, but they were too heavy to be allowed to land and take off from Pusan East Airfield, which had always been a major dispatching point for patient movements to Japan. In the interest of flight safety, moreover, General McCarty ruled that the C-124's could not carry more than 120 passengers. Seldom, however, in the last year of the Korean hostilities was such a number of patients available for transfer to Japan at one time. In anticipation of the fact that the C-124's could not operate into Pusan East Airfield, the 315th Air Division added air evacuation to the mission of the 315th (formerly the 437th) Troop Carrier Wing which flew from Brady Air Base on Kyushu. Not used earlier except in emergencies because they lacked litter straps, adequate heating, and toilet facilities, the C-46's proved able to carry up to 26 litter patients without difficulty. After September 1952 the C-46's regularly handled the patient lift from Pusan to Japan and they also served on the intra-Korea and intra-Japan patient airlift, when necessary. Although the Globemasters possessed disadvantages for routine air evacuation during times of slack ground fighting, they had unique utility on several occasions. Early in 1953, a C-124 flew 18 Thai patients suffering from

wounds and illness incurred in Korea to Bangkok, for the 315th's longest air evacuation mission. The C-124's also transported 270 United Nations sick and wounded prisoners recovered during Operation "Little Switch" from Seoul to Tachikawa in April 1953. In May 1953, when the Chinese Communists launched last gasp ground offensives, one C-124 with three nurses and three technicians aboard, set a world's record by shuttling 419 wounded South Korean soldiers in four trips from Seoul to Taegu in one day's time.<sup>69</sup>

With the exception of relatively heavy patient evacuation requirements during the Communist ground offensives in May and June 1953, the 315th Air Division's aeromedical airlift task during the last two years of the Korean war was that of maintaining sustained day-to-day routine evacuation. As the shooting war in Korea ended on 27 July 1953, however, the 315th Air Division had since 10 September 1950 lifted a total of 307,807 patients -- 1,037 into Korea from Japan, 134,916 intra-Korea, 135,125 from Korea to Japan, and 36,726 intra-Japan. Including the sick and wounded handled by the 374th Wing prior to 10 September 1950, FEAF transport aircraft lifted some 311,673 patients during the Korean hostilities.<sup>70</sup> The story of aeromedical evacuation during the Korean hostilities established certain facts

without doubt. Aeromedical evacuation proved so dependable that hospital ships could be used as floating hospitals rather than for transporting patients. Air evacuation was safe. Only six patients were lost in a single fatal accident in Korea, this on 22 December 1952 when the pilot of a Royal Hellenic Air Force C-47 evidently misunderstood instructions and collided with a jet fighter-bomber at Suwon Airfield. The accident was fatal to 14 persons, including two flight nurses, two air evacuation technicians and six patients.<sup>71</sup> Air evacuation was humanitarian. Knowing that an airplane would carry them speedily and comfortably to a well-equipped hospital, patients usually assumed a "worst is over" outlook, which lifted their spirits at the very time they needed to take heart. Air evacuation was medically beneficial. The same speed brought patients to medical centers where specialists had access to the best possible equipment. Air travel caused far less trauma than travel over rough roads or jolting railways. Other factors contributed -- such as blood therapy and antibiotic drugs -- but aeromedical evacuation also had a large part in reducing the Korean war's death rate of the wounded to one-half the rate of World War II and to one-quarter the rate of World

War I. Air evacuation was also economical. Patients generally occupied back-load space on transport planes which otherwise would not have been utilized. The system was also economical of scarce medical personnel. Working with a centrally controlled air transport fleet, a single medical air evacuation squadron accomplished far more than had been customary for several such squadrons working under decentralized controls in World War II.<sup>72</sup>

During the Korean hostilities, theater aeromedical evacuation had made tremendous contributions, but neither in Europe nor in the Far East had theater air evacuation systems attained maximum effectiveness. In both theaters, air transport had been fitted into the traditional Litterman organization of Army medical services -- a system which had been designed in terms of walking litter-bearers, horse-drawn ambulances, and slow surface transport. Understanding the capabilities of air transport to move sick and wounded men and to return the recuperated men rapidly to duty, Air Force medical officers doubted the validity of the evacuation of patients through many echelons of medical care and hospitalization. "The farther and faster the wounded are removed from the combat area," stated Colonel Allen D. Smith on the basis of his experience in Korea, "the better, more

efficient, and more economical will be the medical care."<sup>73</sup> Although air rescue helicopters had given invaluable front-line air evacuation services, no integrated theater-deep air evacuation system had been established. Chiefly because the Air Force medical service had lacked necessary personnel capabilities to undertake the task, the function of operating holding facilities at airfields in the Far East had been assumed by the Army. In order to insure that patients were ready to travel when aircraft arrived, the Air Force medical service needed to operate these holding facilities. As the Korean war was nearing its end, FEAF was at last prepared to take over the air evacuation holding facilities, but the Army was reluctant to change the status quo.<sup>74</sup> The experience of the Korean hostilities also taught the lesson that a theater of operations ought to maintain in time of peace plans and capabilities for wartime aeromedical evacuation.<sup>75</sup>

### 3. Aeromedical Transport by MATS, 1950-1953

In the reduction of Air Force budgets in the late 1940's, the Military Air Transport Service's air transport function had been greatly curtailed and the emphasis in the MATS' mission had been put on training for a possible war emergency. The MATS mission, prior to 25 June 1950, explained its commander, Maj. Gen. Laurence S. Kuter, was being accomplished

within a program limiting aircraft utilization to 2.5 hours per aircraft per day. On 25 June 1950, MATS controlled 202 C-54's, of which 48 were assigned to the Pacific Division. Under the impact of the war emergency, MATS soon assigned some 40 additional transports to the Pacific which it withdrew from the Atlantic and Continental Divisions. Contracts negotiated with a dozen civil airline companies added 3 Stratocruisers and 63 DC-4's to the Pacific airlift. USAF also made two troop carrier groups available to MATS with 75 C-54's: the 62d Troop Carrier Group on 17 July and the 61st Troop Carrier Group on 26 July began operating over the Great Circle Route to Japan from McChord AFB. On 20 July, the Royal Canadian Air Force Squadron No. 426 began to fly its six Douglas North Star transports from McChord. A single Belgian Sabena Airlines C-54 joined the airlift from Travis AFB at Fairfield-Suisun, California,\* on 10 August 1950. Concurrently with these reinforcements, the Pacific Division substantially increased the utilization

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\*Fairfield-Suisun AFB was redesignated as Travis AFB by USAF on 20 October 1950, but for the sake of uniformity it is referred to as Travis throughout this section. The base was so named in honor of Brig. Gen. Robert F. Travis who was killed in an aircraft crash there on 5 August 1950.

rate of its assigned aircraft by the receipt of additional aircrews. Because of limited en-route facilities, three routes to the Far East were flown. Military planes flew from Travis to Hawaii, to Johnson, to Kwajalein, to Guam, and then to Japan, a total of 8,083 miles or 40 flying hours. Civilian carriers flew the Mid-Pacific route from Travis to Hawaii, to Wake, to Tokyo, a distance of 6,719 miles or 34 flying hours. Other contract carriers and troop carrier planes flew the Great Circle Route from McChord, to Anchorage, to Shemya, to Tokyo, a distance of 5,688 miles, or 30 flying hours. The actual traffic movement from the United States to Tokyo's Haneda Airfield increased from 3.2 tons a day in June 1950 to 98.59 tons a day in September 1950.<sup>76</sup>

In the months prior to the Korean war, the Pacific Division's 1453d Medical Air Evacuation Squadron had been providing medical care for an average of 350 patients a month who were flown to Hawaii and California. Under the supervision of Colonel James G. Moore, the Pacific Division Surgeon, the 1453d Squadron had its main body at Hickam and a detachment at Haneda in Japan. The 1453d possessed 24 USAF flight nurses and 46 medical technicians, plus 10 Navy nurses and 8 hospital corpsmen who were attached for duty. At the outset of the Korean hostilities, the Pacific Division

was prepared to employ the routes, facilities, and aircraft of its regular cargo and passenger movements to return casualties from Japan, but, as Major <sup>S</sup>D. J. Ferguson, the 1453d's Commander, said, the requirement figures for patient airlift "flew around like bats." The Pacific Division expected a sharp increase in requirements for aeromedical evacuation, but General Headquarters, Far East Command requested space for only 364 patients from Tokyo during July and for only 640 patients a month during August and September. These Far East Command requirements were based upon a 120-day theater evacuation policy and an expectation that the Navy would activate two hospital ships for service in the Pacific. On the basis of this request, the Pacific Division during July continued to schedule three C-54 medical air evacuation flights from Haneda each week. On 14 July, Private Paul R. Jackson, who had lost a leg in Korea, was placed aboard one of the medical air evacuation C-54's. He arrived in Hawaii on 17 July, and, after resting in the Army's Tripler Hospital, he was landed at Travis AFB in California on 21 July, so becoming the first Korean war casualty to be evacuated by air to the United States. The first "load" of Korean war casualties -- 8 wounded men out of 26 patients -- left Haneda on 20 July, and, after rest stops in Guam and Hawaii,

these men reached Travis in a total elapsed flying time of 42 hours. Making a faster trip of only 23 hours for the Pacific crossing, the initial C-97 air evacuation flight landed at Travis on 29 July with 63 litter patients. Although the Far East Command had asked air transport for only 364 patients during July, the Pacific Division actually moved 535 patients from Tokyo.<sup>77</sup>

The requirement to move approximately 1,000 patients a month from Tokyo in August 1950 would not strain the aircraft capabilities of the Pacific Division. In fact, the Pacific Division planned to employ only MATS C-54's for transporting patients over the longer but safer trans-Pacific route from Tokyo, to Guam, to Kwajalein, to Johnston, to Hickam, to Travis. Because of the time and expense required to modify civil contract carrier planes to carry litters, these planes were restricted to moving only ambulatory patients. The cabin noise of the six Canadian North Star aircraft was thought to be excessive for air evacuation. Based upon estimates that each air evacuation team would fly 100 hours a month, the 1453d asked for additional air evacuation teams, and MATS and USAF cut deeply into their holdings in the Continental United States to move a generous number of air evacuation teams to Hickam on temporary duty. Medical

teams arrived at Hickam at such a rate after the first requisition that there was never a time when patients could not be moved because of a lack of air evacuation teams, and by the end of September 1950 106 USAF nurses and 193 medical technicians and 22 Navy nurses and 7 medical corpsmen were flying the Pacific routes. Additional members were required in special medical situations, but the Pacific Division ordinarily employed one nurse and two technicians aboard C-54's and two nurses and four technicians aboard C-97's. Navy and Air Force personnel were assigned missions as their names came up on the 1453d Squadron's alert board, and no effort was made to keep members of either service on separate flight teams.<sup>78</sup>

Although the Far East Command had indicated that one medical air evacuation flight a day would handle its requirements from Haneda during August and September 1950, the Pacific Division actually moved 1,380 patients from Haneda during August. With heavier fighting in progress in Korea and no hospital ship forthcoming, the Far East Command suddenly, on 29 August, raised patient evacuation goals for September to 1,750 spaces and, on 9 September, it raised the month's total to 2,750 patients. On 16 September, the Far East Command asked the Pacific Division to move 5,237 patients

between 16 and 30 September and 8,811 during October 1950. Hospitals in Japan were not as yet overcrowded in mid-September, but the Far East Command anticipated heavy casualties following the invasion at Inchon and wished to move about 6,000 patients from the theater. Patients requiring as little as 60-days' hospitalization were to be evacuated to the United States. As a matter of fact, the hospitals in Japan were not going to be able to prepare so many patients for air evacuation and casualty rates in Korea during September and October 1950 would not be as heavy as anticipated. The Pacific Division nevertheless directed that contract carrier transports would be used to the fullest to evacuate ambulatory patients. It obtained authority to use the backhaul capabilities of the Navy's Fleet Logistics Air Wing for air evacuation. The C-54's of the 61st and 62d Troop Carrier Groups, moreover, began to move patients from Itami to Guam, and thence across the Pacific, thus reducing the patient landing at the hospital in Osaka and avoiding congestion in Tokyo. Added C-97 flights were scheduled for air evacuation. These expedited arrangements lifted all patients presented for air evacuation at Haneda and Osaka, or a total of 3,650 patients in September 1950.<sup>79</sup> During this supposed emergency in September, the Pacific Division actually could have eliminated the

Far East Command's backlog of patients in a little more than three weeks. In Washington, however, the Joint Military Transportation Committee nevertheless recommended that surface transports be used to eliminate the backlog at once rather than to wait for air transportation to overcome it. As a result, nearly 1,700 patients (including some 800 ambulatory patients) were put aboard empty military sea transport service ships. The ambulatory patients probably could have been more easily transported aboard returning contract-carrier flights.<sup>79</sup>

The United Nations Command victory in South Korea during late September and the relatively easy initial stages of the occupation of North Korea in October and early November 1950 caused the number of evacuees airlifted from Japan to decrease to 2,453 in October and to 1,907 in November. Since the 1453d Medical Air Evacuation Squadron now possessed far too many air evacuation teams for profitable employment it reduced its personnel to 97 USAF nurses and 220 medical technicians and 22 Navy nurses and 7 medical corpsmen on 24 November by releasing attached temporary duty personnel.<sup>80</sup> Early in November 1950, MATS was beginning to release contract carrier planes from the Pacific airlift, but the Chinese Communist intervention in the Korean war caused these plans to be abruptly cancelled. As has been seen, first one squadron of the 61st Troop Carrier Group and then the 61st Troop Carrier Group with two squadrons had to be transferred to the FEAF Combat Cargo Command for service on the Korean airlift. When the Chinese Communists attacked, the Far East Command once again issued tremendously increased and most urgent demands for aeromedical evacuation. On 3 December, the theater holding policy was reduced from 120 to ~~60~~ days, automatically generating a backlog of 2,000 patients for evacuation. A few days later, the Far East Command asked

asked for the evacuation of 7,914 patients during December 1950. In order to reduce the backlog, it asked the Pacific Division to lift 300 patients a day, 200 from Haneda and 100 from Itami. To meet this crisis, the 1453d Medical Air Evacuation Squadron was augmented to a strength of 94 USAF nurses and 236 medical technicians and the Navy provided a total of 41 nurses and 8 medical corpsmen. Practically every Pacific Division MATS C-54 and R5D and a maximum number of Pacific Division C-97's lifted litter patients. MATS C-54's serving Okinawa returned by way of Japan to pick up patients, and 62d Troop Carrier Group C-54's came westward by the Great Circle Route and lifted patients eastward on a return trip over the Mid-Pacific route. Maximum use of civil contract carriers was made to lift ambulatory patients, and 15 of these planes were modified to accommodate litters. heralding the beginning of the use of contract carriers for aeromedical evacuation, a Pan American <sup>World Airways</sup> ~~Airlines~~ <sup>5</sup> presurized aircraft brought 76 patients suffering from chest wounds <sup>to Travis</sup> on 13 December. In the emergency, the Canadian North Star transports were cleared to handle patients, and the Pacific Division also utilized the return trips of Fleet Logistic Air Wing transports for aeromedical evacuation. During December 1950, the Pacific Division evacuated 6,241 patients from

Japan in what would be the war's peak trans-Pacific aeromedical airlift month. This total included 3,482 litter and 2,199 ambulatory patients, who were transported by 184 C-54/R5D and 27 C-97 trips. Although the 1453d Squadron's personnel was augmented during December, some air evacuation teams were reported to have flown more than 300 hours in the month of maximum operations. For the exceptionally meritorious conduct of its personnel in the months between 27 June and 31 December 1950, the 1453d Medical Air Evacuation Squadron was awarded a Meritorious Unit Commendation.<sup>81</sup> \*

The evacuation of 15,124 patients by the Pacific Division in the initial six months of the Korean hostilities was an emergency-type operation which proceeded on the basis of usually inadequate advanced planning. The experience indicated that it was quite difficult for an active theater of war to foresee its evacuation requirements. At no time did Far

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\* On 9 October 1956, the 1453d Aeromedical Evacuation Squadron was awarded the Air Force Outstanding Unit Award for this same period of outstanding service and the Meritorious Unit Commendation was rescinded. (Hist. 1453d Aeromedical Evacuation Sq., July-Dec. 1956, p. 29).

East Command evacuation requirements ever utilize as much as 30 percent of the Pacific Division's potential civil and military airlift capability, even when allowance was made for other cargo<sup>2</sup> requirements. Definite "peaks" and "lows" in evacuee movements nevertheless marred the efficiency of the aeromedical airlift. From the MATS viewpoint, the theater should have followed an evacuation policy which would have made a maximum utilization of its hospitals and also have provided a relatively uniform number of patients for air evacuation. Competent MATS authorities also expressed the opinion that the theater did not, or could not, forward patients to air evacuation airheads with the promptness required fully to utilize available air transportation. This situation argued, in their opinion, a lack of sufficient liaison between MATS and the theater medical authorities, which would have facilitated the maximum use of air evacuation aircraft.<sup>82</sup> While the administration of trans-Pacific aeromedical evacuation in the critical early months of the Korean war left something to be desired, everyone agreed that aeromedical transport was beneficial to patients. Dr. Elmer L. Henderson, president of the American Medical Association said early in 1941: "The mortality rate for wounded American soldiers has been cut from four per 100 men who reached hospital

installations during the Second World War to two men per 100 so far during the Korean conflict. Speedy air evacuation is one of the three major reasons for the low mortality rate."<sup>83</sup> A comment in the Cincinnati Inquirer of 5 November 1950 aptly summed up the advantages of air evacuation: "Air Evacuation looks good for everyone --doctors say it is better for the patients-- economists say it is less expensive-- combat leaders say it eases the demand for skilled personnel and supplies in the war zone-- patients like it."<sup>84</sup>

During the first half of 1951 United Nations Command forces in Korea engaged in heavy fighting which defeated the Chinese Communist ground armies and forced the Communist leaders to sue for a military truce, but United Nations casualties were lighter than they had been in 1950 and Far East Command hospitals were better prepared to hold to the 120-day evacuation policy. Greater cooperation and liaison between the Pacific Division and the hospitals in Japan stabilized air evacuation patient flow at about 2,000 patients a month beginning in January 1951, and continuing through June 1951. After the beginning of the truce talks at Kaesong in July 1951, the number of patients requiring trans-Pacific air evacuation averaged less than 1,500 a month during the remainder of 1951, so that a total of 19,563

sick and wounded persons were evacuated by air from Japan during 1951. In increments which did not vary much from month to month, the Pacific Division evacuated 9,443 patients from Japan to the United States in 1952 and 4,139 in the months of January through July 1953. In as much as the Pacific Division had continued air evacuation from other United States garrisons in the Pacific, its total patient-handling load ran to 16,706 in June through December 1950, to 23,910 patients in 1951, 14,359 in 1952, and 5,990 in January through June 1953, amounting to a grand total of 60,965 patients evacuated from the entire Pacific area in the months of July 1950 through June 1953.<sup>85</sup>

According to Colonel J. G. Moore, the Pacific Division's Surgeon, growing cooperation and liaison between the air carrier and the hospitals in Japan ultimately prevented the development of patient backlogs and made for a more even flow of patients from month to month which was easily handled by scheduled medical air transport. Colonel Moore also remarked that medical officers in the Far East Command not only came to accept air evacuation but to rely on it. By 1952, he no longer had to "sell" the air evacuation mission.<sup>86</sup> With the stabilization of patient flow early in 1951, the Pacific Division sought to provide constantly improving care

and speedy evacuation to the patients which it transported to the United States. One major problem was to ensure that the 1453d Medical Air Evacuation Squadron possessed sufficient personnel to handle sudden increases in patient loads without being so large as to prevent air evacuation teams from being profitably employed. Early in 1951 the Pacific Division returned almost all temporary-duty air evacuation personnel to their home station, and in the latter half of the year it cut the 1453d's personnel authorization to 53 officers and 201 airmen.<sup>87</sup> By December 1952, authorized personnel strength of the 1453d was further reduced to 42 officers and 145 enlisted men. The actual reductions of 1453d strength to these authorized figures was complicated by the fact that the Pacific Division could not control the assignment of any but USAF personnel to it. Groups of four Royal Canadian Air Force nurses were attached to the 1453d for preceptorship training at several intervals during 1951 and 1952, and the Navy also chose to use the Pacific airlift for applied training for its flight nurse graduates. The 1453d's authorization included 23 Navy flight nurses, but, in September 1952, 36 Navy nurses were assigned to Navy Squadron VR-8 and automatically attached to the 1453d. The assignment of this surplus air evacuation

personnel added unnecessarily to the monetary cost of the evacuation program, which was charged <sup>to</sup> against the 1453d Squadron.<sup>88</sup>

Even in the busiest months of the Pacific airlift in the autumn of 1950, the Pacific Division had sought to ensure that the most favorable aircraft and shortest routes were employed for air evacuation and these same matters continued to concern the division in the remaining war years. Employing <sup>the - - - - -</sup> favorable winds in the autumn of 1950, several C-97 air evacuation planes flew directly from Haneda to Hickam, but the Pacific Division soon prepared facilities on Midway Island and made it a regular stop for evacuation C-54's and C-97's enroute between Haneda and Hickam. Contract carrier planes were not authorized to use Midway, but they continued to lift patients from Haneda to Wake Island to Hickam. Up until mid-1952, MATS C-54's from Haneda continued to stage southward to Itami to pick up patients received from hospitals in Osaka. By this time few patients were available at Itami, and this leg of the intra-Japan patient lift was taken over by FEAF's 315th Air Division (Combat Cargo). In scheduling planes for air evacuation, the Pacific Division sought to make maximum use of the medically-configured C-54M which was assigned

to it in January 1951. Civilian contract carrier DC-4's were also extensively used for air evacuation up until the spring of 1952 when declining workloads caused the Pacific Division to specify that air evacuation could be accomplished by the Division's C-54M, C-97's, military C-54's/R5D's, or or commercial DC-4's in that priority. Probably because it employed its best aircraft and crews for aeromedical evacuation, the Pacific Division lost no patients in the course of the airlift from Japan and, in fact only one aircraft carrying patients suffered a mishap. This accident occurred at Haneda on 6 March 1952 when a C-97's landing gear retracted on the takeoff roll. In this accident, two patients sustained fractures from flying fragments of a splintered propellor, but all of the patients were removed from the crashed plane within <sup>10</sup>~~15~~ minutes. The 56 patients who escaped injury were enroute eastward aboard substitute planes before nightfall.<sup>89</sup>

With the stabilization of the trans-Pacific airlift, standing operating procedures implemented by the Pacific Division made for smooth patient handling. Each day from the medical regulating officer of the Japan Logistical Command, and, later, the Army Forces Far East, the patient movement control officer of the 1453d Medical Air Evacuation

Detachment at Haneda received a report of patients ready for air evacuation by classification. The 1453d patient movement control officer subsequently notified the hospitals in the Tokyo area of the estimated times of departure of the aircraft which would lift their patients. The hospitals were responsible for transporting the patients to Haneda after the aircraft were declared in commission. If the plane was subsequently delayed for any cause, patients could be accommodated in a 54-bed evacuation ward which had been improvised at Haneda. Patients flown to Haneda from Itami by the 315th Air Division were also held in this ward pending evacuation. Using the pressurized C-97's, the Pacific Division was able to move almost any patient who was in a condition to be moved by any means of transportation, but the Pacific Division did not normally accept patients with a fatal prognosis, or in infectious stages of a quarantinable disease, or with permanent tie-wire<sup>s</sup> between the jaws. Cardiac, anemic, or respiratory patients could be lifted but required special consideration. Because of the MATS policy prohibiting the movement of more than five psychotics on one trans-Pacific flight, the Pacific Division ruled that mental patients could not comprise more than 40 percent of any patient load and that more than one-half of such patients would be "locked-

ward" psychotics. Because of more adequate sedation and restraints for violent psychotics, the air evacuation crews no longer carried extra technicians to attend these cases. Many medical officers, moreover, privately questioned whether or not it might be more advisable to move full loads of mental patients (with not more than 10 "locked ward" patients) than to transport five mental patients in a full load of other patients.<sup>90</sup> Once they were airborne from Haneda, air evacuation planes did not ordinarily stop at way stations short of Hickam except to refuel and change crews. In case of emergencies, however, Wake could accommodate 35 patients and Midway had holding facilities for 68 patients and if a C-97 was forced to remain at Wake for as long as six hours, the Pacific Division required two empty C-54's to be dispatched to pick up the air evacuee load. At Hickam AFB all patients were deplaned and transported to the Tripler Army hospital for rest prior to continuing to the United States.<sup>91</sup>

The saga of Private Paul R. Jackson, the first air evacuee of the Korean war, well revealed the speed of aero-medical evacuation. This Army Engineer soldier was wounded in the left leg near Chochiwon on 9 July 1950 and was taken by stretcher bearers, motor ambulance, and a railway handcar

to a mobile army surgical hospital where his leg was amputated. On the morning of 10 July, a 374th Troop Carrier Group C-47 flew him to Itazuke, where he was hospitalized in the nearby 118th Station Hospital. He was considered strong enough for a C-54 flight to the United States on 14 July, and on 17 July he was landed at Hickam AFB in Hawaii. On 21 July he reached Travis AFB, and, on 25 July, he started by air for Walter Reed Army Hospital in Washington, D. C. The aero-medical journey of Private Jackson required only 16 days from the battalion aid station near Chochiwon in South Korea to the best of care in the Army's Walter Reed Hospital, including stops for surgery and post-operative care.<sup>92</sup> Swift though it was, Private Jackson's journey was far slower than many subsequent routine air evacuation trips from Korea, and even these latter records were not as fast as Brig. Gen. Wilford F. Hall, the MATS Surgeon, felt to be necessary for the maximum well-being of sick and wounded men. General Hall felt that a great many patients could be earmarked for trans-Pacific evacuation and delivered to MATS in Korea instead of in Tokyo. It was General Hall's contention that the air evacuation mission was to get the patient to a hospital of final destination in the shortest possible time, commensurate with medical care, safety, and comfort. In

the autumn of 1951, several experimental MATS C-54 flights brought patients directly from Kimpo and Pusan to the United States, with stops at Haneda for fuel and servicing. Patients so transported were in California four days after they were wounded in Korea. While this procedure held great promise, it apparently bogged down in administrative details and was abandoned.<sup>93</sup> In one other respect the trans-Pacific aero-medical airlift failed to develop as Air Force medical officers had hoped it would. In the autumn of 1950, MATS medical men in the Pacific hoped for the day that a C-97 would be converted into a full-fledged flying hospital, with a well-equipped operating room on its lower deck and a "ward" on its upper deck. The result would be a flying hospital, said Major Ferguson, the 1453d's commander, in which "minor surgery and first-stage emergency treatment of wounded men can be performed en route to hospitals far removed from the fighting zone."<sup>94</sup> Although the special conveniences of the C-54M benefited the care and comfort of patients on the trans-Pacific airlift, this plane remained primarily a utility aircraft, and no C-97 aircraft received any special modification fitting it for air evacuation during the Korean hostilities.

The MATS aeromedical airlift responsibilities for the sick and wounded from the Far East did not end when these patients reached California. With headquarters at Kelly AFB, San Antonio, Texas, the MATS Continental Division was charged with the air transport mission within the United States, including Alaska, Puerto Rico, and the Panama Canal Zone. For the performance of its aeromedical transport functions the Continental Division possessed the 1732d (Westover), the 1733d (Travis), the 1734th (Kelly), the 1735th (Brookley), and the 1736th (Brooks) Air Transport Squadrons (Air Evacuation). Following a plan prepared prior to the outbreak of the Korean war, MATS integrated medical air evacuation personnel into these squadrons on 19 July 1950. Early in the Korean emergency, however, the Continental Division sent many of its air evacuation teams on temporary duty to Hawaii to assist with the trans-Pacific patient lift. Effective on 8 July, the Continental Division cancelled all of its scheduled operations except for the domestic air evacuation flights. From Kelly AFB, the 1734th Air Transport Squadron (Air Evacuation) would continue to fly the thrice-weekly C-54 Samaritan airline mission to and from Westover and the thrice-weekly C-54 Nightingale airline flight to and from Travis. From

Westover, the 1732d Squadron made a twice-weekly C-47 trip to Kellogg Airport, Michigan; from Brooks, the 1736th Squadron flew a twice-weekly C-47 loop via Lowry and Scott AFB's and return; from Brookley, the 1735th made twice-weekly C-47 flights over the southeast to Scott and return; while, from Travis, the 1733d flew a C-47 once a week to and from McChord AFB. Each of the C-47 "feeder" squadrons could also perform special aeromedical transport missions. For a number of months these regular operations would continue unchanged, but the Korean emergency would demand additional air evacuation effort.<sup>95</sup>

Although the Continental Division would continue to receive patients from overseas at Westover, McChord, and Brookley, Colonel Joseph W. Baird, the division surgeon, recognized the impact of the Korean crisis would be heaviest at Travis AFB. Operated by the 5th and 9th Medical Groups, the Travis hospital had been completed in 1949, but its design antedated the decision to airlift all sick and wounded from overseas and it had bed spaces for only 155 patients. Up through June 1950, the Travis hospital had received an average of 300 to 400 air evacuation patients a month, and these patients had needed very little medical care while

they awaited transfer. To get ready for Korean war casualties, however, the Travis hospital set up an additional 83 beds in the hospital's sun and waiting rooms, and corridors, and put another 122 beds in the barracks taken over from the medical detachment. The Continental Division planned no immediate augmentation in its domestic aeromedical transport force other than to increase its utilization rate. As soon as 80 patients were backlogged at Travis, however, the Continental Division intended that C-74 Globemaster flights returning from Hawaii would pick up patients at Travis and fly them directly to the East Coast, and would then return to their home station at Mobile with any patients destined for that area.<sup>90</sup>

The first Korean war casualties trickled in Travis during July 1950 with plane loads of routine evacuation cases. The Continental Division's regular aeromedical airlift easily handled the 514 patients who arrived at Travis during July. In August, however, Travis received 1,204 air evacuation patients, and the increase posed a tremendous burden to its staff. In September, Travis began to receive the impact of the Far East Command's reduction of its retention policy to 60 days, and 3,200 patients were received.

By repossessing some of the wards in the old temporary base hospital, Travis increased its holding capacity to 450 patients. In September, the Air Force Surgeon also directed the Air Force hospitals at Hamilton, March, Mathox, and Castle Air Force Bases to set up extra beds for emergency use of patients evacuated from Korea. The operation at Travis, reported the USAF Medical Service, was not one of which it "could be proud," but the debarkation hospital was nevertheless performing its mission.<sup>97</sup>

In September 1950, as its domestic air evacuation commitment from Travis suddenly rose from 65 to 280 patients a day, the Continental Division faced the problem of handling not only those patients who were airlanded at Travis but it also had to transport approximately 1,700 patients who would arrive by military sea transport service ships at the ports of Seattle and San Francisco, late in September and early in October. In August, the C-54's had already begun to airlift patients across the continent from Travis, and, employing its regular domestic aeromedical airlift and the C-74's, the Continental Division lifted 866 patients from Travis during the week of 20-26 September. On 29 September, USAF additionally directed MATS to augment its domestic air evacuation capability by withdrawing seven C-54's from support

of Europe and nine from support of <sup>World War II</sup> Europe. Employing all its capabilities including a concentration of the air evacuation C-47's on the West Coast, the Continental Division handled a peak of 1,137 patients during the first five days of October. Having handled the "hump" of backlogged patients early in the month, the Continental Division more easily dealt with the 2,648 patients received at Travis in October and the 1,850 who landed there in November. In this latter month, in fact, the Continental Division's domestic airlift commitment declined to 70 patients a day.<sup>98</sup>

Late in September, amidst the domestic air evacuation crisis, Maj. Gen. H. G. Armstrong, USAF Surgeon General, and Brig. Gen. W. F. Hall, the MATS Surgeon considered a plan whereby some patients might be "coded" or assigned directly to hospitals in the United States while they were at the Tripler General Hospital in Honolulu. Such a procedure would relieve Travis of a part of its workload, and, moreover, the Brookley-based C-74's and the Kelly-based C-97's returning from Hickam could lift patients destined for hospitals in the eastern United States to Lackland AFB, San Antonio, Texas, which would function as an additional aerial port of debarkation for patients. This plan was not necessary in October, but it was implemented on 7 November 1950, when the

Chinese Communist attack in Korea had generated the largest numbers of casualties which would have to be airlifted during the course of the Korean hostilities. On 7 December 1950, MATS also issued orders calling for an all-out employment of Continental Division aircraft and some Atlantic Division C-54's and C-121's so as to lift 225 patients each day from Travis to inland hospitals. The Continental Division cancelled all Christmas vacations for its air evacuation teams and requested 32 additional flight nurses and 70 technicians for temporary duty at Travis, Brookley, and Westover Air Force Bases.<sup>99</sup>

Despite the preparations it had made for the anticipated emergency, the Continental Division was hard pressed to accommodate a total of 10,153 domestic patient movements in December 1950. Receiving 5,475 patients from the Pacific and another 997 patients from nearby Navy hospitals during the month, the Travis hospital at times was said to have become so congested that it understandably lost administrative control over some of the patients that it received. In order to clear patients from Travis, the regular Continental Division western air evacuation loop worked at a maximum, while C-97's lifted patients to Westover and Kelly, C-74's carried patients to Kelly, and an Atlantic Division C-121 made daily evacuation flights from Travis to Westover. Many patients whose homes were east of the Mississippi River were flown from Hawaii to Kelly in C-74's and C-97's for transfer to Lackland. On occasion, these large transports overflew Travis, but they generally landed there for refueling. As a consequence of the overcrowded situation at Travis, the Air Force Surgeon General rushed medical personnel from all over the United States to open a 400-bed debarcation

hospital at Lackland AFB. The plan to code patients at Hawaii for definitive disposition in the United States apparently had to be laid aside early in December, and patients arriving at Travis and Lackland had yet to be assigned to hospitals. As a matter of fact, aeromedical personnel at Travis and Lackland found the use of teletypes and commercial telegrams for transmitting the codes to the ASMRO and receiving back hospital assignments was too slow and too subject to garbling to be satisfactory. The commercial telephone was the only means of securing instantaneous and accurate hospital assignments and was employed exclusively when the patient flow was at its peak. These actions were not without confusion, but they reflected very favorably on the flexibility and alacrity with which the Air Force Medical Service was able to conform in a time of great emergency. <sup>100</sup>

As was true with the Pacific airlift, the reduction and stabilization of patient movements from the Far East beginning in January 1951 was marked by similar effects in the Continental Division. In January 1951, the Continental Division handled 6,941 patients in multiple movements, and, in succeeding months, the flow of patients from the Far East continued to decline. Early in April 1951 in view of the reduced flow of evacuees, the Pacific Division questioned whether the split loadings of patients for Travis and Lackland, which had worked well during the emergency, was needed. The Pacific Division felt that the patients could be more efficiently assigned to destination hospitals at Travis. Effective on 1 May 1951, the port of arrival designation at Kelly and the evacuee beds at Lackland were accordingly placed on a standby basis. When the patient flow from the Pacific began to

stabilize, the Continental Division's regular air evacuation squadrons performed a larger proportion of the aeromedical airlift. In March 1951, however, Navy Transport Squadron VR-3 took over the daily Nightingale C-54 air evacuation run between Travis and Kelly, and the 1734th Squadron (air evacuation) thereupon added thrice-weekly second-sections to its daily C-54 aeromedical C-54 trunkline flights between Kelly and Westover. Special C-97 flights continued to transport patients from Hawaii to Travis and from Travis to Kelly, and, in the autumn of 1951, additional airlift between Travis and Kelly was provided by a new schedule, "The Good Shepherd," utilizing Kelly-based C-97 aircraft.<sup>101</sup>

Although domestic aeromedical airlift operations became increasingly routine, the Continental Division gave much attention to improvements in the system in 1952 and 1953. In the autumn of 1951, the 1734th Air Transport Squadron (Air Evacuation) at Kelly received the modified C-54M aircraft which possessed conveniences for air evacuation. In addition to their use on the eastbound Samaritan schedule, the C-54M's were employed on the Nightingale flight between Kelly and Travis, which the 1734th Squadron took over again from VR-3 in September 1951. The 1733d Air Transport Squadron (Air Evacuation) at Travis also added several C-54's to its C-47's.

The 1733d Squadron employed its C-54M's for twice-weekly Humanitarian Flights between Travis and Scott AFB, Belleville, Illinois. The C-54M's were especially modified for air evacuation work, but they could be speedily converted back to utility transports. As a matter of practice, moreover, domestic air evacuation flights also transported passengers on a space-available basis. As a part of its continuing effort to improve domestic air evacuation, the Continental Division gave much thought to its unit organization, namely the trunkline<sup>1</sup> flying 1734th Squadron at Kelly, and the feeder air evacuation transport squadrons at Travis (1733d), Westover (1732d), Brookley (1735th), and Brooks (1736th). One of the major defects of the feeder system was the lack of such a squadron within the thirteen midwestern states comprising the Fifth Army area. After a long search for a permissible station for such a squadron, the Continental Division on 1 June 1952 organized the 1731st Air Transport Squadron (Air Evacuation) at Scott AFB, Belleville, Illinois. The new squadron drew C-47 air evacuation planes and personnel from the other feeder squadrons and did not constitute an augmentation of the function. In September 1952, the Continental Division took advantage of the location of the new

feeder squadron at Scott as it relocated its trunkline C-54 air evacuation routes. The Samaritan continued to make five trips a week between Kelly and Westover. The Nightingale's route was radically changed. It now departed Kelly twice a week for Travis and then returned back across the continent via Lowry and Scott to Westover. After a crew change at Westover, the Nightingale retraced the route through Scott and Lowry to Travis and then terminated at Kelly. From Travis, 1733d Squadron's C-54 Humanitarian was scheduled as a transcontinental flight three times a week to and from Andrews AFB, Maryland, with a stop at Scott and a crew change at Andrews. Under the new system it was expected that a patient would not spend more than 24 hours crossing the continent and that the trunk-routes would carry more patients.<sup>102</sup>

The Continental Division pointed out that the real measure of success of its aeromedical evacuation system was the provision of expeditious and medically-acceptable air transportation for sick and wounded members of the Armed Forces, and not the number of patients transported, but the Continental Division's domestic aeromedical transport system nevertheless proved its worth in terms of the quantities of patients transported during the period of the Korean hostilities. In the crisis

months of July through December 1950, the Continental Division handled 33,349 patients, and from January 1951 through June 1953, it made 182,053 patient movements within the United States. The peak month of the domestic air evacuation effort in the Korean hostilities period was December 1950 when 10,153 patients were handled, and the grand total of domestic aco-medical airlift for the Korean years ran to 215,402 patient movements.<sup>103</sup> This many individual patients were not moved, for the Continental Division's trunkline and feeder line schedules involved two movements at least for every patient and not uncommonly three movements were required to transport a patient from a point of origin to a definitive hospital. Despite the emergency posed by local hostilities in the Far East, the MATS had been able to handle all patient distribution within the United States without the assistance of a single Army hospital train.

As long as actual war raged in the Far East, the vast majority of patients arriving at ports of aerial debarkation in the United States came from the Pacific and were landed at Travis. During the years 1950-1953, however, air evacuation from other overseas theaters increased as American armed forces garrisons grew in size. Because of the initial demands of the Korean war, the Continental Division suspended its scheduled

Flights to Alaska and Panama during July 1950 and necessary air transport service -- including air evacuation -- to McChord and Brookley had to be flown by aircraft of the theater air commands. In August and September 1950, however, the Continental Division restored scheduled service to Panama and Alaska with C-54 and R5D aircraft.<sup>104</sup> Out of Brookley, certain dates were specified on which the return trips of the "Puerto Rican" to Ramey AFB and the "Panamanian" to Albrook AFB were to be utilized for air evacuation if required. These routine air evacuation services adequately served U. S. military forces in Puerto Rico and Panama. After August 1951 however, the MATS schedule to Albrook was routed via Ramey AFB both enroute and return. The Caribbean Air Command's surgeon objected to the round-about routing of patients who could better have gone directly from Albrook to Mobile.<sup>105</sup> Even though MATS troop carrier and contract carrier C-54's plied the Great Circle route to Tokyo, the normal MATS air evacuation service from Alaska was provided by Navy Air Transport Squadron VR-3 which restored the pre-war pattern of this operation in September 1950. A once-weekly R5D flight, named the "Northern Cross," went from Moffett Naval Air Station, California, to Davis AFB on Adak Island

22

in the Aleutians. On its return trip the flight could be used as needed for patients picked up at Adak, Kodiak, or Elmendorf AFB and returned to McChord AFB, Washington. In July 1952, the 1701st Air Transport Wing at Great Falls, Montana, began to fly the "Northern Cross" flight to Adak and, once a week, the return leg of the C-54 journey lifted air evacuees. Preparatory to the discontinuance of MATS activities<sup>i</sup> at Great Falls, the 1705th Air Transport Group at McChord began to fly the weekly Alaskan air evacuation mission in June 1953.<sup>106</sup>

The augmentation of American forces in Europe and in the Northeast Air Command after 1950 demanded increased aeromedical evacuation services. Despite disruption to most scheduled operations caused by diversion of transport effort to the Pacific, the MATS Atlantic Division continued to operate its "Benefactor" schedules, flown by C-121 Constellation aircraft based at Westover AFB, without interruption. The 1454th Medical Air Evacuation Squadron at Rhein-Main Air Base, Frankfurt, Germany, provided medical attendance on all Atlantic Division aeromedical transport flights. When the need arose, the Atlantic Division also employed<sup>s</sup> unscheduled flights to back up the "Benefactor" schedules.

In the Pacific, C-97's demonstrated their advantages for air evacuation, and, beginning on 6 February 1951, the Atlantic Division also employed C-97's for the "Benefactor" flight from Rhein-Main to Westover. The "Benefactor" C-97's were configured with 43 litters and 22 seats for ambulatory patients, and once-weekly flights generally sufficed<sup>e</sup> the air evacuation requirements from Europe. On two trips in June 1951, the Atlantic Division used another unscheduled C-97 flight to carry excess patients to Westover. Within Europe beginning in the autumn of 1951, the 1454th Squadron also provided medical attendants for designated "Acropolis" and "Camel" trips between Wheelus Field in Libya and Rhein-Main via Ellinikon Airfield at Athens, Greece, and Ciampiano Airport in Rome. As has been seen, two "Benefactor" flights each month began to be routed homeward by way of Burtonwood, England, in December 1952 in order to lift evacuees from the United Kingdom.<sup>107</sup>

The Atlantic Division's employment of C-97 Stratocruisers on the "Benefactor" flights provided fast and adequate aeromedical transport between Rhein-Main and Westover with only a single stop at Lajes Airfield in the Azores. This more direct route, however, left Newfoundland and the Bermudas off the regular aeromedical evacuation route and these

stations could no longer put their patients aboard "Benefactor" flights. In view of the vast Arctic spaces encompassed by it, the Northeast Air Command could not exist without airlift, and, within the command, air transport was the sole means of patient evacuation. From its several stations, the Northeast Air Command employed its own C-54's to lift patients to its definitive treatment center at Pepperrell AFB, St. Johns, Newfoundland. Employing air evacuation teams from the Continental Division's 1732d Air Transport Squadron (Air Evacuation) based at Westover, the Atlantic Division easily and satisfactorily handled air evacuation from Newfoundland and Bermuda generally by designating one in-bound flight each week of the C-54 service from those stations as an air evacuation flight. Thus the "Argentinian" flight from Torbay Airport, St. Johns, Newfoundland, to Westover and the "Constitution" from Bermuda to Westover handled patients at least once a week.<sup>108</sup>

As long as open conflict continued in Korea, the Military Air Transport Service's Pacific Division performed the greatest role in the overseas aeromedical transportation effort. The Atlantic and the Continental Division nevertheless contributed to the effort. As a result of the work of all three divisions, the MATS in the period of July 1950

through June 1953 provided aeromedical transport services to 137,950 patients who were airlifted between stations overseas and from overseas stations to ports of aerial debarkation in the United States. As was the case with domestic air evacuation within the United States, the MATS overseas aeromedical airlift total often involved subsequent movements of the same patient. In addition to these overseas movements, MATS also provided aeromedical transport services to a total of 215,402 patients within the continental United States, <sup>^</sup> the combined MATS worldwide aeromedical effort from July 1950 through June 1953 thus handled a grand total of 353,352 sick or wounded patients.<sup>109</sup> During the period of the Korean emergency air transport and aeromedical evacuation became a primary USAF mission. "Our Air Force," stated Mr. Thomas K. Finletter, the Secretary of the Air Force, on 21 September 1950, "has four main tasks . . . first, the air defense of the United States, second, the strategic counter-attack, third, tactical air support, and fourth, air transport."<sup>110</sup> ~~Within the mission of the Military Air Transport Services~~ responsibility for aeromedical evacuation had been stated as a parenthetical function, but, on 1 January 1951, General Kuter announced that "Air evacuation . . . is a primary mission."<sup>111</sup> In the restatement of its mission which it received from USAF

on 26 August 1953, MATS was charged with: "The provision of airlift for patients of the Department of Defense on overseas routes over which MATS operates, from ports of debarkation, and between air facilities serving hospitals within the zone of interior."<sup>112</sup> Within MATS, the function of aeromedical transport was now definitely a major mission and no longer a corollary task to the forward delivery of cargo or passengers.

coincident with the Korean war, USAFE had sought to decentralize the control of aeromedical evacuation among its air forces. Under Twelfth Air Force command and with station at Rhein-Main Air Base near Frankfurt, Germany, the 1st Aeromedical Evacuation Flight performed scheduled and emergency air evacuation flights in Central Europe aboard six C-47 aircraft especially assigned to the 60th Troop Carrier Wing for that specific purpose. Assigned to the Third Air Force at Burtonwood RAF Station, England, the 3d Aeromedical Evacuation Flight employed a single C-47 of the Northern Air Materiel Area (Europe) for air evacuation flights in the United Kingdom. Since MATS was not responsible for intratheater aeromedical evacuation, USAFE should have been prepared to offer such services in the Mediterranean area when the Seventeenth Air Force was activated in Morocco on 23 April 1953. In the autumn of 1951, however, the Atlantic Division MATS had begun to evacuate patients twice-monthly aboard designated C-54 trips from Wheelus Air Base in Libya and Rhein-Main via Ellinikon Airfield at Athens, Greece, and Ciampiano Airport at Rome. MATS would continue to provide this service until USAFE could assume it. Requested earlier in order to participate in joint Allied maneuver "Coronet"

in the summer of 1953, the Twelfth Air Force received the 4th, 5th, and 6th Forward Aeromedical Evacuation Flights in September 1953, too late to participate in the field exercises. Since USAFE had no plans to employ the flights in helicopter or assault aircraft, the three flights were assigned to the air base commands at Hahn, Sembach, and Landstuhl to operate patient holding facilities. This was not the mission for which the flights had been trained, but they would have little opportunity to do work in the field before the summer of 1954.<sup>38</sup>

During the augmentations of NATO forces, the United States Air Forces in Europe (USAFE) had permitted a decentralization of its troop carrier and aeromedical evacuation capabilities. Under these decentralized airlift controls, however, the European Air Logistics Service was unable to prevent an accumulation of backlogs at its supply depots. Lt. Gen. William H. Tunner, the Commander of USAFE, had faced similar problems during the Berlin Airlift and Korean conflict. Accordingly, on 1 March 1954, USAFE activated the 322d Air Division (Combat Cargo) at Ramstein Air Base, Germany, which, as the theater airlift command, was given operational control over the 60th Troop Carrier Wing (M) at Rhein-Main, the 317th

Troop Carrier Wing (M) at Neubiberg, the 465th Troop Carrier Wing (M) at Toul-Rosiere Air Base, France, the 7167th Special Air Missions Squadron at Rhein-Main, and the 7206th Air Base Squadron at Athens, Greece. Within the USAFE area, the 322d Air Division (Combat Cargo) was charged to airlift selected items of high priority cargo, personnel, and mail; to conduct joint airborne operations and tactical unit deployments; and to perform aeromedical evacuation.<sup>39</sup>

As the USAFE Surgeon, Maj. Gen. Dan C. Ogle and Maj. Gen. Harry H. Armstrong, who assumed the post on 2 July 1954, had to devise a centralization of aeromedical evacuation capabilities to parallel the centralized control of theater airlift forces. In order to coordinate both surface and air evacuation, the United States European Command (US EUCOM) required a joint medical regulating office. In the latter half of 1953, USAFE medical authorities held numerous conferences with medical representatives of the coequal ground command, U. S. Army in Europe (USAREUR) looking toward the establishment of a joint medical regulating office. Decision was made that this office would not be established until the time of a war, and it was not until 6 May 1955 that US EUCOM decided that the joint

medical regulating office could be established physically with the US^EUCOM Joint Military Transportation Board. The USAREUR had wished the joint medical regulating office to be located with the USAREUR Communications Zone Surgeon.<sup>40</sup> While the reorganization of USAFE aeromedical evacuation units was impending, the discontinuation of Military Air Transport Service flights to Rome and Athens in April 1954 required USAFE to establish air evacuation flights to cover the Mediterranean area. Since MATS continued its flights from Tripoli and Nouasseur to Germany, USAFE dispatched a detachment of the 1st Aeromedical Evacuation Flight to Athens which flew aboard a scheduled 7206th Air Base Squadron C-47 evacuation aircraft to Ankara and Izmir, Turkey, early each week and evacuated patients from Athens to Tripoli via Rome and Naples later in the week. After careful staff evaluation of the aeromedical evacuation problem, the Twelfth Air Force organized the 7416th Aeromedical Evacuation Group with station at Ramstein, Germany, effective on 1 July 1954. The 7416th was placed under the operational control of the 322d Air Division (Combat Cargo).<sup>41</sup>

Under the command of Major Edwin J. McBride, an experienced medical service corps officer who was a pioneer

in air evacuation, the 7416th Aeromedical Evacuation Group was charged to integrate into a single system the tactical medical units necessary to operate an intratheater aeromedical system. At its establishment or soon after, the 7416th was assigned the 1st Aeromedical Evacuation Flight at Rhein-Main with its detachment at Athens, the 4th, 5th, and 6th Forward Aeromedical Evacuation Flights at Hahn, Sembach, and Landstuhl Air Bases, and newly-organized 7417th and 7418th Casualty Staging Flights at Rhein-Main and Toul-Rosiere Air Bases. As soon as the 322d Air Division could operate there, the 7416th was supposed to take command of the 3d Aeromedical Evacuation Flight in the United Kingdom. According to concept, 322d Air Division aircraft returning from air landings were responsible for moving medical evacuees, and the 7416th Group accordingly staffed a patient movement control center in the 322d's transport movement control center. Beginning to function on 1 November 1954, the patient movement control center at Ramstein received requests for aeromedical transportation and monitored the accomplishment of the missions. Since approximately 45 percent of patient airlift movements were non-scheduled efforts, the patient movement control center was kept

active. The center was nevertheless unable to function according to doctrinal concepts because all of the 322d Air Division's troop carrier wings were equipped with C-119 aircraft. In time of war, these planes would have hauled patients, but the 322d ruled that they would be used for air evacuation under peacetime conditions only for urgent missions. The only theater aircraft available for air evacuation in Europe were the four air evacuation C-47's operated by the 60th Air Base Group at Rhein-Main, and standard C-47's which were allocated for air evacuation flights by the 7206th Air Transport Squadron at Athens and the Northern Air Materiel Area (Europe), Burtonwood, England. Only a couple of the C-47's were actually comfortable for patients, and the C-47 was not a safe plane for the over-water and over- mountain areas of the Mediterranean. Early efforts of the USAFE surgeon to secure C-54<sup>M</sup> or C-131A aircraft for intra<sup>k</sup>theater patient airlift were disapproved. Despite the difficulties with aircraft, the 7416th Group's 1st Aeromedical Evacuation Flight handled 4,698 patients during 1954 and the 3d Aeromedical Evacuation Flight continued its small separate operation in the United Kingdom. In the first half of 1954, the 3d Flight cared for 161 locally-evacuated patients.<sup>42</sup>

After studying the problem of aeromedical evacuation in Europe during 1954, Major McBride and his staff of the 7416th Aeromedical Evacuation Group submitted a study of the system's defects to USAFE on 3 March 1955. This study demonstrated that the 322d Air Division (Combat Cargo) could not adequately provide air evacuation services for USAFE with only six poorly-equipped C-47's which belonged to three separate organizations. At Landstuhl, the 86th Fighter-Interceptor Wing's operations service section provided some local L-20 and H-19 air evacuation transport between the air base and the Army's 98th General Hospital (thus sparing patients a long trip over narrow, winding roads), but the 322d Air Division had no helicopters for similar services elsewhere. MATS aircraft provided once-a-week evacuation service to Rhein-Main from the Middle East and North Africa, but convalescents from these areas had no way to return except on a space-available basis. In brief, the study revealed that there was a considerable "market" for air evacuation services which could not be adequately provided. It accordingly recommended the immediate organization of an air transport squadron (air evacuation) which would be capable of providing liaison, helicopter, twin-engine, and four-engine

airlift.<sup>43</sup> Although the special aeromedical air transport squadron would not be organized, USAF undertook to provide USAFE with two C-54M's and to provide an exchange of aeromedically-configured VC-47's for the bucket-seat C-47's which were being used for aeromedical transportation.<sup>44</sup> The first C-54M arrived from the United States in February 1955 and required considerable maintenance before it could be assigned to the 7206th Air Transport Squadron at Athens, Greece, to cover Eastern Mediterranean air-evacuation routes. In order to provide a few additional medical attendants for this area, the Twelfth Air Force activated the 7th Aeromedical Evacuation Flight on 8 March 1955 at Wheelus Air Base, Tripoli. This understrength flight maintained its principal operating detachment at Athens. Using the C-54M, the 7th Flight collected patients from Ankara, Izmir, and Athens and flew them to Wheelus in the first half of a week. In the latter half of a week, the C-54M made flights to Naples, and to Rome if necessary, to evacuate patients to the general hospital at Wheelus. Following this, the C-54M returned convalescent patients from Wheelus to Athens and Ankara. The schedule of 26 flying hours a week was too much for one C-54, but the maintenance technicians at Athens worked around

the clock to keep it flying.<sup>45</sup>

After a period of growth, the 322d Air Division's aeromedical evacuation function began to show decided improvements after mid-1955 as the division attained full control over its units and began to receive new type aircraft. In order to become more proximate to its troop carrier wings, Headquarters, 322d Air Division (Combat Cargo) opened at Evreux-Fauville Air Base, France, on 12 August 1955. Effective on 1 August, the 60th, 317th, and 465th Troop Carrier Wings, the 7416th Aeromedical Evacuation Group, and the 7167th Air Transport Squadron were relieved from assignment to the Twelfth Air Force and assigned to the 322d Air Division. The 7206th Air Transport Squadron at Athens continued under the 322d's operational control.<sup>46</sup> In order to provide centralized direction to the aeromedical transport system through the operation of the patient movement control center, the 7416th Aeromedical Group headquarters accompanied the 322d Air Division's move to Evreux-Fauville, but, in recognition that the main air evacuation burden was centered in the Wiesbaden-Landstuhl area of Germany, the 1st Aeromedical Evacuation Flight remained at Rhein-Main. Following the movement of the 60th Troop Carrier Wing from

Rhein-Main, the 7167th Air Transport Squadron (Special Missions) assumed responsibility for the C-47 evacuation flights within continental Europe in September 1955.

Employing a C-54 aircraft, the 7167th Squadron took over the weekly round-trip air evacuation flight between Rhein-Main and Wheelus via Rome and Naples on 9 November 1955, and, upon the arrival of the additional C-54M in the spring of 1956, the 7167th began to provide weekly air evacuation flights between Rhein-Main and Nouasseur Air Base via Madrid.<sup>47</sup>

At the same time that the 322d Air Division (Combat Cargo) was expanding its air evacuation services into the Mediterranean, it was also expanding into the United Kingdom. Late in 1955, the 7416th Aeromedical Evacuation Group took command over the 3d Aeromedical Evacuation Flight at Burtonwood, and, effective 30 January 1956, the 322d Air Division used 7167th Squadron C-47's to initiate twice-weekly air evacuation flights between the major air bases in the United Kingdom and a weekly air evacuation flight between Burtonwood and Rhein-Main. Because of adverse weather in the United Kingdom, the intra<sup>island</sup> schedules had to be discontinued after two months' trial, but the

Weekly C-47 flight between Rhein-Main and Burtonwood continued.<sup>48</sup> Following the suspension of the twice-monthly MATS trans-Atlantic air evacuation stops at Burtonwood on 1 September 1956, all homeward-bound patients from the United Kingdom were first moved to the 7100th USAF Hospital at Wiesbaden and dispatched from Rhein-Main. In September 1956, the 4th and 5th Forward Aeromedical Evacuation Flights were relocated at Evreux and Dreux Air Bases in France to join the troop carrier units with which they would be actively engaged in maneuvers. Since the air evacuation aircraft were based at Athens, the 7th Aeromedical Evacuation Flight was moved from Wheelus to Athens in order to simplify administration. Profiting from all the improvements begun in late 1955, the USAFE aeromedical evacuation system moved 13,943 patients during 1956 -- a marked increase over the 8,094 patients airlifted during 1955.<sup>49</sup>

In the autumn of 1956, USAFE initiated action to reorganize the 7416th Aeromedical Evacuation Group and its assigned units under the new organization tables for such units. Seeking to give the aeromedical evacuation commander better control and to permit greater flexibility of units, the 322d Air Division on 8 April 1957 activated the 2d

Aeromedical Evacuation Group and the 18th Casualty Staging Flight. The 1st, 3d, and 7th Aeromedical Evacuation Flights were redesignated as Aeromedical Evacuation Squadrons, and the 4th, 5th, and 6th Forward Aeromedical Evacuation Flights were inactivated. The table of redistribution organizations -- the Headquarters, 7416th Aeromedical Evacuation Group and the 7417th and 7418th Casualty Staging Flights -- were discontinued. According to plan, the 18th Casualty Staging Flight divided its strength into three detachments located at Chateauroux, France; Wiesbaden, Germany; and Burderop Park RAF Station, England. The new aeromedical evacuation squadrons were located at Rhein-Main, Bo<sup>1</sup>ingde<sup>2</sup>n RAF Station (moving there from Burtonwood) and Athens. The 1st Squadron organized detachments at Landstuhl and Phalsbourg; the 3d sent a detachment to Weathersfield RAF Station; and the 7th moved a detachment to Rhein-Main. Each squadron was thus located to support the prime geographical areas of USAFE: The European Continent, the British Isles, and the Mediterranean - Middle East.<sup>50</sup>

The assignment of more modern aircraft to the 3<sup>rd</sup>2d Air Division (Combat Cargo) during 1956 promised benefits to air evacuation during 1957. Having arrived from the

United States on 2 June 1956, the 309th Troop Carrier Group, Assault was stationed at Dreux Air Base; its C-123's would not be regularly employed for air evacuation but they had good capabilities for such work. Effective on 1 November 1956, the 23d Helicopter Squadron was assigned to duty at Phalsbourg, France, and it sent flights to Wethersfield and Wheelus. On 11 February 1957, the 23d Squadron initiated a thrice-weekly H-21 helicopter aeromedical transport service between Landstuhl, Sembach, Hahn, and Bitburg, Germany. Using this service, patients would be picked up, treated, and returned to their home base the same day.<sup>51</sup> Possibly the greatest development in USAFE air evacuation, however, was the assignment of two C-131A Convair Samaritan aeromedical transports to the 7167th Air Transport Squadron at Rhein-Main in December 1956. These speedy and pressurized aircraft could transport 37 ambulatory or 27 litter patients, and they could fly the shortest air routes over the Alps to Italy and Tripoli. In addition to the C-131's, the 7167th Squadron retained four C-47's and one C-54 for air evacuation purposes, but it expected to retire the C-47's when it received a promised two additional C-131's. The first two Samaritans were employed on three weekly flights:

one to Naples, Verona, Ariano, Pisa/Leghorn, Landstuhl, Wiesbaden, and Rhein-Main, a second to Nice, Chateauroux, Orleans, Landstuhl, and Rhein-Main, and a third to Rome, Tripoli, and Rhein-Main. The C-131's were also frequently employed on emergency flights where patients required pressurized cabins.<sup>52</sup>

During the first half of 1957, the USAFE Aeromedical evacuation service lifted 9,511 patients, but in the latter part of the year USAF economy programs began to affect the 322d Air Division and to force a realignment of the air evacuation mission in Europe. Although the 322d began to receive new C-130 Hercules transports as replacements for old C-119's, its strength in flying units was reduced to the two-group 317th Wing at Evreux-Fauville, the two-group 60th Wing at Dreux, and the 7167th Air Transport Squadron at Rhein-Main. The 7168th Air Transport Squadron at Athens was discontinued on 1 November 1957 when a 60th Wing detachment took over there. Suspending operations earlier, the 23d Helicopter Squadron was officially inactivated on 8 January 1958. In November 1957, the 7167th Squadron at Rhein-Main received two additional C-131A aircraft, and in December the C-54M which had been at Athens was transferred

to the 7167th. For air evacuation purposes, USAFE now possessed in the 7167th Squadron a total of four C-131's and two C-54M's. Because of an impending inactivation of the 7th Aeromedical Evacuation Squadron at Athens, two of the unit's flight nurses were assigned to the hospital at Ankara and two to the hospital at Dhahran.<sup>53</sup>

The reduction in USAFE aeromedical transport strength necessitated a general realignment of air evacuation routes late in 1957, and the task of formulating the new concepts for air evacuation in Europe proved to be a first order of business for Maj. Gen. Harold H. Twitchell who was assigned to duty as USAFE surgeon on 16 January 1958. The local helicopter patient transport flights flown by the 23d Helicopter Squadron were dropped when the squadron was inactivated. Since each C-131 could potentially do the work of two air evacuation C-47's, the USAFE aeromedical airlift capability was theoretically unaffected with the 7167th Air Transport Squadron released its C-47's. Actually, however, the establishment of USAFE's aeromedical transport strength at four C-131's and two C-54's forced the 322d Air Division to limit air evacuation services to trunk-line schedules out of Rhein-Main. Local air commanders would have to

provide feeder-line service. The 322d Air Division employed a C-54 for a weekly air evacuation flight to Ankara, Turkey and used C-131's for weekly trunkline flights to Naples, Bovingdon, Mousseur, and Wheelers. Each flight stopped at way-stations while returning to Rhein-Main. On four days a week C-131 flights evacuated patients from airbases in France and Germany.<sup>54</sup> According to inter-command agreements, other peripheral commands improvised feeder-line air evacuation schedules to meet 322d Air Division flights. From Dhahran, the 2d Air Division transported patients to meet the 322d C-131 flight at Ankara. In Spain, the newly activated Sixteenth Air Force employed an evacuation-configured VC-47 to gather patients from outlying bases to the hospital at Madrid, where they were either hospitalized or placed aboard the trunkline flight from Mousseur to Rhein-Main. Using organic aircraft, the Seventeenth Air Force provided intracountry air evacuation flights in Libya and parts of North Africa and Turkey. The Third Air Force stationed an organic C-47 at Bovingdon which transported patients to the larger hospitals at Burderop Park, Wimpole Park, and South Ruislip.<sup>55</sup>

The new USAFE trunk-line air evacuation schedules

instituted in the winter of 1957-1958 proved able to handle 8,032 patients in the last half of 1957 and 6,401 patients in the first half of 1958. In view of retrenchment pressures and the fact that USAFE was now operating predominantly a trunkline air evacuation service, USAFE submitted a proposal to reduce the strength of the 2d Aeromedical Evacuation Group. Initiated in January, the reorganization became effective on 8 August 1958. Only an enlarged Headquarters, 2d Aeromedical Evacuation Group, the 3d Aeromedical Evacuation Squadron, and the 18th Casualty Staging Flight remained when the reorganization was completed. The 1st and 7th Aeromedical Evacuation Squadrons were inactivated. During 1958, the USAFE surgeon also secured remedial action to two major defects which had developed in the new air evacuation system. Operating with only six aeromedical evacuation planes, the 322d Air Division had to schedule as many as nine stops for its evacuation flights in France and Germany. With such a number of stops and poor flying weather, air evacuation planes which left Rhein-Main early in the morning frequently did not return with their loads of patients until midnight. Such service was hard on patients and aircrews. Upon the intercession of General Twitchell, USAFE allocated

two additional C-54's to the 7167th Squadron, enabling it to initiate new schedules on 16 June 1958 which gave each French air base at least a twice-weekly evacuation service and required no flight to make more than six scheduled stops. Under the USAFE trunkline system, patients from Dhahran or Turkey had to be flown to Germany instead of to the closer hospital at Wheelus. To relieve this situation, MATS agreed effective on 8 December 1958 to fly patients from Dhahran to Wheelus aboard its regular passenger-cargo flight. If the patient required it, the 322d Air Division flight could move him from Wheelus to Wiesbaden.<sup>56</sup>

Because of USAF budgetary restrictions, the 322d Air Division (Combat Cargo) was slated for severe force reductions in the fiscal year beginning in July 1958, and the 2d Aeromedical Evacuation Group was already planning its personnel reductions. Despite the impending reductions, the 322d Air Division and the 2d Aeromedical Evacuation Group were still strong enough to respond immediately when President Camille Chamoun of Lebanon appealed for American assistance against threats of aggression posed to his country by Communist uprisings in Iraq. Minutes after word was flashed from Washington to implement "Operation Bluebat,"

the airlift of American troops to Lebanon, Lt. Gen. Frank F. Everest, Commander USAFE, passed the order to Colonel Clyde Box, Commander of the 322d, to begin the air transport operation. Beginning on 15 July 1958 and continuing through 12 August, aircraft under the operational control of the 322d airlifted 7,934 passengers and 8,277.8 tons of equipment over the basic round trip of 4,181 nautical miles between Europe and Lebanon. On 14 July, Lt. Col. C. E. Goings, new commander of the 2d Aeromedical Evacuation Group, was alerted to provide aeromedical evacuation services for the U.S. Forces ordered to Beirut, Lebanon. To provide tactical aeromedical evacuation, Colonel Goings dispatched a team consisting of a flight surgeon, two Medical Service Corps officers, and 32 aeromedical evacuation specialists to establish an aeromedical evacuation control center at Inqirlik Air Base, Adana, Turkey, on 16 July. On 19 July, one medical service corps officer and 10 airmen established a forward aeromedical evacuation control center at Beirut in conjunction with the 322d Air Division's Combat Airlift Support Unit. The aeromedical evacuation plan was to evacuate any large-scale casualties to Adana on returning transport aircraft using aeromedical technicians from the group at

Beirut to accompany them. In order to relieve the expanded dispensary at Adana of any excess patients an air evacuation C-54 was kept at Inoirlik Air Base during the first <sup>11</sup> ~~eleven~~ days of "Bluebat."<sup>57</sup>

There were no battle casualties in Lebanon, but ground accidents and illnesses necessitated a scheduled weekly aeromedical evacuation flight from this area in addition to on-call service. Using an opportune aircraft, the 322d Air Division instituted a scheduled air evacuation flight which arrived at Beirut each Saturday, departed on Sunday for Adana and Wheelus, remained overnight at Wheelus, and continued to Rhein-Main on Monday. Patients who could be cared for at Wheelus were kept there, and others were brought to Wiesbaden. This special air evacuation flight was continued until 28 October 1958, the date upon which the 322d Air Division completed "Operation Hatrack," the airlift withdrawal of 2,579 men and 1,136.5 tons of equipment from Beirut to Furstenfeldbruck, Germany, which had begun on 18 October. In the course of regular aeromedical evacuation operations and in the special air evacuation lift from Lebanon, the USAFE aeromedical transport service handled a total of 6,835 patients in the last half of 1958. In all, the 322d Air

Division transported 15,524 patients during 1958 for its largest year of aeromedical evacuation activity.<sup>58</sup> Despite cutbacks in troop carrier strength, which, in September 1958, reduced the 322d Air Division to a transport strength of only three C-119 and three C-130 squadrons in addition to the special air mission squadron, the USAFE aeromedical evacuation service had been able to provide support for the crisis in Lebanon as well as to provide timely air transport services for patients moved elsewhere in Europe.

3. Air Evacuation Activities in the Pacific Theater

During the years of the Korean hostilities, an exceptionally effective program of aeromedical evacuation had evolved within the Far East Air Forces. The 315th Air Division (Combat Cargo) commanded all troop carrier aviation in the FEAF, and the 801st Medical Air Evacuation Squadron provided the necessary in-flight care of patients, operated an air evacuation operations office in conjunction with the 315th's transport movement control, and provided liaison at airfields and at using agencies for the better management of air evacuation. As scheduled by transport movement control of the 315th Air Division, air evacuation in the latter days of the Korean war was principally

performed within Korea by C-47's of the 6461st Troop Carrier Squadron; C-46's of the 315th Wing or C-54's and C-124's of the 374th Wing handled patient airlift between Korea and Japan; and C-46's of the 315th Wing usually managed intra-Japan patient movements. Where possible, the 315th Air Division handled air evacuation as a backload complement of cargo airlift into Korea, but, when necessary, transport aircraft were always scheduled on special missions to pick up patients.<sup>59</sup>

Although the FEAF air evacuation services had been a splendid accomplishment, the system of air evacuation in the Far East Command represented many spur-of-the-moment improvisations which were accepted as actualities when the Far East Command belatedly issued a regulation governing theater air evacuation. Early in the Korean war, the USAF Medical Services had lacked an ability to expand the small 801st Medical Air Evacuation Squadron into an organization requisite to the tasks it should have performed. For this reason, the 801st had been gradually expanded principally in liaison personnel and in aeromedical evacuation crews, while the Army Medical Service had operated the holding facilities at airfields in Korea and Japan. Late in the

Korean war, on 18 June 1953, the 315th Air Division was at last able to inactivate the 801st Medical Air Evacuation Squadron and to organize the table of distribution 6481st Medical Air Evacuation Group, with an authorized strength of 50 officers and 222 airmen. Organized on a cellular basis, the 6481st was capable of providing processing, temporary care, and staging of casualties for air movement.<sup>60</sup> The Army ~~Air~~ Forces Far East, however, were reluctant to give up control of the patient-holding facilities for aero-medical evacuation and presented arguments in favor of maintaining the existing arrangement.<sup>61</sup> Settlement of this jurisdictional controversy would require several years of negotiation.

In view of its failure to receive the patient-holding function, the 6481st Medical Air Evacuation Group under the continuing command of <sup>LT. COL.</sup> Colonel Jesse K. Grace kept the same strength (45 officers and 70 airmen) and organization possessed by the inactivated 801st Medical Air Evacuation Squadron. Patient loads continued to be substantially large for several months following the Korean armistice. During the months of August through December 1953, the 315th Air Division transported 174,119 patients intra-Korea, out of

Korea, and intra-Japan.<sup>62</sup> The outstanding activity in the post-hostilities months began on 6 August 1953, when a C-124 Globemaster with Colonel Grace and an air evacuation crew brought 14 litter and 50 ambulatory patients from Seoul to Tachikawa to initiate the air evacuation of men repatriated from Communist captivity as a part of "Big Switch." Subsequently employing C-46's and C-124's for the repatriation flights, the 315th Air Division completed the movement of 812 men to Japan on 21 September 1953. Since most of the repatriates were presented for airlift on the day following their release from Red captivity, the 6481st air evacuation teams gave them special care while in flight. All reached Tachikawa safely.<sup>63</sup>

The last of the large-scale aeromedical evacuations from Korea began on 23 January 1954 when the 315th Air Division employed four C-46's and four C-54's to lift 145 Chinese war prisoners, who had refused to return to Red China, from Seoul to Taipei on Formosa (Taiwan). Most of the 22,000 Chinese who refused repatriation were carried to Formosa by surface vessel, but those too ill to travel were flown to the Chinese Nationalist stronghold. Including these Chinese, 8,318 patients were airlifted by the 315th Air Division during the first six months of 1954, but a new aeromedical

evacuation ~~task~~<sup>s</sup> was shaping up in another battlefield in the Far East. To support American troops aiding the French in the war against Communist guerrillas in Indo-China, Colonel<sup>^</sup> William D. Preston, who had taken command of the 6481st Group on 8 February 1954, established an air evacuation detachment at Clark Air Force Base in the Philippines on 20 April 1954. This detachment sent air evacuation teams aboard the ~~carrier~~<sup>2-2</sup> flight to Saigon to evacuate patients. Soon after the fall of Dienbienphu on 7 May 1954, discussions took place between American and French officials relative to United States assistance in evacuating the French wounded from Indo-China. In preparation for assuming the mission, Colonel Preston sent his adjutant, Capt. Robert H. Jones, to Saigon and dispatched nearly <sup>15</sup> sixteen tons of aeromedical supplies and equipment to Clark Air Force Base. On 23 June, French authorities at Saigon finally accepted the American proposal to move 500 wounded men to France, via Japan and the United States. The 322d Air Division would be responsible for moving patients from Saigon to Tokyo, with an overnight rest stop at Clark. Commencing its portion of "Wounded Warrior" on 28 June, the 322d Air Division employed five C-124 flights. When the last flight was completed on 11 July, the 322d had

successfully transported 502 French patients on the first leg of their homeward journey. Except for a delay in unloading cargo at Saigon and a consequent delay in loading patients aboard the second C-124 flight on 30 June, the whole operation went smoothly. The 6481st employed full air evacuation crews on each C-124.<sup>64</sup>

As declining requirements for aeromedical evacuation in the autumn of 1954 marked the beginnings of a somewhat uncertain peace in the Far East, Brigadier General Oliver K. Niess, the FEAF Surgeon, looked toward the establishment of a peacetime system of aeromedical evacuation. During the summer of 1954 many of the flight nurses of the 6481st had been "farmed out" to USAF hospitals to keep active, but Colonel John Ficicchy, Jr., who took command of the newly-redesignated 6481st Aero-medical Evacuation Group on 19 October 1954, undertook to form a smaller but more active organization. The group was organized with its main body at Tachikawa, a detachment at Kimpo Air Base in Korea, and operating locations at Kadena Air Base on Okinawa and at Ashiya Air Base in southern Japan. By February 1955 all flight nurses had returned to the group except for one who chose a permanent change of station to the organization where she was on temporary duty.<sup>65</sup> At FEAF's

insistence, the Far East Command established a Joint Medical Regulating office at Camp Zama in Japan under the executive agency of the Army Forces Far East. Becoming operational on 29 March 1955, the theater JMRO issued orders for movement and hospitalization of patients both intertheater and intratheater. Following the end of the Korean hostilities the importance of patient-holding activities at most airfields had dwindled, but the Army Forces Far East had continued to operate an active medical holding detachment at Tachikawa. On 24 June 1955, the Army discontinued this detachment and the USAF hospital at Tachikawa took over the duty for the time being. On 22 August 1955, the 2d Forward Aeromedical Flight arrived for duty with the 6481st Group, and, since the 315th Air Division possessed no rotary-wing aircraft to serve as vehicles for the flight's primary speciality, the 2d Flight was divided between Kimpo and Tachikawa and charged to operate holding facilities. Serving under Air Force operational control, a detachment of Army medical troops would continue to handle ambulance movements of patients into Tokyo. "FEAF's assumption of these [patient holding] responsibilities," said General Niess, "places the Air Force in the proper perspective for the first time since the beginning of the Korean conflict." 66

In common with other tasks assigned to the 315th Air Division (Combat Cargo), the aeromedical evacuation function quantitatively declined after the termination of active hostilities in Korea and Indo-China. In the last half of 1954, 5,125 patients were transported by 480 flights in FEAF, but only 2,926 patients were lifted by 335 flights in the first six months of 1955.<sup>67</sup> Although FEAF's combat cargo command was slated for reduction, Brig. General Russell L. Waldron insisted that his 315th Air Division must continue to direct the theater airlift and General Niess demanded that the 315th continue to possess aircraft suited for air transport of patients. Especially in the latter stages of the Korean hostilities, the C-46's of the 315th Troop Carrier Wing had provided much patient airlift, but the patient load was low enough not to be affected by the inactivation of this wing on 18 January 1955. More significant to the aeromedical transport task were planned inactivations of the 6461st Air Transport Squadron and the 21st Troop Carrier Squadron, for the C-47's and C-54's flown by these units were essential to air evacuation. Dilligent efforts on General Niess' part convinced FEAF and USAF of the need to prolong the life of the 21st Squadron, and, when the 6461st Squadron was inactivated

on 24 June 1955, five of its C-47's were transferred to a detachment at Ashiya to continue to perform airlift and air evacuation at the smaller airstrips in Korea.<sup>68</sup> After much discussion with the Army, the 6481st Aeromedical Evacuation Group's Kimpo detachment was moved to Ashiya to join the operating location of the C-47's on 6 August 1955. At Ashiya, one C-47 was generally made available for routine and emergency air evacuation operations each day, but throughout the Far East the 6481st Group in the autumn of 1955 depended more and more upon scheduled courier flights for aeromedical transport purposes. The 315th Air Division's C-119's were unsuitable for air evacuation, the C-124's were too large, and the C-54's were usually available only in sufficient numbers to sustain scheduled courier requirements. The employment of courier flights -- some of which were flown by contract service of the Civil Air Transport (CAT), Incorporated, with C-46's -- worked well enough from Okinawa, Formosa, and the Philippines, but delays in the courier flights between Kimpo and Japan often caused hardships to patients. Accordingly, Major Clyde Hansen, the medical service corps officer who took command of the 6481st Group on 15 September 1955, secured approval for a more elaborate service in Korea. Each day a medically staffed C-47 from

Ashiya made a round-robin flight to pick up patients at Korean airfields and deliver them to the Army's 121st Evacuation Hospital near Kimpo. Two C-54 aeromedical evacuation flights each week transported patients from Kimpo to Tachikawa. Within FEAF, in the latter half of 1955, 154 flights transported 2,183 patients. In the first six months of 1956, 3,129 patients were airlifted, including 974 intra-Japan, 301 from Okinawa to Japan, 327 from Formosa (Taiwan) to Okinawa or Japan, and 30 between other islands.<sup>69</sup>

Because of troubled world affairs in the Far East, the Far East Air Forces and the 315th Air Division (Combat Cargo) had undergone no sudden demobilization after hostilities ceased in Korea, but, early in 1956, the 315th had to reduce its strength still more. One of its C-119 groups and the C-54 squadron had to be inactivated. As he had done before, General Niess strongly insisted that C-54's were required for overwater air evacuation in the Far East. USAF ruled that the 21st Troop Carrier Squadron must give up its C-54's, but it nevertheless permitted the 315th Air Division to retain four of the planes for air evacuation purposes. Effective on 17 September 1956, the 6485th Operations

Squadron at Tachikawa Air Base took over three C-47's and four C-54's and became virtually responsible for all aeromedical evacuation flights, except such as were flown by the C-47 detachment at Ashiya or Civil Air Transport scheduled C-46 flights.<sup>70</sup> Early in 1956, General Niess also made recommendations looking toward the reorganization of the 6481st Aeromedical Evacuation Group and the 2d Forward Aeromedical Evacuation Flight into a single compact squadron. Since the end of the Korean war, the 6481st had been progressively reduced in size, and the 2d Flight had never practiced its forward-area air evacuation speciality. Effective on 18 December 1956, the 6481st Aeromedical Evacuation Group was discontinued and the 2d Forward Aeromedical Evacuation Flight was inactivated. Concurrently, the 9th Aeromedical Evacuation Squadron was activated, with a headquarters at Tachikawa and detachments at Ashiya, Kimpo, and Kadena Air Bases. Strength of the 9th Squadron was established at 22 officers and 55 airmen.<sup>71</sup>

Even though American troop strength in the Far East declined throughout 1956, the number of patients transported by air showed some increase over 1955. During the last half of 1956, more reliable air evacuation services together with the loss of medical specialties at many Far East hospitals

contributed to an increase in the number of patients transported by air to a total of 3,141, lifted by 361 flights. Under the command of Major Clyde Hansen, the 9th Aeromedical Evacuation Squadron made on a few changes in the operational procedures of the 6481st Group, and most of the changes were attributable to declining workloads in Korea and increasing requirements to the south of Japan. Using a locally-based C-47, the aeromedical detachment at Ashiya cut its daily round-robin flights in Korea to twice a week, but the patients were still delivered to Kimpo for flight by C-54 to Tachikawa. From Tachikawa, twice weekly C-47 air evacuation flights served airfields in northern Japan. At the request of the Thirteenth Air Force's surgeon, caused by a loss of medical specialists at Clark AFB, the 315th Air Division on 5 November 1956 extended its weekly C-54 courier flight which ran from Tachikawa to Taipei via Kadena on to Clark AFB. The flight nurse on this flight was authorized to control the number of passengers and freight handled in context with the number of patients to be returned northward to Tachikawa from Clark, Taipei, or Kadena.<sup>72</sup>

One of the anam<sup>o</sup>lycs of American command in the Pacific, which had originated during the war in Korea, was

the fact that the Far East Air Forces owed allegiance to the Far East Command for operations in Korea and Japan and to the Pacific Command for operations elsewhere in the Pacific. According to U. S. Department of Defense plans, the U. S. Pacific Command on 1 July 1957 would assume control of a unified Pacific theater. At the same time, the Pacific Air Forces (PACAF) would open its headquarters in Hawaii and the historic Far East Air Forces would be inactivated. As General Niess viewed the matter, a major problem of the theater organization was the disposition to be made of the Joint Medical Regulating office located at Camp Zama, Japan, under the supervision of the Surgeon, Army Forces Far East/Eighth Army. On 27 February 1957, General Niess recommended that PACAF should be designated the coordinating authority for a Joint Medical Regulating office (JMRO) in Hawaii. Knowing that a large number of patients would require medical regulating services in Japan, Korea, Taiwan, the Philippines, and Okinawa, <sup>and that</sup> PACAF's Fifth Air Force would be the coordinating authority in Japan, General Niess recommended that a field extension of the theater JMRO should be located under Fifth Air Force supervision at Fuchu Air Station near Tachikawa in Japan. Since a majority of patients in the Pacific would

be transported by air, General Niess urged that the Air Force should be designated the coordinating authority for the operation of the JMRO and its field extension in Japan. Despite the cogency of his arguments, General Niess' proposal was not accepted by the Army and Navy components of the Pacific Command who apparently felt that each service should assume responsibility for regulating the movement of its own patients. On 22 June 1957, the Commander-in-Chief Pacific advised that a JMRO-PAC would be activated upon the commencement of hostilities or other emergency, that the JMRO in Japan would be eliminated on 1 July 1957, and that each service would coordinate its own air evacuation requirements. As a result of the CINCPAC decision, the Fifth Air Force was directed on 25 June 1957 to establish an Air Force Medical Regulating office in Japan which would regulate the movement and hospitalization of Air Force patients in the Far East and provide similar services to the Army and Navy as requested.<sup>73</sup>

During the spring of 1957 while the reorganization of the U.S. Pacific Command was underway, the 315th Air Division (Combat Cargo) continued to perform aeromedical evacuation according to procedures worked out in 1956.

The 9th Aeromedical Evacuation Squadron operated the air evacuation operations office in conjunction with the 315th's transport movement control center and provided in-flight aeromedical evacuation services. During the first six months of 1957, 73 per cent of aeromedical evacuees were transported on C-54D aircraft, 19 per cent in leased C-46's, 6 per cent by C-47's, and 2 per cent by C-124's. The 9th Squadron drew all of its C-54 support and most of its C-47 service from the 6485th Operations Squadron which was based at Tachikawa. A total of 3,043 patients were transported by 339 flights, and the increase in patients handled by flights bespoke improvement in planning and scheduling patient movements.<sup>74</sup>

Both as a part of the reorganization of the Pacific Air Forces and for reasons of economy, the troop carrier organization in the Far East would be somewhat changed effective on 1 July 1957. Under the command of Brig. General C. H. Pottenger, the 315th Air Division (Combat Cargo) would continue to be a major air command directly responsible to the Pacific Air Forces, but it was to be an operational headquarters. The Fifth Air Force was charged to provide administrative and logistical support to the 315th Air

Division. According to Department of Defense policy making such a worldwide disposition of heavy troop carrier organizations on 1 July 1957, the 374th Troop Carrier Wing with its two C-124 squadrons was transferred to the MATS 1503d Air Transport Wing, which moved its base of operations from the Tokyo International Airport (Haneda) to Tachikawa. The 315th retained operational control over C-124 aircraft operations in the Far East. After the 1 July reorganization, the 315th Air Division retained the 483d Troop Carrier Wing at Ashiya which was slated for conversion from C-119 to C-130 aircraft, the 24th Helicopter Squadron, and the 6485th Operations Squadron which would continue to be based at Tachikawa. Inasmuch as the C-130's and C-119's were unacceptable for aeromedical evacuation, the 6485th Operations Squadron would continue to provide most of the aircraft employed for air evacuation in the Far East. The 6485th continued to possess four C-54's and six C-47's, but, in deference to the fact that its old bucket-seat planes were not suitable for ambulatory patients, the squadron exchanged its C-54D's for C-54M's beginning in July 1957.<sup>75</sup> Having airline seats and galley facilities, the C-54M's were much more comfortable to patients.

Employing C-54 aircraft as the "work horse" of aeromedical evacuation in the Far East with some assistance from C-47's and civilian contract C-46's, Major<sup>3</sup> Morton H. Reed made few changes in existing air evacuation programs when he took command of the 9th Aeromedical Evacuation Squadron on 12 August 1957. The aeromedical evacuation system consisted of weekly scheduled flights to northern Honshu and Hoppaido<sup>1,2</sup> and to southern Honshu and Kyushu. Korea was served by two scheduled C-54 flights each week. Okinawa, Taiwan, and the Philippines were served once a week by a C-54 flight which originated at Tachikawa, made route stops at Okinawa and Taiwan, terminated at Clark, and then returned to Tachikawa with the same stops as the outbound flight. The detachments of the 9th Squadron at Ashiya, Kimpo, and Kadena were chiefly concerned with liaison activities, but the detachment at Ashiya employed a 483d Troop Carrier Wing C-47 to evacuate urgent and priority patients from southern Japan and the smaller airfields in Korea. After July 1957, the 315th Air Division's patient airlift system would be little changed, and the numbers of patients transported would vary according to the local availability of medical specialties and troop strength in the Far East. From July through December 1957,

297 flights lifted 3,125 patients. Chiefly because of an Army roll-back from Japan and increased medical specialties available in Korea, only 2,202 patients were lifted by 255 flights in the last half of 1958. The aeromedical evacuation workload performed by the 9th Squadron in the first half of 1959 was virtually the same as for the final six months of the year before: 218 flights lifted 2,186 patients.<sup>76</sup>

"The intra-theater air evacuation system," reported Brig. Gen. Richard L. Bohannon, who became PACAF Surgeon on 1 February 1959, "has continued to provide an excellent capability to render the best medical care possible to all personnel within the theater."<sup>77</sup>

#### 4. Aeromedical Transport in the Military Air Transport Service

The experience of the Korean war amply indicated the U.S. Defense Department's need for strong air transport forces capable of immediate action at a war's beginning. The accomplishments of MATS in support of the United Nations war effort in Korea bespoke the wisdom of the creation of the Military Air Transport Service on 1 June 1948 to provide centralized control of American strategic airlift. But even though there was general agreement that the United States defense effort required a centrally-controlled fleet of

modern transport aircraft, several factors reminiscent of influences delaying air transport growth in the 1930's hindered the development of the Military Air Transport Service in the 1950's.

As stated anew on 26 August 1956, the Military Air Transport Service was responsible for maintaining a transport capability suitable to meet a national emergency and to provide domestic and foreign transportation for the Department of Defense and other authorized agencies, including air evacuation of emergency or casualty cases, aircraft ferrying, and transport crew training. To accomplish its transport mission, MATS had organized its transport forces into an Atlantic Division, a Continental Division, and a Pacific Division. During Korean hostilities, the main MATS transport airplane had been the C-54/R5D, of which MATS possessed 283 in number on 30 June 1953. Of more modern "heavy" transports, MATS possessed at Korean war's end, 11 C-74's, 53 C-97's, and 59 C-124's. Because of the limited range and cargo capabilities of its obsolescent C-54 Fleet, many MATS units were based at overseas stations.<sup>78</sup> In addition to its military aircraft, MATS had extensively employed civil contract air transport aircraft during the Korean emergency.

In his plans for the post-Korean years, Lt. General Joseph Smith, the MATS commander, expected that a modernization of aircraft would enable MATS to perform its global airlift mission from bases in the United States and Hawaii. As a traditional objective, the Air Force had always attempted to procure multi-purpose transport aircraft that could be used interchangeably for passengers, evacuation of sick and wounded, or for hauling cargo. In August 1954, General Smith pointed out that this concept would be impracticable in an age of jet air transport. For the future, Smith suggested that MATS required jet aircraft for transporting passengers or patients and turbo-propellor planes for air freight hauling. Early in 1955, MATS hoped to replace its C-54's with heavy Douglas C-133 Cargomasters -- the world's largest military transport planes -- perhaps by the end of 1958. Even though USAF recognized that MATS had a requirement for modern transports which could complement the capabilities of jet combat aircraft, budgetary limitations demanded that MATS accept conventional Douglas C-118's, Lockheed C-121's, and Douglas C-124's as replacements for substantial numbers of its C-54's and all of its C-74's. In the Congress, moreover, there was a strong point of view that MATS ought,

during the years of peace, to employ contract carriers to supplement military aircraft, thereby strengthening the civil reserve air fleet for employment at a time of national emergency.<sup>79</sup> This point of view would delay the modernization of the MATS transport fleet.

In a concomitant development related to a more efficient accomplishment of global air transport requirements, General Smith planned a phased withdrawal of MATS organizations from overseas bases to the United States. These plans were implemented as MATS units secured longer-range, higher-payload aircraft. To replace the single port of aerial embarkation on the east coast of the United States -- Westover AFB -- and to serve wings to be redeployed from Europe, MATS developed ports of aerial embarkation at Dover AFB, Delaware; McGuire AFB, Wrightstown, New Jersey; and Charleston AFB, South Carolina. Headquarters, Atlantic Division moved to McGuire effective on 1 June 1955, and on this same date McGuire replaced Westover as the principal aerial port of embarkation for Department of Defense travel on the east coast. Effective on 1 March 1956, Charleston replaced Brookley AFB as the aerial port of embarkation for the Caribbean, Canal Zone, South America, Bermuda, and

ultimately North Africa.<sup>80</sup> Although the station was unsatisfactory, Headquarters, Pacific Division moved to Parks AFB, California, effective on 16 November 1956.<sup>81</sup>

The redeployment of units to the United States coincided with MATS planning, but on 1 July 1957 implementation of a Department of Defense single-manager plan added new overseas units to MATS. At this time, the four-engine transport aircraft of the Navy's Fleet Logistic Air Wings and the USAF's heavy troop carrier wings were added to the MATS fleet. From the Tactical Air Command and the Pacific Air Forces, MATS took command of the 62d Troop Carrier Wing (H) at Larson AFB, Washington; the 63d Troop Carrier Wing (H) at Donaldson AFB, South Carolina; and the 374th Troop Carrier Wing (H) at Tachikawa Air Base in Japan.<sup>82</sup> In the first half of 1958, USAF programs caused an additional relocation and consolidation of MATS organizations. On 15 January 1958, Headquarters MATS completed a station movement from Andrews AFB, Maryland, to Scott AFB, Belleville, Illinois. Under earlier MATS deployment plans, the Continental Division had continued to maintain its headquarters at Kelly AFB, San Antonio, Texas, but in an economy move, the Continental Division transferred its staff to Travis AFB, California,

on 25 June 1958. Effective on 1 July 1958, the Pacific and Continental Divisions were fused together as the Western Transport Air Force and the Atlantic Division was redesignated as the Eastern Transport Air Force.<sup>83</sup>

Reflecting its role as the single manager for Department of Defense air transportation, the Military Air Transport Service received a new mission directive from USAF on 25 January 1958. The new presentation divided the MATS mission into a peacetime mission and wartime mission and included the new single-manager operating responsibility with a requirement for industrial-funding airlift procedures. In brief, MATS' peacetime operations would be conducted to maintain a state of readiness for expanded air transport services in time of war.<sup>84</sup> In view of the emphasis upon its transport mission, MATS discontinued its 1708th Ferrying Wing on 1 March 1958 and ferrying responsibilities (which had been a historic mission of the ATC and of MATS) were diffused among major USAF commands.<sup>85</sup> Although advance planning had been done on both subjects, Lt. General<sup>5</sup> William H. Tunner became responsible for implementing airlift service industrial fund and for fleet modernization programs when he took command of MATS on 1 July 1958. Put into effect this

same day, the MATS industrial funding system granted the command a one-time operating capital appropriation of \$75,000,000 and required it to "sell" air transportation services to the Army, Navy, and other commands of the Air Force, and to other agencies of the Federal Government, which would pay for the services out of their own appropriated funds. MATS aeromedical evacuation services provided for Department of Defense agencies, however, were charged to the Air Force, since air evacuation for the armed services was a USAF mission.<sup>86</sup> Even though the cost of aircraft was not charged to airlift users, the industrial funding system's operating costs analysis provided one more indication that the MATS fleet required additional modernization. By the end of 1958, MATS had replaced its obsolescent C-54's with newer-type conventional four-engine transports and possessed 47 C-97's, 126 C-118's, 72 C-121's, and 313 C-124's, but MATS had only begun to take deliveries of modern turbo-prop aircraft, of which it possessed 19 C-133's.<sup>87</sup> Early in 1960, General Tunner computed that MATS required a minimum of 332 modern cargo and transport planes, but because of a lag in the fleet modernization program it possessed only 31 modern transports.<sup>88</sup>

From the waning months of the Korean hostilities through the remaining 1950's, aeromedical transport activities in the Military Air Transport Service in part reflected a growing degree of specialization, which paralleled other MATS fleet developments. In recognition of a special requirement for domestic air evacuation aircraft to replace the Continental Division's old C-47's, the Air Force Council in the autumn of 1951 approved the procurement of a number of Convair 340's, or C-131A's, which were scheduled for delivery with an interior configuration suited for aeromedical transport in late 1953 and mid-1954.<sup>89</sup> After 21 July 1950, the Continental Division performed domestic aeromedical transport with first five and later six air transport squadrons (air evacuation) assigned to two different air transport groups and stationed at Kelly, Brooks, Travis, Brookley, Westover, and Scott. For more than two years, the Continental Division studied and discussed the formation of one air transport group to direct the five air transport evacuation squadrons. Finally, in recognition of the fact that a special air evacuation group would relieve Continental Division's headquarters staff of many of its supervisory concerns and would facilitate the

conversion to C-131 Samaritan aircraft, the MATS effective on 1 February 1953 established the 1706th Air Transport Group (Air Evacuation) with its headquarters at Brooks AFB and assigned the six air transport squadrons (air evacuation) to it.<sup>90</sup>

When it assumed responsibility for the mission of providing expeditious and medically acceptable air transport service for sick and wounded armed service personnel within the United States on 1 February 1953, the 1706th Air Transport Group (Air Evacuation) made few changes in the domestic air evacuation system. Although the group was responsible for the operation of the patient movement control centers at Westover, Andrews, Brookley, Scott, Kelly, Travis, and Lowry, these air evacuation control centers continued to receive requests and to schedule the pick<sup>u</sup>p and delivery of patients within their areas of operations. The group, moreover, exercised operational control over domestic air evacuation operations through the Continental Division's transport control center at Kelly.<sup>91</sup> The 1706th Group continued to operate two transcontinental C-54 air evacuation routes, the northern route between Travis and Westover via Lowry, Scott, and Andrews which was flown by the 1733d Squadron at Travis

and the southern route between Travis and Westover via Biggs, Kelly, Brookley, and Andrews which was operated by the 1734th Squadron at Kelly. The other squadrons continued to provide feeder air evacuation operations with C-47 aircraft. Following the end of the Korean hostilities, the number of patients received at Travis declined and, as a result, the 1706th Group moved 32,377 patients in the last half of 1953.<sup>92</sup>

The operation of the transcontinental air evacuation routes could be justified as long as large numbers of Korean war casualties arrived at Travis, but the northern route transected the Rocky Mountains and was somewhat hazardous for non-pressurized C-54M aircraft. The twin-trunkline system, moreover, resulted in planes and crews being away from their home stations for several days and was expensive in per diem funds and complicated maintenance. Because of manpower curtailment, the 1706th Group was scheduled to lose one of its squadrons at about the same time that it had to make arrangements to provide transition training to the C-131A Samaritan aircraft. Taking all these factors into consideration, the 1706th Group secured the movement of the trunk-line flying 1734th Squadron from congested Kelly AFB to Brooks AFB where it was planned that the 1736th Squadron was to be consolidated

with the 1734th, under the latter's designation. The augmented 1734th Squadron was to handle trunkline work and also to provide all transition training for Samaritan crews. Effective on 1 December 1953, Continental Division eliminated the northern "Transcontinental" air evacuation route from Travis to Andrews but continued to operate the southern route across the continent from Travis to Westover, via Brooks, Brookley, and Andrews. All patients on the trunkline got an overnight stop at Brooks. Coincident with the change in the trunkline, all feeder squadrons of the 1706th Group commenced a new interlocking system, whereby all squadrons operated scheduled connecting trips on specified days of the week. The new system was more economical of aircraft and flight personnel and it reduced backtracking of patients, patient handling, and increased patient comfort. <sup>93</sup>

Continuing to operate the southern trunkline and the interlocking feeder routes, the 1706th Air Transport Group (Air Evacuation) handled 26,552 patients during the first half of 1954 in spite of the inactivation of the 1736th Squadron on 1 April. The biggest news in air evacuation, however, was the delivery of the first Convair C-131A Samaritan which made its public debut at the Washington National Airport on

26 March 1954. Mindful of the Air Force Medical Service's long dream of an especially configured hospital plane, Brig. General W. F. Hall, the MATS Surgeon, said: "For me ... the delivery of this airplane was truly a dream come true."

The twin-engine, pressurized Convair had a normal cruising speed of 235 knots and a capacity for 37 ambulatory patients or of 27 litters and 4 ambulatory patients, plus a medical crew of three members. Passenger seats were rearward facing and capable of withstanding heavy gravity forces, the plane was air-conditioned aloft and ventilated on the ground by an integral electric blower.<sup>94</sup> The plane was a flexible hospital ward which would accommodate almost any special medical equipment, such as an iron lung, orthopedic bed, an artificial kidney, or an infant incubator. When they were placed in use, the Samaritans were marked with a large red cross on their vertical stabilizers. The 1706th Group received its first C-131A at Brooks on 1 April, and the 1734th Squadron began to provide transition training. Without adverse effect to the domestic aeromedical transport operation which moved 6,677 patients on the trunkline and 16,329 on the feeder routes, the 1706th Group completed its transition from C-47's to C-131A's in the last half of 1954

and was fully operational in the new aircraft at the end of the year. The last C-47 was transferred from the Group on 9 February 1955, and the group then possessed its full authorized strength of 26 C-131A's and 6 C-54M aircraft. As planned the 1734th Squadron had six C-131's and the six C-54's. Although the civil airlines regularly employed Convair transports in mountainous areas, the Continental Division at first preferred to have four-engine planes on trans<sup>?</sup>mountain patient lift and continued to operate the C-54's on the trunkline. Already long tested in civil flying, the C-131's revealed no adverse characteristics in military usage. Stations served by the C-131's, however, had to build new loading ramps, and the 1706th developed a new portable litter lift which was carried aboard the Samaritans for use where loading ramps were not available. Many mercy missions went to civil airfields where regular military <sup>services</sup> sources were not available. <sup>95</sup>

The pattern of trunkline and feeder operations flown by the 1706th Air Transport Group, Light (Air Evacuation) changed very little in the first half of 1955. Along with other MATS units, the 1732d Squadron moved from Westover to the new Atlantic air terminal at McGuire AFB during April,

and on 1 May this station became the eastern terminus of the aeromedical evacuation trunkline. Patient handlings which had been slowly declining since the end of the Korean war totalled 22,097 during the first half of 1955, but, despite decreasing patient loads, the 1734th Squadron began to encounter difficulties getting enough flying hours out of its old C-54M's to maintain trunkline operations. In original planning, the 1706th Group had not wished to use the Samaritans over mountain areas, but declining C-54 capabilities demanded this in the latter half of 1955. The 1733d Squadron at Travis and the 1734th at Brooks now employed C-131A's to fly thrice-a-week schedules between Brooks and Travis via El Paso and Kirtland; the 1734th used its C-54 complement for thrice-a-week round trips between Brooks and McGuire. Most of these trips went by way of Brookley, but one round trip a week was flown via Scott. Using the new trunkline schedules and interlocking feeder flights (three of which were specially scheduled into Barksdale while "Sagebrush" was in progress) the 1706th handled 20,883 patient movements in the latter half of 1955.

After tapering downward for several years, the Continental Division's domestic aeromedical transportation task

showed remarkable stability in 1956. In the first half of the year 20,288 patients were handled; and in the second half 20,085 were moved within the United States. Closing of the port of aerial debarkation at McChord in favor of direct routing of patients to Travis in February simplified air evacuation on the west coast. In March, the transfer of the port of aerial embarkation from Brookley to Charleston gave some difficulty since it extended the flying time of the eastbound trunkline flight to go there. Accordingly, Charleston was carried as a trunkline flagstop, but whenever possible the 1735th Squadron at Brookley picked up Charleston's patients in a feeder operation. In recognition that "air evacuation" did not aptly describe a function which could better be called "aeromedical transport," MATS accepted a new designation on 2 November 1956 when the 1706th Air Transport Group, Light (Air Evacuation) was discontinued and the 1st Aeromedical Transport Group, Light, was activated. Simultaneously the old squadrons were discontinued and activated with new numerals: the 11th (Scott), the 12th (McGuire), the 13th (Travis), the 14th (Brooks), and the 15th (Brookley) Aeromedical Transport Squadrons, Light, were the new designations. Patient-lift requirements were relatively stable and

the aeromedical transport mission gained status with regular constituted units, but the 1st Group inherited a host of aircraft problems from its predecessor. The old C-54's were plagued by mechanical disorders, and in June 1956 the 1706th Group began to return C-131A's to a contract maintenance organization for inspection and repair as necessary (IRAN) maintenance. By September, four C-131's were in IRAN and, in November, the Continental Division received preemptory orders to transfer two C-131A's to Europe. In preparation for the IRAN activity, the 1706th on 26 April commenced an "over-the-top" coast-to-coast schedule flown eastward to Scott by C-131's from Travis and westward to Scott by C-131's from McGuire. The scheduled Travis-Brooks trips were suspended. Because of inadequate staffing of hospitals, aeromedical transport flights were seldom scheduled at night or on week-ends, but, on 19 November, aircraft shortages compelled the 1st Aeromedical Transport Group to fly its available planes as much as possible. The feeder flights then began operating on round-the-clock schedules over two geographical triangles: Travis-Scott-Brookley and Scott-Brookley-McGuire. Crews on the triangle schedules rotated at each squadron station. The round-the-clock schedules

gave prompt service to using hospitals, but the night work was an undesirable burden. As a result of pressure placed on MATS by using agencies, Atlantic Division's 1611th Air Transport Group furnished a C-118 aircraft and aircrew to begin on 15 December 1956 a twice-weekly "Nightingale" aeromedical round-trip between McGuire and Travis via Andrews, Scott, and Lowry. The 12th Aeromedical Transport Squadron provided the medical crew members for this trunkline flight. The 1st Group's triangular operations were discontinued.<sup>97</sup>

Since it was projected to transfer two additional C-131A's to Europe and to seek some replacement for its old C-54M's, the 1st Aeromedical Transport Group continued to experience aircraft difficulties during 1957. In March, USAF authorized MATS to accept nine C-131E aircraft, eight to come from the Strategic Air Command and the ninth from Convair production in November. The C-131E was enough different from the C-131A to require aircrew transition training, and, having been designed for cargo hauling, they had to be configured with 12 litters and 9 double seats for aeromedical transport. It was decided to convert the 14th Squadron at Brooks to C-131E aircraft. On 10 May, the squadron transferred out its last C-54M and by the end of

June it possessed seven C-131E's. On account of the impending C-54 transfer, the Continental Division's 57th Air Transport Squadron at Kelly, supported by medical crewmen from the 14th Squadron, began on 1 May to fly the trunkline to McGuire with its C-54 aircraft. During the spring and summer of 1957, the 1611th Air Transport Group continued to make the C-118 bi-weekly aeromedical flight from McGuire to Travis. This more direct trip and the larger size of the C-118 (it carried 18 litters and 30 ambulatory patients) theoretically provided an effective aeromedical service, but the Travis-based 13th Aeromedical Transport Squadron complained that the C-118 crews often missed their schedules. Following the completion of C-131A IRAN maintenance and the modification of the C-131E's, the 1st Aeromedical Transport Group again assumed responsibility for all aeromedical transport routes on 1 September 1957. Anticipating delays in operating the new C-131E's with little enroute support, the Continental Division operated on an improvised basis for the remainder of 1957. A feeder-type operation was set up in September whereby each area hospital was served on a pre-arranged day at least once a week. The hospitals were notified of the feeder-type schedules and reported their patients the

day before a flight was scheduled in their geographical area. Despite difficulties incurred among its aeromedical transport aircraft, the Continental Division handled 41,578 patient movements within the United States during 1957.<sup>98</sup>

Although the heavier C-131E aeromedical transport aircraft would cause some operational problems, the 1st Aeromedical Transport Group was being equipped during 1957 with a whole fleet of modern, pressurized aircraft. According to plan, the 14th Squadron at Brooks was receiving nine C-131E's for employment on trunklines (they could not land at many smaller airfields) and for transporting the polio teams from the School of Aviation Medicine and burn teams from the Brooke Army Hospital. Each of the four other aeromedical transport squadrons was authorized five C-131A's. Visualizing the domestic air evacuation system as a unified whole which should be controlled by one central agency, Col. O. H. Rigley, Jr., commander of the 1st Group, proposed early in 1957 that domestic in-transit patient-holding responsibilities ought to be assigned to the aeromedical transport group. Up until this time, patients at remain-overnight stops were accommodated according to varying arrangements made with local hospitals. Recognizing the need for special

patient holding facilities at McGuire, Travis, and Scott, USAF in September 1957 directed MATS to organize casualty staging flights at those bases, but MATS was not willing to assign the flights to the 1st Group under peacetime conditions since to do so would cause a duplication of facilities already established in MATS hospitals. On 18 January 1958, MATS activated the 1st, 2d, and 3d Casualty Staging Flights at Scott, Travis, and McGuire. The 1st and 3d Flights were assigned to MATS medical facilities at Scott and McGuire, but, since MATS did not yet command Travis, the 2d Flight was assigned to the 1st Aeromedical Transport Group and attached to the Travis hospital for operational control and logistical support.<sup>99</sup> The mission of the casualty staging flights was to receive and process patients for movement; to provide nursing service for patients awaiting air transportation; to transport patients to and from aircraft; and to load and unload patients on or off aircraft.<sup>100</sup>

Possession of a fleet of C-131's and the completion of aircrew training allowed the 1st Aeromedical Transport Group to re-institute its system of trunkline, interlocking feeder, and local feeder flight schedules in 1958. After January, the 14th Squadron ran thrice-weekly round-trips

eastward from Brooks to Andrews via Brookley and westward from Brooks to Travis via Lowry. Although Charleston had become an aerial port of debarkation in 1956, it continued to be a trunkline flagstop and the 15th Squadron at Brookley generally evacuated this port. Actually, the possession of C-131's by the squadrons at Travis, Scott, and McGuire diminished the importance of the old transcontinental trunklines, for interlocking schedules gave a direct route from Travis to McGuire via Lowry and Scott. Each of the squadrons also provided feeder services in their geographical areas of operation. Effective on 1 February 1958, the U.S. Public Health Service was authorized to request movement of its beneficiaries directly to the nearest aeromedical evacuation control center and vouchers for reimbursement were submitted to the Public Health Service. In June 1958, Veterans' Administration Hospitals were also permitted to report their patients directly to the nearest aeromedical control center, and charges for the service (a first class airline ticket plus one dollar) were ordinarily paid by the originating hospital. The fleet of new aircraft gave better service, and, in the first half of 1958, the 1st Aeromedical Transport Group handled 20,846 patient movements.

At Travis AFB on 1 July 1958, the Western Transport Air Force became responsible for the supervision of all aeromedical evacuation activities throughout the Continental United States, as well as over established MATS routes serving Alaska and the Pacific. With the movement of the former Continental Division to the West Coast, however, the commander, 1st Aeromedical Transport Group gained added responsibility for operating transport flights for aeromedical purposes and controlling the operations of assigned aircraft.<sup>102</sup>

Seeking to make the most efficient use of his available resources, Col. L. B. Matthews, commander of the 1st Group, organized a group-wide flight-following and aircraft movement control center at Brooks. At the same time, the commanders of the several squadrons were given operational control of any group aircraft operating in their geographic area. The purpose of these actions was to permit an aircraft to be diverted from pre-briefed flight when it was in the vicinity of an area requiring an emergency patient pick-up. New schedules were published based upon detailed study, designed to improve the weekly trip frequency to the hospitals within each squadron's area of responsibility, and also to increase trunkline operations which cleared the aerial

ports on the east and west coasts. The new route structure decreased patient enroute time by 37 per cent. The new schedules also insured that an aircraft was flying within the area of using hospitals 80 per cent of each day and could be called for in the event the area hospital had an urgent requirement to move a patient. In the last half of 1958, the 1st Aeromedical Transport Group handled 21,245 patient movements. Under the new industrial fund program, the total cost was reckoned at about \$2,800,000 of which some 1 per cent was incurred by non-Department of Defense agencies. From the beginning of its history to the end of 1958, the 1st Aeromedical Evacuation Group reckoned that it had flown 264,685 patients and had accumulated 234,475 flying hours without the loss of human life attributable to aircraft accident.<sup>103</sup>

Unlike the self-contained organization for aeromedical transport in the Continental United States, the MATS Pacific Division's mechanism for air evacuation in the post Korean war years continued to employ evacuation teams of the 1453d Medical Air Evacuation Squadron to accompany patients from the Far East aboard regularly-scheduled transport flights. Operating directly under the Pacific Division

in mid-1953, the 1453d was based at Hickam AFB, Hawaii, and it maintained a liaison detachment at Haneda Air Base, which would soon be renamed Tokyo International Airport. Navy flight nurses and medical corpsmen assigned to Navy Squadron VR-8 were attached for duty to the 1453d Squadron. In the war's aftermath the movement of the bulk of 508 repatriated sick and wounded United Nations war prisoners during August and September swelled the number of patients evacuated from Tokyo during the last six months of 1953 to a total of 5,207. In this same period, 5,673 patients were delivered at Travis. Beginning in October 1953, however, the number of patients requiring evacuation from Tokyo declined, and the Pacific Division cut back the size of its evacuation squadron and reduced evacuation flights. Effective on 1 January 1954, the strength of the 1453d Squadron at Hawaii was reduced to include only 17 air-evacuation teams and the 1453d detachment at Tokyo was built up by the assignment of nine air-evacuation teams. Thenceforward, the Tokyo detachment would provide air-evacuation teams which would accompany patients to Hickam and the main body of the 1453d would handle air evacuation in the remainder of the Pacific and accompany patients to Travis AFB.<sup>104</sup>

During the Korean war, the Pacific Division had made some use of C-97's for evacuating patients, but its C-54's and R5D's had provided most of the trans-Pacific patient airlift. After Korea, Pacific Division Air Force air transport Squadrons began converting to C-97 and C-124 aircraft and the Navy transport Squadrons received R7V Super Constellations. The C-124's would be unsuited for trans-Pacific patient evacuation except in emergencies, but <sup>10</sup> ten C-97M Stratocruisers were specially modified for air evacuation purposes in the latter half of 1953 and assigned to the Pacific Division.<sup>105</sup> Each C-97 could lift 58 passengers or a normal load of 42 litter patients. In the first half of 1954, the C-97's handled most of the 2,882 patients evacuated from Tokyo and transported the largest number of any type plane of the 3,410 patients landed at Travis.<sup>106</sup>

The air evacuation Stratocruisers were invaluable to the Pacific Division in June and July 1954 when MATS commenced its contribution to "Wounded Warrior" -- the aeromedical transportation of 502 sick and wounded French soldiers and 20 French medical attendants from Tokyo via the United States to Orly Airport at Paris and La Senia Airport in Oran, Algeria. As has been seen,\* FEAF troop

\* See pp. 100-101.

carrier C-124<sup>3</sup>'s brought the French patients from Saigon to Tokyo, on 29 June, the first Pacific Division C-97 left Tokyo for the first "Wounded Warrior" flight across the Pacific and thence across the United States to Westover AFB, and, on 13 July the last of <sup>12</sup>ten C-97's on the operation departed Tokyo on the same route. The patients were given <sup>15</sup>15-hour rest periods at Hickam, Travis, and Westover. On 2 July, the Atlantic Division began to lift packets of the patients from Westover, and it completed the eight R6D and two C-118 flights required to handle the task when the last C-118 put down at Orly on 17 July. Four of the <sup>10</sup>ten trips terminated in France and six in Algeria. The mission included 331 litter and 171 ambulatory patients. The C-97's were overcrowded, but the mission was accomplished "with ease and efficiency."<sup>107</sup>

Aside from the movement of the French wounded, the regular day-to-day medical air evacuation of the Pacific Division settled down to a steady pace as peace returned to the Pacific. Effective on 20 September 1954, the 1453d was redesignated as the 1453d Aeromedical Evacuation Squadron, and, including "Wounded Warrior," its personnel provided care in flight for 2,680 patients evacuated from Tokyo and for 3,266 lifted from Hickam to Travis during the last half of

1954. By the end of the year, air evacuation service from Tokyo was exclusively conducted in C-97's, which, during the favorable wind months of the winter, were authorized to over-fly Midway Island and make non-stop trips to Hickam. Earlier in the year, the 1453d Squadron had had its first experience evacuating patients aboard the new Navy R7V Super Constellations. In the spring of 1954, these planes had begun to lift from Guam patients who had been transported there by FEAF's 315th Air Division from Clark AFB in the Philippines, and, effective on 1 January 1955, the Pacific Division would begin to evacuate directly from Clark to Hickam via Guam and Kwajalein with twice-monthly R7V trips. Because of their high-density seating for 78 people, the R7V's were tricky to configure with litters, but, after much study, the 1453d Squadron worked out a plan for the use of 19 seats and a normal maximum load of 47 litters aboard the Constellations. Employing an average of eight C-97 air evacuation trips a month from Tokyo, two R7V trips a month from Clark Field, and ten C-97 trips a month from Hickam to Travis, the Pacific Division transported 2,444 patients from Pacific stations and 2,331 patients from Hickam to the United States during the first half of 1955.

Earlier in 1955, Pacific Division aeromedical evacuation planners sought to determine how to get maximum patient lift out of the C-97's and R7V's, but as patient loads declined to an average of 400 a month to be moved from the Western Pacific they had difficulty filling scheduled air evacuation trips. One possible solution was to hold patients until a full load was on hand, but this would delay prompt movement of needful <sup>s</sup>cases. The other solution was to carry mixed loads of patients and passengers. In an experiment on 9 August 1955; the cabin of a C-97 was divided with a pair of quilted heat-dissipation curtains, and patients were loaded to the rear and passengers forward. Other than when boarding and leaving the aircraft, passengers did not enter the patient area. Such combined loads of patients and passengers proved practical and became a common procedure throughout the Pacific on both C-97 and R7V aircraft.<sup>109</sup> The practice of carrying mixed loads produced some complications. Despite good results obtained with the use of tranquillizer drugs, many psychoneurotic patients were irrational, irascible, and often offensive in speech. For this reason, the 1453d would have preferred not to have carried dependent women and children on flights

with patients. The Pacific Division, however, was unwilling to establish such a policy, but it suggested that the senior medical attendant was authorized to state medical contraindications to passenger travel aboard aeromedical evacuation planes. When the problem persisted, the Western Transport Air Force surgeon in 1959 advised subordinate organizations that movement of children as passengers on overseas air evacuation trips "would be discouraged to the maximum extent possible."<sup>110</sup> In July 1958, when industrial funding went into effect, the Pacific Air Forces strongly objected to the MATS assignment of channel traffic passenger seats to it aboard planes employed for trans-Pacific medical evacuation, because such seats were not released to the user until shortly before a plane's departure. This problem was ultimately resolved when MATS agreed that the overseas aerial port of debarkation would be given 24 hours' advance commitment for passenger seats on aeromedical evacuation flights.<sup>111</sup>

Given the ability profitably to utilize the excess space in flights designated for air evacuation, the Pacific Division's aeromedical airlift became increasingly routine after mid-1955. Average patient loads transported from the western Pacific to Hickam and from Hickam to Travis ran

between 300 and 400 a month. The Navy continued to attach a good many of its flight nurses to the 1453d Aeromedical Evacuation Squadron, but MATS manning documents progressively reduced the Air Force component of the squadron in context with its declining workload. Prior to the removal of the Pacific Division to California, the 1453d Squadron was assigned to the 1502d Air Transport Wing on 18 September 1956 in order that it might continue to be based at Hickam AFB. Detachment <sup>↓</sup> A, 1453d Squadron continued to operate at the Tokyo International Airport until 14 May 1958 when the MATS air terminal was transferred to Tachikawa Air Base. In view of the prior assignment of the 1453d to the 1502d Wing, the establishment of the Western Transport Air Force on 1 July 1958 had no appreciable effect upon the conduct of air evacuation in the Pacific.<sup>112</sup> Despite the routine nature of trans-Pacific aeromedical evacuation, one important administrative change was made looking toward more efficient patient handling. <sup>which reflects earlier experience in through-coding \*</sup> Based upon the suggestion of the MATS Surgeon, the Armed Services Medical Regulating Office recommended a test whereby Tripler General Hospital would dispatch coding messages to Washington as to a patient's medical condition and indicated hospitalization at the same time that he left

\* See pp. 625-626.

Hickam by air. Begun on 21 September 1956, the tests showed that the ASMRO could have the destination hospital worked out and the Travis hospital so informed by the time patients were landed in California, thus speeding the evacuation process. Such a procedure became standard for operations in the Pacific.<sup>113</sup>

Since the air evacuation organization and the patient airlift requirements in the Pacific after 1955 were remarkably stable, only the availability of aircraft and the routes that they flew affected the accomplishment of the aeromedical evacuation mission. The only planes operating for air evacuation on the mid-Pacific route to the Philippines were Constellations, but both Constellations and Stratocruisers were often available for patient lift out of Tokyo and Hawaii. Since the C-97's were more comfortable planes, the 1453d made them the "aircraft of choice" for patient movements. Taking advantage of favorable air currents, the C-97's customarily flew nonstop from Tokyo to Hickam during the winter months, but in the summer they landed at Midway for refueling. Although the planes seldom remained at Midway for more than two hours, the 1453d Squadron customarily kept an air evacuation team on rotational duty at the

dispensary there during the summer months. Because of runway repairs at Midway, the C-97's landed at Wake Island when necessary during the winter of 1956 and the spring of 1957, and the 1453d provided a flight nurse and technician for attendance at Wake during the late spring of 1957. Even though the C-97 was preferred for air evacuation, the RV7's handled nearly all of the work from Tokyo in the summer of 1957 while the C-97 squadrons moved from Hawaii to Travis. When the MATS terminal moved from Tokyo to Tachikawa, the Constellations were scheduled for air evacuation out of Japan because of the fact that a C-97 could not clear the obstacles at the ends of Tachikawa's runways with a full load of fuel and patients. Except for these complications, the trans-Pacific patient airlift was a smoothly-operating system which routinely employed some portion of two flights each week from Japan, the Philippines, and Hawaii.<sup>114</sup>

The end of the Korean hostilities in mid-1953 had little effect upon the aeromedical transport activities of the MATS Atlantic Division which continued to be responsible for evacuating sick and wounded from Europe and the Northeast to the United States and for certain intra<sup>r</sup>theater air evacuation activities between North Africa, the Middle East,

and Europe. Based at Rhein-Main Air Base, Frankfurt, Germany, the 1454th Medical Air Evacuation Squadron operated the MATS European aeromedical evacuation control center and provided air evacuation teams for the flights from Rhein-Main to Westover AFB, Massachusetts, and for the air evacuation flights from the Middle East and North Africa to Rhein-Main. The 1600th Air Transport Wing at Westover flew twice-weekly C-97 "Benefactor" flights which transported passengers to Germany and returned patients from Rhein-Main to Westover via the Azores. Twice a month, a "Benefactor" flight returned via Burtonwood, England, to evacuate casualties from the United Kingdom. The trans-Atlantic air evacuation flights were "guaranteed" service, and, when the C-97's were having difficulty with their supply support, the 1600th Air Transport Wing on 11 December 1952 began making the Benefactor flights with new Douglas C-118<sup>Q</sup> Liftmaster transports. These faster planes cut two hours off the trans-Atlantic flying time, and they were each capable of transporting 76 passengers or 60 litter patients and six to eight attendants. These Liftmasters displayed a much greater mission reliability than had the C-97's and they would continue to ply Benefactor schedules throughout the 1950's. At first, because of

improper installation, the litter supports in the C-118's were known to pull loose from bulkheads, but immediate remedial action soon corrected this defect.<sup>115</sup>

In view of the fact that the United States Air Forces in Europe had no four-engine aircraft for aeromedical evacuation, the Atlantic Division's 86th Air Transport Squadron at Rhein-Main employed C-54 scheduled flights staffed by 1454th Squadron air evacuation teams to lift patients to Germany. In the spring of 1953, two flights a month of the "Sheik" from Nouasseur Air Base to Rhein-Main and two flights of the "Nomad" from Wheelus Field to Rhein-Main via Ellinikon Airfield at Athens and Ciampino Airport at Rome were utilized for air evacuation. On 1 April 1954, the 86th Air Transport Squadron had to suspend operations in order to transfer to Charleston, South Carolina, but the Atlantic Division continued to provide much the same air evacuation services by extending its Westover-based C-118 flights twice a month to provide air evacuation services from Nouasseur and Wheelus to Rhein-Main. The 1454th Squadron continued to staff the MATS planes until the winter of 1955-1956 when, as has been seen,\* the USAFE theater aero-

\* See pp. . . .

medical evacuation services procured C-54M aircraft and were able to undertake the flights from Nouasseur and Wheelus.<sup>116</sup> After 1955, MATS had no intra-theater aeromedical airlift responsibilities in the USAFE area of operations. As seen above,\* however, USAFE needed an air evacuation route between Dhahran Air Base, Saudi Arabia, and Wheelus Field, Tripoli, and effective in December 1958 the Eastern Transport Air Force agreed that the return trip of its C-121 flight out of Charleston could transport patients weekly along with passengers from Dhahran to Wheelus.<sup>117</sup>

Employing C-54 aircraft in the immediate post-Korean war period, the Atlantic Division borrowed air evacuation teams from the 1732d Air Transport Squadron (Air Evacuation) at Westover to accompany patients loaded aboard the "Argentinian" once a week at Torbay Airport, St. Johns, Newfoundland. Although the operating squadrons charged with these flights varied and the name of the flight was changed to the "Newfoundlander," patients from the Northeast were debarked at Westover until 1 June 1955 when the Northeast Command's patients began to be debarked at the Atlantic Division's new terminal at McGuire AFB, New Jersey. Effective on

\* See pp.

1 July 1956, the Atlantic Division implemented C-118 passenger operations to Newfoundland, and, once a week with a 12th Aeromedical Transport Squadron air evacuation team aboard, a return trip evacuated patients from Torbay Airport and Argentia Naval Air Station.<sup>118</sup> These arrangements for handling patients from the Northeast continued throughout the remainder of the 1950's.<sup>119</sup>

Throughout the 1950's the Atlantic Division and the Eastern Transport Air Force found their major aeromedical transport task to be the trans-Atlantic flight from Germany to the United States. Based at Westover under the 1600th Air Transport Wing and at McGuire under the 1611th Air Transport Wing, C-118's flew twice-weekly "Benefactor" schedules with few delays. Effective on 1 May 1955, the port of debarkation for the Benefactor flights was shifted from Westover to McGuire AFB.<sup>120</sup> Stationed at Rhein-Main the 1454th Aeromedical Evacuation Squadron (it was so redesignated on 10 September 1954) eventually became solely responsible for staffing the Benefactor flights. The main sources of patients for MATS evacuation from Europe continued to be the 7100th USAF Hospital at Wiesbaden, the Army's 97th General Hospital in Frankfurt, and the USAF Hospital at Burtonwood.

As long as all patients to be moved from Germany were delivered to the Rhein-Main flight line from a concentration point at the 7100th Hospital, the 1454th Squadron experienced few difficulties, but, in the autumn of 1954, at the request of the Army, MATS agreed to pick up Army patients at Landstuhl Air Base rather than Rhein-Main. Since the Army's 2d General Hospital at Landstuhl was the principal source of Army patients, the arrangement seemed logical, but it was productive of much operating difficulty. Even when patients were found ready for flight at Landstuhl, the extra landing and circuitous routing used up approximately three hours of flying time, which became a critical concern on the two days a month that the C-118's also landed at Burtonwood to evacuate patients. Landstuhl was an active jet fighter base and these planes had operating priorities. In view of these adverse factors, the European patient embarkation point was returned to Rhein-Main on 6 July 1956. In as much as USAFE medical authorities decided to board all their patients from Wiesbaden, the Atlantic Division cancelled its twice-monthly evacuation stops at Burtonwood on 1 September 1956.<sup>121</sup> This centralization of the patient embarkation activity at Rhein-Main not only alleviated flight

delays, but it also proved administratively advantageous when the Army and Air Force hospitals began coding their air evacuees to the Armed Service Medical Regulating Office in March 1957. The same system which had proven feasible in the Pacific was tested and subsequently implemented in Europe.<sup>122</sup>

The principal air evacuation task of the Atlantic Division and Eastern Transport Air Force was the almost routine movement of patients from Rhein-Main Air Base to McGuire AFB. From time to time, however, the 1454th Aero-medical Evacuation Squadron shared in other tasks. Ordinarily, the Benefactor flights carried passengers -- including dead-heading 1454th air evacuation teams -- from the United States to Germany, but in July 1954 east-bound Benefactor delivered "Wounded Warrior" evacuees at Orly Airfield, Paris, before proceeding to Rhein-Main.<sup>123</sup> In another east-bound evacuation of a British tubercular patient who was being returned to England, the Atlantic Division's perfect patient safety record was marred for the first and only time during the 1950's. Caught in a sudden thunderstorm shortly after taking off at McGuire on 13 July 1956, the east-bound C-118 crashed, killing many aboard including the patient, Lts.

Roberta T. Jull and Lillian Mueller, and medical technicians T/Sgt Edward J. Kenyon and A/3C William M. Stiles.<sup>124</sup> The largest emergency-type aeromedical evacuation task to confront the Atlantic Division had its inception on 6 December 1946 when President Dwight D. Eisenhower directed the Department of Defense to transport by air and sea 15,000 refugees from the revolution in Hungary to the United States. Pursuant to the Atlantic Division's order for Operation "Safe Haven," the 1454th Aeromedical Evacuation Squadron established a section at Munich-Riem Airfield on 11 December and Capt. Louis H. Architect took over as aeromedical evacuation officer. MATS regulations had always forbidden movement of advanced pregnancy cases or of small infants, but such Hungarian patients were to be transported by air evacuation planes. All family members were to be evacuated together, even though only one required aeromedical transport. The first "Safe Haven" aeromedical flight departed Munich-Riem on 22 December 1956 and a fourth C-118 flight on 1 January 1957 completed the movement of 139 patients and their families. In spite of elaborate preparations for maternity; none of the Hungarian women were delivered in flight.<sup>125</sup> After 1 January 1957, the Atlantic Division continued the Hungarian

refugee relief flights, but "Safe Haven II" missions were flown from Nubiberg Air Base at Munich. In the course of these operations, the 1454th's air evacuation teams accompanied eight aeromedical flights which lifted 395 patients and family members. Among the patients were 107 tuberculosis cases who were airlifted without adverse results.<sup>126</sup>

During the 1950's the main aeromedical transport tasks of the MATS were the trans-Pacific, the trans-Atlantic, and the intra-United States patient movements, but MATS subordinates also continued efficient patient lifts from the Caribbean and Panama and from Alaska. Under the Continental Division, the 1703d Air Transport Group flew scheduled C-54 passenger flights from Brookley AFB, Mobile, Alabama, to Albrook in the Canal Zone via Ramey AFB, Puerto Rico, and directly to and from Albrook AFB in the Canal Zone. Any of these flights could be utilized for aeromedical evacuation from Albrook and Ramey, and, when such employment was made, air evacuation teams of the 1735th Air Transport Squadron (Air Evacuation) accompanied the patients.<sup>127</sup> These operations continued until 1 March 1956, when the control of MATS operations in the Caribbean and South American areas was transferred to the Atlantic Division and the aerial

port of embarkation/debarkation was transferred from Brookley to Charleston AFB, South Carolina. Because of delays in getting the 1608th Air Transport Wing ready for operations at Charleston, the Continental Division continued to fly its passenger and air evacuation schedules through Charleston to Ramey and Albrook for three months. On 1 July 1956, the 1608th Group at Charleston took over the passenger/air evacuation flights from the Canal Zone and Puerto Rico. One C-121C return trip each week from Howard AFB in the Canal Zone to Charleston via Ramey was designated for air evacuation as necessary. In order to provide care for patients, a flight nurse and two aeromedical technicians were assigned to the 1608th USAF Dispensary at Charleston AFB.<sup>128</sup> This weekly C-121C air evacuation service from Howard and Ramey to Charleston continued during a period between 1 July 1957 and 1 May 1958 when operations in the area were again under the Continental Division.<sup>129</sup> According to the Surgeon of the Caribbean Air Command, who controlled air evacuation coordination for all services in the area and also coded patients to the Armed Service Medical Regulating Office, the C-121 flights to Charleston provided rapid and efficient service.<sup>130</sup>

In June 1953, the Continental Division's 1705th Air

Transport Group at McChord AFB, Tacoma, Washington, had begun three C-54 flights a week between Tacoma and Adak with return via Kodiak and Elmendorf. The return leg of the mid-week flight was utilized for air evacuation from Adak to Kodiak to Elmendorf to McChord. A detachment of the 1733d Air Transport Squadron (Air Evacuation) was stationed at McChord to provide in-flight patient care.<sup>131</sup> Within Alaska, the Navy's Alaskan Sea Frontier evacuated its patients from Adak to Kodiak and thence to the United States; the Alaskan Air Command evacuated its patients to the 5005th USAF Hospital at Elmendorf and thence to the United States.<sup>132</sup> To provide local air evacuation in support of Joint Army-Air Force Exercise "Snowbird" early in 1955 the Alaskan Air Command employed its own C-47's and air rescue helicopters.<sup>133</sup> By 1955, the weekly C-54 evacuation runs terminated at Elmendorf, and, in April 1955, the 1705th Air Transport Group instituted bi-monthly C-118 air evacuation flights from Elmendorf to McChord. Since military patients requiring evacuation from Alaska had declined in number, the less frequent service caused no difficulty. In fact, the C-118's usually carried a mixed load of passengers and patients, and, in the summer of 1955, the Alaskan Native Service obtained permission to

move some 300 native tuberculosis patients from Elmendorf to Seattle by the MATS flight. These natives were transported as revenue patients in lots of five on regularly scheduled MATS air evacuation flights.<sup>134</sup>

In November 1955, after study in the Armed Services Medical Regulating Office revealed that the vast majority of all patients debarked at McChord were subsequently transported by feeder air evacuation flight to Travis, the Continental Division obtained authority to transport patients from Alaska to either McChord or Travis. The C-118 flights handling patients were accordingly extended to Travis.<sup>135</sup> All but a few patients were consigned to Travis, and, accordingly on 18 February 1956, the patient debarkation point at McChord was closed and the detachment of the 1733d Squadron was discontinued.<sup>136</sup> Actually the flow of patients from Elmendorf to Travis had greatly declined, and, during the latter half of 1956, only 174 patients were evacuated from Alaska to the United States.<sup>137</sup> On 1 July 1957, responsibility for air evacuation from Alaska passed to the Pacific Division when it took command over the 1705th Air Transport Group at McChord, but Continental Division's 13th Aeromedical Transport Squadron at Travis continued to provide air evacuation

teams for the Alaskan flight.<sup>138</sup> At its activation at Travis AFB on 1 July 1958, the Western Transport Air Force became responsible for the airlift to Alaska and the evacuation of patients from the area to the United States.<sup>139</sup> The change in organizational responsibilities had little effect upon Alaskan air evacuation. Patients were gathered to the USAF Hospital (now the 5040th) at Elmendorf AFB, Anchorage, by command C-47's, and at Elmendorf patients requiring it were placed aboard a C-118 designated for air evacuation on a specific day every other week. In an emergency, patients were put aboard the daily MATS passenger flight for delivery to the Madigan Army Hospital at Tacoma, Washington. After testing the feasibility of it, the 5040th USAF Hospital began coding its patients to the Armed Services Medical Regulating office in mid-1958.<sup>140</sup>

When the armistice in Korea brought an end to battle casualties, the Military Air Transport Service's task of transporting sick and wounded patients within overseas theaters, from overseas to the United States, and within the United States inevitably declined in quantity. From the beginning of 1955 on through the 1950's, however, the peacetime patient loads of the MATS showed remarkable stability:

each six months, something over 6,000 patients were handled overseas and more than 20,000 patient movements were made within the United States. In the months of peace between 1 July 1953 and 30 June 1959, the Military Air Transport Service made 95,176 patient movements over foreign channels of transport and 270,570 patient movements within the United States. Over its world<sup>wide</sup> air transport routes, MATS thus handled 365,746 patients in the months of July 1953 through June 1959.<sup>141</sup> Taken by ~~themselves~~<sup>in</sup>, the statistics of the patient movements made by MATS in the years following the war in Korea did not adequately indicate the progress made in aeromedical transport. During the period, the Military Air Transport Service had built an especially-designed domestic aeromedical transport group which was not only performing air transport of patients but was also beginning to advance the sciences<sup>of</sup> of aeromedical transport. Through the activities of MATS overseas air evacuation flights and the domestic aeromedical transport group, military personnel anywhere in the world were only a few hours or days away from the finest medical care that could be available. In the development of its aeromedical transport system, MATS had never forgotten that the timeliness and speed of patient

transport and the adequacy of in-flight patient comfort were much more important than the number of persons transported.

Chapter X

AEROMEDICAL TRANSPORT: POSTSCRIPT AND PREVIEW

1. Advanced Technology and Aeromedical Transport

"Aeromedical evacuation today stands at the threshold of new developments," wrote Brig. Gen. L. Render Braswell, the MATS Surgeon, in July 1959. "Turboprop and jet-powered aircraft," he predicted, "are soon to shrink our planet by shortening travel time, and evacuation activities promise to increase in comfort, speed, and convenience."<sup>1</sup> Looking backward at ten years of progress in aeromedical transport in September 1959, General Braswell recalled that the Department of Defense had assigned the mission to the Air Force because numerous studies had shown that aeromedical transport not only saved lives but was far cheaper than any other method of transporting patients. Aeromedical transport also permitted savings in terms of quicker recovery of patients and fewer days lost from duty. Using aeromedical transport "lifelines" the armed services had been able to concentrate the scarce medical specialists available to them, and smaller local treatment facilities moved patients to the larger hospital centers where specialty capabilities were concentrated. "It is obvious that regardless of by whom or what means it is accomplished," General Braswell stated, "the continued aeromedical evacuation of patients in both peace and war is a necessary mission

which cannot be avoided."<sup>2</sup>

In an interview at Brooks Air Force Base in March 1960, Maj. Gen. Oliver K. Niess, the USAF Surgeon General, summed up the benefits of aeromedical airlift. "Aeromedical evacuation," he said, "provides the most practical means for the delivery of military patients. Air evac is the most expeditious, it is the most economical, and it is the most medically acceptable method of patient transport. Aeromedical evacuation delivers the patients to specialized hospitals within minimum time limits. Air evac delivery cost is one-tenth that of other means of transportation. Air evac insures that the patient receives specialized medical care."<sup>3</sup>

Under conventional battle conditions of World War II and Korea and in periods of peace, aerial transportation of sick and wounded persons to specialized hospitals had proven logistically advantageous. Late in 1959, General Braswell predicted that the Department of Defense would have to continue and to expand the concept of specialized medical treatment facilities served by aeromedical transport.<sup>4</sup> The Hoover commission on governmental organization had recommended such centralization of military medical facilities in 1955, and in March 1960 the Department of Defense directed the reorganization of service hospital facilities on a regional basis. The effect of the order was to establish some 50 major hospitals as medical centers to provide full medical, surgical, and long-term hospitalization for the referral of

patients from hospitals of all the armed services.<sup>5</sup>

Although a general nuclear war would likely present such an entirely different complex of problems in the handling of casualties as to make preplanning of evacuation operations a practical impossibility, aeromedical transport had demonstrated certain capabilities which indicated its potentiality as an agency for assisting local medical facilities in disaster control. During the 1950's, MATS aeromedical transport planes regularly flew specialized burn teams and polio evacuation teams from Brooke Army Hospital and the School of Aviation Medicine at San Antonio, Texas, to any part of the world where their services might be needed. In 1955, the United States Air Forces in Europe indoctrinated medical specialists for high-altitude jet flights and flew them from Wiesbaden to the place where patients needed them.<sup>\*6</sup> Aeromedical airlift could also transport medical staffs and whole hospitals to disaster areas. In the mid-1950's, the Tactical Air Command's Eighteenth Air Force and the USAF

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\* The flying-doctor service was by no means a USAF development. In 1928, the Australian Aerial Medical Service had begun to serve sparsely-populated sections of Northwestern Australia, and the service was still operating in 1950. See Ross A. McFarland, Human Factors in Air Transportation (New York: McGraw-Hill Book Co., 1953), pp. 741-743. In 1960, the U. S. S. R. was said to be operating an aviation medical service to give medical care to settlers in northern Siberia. See 86th Cong 1st Sess, Comparisons of the United States and Soviet Economies (Washington: Government Printing Office, 1960), p. 262.

Tactical Medical Center maintained in constant readiness a "RITA NOW" air-transportable disaster assistance team and developed capabilities to airlift an emergency hospital on short notice. Drawing upon this seminal planning, the Pacific Air Forces established the 1st Medical Service Wing at Tachikawa Air Base, Japan, on 25 March 1959. This wing included a 50-bed mobile hospital and three 36-bed air transportable hospitals which could be quickly deployed to troubled areas in the Far East.<sup>7</sup>

At the end of the 1950's the USAF medical service had not yet had any experience in transporting patients in turboprop or jet aircraft, but General Braswell was confident that such aircraft would prove operationally and medically advantageous for aeromedical airlift. The faster speed of such aircraft would be an operational advantage. The Lockheed Aircraft Corporation, for example, estimated that a medically-configured Electra could make a transcontinental crossing from Travis to McGuire with stops at Lowry, Scott, and Andrews within the 14-hour duty time limits of a MATS aircrew, thus eliminating the overnight stop which C-131 crews had to make at Scott. Configured to carry 28 litter and 29 ambulatory patients and equipped with an integral patient-loading ramp, the planned medical version of the Lockheed Electra promised to be 3.6 times as effective as a C-131 Samaritan for transporting patients.<sup>8</sup> In an age of supersonic air transport, moreover, it would be increasingly easy to fly busy medical specialists

to patients--even from the United States to overseas bases.

Speed and comfort promised to be the chief medical advantages of turboprop and jet air transports for the transportation of patients. Cabin-pressurization would eliminate most difficulties attending ascent and descent in non-pressurized aircraft, the flights would be relatively quiet and free of vibration, and the planes would permit the transportation of advanced pregnancy cases and psychiatric-disturbed patients with greater facility. Since the maximum cabin altitude in the pressurized aircraft would not exceed 8,000 feet, some patients with cardio-pulmonary pathology and with a considerable degree of anemia might be moved safely, with continuously-administered oxygen as a precautionary measure. Multiple compressors in such planes as the Electra and the Douglas DC-8 made the possibility of rapid decompression unlikely, but General Braswell nevertheless suggested that it might still be inadvisable to transport patients by jet if they had trapped air in a body cavity or a disturbance of cerebral circulation. Still excluded from flight would be patients with intra-bronchial masses, recent coronary infarcts, and acute poliomyelitis cases. In summary, General Braswell thought that turboprop and jet transportation would benefit all classes of patients and would permit some classes to be moved by air who could not be transported in conventional aircraft.<sup>9</sup>

For many years the USAF Medical Service had visualized the need for the establishment of an integrated aeromedical center which would bring into close proximity the staffs responsible for teaching, research, and clinical practice in flight medicine. Much of the clinical study of aeromedical transport, for example, was conducted at the School of Aviation Medicine at Randolph Air Force Base, while flight nurse and aeromedical specialist courses were taught at Gunter Air Force Base, Alabama. Following the construction of modern facilities, the USAF Aerospace Medical Center was established under the Air Training Command at Brooks Air Force Base, San Antonio, Texas, on 1 October 1959. The School of Aviation Medicine, together with its Gunter Branch, was transferred from the Air University to the Air Training Command on this same day. The establishment of the Aerospace Medical Center at Brooks and the consequent combination of the School of Aviation Medicine with the USAF Teaching Hospital and Epidemiological Laboratory at Lackland Air Force Base promised greatly to enhance the USAF medical training programs and research activities.<sup>10</sup>

## 2. Problems of Air Transport Affecting Aeromedical Airlift

In the early 1960's, the USAF Medical Service was confident that new turboprop and jet air transports would prove beneficial to aeromedical airlift requirements. Aeromedical airlift, however, is

a product of composite medical and air transport capabilities, and, if USAF medical arts were keeping pace with the jet air age, USAF air transport capabilities were again lagging behind other airpower systems. As had been the case in the 1930's, the development of USAF transport aviation was hampered by the competition of modern aerospace weapons for scarce funds and by the widely-held idea that military air transport capabilities hindered the expansion of the national civil reserve air fleet (CRAF) which would be available to the nation in the event of a national emergency.

Like any category of aviation, air transport is an essentially-scarce national resource, which is most effectively employed as a multi-purpose force under a centralized command structure to meet the requirements of all using agencies. In recognition of this lesson in the early 1950's, the USAF Tactical Air Command had begun to organize troop carrier forces which were prepared to meet any of the varied requirements of a tactical mission in a theater of operations. To provide central airlift direction, the 315th Air Division (Combat Cargo) and the 322d Air Division (Combat Cargo) were activated in the Far East and in Europe. On 26 November 1956, however, Secretary of Defense Charles E. Wilson charged the Army to develop its own airlift capabilities--including aeromedical airlift--within a 100-mile-deep combat zone in theaters of operations. This decision marked

a significant division of national airlift capabilities and missions.

After 1956, the growth of organic Army airlift together with the required commitment of more and more Air Force funds to the development of modern aerospace weapons caused marked reductions in troop carrier capabilities. In early 1960, the USAF worldwide theater airlift resources included six medium troop carrier squadrons in Europe, three medium squadrons in the Pacific, and six assault and six medium squadrons in the Tactical Air Command. Available for service in a national emergency mobilization were an additional 45 Air Force Reserve troop carrier squadrons. In a war emergency, the standard C-119, C-123, and C-130 aircraft possessed by these troop carrier squadrons could transport patients, but these planes lacked the comfort and safety requisite for transporting patients and their dependents in time of peace. As a result, the 315th Air Division employed obsolescent C-47 and C-54 aircraft for aeromedical transport in the Far East, and the 322d Air Division used a few C-54 and C-131 aircraft on its aeromedical airlift routes in the European theater. In the United States, the Tactical Air Command had no formal aeromedical airlift duties, but the medical personnel which comprised its two aeromedical evacuation squadrons participated in field training exercises and maneuvers.

Although it was nominally strengthened by the transfer of USAF's heavy troop carrier wings to it on 1 July 1957, the Military

Air Transport Service began to encounter challenges to its mission and to suffer from obsolescence of its aircraft fleet in the late 1950's. In order to provide global mobility support for the jet striking forces of the Strategic Air Command and the Tactical Air Command, MATS required a fleet of turboprop cargo planes and modern jet transports. In 1958, moreover, General Braswell asked that consideration be given to replacing the 1st Aeromedical Transport Group's aging C-131 Samaritans with medically-configured prop<sup>+</sup>jet Lockheed Electras.<sup>11</sup>

In 1958, Congressional leaders recognized that the MATS fleet required modernization in order to perform outsize and special-cargo traffic and technical missions, but they reported their conviction that MATS should employ civil air carriers for transporting passengers and conventional military cargo. The Congressional leaders argued that such governmental employment of the civil airlines would enable the civil reserve air fleet to modernize and expand its strength, thus increasing the national air transport capability to meet general mobilization emergencies.<sup>12</sup> "Our quarrel," stated Senator A. S. Monroney, "is that they [MATS] haven't got any special-duty modern equipment except the C-133 . . . while they are duplicating . . . the passenger carrying capacity that is available in large amounts."<sup>13</sup>

Unable to secure Congressional appropriations for modern aircraft as long as the controversy continued, the Military Air

Transport Service continued to be equipped with old aircraft. Following the transfer of its C-97 aircraft to the Air National Guard in early 1960, the MATS four-engine fleet included 107 C-118's, 56 C-121's, 291 C-124's, and 29 C-133's, of which only the C-133's were modern aircraft. The 1st Aeromedical Transport Group received no replacements for its 29 conventional C-131's. In a war mobilization emergency, MATS was designated as the gaining command for two Air National Guard air transport wings with six squadrons of C-97 aircraft and for one Air National Guard aeromedical transport group with five squadrons of C-119J aircraft.<sup>14</sup>

Recognizing that Congressional opposition to "airline type" operations was blocking the modernization of military air transport forces, a Department of Defense study in February 1960 recommended that MATS should withdraw from routine channel operations and should build up a fleet of modern military air transports capable of meeting effectively those "hard core" airlift requirements which by their nature and timing had to be moved by military aircraft. President Dwight D. Eisenhower accepted the recommendation and ordered a reduction in MATS regularly-scheduled transport operations and a buildup of the organization's ability to meet hard-core military requirements.<sup>15</sup> This ordered reorientation of MATS required no change in MATS inter-continental air evacuation procedures. Although a few civil-contract

aircraft suitably modified for litters had returned some patients from Japan to the United States during the Korean hostilities, the CRAF carriers had not been receptive to a postwar continuation of such a type of traffic. In 1954 a plan to retrofit civil reserve aircraft for emergency employment as litter-carrying planes had been deleted from the CRAF plan because of the difficulty and expense involved. The transportation of patients by air, moreover, was a Department of Defense directed Air Force mission which was far different from an "airline type" operation.<sup>16</sup>

Although the reorientation of the Military Air Transport Service promised little change in transoceanic aeromedical airlift, the United States Air Force in September 1959 indicated that substantial changes would have to be made in domestic aeromedical transport within the United States. Recognizing that an integrated, specialized system could most efficiently perform routine peacetime aeromedical airlift requirements, the USAF had in 1953 authorized the organization of the 1706th Air Transport Group (Air Evacuation) which had become the 1st Aeromedical Transport Group (Light). As a matter of principle, however, USAF continued to accept the policy that "the Air Force cannot afford to develop or maintain elaborate forces for the single purpose of aeromedical evacuation." Aeromedical evacuation was a collateral transport mission of the Air Force, and, as such, had to

share available transport resources with all other transport missions.<sup>17</sup>

In spite of an assurance that the USAF could not and did not intend to abrogate its responsibility for the domestic aeromedical evacuation mission,<sup>18</sup> USAF programming documents which were issued in September 1959 called for a Fiscal Year-1961 inactivation of two of the 1st Aeromedical Transport Group's squadrons with a resultant transfer of nine C-131E and five C-131A aircraft from the domestic aeromedical transport system. On 22 January 1960, Air Force Chief of Staff, General Thomas D. White, announced that in order to maintain as many effective combat units as possible it would be necessary to make substantial reductions in the combat support area, including a drastic curtailment of the Air Rescue Service and a programmed phase-down of aeromedical transport units.<sup>19</sup> In March 1960, MATS officials indicated that the USAF plan included a complete phasing out of the MATS domestic aeromedical transport system by Fiscal Year-1963.<sup>20</sup> USAF did not disclose the manner in which it would continue to perform the domestic aeromedical transport mission, but there were reports that the mission might be transferred to Air National Guard and Air Force Reserve transport units.<sup>21</sup>

Despite reclama by Lt. Gen. William H. Tunner, Commander MATS, the initially programmed reduction of the 1st Aeromedical Transport Group had to be undertaken. According to planning announced

761

by MATS on 18 February 1960, the 1st Group and four of its squadrons were to be inactivated. This plan intended that the 11th Squadron would continue in operation at Scott Air Force Base, where, under direct supervision of MATS, it would provide the aeromedical evacuation control center for the new system. The squadrons inactivated at Brooks, Travis, Brookley, and McGuire would have been replaced by detachments, and the old detachments at Lowry and Andrews would have continued in operation. Preliminary steps had been taken to implement this plan, but, on 8 March 1960, USAF ordered MATS to hold major changes in abeyance and to proceed with the inactivation of the 14th and 15th Aeromedical Transport Squadrons. Accordingly, the 14th and 15th Squadrons at Brooks and Brookley Air Force Bases were inactivated effective on 1 April 1960 and replaced by Detachment 1 and Detachment 2, 1st Aeromedical Transport Group. The old detachments at Lowry and Andrews were redesignated Detachment 3 and Detachment 4, 1st Aeromedical Transport Group. Headquarters, 1st Aeromedical Transport Group continued at Brooks, as did the 11th Squadron at Scott with five C-131A aircraft, the 12th Squadron at McGuire with five C-131A aircraft, and the 13th Squadron at Travis with four C-131A aircraft. Detachment 1 at Brooks was assigned four C-131A's, but, because of a suspension of flying at that base, this detachment moved to Kelly Air Force Base on 20 June 1960. Concurrently with the reorganization, the domestic aeromedical evacuation fleet was reduced

ii  
by eleven aircraft and operated eighteen C-131A's, each with four hours per day authorized utilization.<sup>22</sup>

Facing a reduction of 38 percent of his aircraft and 46 percent of his flying hours, Colonel L. B. Matthews, commander of the 1st Aeromedical Transport Group warned using agencies that "a degree of degradation of service" was to be expected.<sup>23</sup> Seeking to get a maximum utilization of its resources, the 1st Aeromedical Transport Group established a Central Aeromedical Evacuation Control Agency at Brooks on 25 March 1960. This agency exercised a close control of all air evacuation flights and maintained a continuing study of the routes, schedules, frequencies, and operating procedures of the group, making adjustments to secure maximum cabin loadings on all flights. From a statistical standpoint, the 1st Group secured a better utilization of its aircraft. In April 1960, for example, the number of patients moved declined 20 percent in comparison to the monthly average of the preceding nine months whereas the flying hours expended by the group were reduced by 55 percent. In the last half of 1960, the group recorded 21,513 patient movements, in the last half of 1959 it had made a total of 26,100 domestic patient movements. Since there was judged to have been no significant change in the expeditious movement of urgent and priority patients, the Western Transport Air Force was inclined to believe that the 1st Group had "continued to perform the important facets of its

mission satisfactorily."<sup>24</sup>

But the statistical reports of the 1st Aeromedical Transport Group did not accurately reflect the full impact of the cut-back in the domestic aeromedical airlift service. After the reorganization, delays in the movement of routine patients became the rule rather than the exception; directionalized movement of patients was not always possible; and patients in the system were commonly delayed at remain-overnight hospitals with resultant crowding of these facilities.<sup>25</sup> The USAF Tactical Air Command reported a severe dislocation of its movement of routine patients from its small base medical facilities to large treatment centers.<sup>26</sup> After a three-months' trial of the reduced capabilities, Lt. Gen. Joe W. Kelly, the new MATS commander, notified USAF on 20 July 1960 that "the service provided the hospitals and the patients is highly unsatisfactory and will remain so." He stated his opinion that if USAF was to retain its responsibility for the Department of Defense mission it would have to ensure accomplishment of aeromedical transport in "a timely and above all reliable manner."<sup>27</sup>

In as much as no amount of manipulation of schedules could secure an adequate performance of the domestic aeromedical evacuation mission with only eighteen aircraft, General Kelly proposed a variety of alternative remedial actions. His first-choice solution was to authorize seven additional C-131's--or a total of twenty-five such aircraft--to

the 1st Aeromedical Transport Group. If this were not possible, he recommended the employment of MATS four-engine aircraft on a twice-a-week trunk-line schedule on the mid-continental and southern-continental air evacuation routes. These schedules could be supported by MATS resources, but the proposal had a disadvantage in that the MATS common-user fleet was fully committed to other immediate duties in the event of an emergency. Other potential remedial actions suggested were to increase the flying-hour authorizations of the eighteen assigned aircraft; to discontinue movements of Veterans Administration and U. S. Public Health Service patients; to use commercial means to transport troop-class patients, out-patients, and patient returnees except where aeromedical airlift could be provided by regularly-scheduled flights; to employ base aircraft and medical personnel whenever feasible to move selected urgent and priority patients; and to integrate helicopters and organic aircraft of the other armed services into the domestic aeromedical transport system to handle appropriate short-haul patient movements.<sup>28</sup> Air Force official<sup>2</sup> announced in July 1960 that current long-range plans did not envision the phasing out of aeromedical evacuation within the United States "in the foreseeable future,"<sup>29</sup> but USAF had apparently taken no action on General Kelly's recommendations at the end of 1960.

### 3. Some Thoughts on an Aeromedical Transport System

Originally the dream of visionary physicians, aeromedical airlift has shown itself to be both in war and peace a "medical obligation and a military necessity."<sup>30</sup> As a matter of policy, the United States Air Force considers that: "The value and effectiveness of aeromedical evacuation is unassailable."<sup>31</sup> Unlike many phases of military activity, which in peacetime are concerned only with the maintenance of combat readiness, aeromedical transport has a positive peacetime value relating to the medical care of sick and injured military personnel and their dependents. In time of peace, the care of dependent women and children requires that aeromedical transport afford a degree of comfort and refinement that need not be so greatly emphasized in time of war. The peacetime aeromedical transport systems are thus not necessarily designed to support a wartime workload, but they must form the structure for wartime expansion and must be manned with military personnel.

In as much as aeromedical transport is vital to the national defense effort and essential to the proper medical care of Army, Navy, and Air Force patients and involves capabilities of the three services, the Department of Defense should ensure that aeromedical transport is properly integrated into armed service medical systems. Early proponents of medical air evacuation predicted that the technique would result in great savings of medical personnel. Instead of revolutionizing military evacuation and hospitalization systems, however, aeromedical

transport was adapted to traditional evacuation and hospitalization systems. Under such circumstances, the employment of aeromedical airlift permitted some economies resulting from greater specialization of medical facilities, but the savings of medical force were not as great as they doubtless might have been. In order to attain maximum utilization of scarce national medical and air transport capabilities, the Department of Defense should evolve aeromedical transport doctrine and regulations which would comprehend intratheater as well as inter-theater operations. It would appear that there is a valid requirement for joint medical regulating offices in theaters during peacetimes if these offices are to be expected to begin to function at the outbreak of war, when casualties may well be at their heaviest.

According to the Department of Defense clarification of service roles and missions announced on 26 November 1956, the Air Force is responsible for aeromedical evacuation from its operating locations within land or sea combat zones through Air Force casualty staging units to hospital facilities outside the combat zones. The Air Force is also responsible for aeromedical evacuation from airheads or airborne objective areas where the operation includes airlanded Air Force logistic support. In accordance with USAF organizational concepts, global air transport forces and theater airlift (troop carrier) forces possess centralized control over air and aeromedical units required for the performance of their distinctive missions. This

command arrangement recognizes the essential unity of air transport aviation, but it acknowledged a difference in the characteristics of the more specialized and shorter-ranged theater airlift (troop carrier) forces and of the longer-ranged global airlift (military air transport) forces. According to concept, MATS global airlift routes may transect a theater, but MATS does not ordinarily operate within a theater. Only in the United States, where MATS is charged both with transcontinental and local air transportation of patients is there a deviation from this conceptual organizational doctrine. In the United States, the Tactical Air Command maintains the combat readiness of troop carrier groups and possesses the 1st Aeromedical Evacuation Group with two medical air evacuation squadrons for service in troop-carrier maneuvers. Since the command has no routine aeromedical airlift responsibilities, flight personnel of this group have maintained their proficiency by serving temporary duty tours with the MATS 1st Aeromedical Transport Group.<sup>32</sup> Because of its lack of a full-time aeromedical transport mission the Tactical Air Command has questioned whether it should continue to maintain the 1st Aeromedical Evacuation Group.<sup>33</sup>

An economical and efficient accomplishment of the Air Force's aeromedical transport mission also involves the establishment and maintenance of compatible relationships between the care and control of the patient at his point of origin, en route, and at his destination

and the provision and operation of suitable aircraft to transport the patients. The first function is a medical responsibility, falling under the purview of the USAF Surgeon General and carried out by medical personnel. The second function is purely an Air Force operational function. To effect coordination of these two functions, the medical commander has a controlling voice in aircraft configuration and in the timeliness and method of operation. Conversely, the transport commander, charged with making the best use of his resources, has a vital interest in priorities and movement control of patients. As a matter of practice, USAF has recognized that aeromedical evacuation personnel should be organized into integral medical units which are assigned to Air Force commands performing aeromedical airlift. Only the 1st Aeromedical Transport Group (and the Air National Guard aeromedical transport organizations) deviate from the organizational pattern by assigning both Air Force operational and aeromedical evacuation personnel to the same units. Interestingly enough, aeromedical personnel were originally integrated in the units which became the 1st Aeromedical Transport Group in order to save administrative overhead, and the MATS surgeon of the Continental Division protested at the time (1951) that such an organization was "not satisfactory in utilization or administration of trained medical personnel."<sup>34</sup>

In order to maintain an essential flexibility of force and to avoid dissipation of scarce resources, the Air Force has generally refused to develop or maintain elaborate forces for the single purpose of

aeromedical evacuation. Exceptions to this principle have been acceptable only to meet routine, peacetime aeromedical evacuation requirements, where specialization proves most efficient and economical. Such exceptions are the allocation of C-131 aircraft to the 1st Aeromedical Transport Group and the practice in Europe and the Far East of committing non-standard and obsolescent transport aircraft to aeromedical transport duties. These specialized systems probably perform the peacetime aeromedical transport function more efficiently, but the arrangement carried elements of potential danger. The employment of non-standard transports for aeromedical airlift palliates the fact that standard transports ought to be multi-purpose planes, readily capable of handling patients. The availability of only a few planes (which are subject to mechanical disorders) limits the extent of aeromedical airlift services which can be offered. The same aircrews generally fly the aeromedical missions, with the result that the vast majority of air transport crews get little experience in patient transport work. For the next several years, the Air Force recognizes that a specialized system will best serve the function of peacetime aeromedical airlift, but it promises to eliminate the special aeromedical transport organization from its force structure when it finds that it can perform the mission effectively by other means at some future date.<sup>35</sup>

As a corollary to the proposition that special aircraft would not be employed for aeromedical transport in a time of war, it follows

that representatives of the USAF Medical Service should have an active voice in determining the characteristics of standard air transport or troop carrier aircraft in order to ensure that these planes are medically acceptable for aeromedical purposes. So far as possible, equipment required for the care of patients in flight should be designed for easy installation in standard aircraft. In time of war, the United States Joint Chiefs of Staff will probably extend over-riding priorities to airlift in direct support of the combat effort of its fighting forces. In such case, aeromedical airlift would be accomplished only by aircraft which deliver supplies and personnel to specific locations. Under such circumstances, virtually every USAF air transport and troop carrier aircraft should be capable of transporting a maximum number of patients, both ambulatory and litter-bound. Since the exigencies of combat allow little time to retrofit aircraft for air evacuation purposes, the civil reserve air fleet would desirably possess a maximum capability for handling litter patients as well as ambulatory cases.

During the pioneer years of aeromedical transport, the Air Force Medical Service devoted close attention to the study of the medical aspects of the movement of sick and wounded persons by air. As time passed, however, aeromedical airlift became principally an operational concern and drew reduced medical interest. Medical service corps officers replaced medical officers in command of aeromedical evacuation

squadrons, and, in the case of the 1st Aeromedical Transport Group, aeromedical personnel were subordinated to Air Force line officers. Records-keeping emphasized the operational aspects of patient movement, and streamlined forms gave little space for recording medical data. Thus, when he attempted to study the MATS experience in transporting critically-ill patients in 1957, General Braswell discovered "a veritable void in our overall (not to say detailed, day-to-day) clinical knowledge of the vast air evac operation."<sup>36</sup> As the USAF enters an age of jet-powered air transport, there will be a positive requirement for comprehensive and continuing study and evaluation of the medical aspects of patient movement under conditions of jet air transport flight.

In 1960, the United States Air Force can look back in pride at the role that it has played in developing the art and science of aeromedical airlift. Other nations contributed to the conceptual beginnings of medical air evacuation, but American officers first dreamed of wings for the wounded and the Army Air Forces and the United States Air Force developed an idea into a life-saving system which insures the physical well-being of every American serviceman or service woman. Armed with a knowledge of past accomplishments and failures, and equipped with jet air age transport planes, the United States Air Force in years to come can be better able to insure that Americans in uniform at any remote outpost are only a few hours distant from the best medical care attainable anywhere in the world. The experience of the

past and the portent of the future makes it clearly evident that aero-medical transport will continue to be vital to the Armed Forces of the United States in peace and war. Execution of the humanitarian and militarily essential mission will require the best efforts of the United States Air Force.

FOOTNOTES

Chapter I

1. Gosman Ltr, Dr. G.H.R. Gosman to E. L. Jones, 19 Aug 1947, cited in Jones Aviation Chronology, 26 Jan 1910 entry.
2. P.M. Ashburn, A History of the Medical Department of the United States Army (Boston and New York: Houghton Mifflin Co., 1929), pp. 78-83.
3. Military Medical Manual, 6th ed. (Harrisburg: The Military Service Publishing Co., 1945), pp. 311, 545-47; Ashburn, A History of the Medical Department, pp. 161-223.
4. Ashburn, A History of the Medical Department, pp. 161-223.
5. General Medecin Fritz Bauer, Inspector in Chief, Swedish Army Medical Service, "Experiments with Aeroplanes used by the Medical Services in War and in Peace Time," in Journal of the Royal Army Medical Corps, vol. 52, no. 2 (Feb. 1929), p. 82; Col E.M. Cowell, British Territorial Army, "Air Ambulances," in ibid., vol. 62, no. 4 (Apr 1934), p. 260; USAF Medical Service Plans Division, Theater Aeromedical Evacuation System, ca. 1952, p. 3.
6. Ltr., Gosman to Jones, 19 Aug 1947, in Jones Aviation Chronology, 26 Jan 1910 entry; Lt. Col. Frederick R. Gullford, MC (Res) and Capt. Burton J. Soboroff, MC (Res), "Air Evacuation, An Historical Review," in The Journal of Aviation Medicine, vol. 18, no. 6 (Dec. 1947), p. 601.
7. C. Resuge, "De l'Utilization des Aeronefs par le Service de Sante Militaire," in l'Aerophile, vol. 26, p. 71.
8. Flying, Feb. 1914, pp. 13, 28.
9. Col Allen D. Smith, "Air Evacuation - Medical Obligation and Military Necessity," in Air University Quarterly Review, vol. VI, no. 2 (Summer 1953), p. 100.
10. Bauer, "Experiments with Aeroplanes Used by the Medical Services in War and Peace Time," p. 82; Cowell, "Air Ambulances," p. 260.
11. Capitaine Plantey and Medecin - Major Vincent, "Les Airons Sanitaires," in L'Aeronautique, 1921, no. 29 (Oct), pp. 398-400.

21. Brown, Development of Transport Airplanes and Air Transport-Equipment, p. 6; Air Service Information Circular (Aviation), No. 359, 1 Aug 1922.
22. Air Service Information Circular (Aviation), No. 391 1 Nov 1922.
23. Brown, Development of Transport Airplanes and Air Transport-Equipment, p. 8.
24. Air Service Information Circulars No. 381, 22 Dec 1922 - 23 Jan 1923, p. 11 and No. 486, Third Quarter 1925, pp. 13-15; Brown, Development of Transport Airplanes and Air-Transport Equipment, pp. 6-7.
25. Air Service Information Circular No. 427, Apr-Jun 1943, p. 12; Grant Speech to ... AAF School of Evacuation, 26 Nov 1943.
26. Ibid., No. 575, Third Quarter 1926, p. 9; Brown, Development of Transport Airplanes and Air-Transport Equipment, pp. 16-19, 42.
27. Air Corps News Letter, vol. IV, No. 3 (28 Feb 1931), p. 66; Hist. Medical Dept. Activities of the Central Flying Training Comd., Sept. 1939 - Nov 1944, vol. III, pp. 203-213; Lt. Col. Ernest F. Harrison, "Evacuation of Sick and Wounded via Air," Flight Surgeon Topics, vol. I, No. 4 (Oct 1937), pp. 32-38.
28. Air Corps News Letters, vol. XI, No. 14 (10 Nov 1927), p. 325 and vol. XI, no. 15 (8 Dec 1927), pp. 354-355.
29. Ibid., vol XII, No. 12 (29 Aug 1928), p. 295; Brown Development of Transport Airplanes and Air-Transport Equipment, p. 42.
30. Robert Sherrod, History of Marine Corps Aviation in World War II (Washington: Combat Forces Press, 1952) p. 26; Maj. Ross E. Rowell, U.S.M.C., Aircraft in Bush Warfare, ca. 1931.
31. Brown, Development of Transport Airplanes, p. 42; Hist. Med. Dept. Activities of the Central Flying Training Comd., Sept 1939 - Nov 1944, vol III, pp. 203-213.
32. War Dept. Release, New Type of Ambulance Plane to be Used in Air Corps Exercises, 3 May 1930; Guilford and Soboroff, "Air Evacuation, An Historical Review," p. 605.
33. War Dept. Release, 3 Mar 1930.

34. Brown, Development of Transport Aircraft, pp. 42-44.
35. Air Corps News Letter, vol. XV, No. 9 (21 Jul 1931), p. 262.
36. G-4 Rpt. of the Air Corps Demonstrations and Air Force Command and Staff Exercises of the First Air Division (Provisional) May 12 to June 1, 1931.
37. G-4 Rpt. of ... the First Air Division (Provisional), May 12 to June 1, 1931, Annex IV; Brown, Development of Transport Aircraft, pp. 44-45; Hist. of Med. Dept. Activities of the Central Flying Training Comd., Sept 1939 - Nov 1944, vol III, pp. 203-213; Gullford and Soboroff, "Air Evacuation, An Historical Review," p. 606.
38. Lecture by Lt. Col. Taylor E. Darby, "Airplane Ambulance Evacuation," at Air Corps Tactical School, 1931-1932.
39. Brown, Development of Transport Aircraft, pp. 45-46.
40. Hist. Med. Dept. Activities of the Central Flying Training Comd., Sept 1939 - Nov 1944, vol. III, pp. 203-213; Air Corps News Letter, vol. XIX, No. 22 (15 Nov 1936), p. 15.
41. Ltr. Lt. Col. Robert K. Simpson, Surgeon, Randolph Field to CG, Gulf Coast Training Center, subj: Airplane Ambulance for Gulf Coast Training Center, 7 Nov 1940.
42. Lt. Col. David N.W. Grant, M.C., Air Corps Tactical School, The Value of the Autogiro in Military Operations, 10 May 1937.
43. Air Corps News Letters, vol XVIII, No. 8 (1 May 1935), p. 17; vol XVIII, No. 9 (15 May 1935), p. 3; vol XIX, No. 15 (1 Aug 1936), p. 10; vol XIX, No. 19 (1 Oct 1936), p. 16; vol XIX, No. 21 (1 Nov 1936), p. 4; vol XXII, No. 2 (15 Jan 1939), p. 14; vol XXII, No. 17 (1 Sept 1939), p. 11; vol XXIII, No. 10 (15 May 1940), p. 8, vol XXIII, No. 22 (15 Nov 1940), p. 21.
44. Brown, Development of Transport Aircraft, pp. 47-49; Draft memo for the C/Air Corps from Col. Rush B. Lincoln, C/Plans Div. OCAC, subj: Cargo Transports, 14 Sept 1936.
45. Brown, Development of Transport Aircraft, pp. 49-51.
46. Off. of Sec. of War, Transcript ... of Proceedings, Transactions and Testimony before the Special Committee on Army Air Corps and Air Mail Baker Board, May 21, 1934.

47. Brown, Development of Transport Aircraft, pp. 51-63.
48. Alfred Goldberg, (ed.), A History of the United States Air Force, 1907-1957 (Princeton: D. Van Nostrand Co., 1957), pp. 39-40.
49. Final Report of War Department Special Committee on Army Air Corps, July 18, 1934 (Washington: U.S. Govt. Printing Office, 1934), p. 60.
50. Ltr., Maj. Gen. W.F. Pearson, TAG, WD to C/Air Corps, subj: Recommendations of Special Committee, Air Corps ..., to TAG, 30 Nov 1934.
51. Brown, Development of Transport Aircraft, pp. 102-104.
52. Air Corps News Letter, vol. XXIII, No. 19 (1 Oct 1940) p. 7.
53. Air Corps Board Study No. 28: Report on Proposed Air Corps Expansion, 25 Mar 1936, p. 5.
54. Brown, Development of Transport Aircraft, pp. 85-89.
55. Air Corps News Letter, vol. XXIII, No. 19 (1 Oct 1940), p. 7; Ltr., Brig Gen George H. Britt, C/Materiel Div., to C/Air Corps, subj: Study of Ratings for Transport Pilots, 12 May 1939.
56. Ibid., vol. XX, No. 22 (15 Nov 1937), p. 12.
57. Brown, Development of Transport Aircraft, pp. 89-90.
58. Ltr., Brig Gen A.W. Robins, C/Materiel Division to C/Air Corps, subj: Policy on Future Procurements of Transports, 31 Aug 1938.
59. James C. Fahey, U.S. Army Aircraft (Heavier than Air) 1908-1946 (New York, Ships and Aircraft, 1946), p. 25.
60. Hist. Med. Dept, Activities of the Central Flying Training Comd., Sept 1939 - Nov 1944, vol. III, p. 209, citing Circular No. 4, VIII Corps Area, Fort Sam Houston, Tex., 26 July 1940.
61. Cowell, "Air Ambulances," p. 261; Plantey and Vincent, "Les Avions Sanitaires," p. 398; Bauer, "Experiments with Aeroplanes Used by the Medical Services in War and Peace Time," p. 83.

62. Cowell, "Air Ambulances," pp. 261-262; W/Comdr. H.A. Treadgold, RAF Medical Service, "Aerial Transport of Service Casualties," in Journal of the Royal Army Medical Corps, vol. 45, No. 5 (Nov 1925), pp. 321-25.
63. Cowell, "Air Ambulances," pp. 261-262; Bauer, "Experiments with Aeroplanes Used by the Medical Services in War and in Peace Time," p. 83; Charles Dollfus and Henri Bouche, Histoire de L'Aeronautique (Paris: L'illustration, 1932), p. 395.
64. Guilford and Soboroff, "Air Evacuation, An Historical Review," p. 605; "The Aerial Ambulance," in Aero Digest, vol. 6, No. 1 (Jan 1925), pp. 37-38.
65. Bauer, "Experiments with Aeroplanes used by the Medical Services in War and in Peace Time," p. 83. Cheutin's remarks apparently appeared in his article entitled "L'Aviation Sanitaire au Maroc," published in L'Aviation Sanitaire in November 1923.
66. Quoted in Cowell, "Air Ambulances," p. 268.
67. Bauer, "Experiments with Aeroplanes Used by the Medical Services in War and in Peace Time," p. 82.
68. Air Commodore A.S. Glynn, RAF (Med. Br.), "The Transport of Casualties by Air," in Journal of the Royal Army Medical Corps, vol. 71, No. 2 (Aug 1938), p. 76. "Ambulances that Fly," in Literary Digest, vol. 79, No. 10 (8 Dec 1923), pp. 55-56; Sq. Ldr. S.C. Rexford-Welch, ed., The Royal Air Forces Medical Services, vol. I; Administration (London: Her Majesty's Stationery Office, 1954), p. 478.
69. Treadgold, "Aerial Transport of Service Casualties," pp. 326-27.
70. Ibid.
71. Treadgold, "Aerial Transport of Service Casualties," p. 329; Rexford-Welch, The Royal Air Force Medical Services, vol. I, p. 479.
72. Treadgold, "Aerial Transport of Service Casualties," pp. 341-43; Glynn, "The Transportation of Casualties by Air," p. 76.
73. Glynn, "The Transportation of Casualties by Air," pp. 78-82.

74. Rexford-Welch, The Royal Air Force Medical Services, vol. 1, pp. 480.
75. Brigadier General Gordon Wilson, R.A.M.C., "Waziristan Operations, 1937. Notes on the Use of Air Transport for the Evacuation of Casualties," in Journal of the Royal Army Medical Corps, vol. 70, No. 1 (Jan 1938), pp. 1-13.
76. Meiling, "Wings for the Wounded," p. 23; USAF Medical Service Plans Division, Theater Aeromedical Evacuation System, pp. 5-6.
77. Air Corps News Letter, vol. XXIII, No. 9 (1 May 1940), pp. 1-2.
78. Air Corps News Letters, vol. XXIII, No. 9 (1 May 1940), pp. 2-3 and No. 10 (15 May 1940), pp. 11-12.

## FOOTNOTES

## CHAPTER II

1. Off<sup>r</sup> of Sec<sup>y</sup> of War, Transcript . . . of Proceedings . . . before the Special Committee on Army Air Corps and Air Mail, Session of April 24, 1934, pp<sup>s</sup> 841-441, Brown, Development of Transport Aircraft, pp<sup>s</sup> 85-89.
2. H. H. Arnold, Global Mission (New York: Harper & Brothers, 1949), pp<sup>s</sup> 177-79.
3. W. F. Craven and J. L. Cate, eds<sup>s</sup>, The Army Air Forces in World War II, Vol I: Plans and Early Operations (Chicago: University of Chicago Press, 1948), p<sup>s</sup> 104.
4. Brown, Development of Transport Aircraft, pp<sup>s</sup> 96, 101; Fa<sup>r</sup>key, U. S. Army Aircraft, 1908-1946, p<sup>s</sup> 25.
5. Air Corps News Letter, Vol<sup>r</sup> XXIII, No<sup>r</sup> 19 (1 Oct 1940), p<sup>s</sup> 7.
6. Arnold, Global Mission, p<sup>s</sup> 192.
7. Craven and Cate, eds<sup>s</sup>, The Army Air Forces in World War II, Vol. I, p<sup>s</sup> 105.
8. Fa<sup>r</sup>key, U. S. Army Aircraft 1908-1946, pp<sup>s</sup> 25-26; Brown Development of Transport Airplanes, pp<sup>s</sup> 108-12, 121-22, 134-44, 202.
9. Ltr<sup>r</sup>, Maj Gen R. E. Fraile, TAG WD to CG Fifth Corps Area, subj: Constitution and Organization of 50th Transport Wing, 8 Jan 1941.
10. Craven and Cate, eds<sup>s</sup>, The Army Air Forces in World War II, Vol. VII: Services Around the World (Chicago: University of Chicago Press, 1958), p<sup>s</sup> 4.
11. Ltr., Col<sup>r</sup> Malcolm C. Grow, Surgeon<sup>g</sup> Third Air Force<sup>AF</sup>, to Lt<sup>r</sup> Col<sup>r</sup> I. B. March, Air Force Combat Command Surgeon<sup>g</sup>, 1 Oct 1941; The Air Surgeon's Bulletin, Vol<sup>r</sup> I, No<sup>r</sup> 1 (Jan<sup>r</sup> 1944), p<sup>s</sup> 23 and No<sup>r</sup> 4 (Apr<sup>r</sup> 1944), p<sup>s</sup> 23; Mac Mills Link and Hubert A. Coleman, Medical Support of the Army Air Forces in World War II (Washington: Office of the Surgeon General USAF, 1955), pp<sup>s</sup> 20-33.

12. Link and Coleman, Medical Support of the Army Air Forces in World War II, p 360; ltr, Col James E. Baylis, M<sup>C</sup> Exec<sup>Off</sup>, Off<sup>of</sup> Surg<sup>Gen</sup> to TAG, subj: Air Corps Medical Transport Group, 11 July 1940.
13. Link and Coleman, Medical Support of the Army Air Forces in World War II, p 360.
14. 2d Ind (ltr, OSG to TAG, subj: Air Corps Medical Transport Group, 11 July 1940) , ~~Off<sup>of</sup> C/Air Corps~~ to TAG, 24 July 1940.
15. Ltr, Maj Gen H. W. Jones, TAG to C/Air Corps, subj: Air Ambulance Service, 5 Sept 1940.
16. Disposition Form, Exec<sup>OCAC</sup> to Chief, Tng & Opns, Plans, and Mat<sup>Divs</sup> Divisions OCAC , subj: Air Ambulance Service, 9 Sept 1940; Comment 5, Med<sup>Div</sup> Div<sup>to</sup> Mat<sup>Div</sup> Div<sup>OCAC</sup>, 20 Sept 1940; Comment 6, Mat<sup>Div</sup> Div<sup>to</sup> Med<sup>Div</sup> Div<sup>OCAC</sup>, 3 Dec 1940; Comment 7, Med<sup>Div</sup> Div<sup>to</sup> Mat<sup>Div</sup> Div<sup>OCAC</sup>, 16 Dec 1940; Maj D. I. Clark, "Litter Support Installations for the C-47 Airplane, in The Air Surgeon's Bulletin, Vol I, No 4 (Apr 1944), pp 10-11; Clark, "C-54 Litter Supports," in The Air Surgeon's Bulletin, Vol I, No 7 (July 1944), p 17.
17. Ltr, Lt Col J. I. Sloat, C/Orthopaedics Section, Walter Reed General Hospital to Surgeon General, subj: Airplane Transportation of Patients, 11 Jan 1941.
18. Memo, Med<sup>Div</sup> Div<sup>OCAC</sup>, 1 Mar 1941; memo by Brig<sup>Gen</sup> Davenport Johnson, Chief Tng & Opns Div OCAC, 7 Mar 1941.
19. Disposition form, Col<sup>I. C. Eaker</sup>, Exec. OCAC to Chiefs Tng & Opns, Plans, and Mat<sup>Divs</sup> Divs, subj: Air Ambulance Service, 9 Sept 1940; Comment 3, Brig<sup>Gen</sup> B. K. Yount, C/Plans Div<sup>to</sup> Mat<sup>Div</sup> Div<sup>OCAC</sup>, 17 Sept 1940.
20. Ltr, Lt<sup>C</sup> Robert K. Simpson, Surgeon, Station Hospital, Randolph Field, Tex, to CG Gulf Coast Training Center, subj: Airplane Ambulance for Gulf Coast Training Center, 7 Nov 1950; 2d ind, Brig Gen G. C. Brant, Comdr<sup>GCTC</sup> to C/Air Corps, 12 Nov 1940.
21. Disposition form, Comment 7, Med<sup>Div</sup> Div<sup>to</sup> Mat<sup>Div</sup> Div<sup>OCAC</sup>, subj: An Ambulance Service, 16 Dec 1940; Comment 10, Plans to Exec<sup>OCAC</sup>, 31 Dec 1940.

22. Routing and Record Sheet, Col O. P. Echols, C/Mat/ Div/ OCAC to Exec/ OCAC, subj: Ambulance Airplanes, 25 Feb/ 1941; Comment 4, Exec/ to Mat/ Div/ OCAC, 4 Mar/ 1941.
23. Fahey, U. S. Army Aircraft, 1908-1946, pp/ 29, 31.
24. Goldberg, ed/, A History of the United States Air Force, 1907-1957, p/ 51; Craven and Cate, eds/, The Army Air Forces in World War II, Vol/ I, pp/ 317-18, 322-23.
25. Ibid/, p/ 48; WD, C/AAF, AWPD/Units Requirements of The Army Air Forces, 12 Aug/ 1941, Tabs/ 12 and 13.
26. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp/ 33-35.
27. Hist/ Med/ Dept/ Activities of the Central Flying Training Comd/, Sept/ 1939 - Nov/ 1944, Vol/ III, p/ 209.
28. Link and Coleran, Medical Support of the Army Air Forces in World War II, p/ 360.
29. Ltr/, Col Larry B. McAfee, Exec/ Off/ WD Off/ of the Surg/ Gen/ to TAG, subj: New T/O Medical Battalion, Airplane Ambulance, 29 Oct/ 1940; disposition Form WDGS, Brig/ Gen/ Harry L. Twaddle, AC of S G-3, WD, to C/AAF, subj: New T/O Medical Battalion, Airplane Ambulance, 15 Aug/ 1941; Clarence McKittrick Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior (Washington: Office of Chief of Military History, Dept/ of the Army), 1956, p/ 438.
30. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior, p/ 438.
31. AAF Off of Statistical Control, Army Air Forces Statistical Digest, World War II, Dec. 1945, p/ 136.
32. Brown, Development of Transport Aircraft, pp/ 189-193; Craven and Cate, eds/, The Army Air Forces in World War II, Vol/ VII; Services Around the World (Chicago: University of Chicago Press, 1958), pp/ 20-29.
33. Craven and Cate, eds/, The Army Air Forces in World War II, Vol/ VII, pp/ 13-20; ltr/, Col R. B. Bagby, CG 51st TC Wg/ to Col Paul L. Williams, CG IX TC Comd/, subj: Notes on Troop Carriers, n/d.

34. Medical Hist Eleventh AF, 12 Aug 1940 - 1 May 1944.  
*111.5-1-12*
35. Hist North-Atlantic Div, ATC, 1941-1943, pp 483-85.
36. Hist Med Dept ATC, May 1941 - Dec 1944, Sect V: Air Evacuation; Smith, The Medical Department: Hospitalization and Evacuation, p. 429.
37. Bisheshwar Prasad, ed, The Retreat from Burma, 1941-42 (Calcutta: Combined Inter-Services Historical Section (India & Pakistan), 1952), p. 380; and Joe G. Taylor, Air Supply in the Burma Campaigns (USAF Hist Studies No. 75, Research Studies Institute, Air University, 1957), p. 10; Ltr, Brig Gen C. V. Haynes to Lt Col. S. T. Moore, Historian, Tenth AF, 20 Apr 1943.
38. Msg 8AFY49, Eisenhower sgd Spaatz to CG AAF, 10 July 1942; memo from Col M. C. Grow, Surgeon Eighth AF to Col C. B. Spruit, Chief Surgeon's Office ETOUSA, 3 Aug 1942; ltr, Grow to CG Eighth AF, subj: Light Ambulance Airplane Evacuation Squadrons, 28 July 1942.
39. Ltr TAG to CG's AGF, AAF, SOS et al, subj: War Department Hospitalization and Evacuation Policy, 18 June 1942.
40. Maj Gen David N. W. Grant, "A Review of Air Evacuation Operations in 1942," The Air Surgeon's Bulletin, Vol. I, No. 4 (Apr 1944), pp. 1-4.
41. Ltr, Col Wood S. Woodford to Lt Col V. A. Byrne, IZC, School of Avn Med, Randolph Field, Tex, 17 July 1942.
42. Memo for TAS from Woodford, subj: Observations made in Northwest African Theater, 13 Apr 1943.
43. Ltr, Wood for Byrne, 17 July 1942; Hist School of Air Evacuation, 1 Aug 1943; Press release, Office of Public Relations, Bowman Field, n.c.d.
44. Memo for C of S AAF from Grant, subj: Recommended Plan for the Development and Operation of Air Evacuation Groups, 24 July 1942; Comment 5, Brig Gen O. A. Anderson, C of S G/Air Staff Plans, to C/Air Staff AAF, 7 Aug 1942.
45. Hist School of Air Evacuation, 1 Aug 1943.
46. Link and Coleman, Medical Support of the Army Air Forces, p. 366.  
*2 111.5-1-12*

47. Ltr<sup>2</sup>, Woodford to Byrne, 17 July 1942.
48. Ltr<sup>2</sup>, Maj Geo. F. Baier, III, Asst<sup>2</sup> Off<sup>2</sup> of Air Surgeon AAF to AC/AS 3-4 AAF, subj: Evacuation of Casualties by Air, 25 Aug<sup>2</sup> 1942; memo for CG ATC from Brig Gen T. J. Hanley, Jr<sup>2</sup>, AC/AS 2-4 AAF, subj: Evacuation of Casualties by Air, 28 Aug<sup>2</sup> 1942.
49. Msg<sup>2</sup>, Marshall to CG Greenland Base Comd<sup>2</sup> et al<sup>2</sup>, 25 Sept<sup>2</sup> 1942.
50. Ltr<sup>2</sup>, Baier to CG Services of Supply, subj: Air Evacuation, 18 Sept<sup>2</sup> 1942; 1st Ind, Brig Gen LeRoy Lutes, AC of S Opns<sup>2</sup> SOS, 26 Sept<sup>2</sup> 1942; Wkly<sup>2</sup> Rpts of Activities of ATC, 26 Sept<sup>2</sup>, 2 Oct<sup>2</sup>, 16 Oct<sup>2</sup> 1942.
51. Routing and Record Sheet, Grant to Director of Military Rqmts AAF, subj: Conversion of Liaison Type Airplanes, 28 Oct<sup>2</sup> 1942; Comment 4, Maj Gen M. S. Fairchild, D/Mil Rqmts AAF to AC/AS Training AAF, 31 Oct<sup>2</sup> 1942; Routing and Record Sheet, Maj Gen George E. Stratineyer, C/Air Staff to Fairchild, subj: Conversion of Airplanes to Evacuate wounded, 12 Nov 1942; Comment 2, Fairchild to D/Air Support AAF, 14 Nov<sup>2</sup> 1942; Comment 3, Col D.M. Schlatter, D/Air Support to D/Mil Rqmts, 24 Nov<sup>2</sup> 1942.
52. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp<sup>2</sup> 360-61.
53. ~~Link and Coleman, Medical Support of the Army Air Forces in World War II, p<sup>2</sup> 367; Mailing, "Wings for the Wounded," pp<sup>2</sup> 21-22.~~
54. Link and Coleman, Medical Support of the Army Air Forces in World War II, p<sup>2</sup> 370.
55. Ibid<sup>2</sup>, pp<sup>2</sup> 367-368; Hist<sup>2</sup> School of Air Evacuation, 1 Aug<sup>2</sup> 1943; msg<sup>2</sup> No<sup>2</sup> 1542, New Caledonia to WAR (Harron to AGWAR), 29 Nov<sup>2</sup> 1942, Hist<sup>2</sup> 801st Med<sup>2</sup> Air Evac<sup>2</sup> Trans<sup>2</sup> Sq<sup>2</sup>, 25 May 1942-31 June 1944, p<sup>2</sup> 4.
56. See Hist<sup>2</sup> School of Aviation Medicine, 1941-1946, Vol. V, pp<sup>2</sup> 104-161. Unless otherwise cited, information on the School of Air Evacuation given below is from this source.

57. Ltr<sup>✓</sup>, Maj Gen D. T. Sapp, TAG to CG's AAF and I TC Comd<sup>✓</sup>, subj: Establishment of the Army Air Forces School of Air Evacuation, 23 June<sup>✓</sup> 1943; AAF Regulation No. 20-22, Organization: AAF School of Air Evacuation, 22 July<sup>✓</sup> 1943.
58. Annual Rpt<sup>✓</sup> of 27th AAF Base Unit (AAF School of Aviation Medicine) for Fiscal Year 1945, 30 June<sup>✓</sup> 1945, pp<sup>✓</sup> 79-85.
59. Meiling, "Wings for the Wounded," p<sup>✓</sup> 22.
60. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp<sup>✓</sup> 333-373.
61. Air Intel<sup>✓</sup> Contact Unit, AAF Redistribution Station No<sup>✓</sup> 2, Miami Beach, Fla<sup>✓</sup>, Interview with Maj Frederick G. Hold, Air Evac<sup>✓</sup> Flight Surgeon<sup>✓</sup>, 802d Med<sup>✓</sup> Air Evac<sup>✓</sup> Sq<sup>✓</sup>, 13 July<sup>✓</sup> 1945.
62. Hq<sup>✓</sup> Twelfth ~~Air Force~~<sup>AF</sup>, Office<sup>✓</sup> of CG, to CG Allied ~~Air Forces, Mediterranean Theater of Opns~~<sup>AF</sup> ~~(AAF/AFOS)~~; subj: Notes on Welfare of Flying Personnel, 14 July<sup>✓</sup> 1945.
63. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp<sup>✓</sup> 368-71; Hist<sup>✓</sup> Gunter Branch, School of Aviation Medicine, Jan-June<sup>✓</sup> 1956, p<sup>✓</sup> 43.
64. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp<sup>✓</sup> 374-378; Hist<sup>✓</sup> AAF School of Aviation Medicine, 1941-1946, Vol<sup>✓</sup> 5, pp<sup>✓</sup> 147-148; Maj Milton Greenberg, AAF School of Avn<sup>✓</sup> Med<sup>✓</sup>, "Training of Flight Nurses and Air Evacuation Medical Technicians," The Air Surgeon's Bulletin, Vol<sup>✓</sup> 2, No<sup>✓</sup> 10 (Oct<sup>✓</sup> 1945), pp<sup>✓</sup> 328-29.
65. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp<sup>✓</sup> 378-380; Hist<sup>✓</sup> AAF School of Aviation Medicine, 1941-1946, Vol<sup>✓</sup> 5, pp<sup>✓</sup> 150-157; Greenberg, "Training of Flight Nurses and Air Evacuation Medical Technicians," p<sup>✓</sup> 324.
66. Remarks by Col Erling Berquist at Aero-Medical Association Mtg<sup>✓</sup>, 9 Apr<sup>✓</sup> 1946, in The Journal of Aviation Medicine, Vol<sup>✓</sup> 18, No<sup>✓</sup> 2 (Apr<sup>✓</sup> 1946) pp<sup>✓</sup> 181-182.
67. Ltr<sup>✓</sup>, Maj Gen Geo. E. Stratmeyer, CG AAF IBS CBI to Grant, 22 Oct<sup>✓</sup> 1944; WD Change No. 1, ~~OR~~<sup>OR</sup> 605-12 (17 Aug<sup>✓</sup> 1944), 9 Dec<sup>✓</sup> 1944.

68. Hqs Twelfth AF, Off of CG, to CG AAF/MTO, subj: Notes on Welfare of Flying Personnel, 14 July 1945.
69. Borquist remarks in The Journal of Aviation Medicine, Vol 18, No 2 (Apr 1946), pp 181-183.
70. Hist AAF School of Aviation Medicine, 1941-1946, Vol 5, p 129.
71. Ibid, pp 129, 145, 149.
72. Ltr, Col Walter S. Jensen, Dep Air Surg AAF to Chief Airborne & Liaison Br, AC/AS OC&R, subj: Use of Helicopters for Air Evacuation, 4 Mar 1944.
73. Ltr, Brig Gen Charles R. Glenn, Dep Air Surg AAF to Col Jay Gamel, Surgeon AAF China-Burma-India, 20 Sept 1944.
74. Mailing, "Wings for the Wounded," p 53.
75. Annual Report Aeromedical Research Laboratory, 1942, p 3; G-M Smith, The Medical Department: Hospitalization and Evacuation, Zone of Exterior, pp 430-31.
76. Annual Report Aeromedical Research Laboratory, 1943, pp 4-5; Maj D. M. Clark, "C-54 Litter Supports," in The Air Surgeon's Bulletin, Vol I, No 7 (July 1944), p 17; Hist AAF School of Aviation Medicine, 1941-1946, Vol 4, p 227.
77. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp 296-333; Annual Report Aeromedical Research Laboratory, 1943, pp 4-5; Daily Diary, AC/AS MB&D, 8 Apr 1944.
78. Maj D. M. Clark, "Litter Support Installations for the C-47 Airplane," The Air Surgeon's Bulletin, Vol I, No 4 (Apr 1944), pp 10-11; Clark, "C-54 Litter Supports," in The Air Surgeon's Bulletin, Vol I, No 7 (July 1944), p 17; Lt R. A. Bowman, "Litter Support Installations in C-87 Aircraft," The Air Surgeon's Bulletin, Vol I, No 10 (Oct 1944), p 11; Capt O. W. Anderson, "Litter Supports Installations for C-46 Airplanes," in The Air Surgeon's Bulletin, Vol I, No 11 (Nov 1944), p 20; Hist AAF School of Avn Medicine, 1941-1946, Vol 4, pp 177-190.

787

79. Air Intel Contact Unit, Hqs AAF Redistribution Station No 2, Miami Beach, Fla, subj: Equipment, Evans Litter Supports--C-54 Aircraft, 27 July 1945.
80. ~~C. F. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior, pp 433; Daily Diary, 1941-1946, Vol. 4, p. 190. D. H. Clark, 14/15 Nov 1943; The Air School of Avn. Med., 1941-1946, Vol. 4, p. 190.~~
81. Air Tech Serv Comd, Case History, Liaison Aircraft Program, Vol 2.
82. Wkly Rpt, Opns Div, Air Surgeon's Off AAF, 20 May 1944; Anderson, "L-5B Litter Support," in The Air Surgeon's Bulletin, Vol 1, No 8 (Aug 1944), p 19.
83. Brown, Development of Transport Airplanes, pp 239-240; Maj. D. H. Clark, "LC-64A Litter Installations," in The Air Surgeon's Bulletin, Vol 1, No 3 (Mar 1944), p 18; Wkly Rpt, Opns Div, Air Surgeon's Off, AAF, 15 Apr 1944.
84. Lt Col James H. Hammond, "Air Evacuation on Very Heavy Bombardment Fields in China," in The Air Surgeon's Bulletin, Vol 2, No 10 (Oct 1945), pp 332-33.
85. Memo for AC/AS OC&R from Grant, subj: Litter Installation in the CG-4A Glider, 21 May 1944; Wkly Rpt, Opns Div Air Surgeon's Off, 3 June 1944; Hist AAF School of Avn Med, 1941-1946, Vol 4, p 193.
86. Ltr, Col W. S. Woodford, Air Surgeon's Off, to Mr G. H. Durr, Spl Asst to Secy of War, 2 Jan 1943; ltr, Experimental Eng Sect AAF Mat Div to Surgeon General SOS, subj: Helicopter Development--Utility as Air Ambulance, 5 Jan 1943.
87. Ltr, Woodford to CG AAF Materiel Comd, subj: Helicopter Development for Air Ambulance Service, 12 Feb 1943; R&R, Col Walter S. Jenson, Exec Off Air Surgeon's Off to AC/AS OC&R, subj: Helicopters in Air Evacuation, 27 July 1943.
88. R&R Comment N 2, Col Mervin E. Gross, Asst AC/AS OC&R (Rqmts Div) to TAS, n.d.

89. R&R, Jensen to AC/AS MM&D, Materiel Div, subj: Development of Large Type Helicopters, 18 Jan 1944; R&R, Jensen to OC&R Airborne and Liaison Br, subj: Use of Helicopters for Air Evacuation, 4 Mar 1944 and Comment 2, Col W. J. Bell, AC/AS OC&R, Airborne and Liaison Br to TAS, 7 Mar 1944.
90. Memo to Mr Julius Amberg, Spl Asst to Sec of War, from Brig Gen Ray L. Owens, Dept C of AS, subj: Senate Investigation--War Department Helicopter Program, 18 Jan 1945.
91. R&R, Lt Col R. L. Meiling, Exec Opns Div AFTAS, to AC/AS OC&R, subj: Status of Helicopters, 21 Mar 1944; Comment 2, Col W. J. Bell, AC/AS OC&R, Airborne and Liaison Br, to TAS, 23 Mar 1944; Hist Div AAF Air Mat Comd, The AAF Helicopter Program, Oct 1946, pp 46-50.
92. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior, pp 443-44; Link and Coleman, Medical Support of the Army Air Forces in World War II, pp 300-301; Daily Staff Summary, NAD, ATC, 24 July 1945.
93. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior, pp 443-44; Link and Coleman, Medical Support of the Army Air Forces in World War II, pp 300-301; Lt Col John H. Collins, "Litter Loading Device," in The Air Surgeon's Bulletin, Vol 1, No 9 (Sept 1944), p 22.
94. Memo for AC/AS Plans AAF from Lt Col R. L. Meiling, Exec Off Opns Div, Air Surgeon's Office, subj: Lathbridge Report, 27 May 1944
95. Grant, "The Air Evacuation of One Million Patients, A Review of Operations through VE-Day," in The Air Surgeon's Bulletin, Vol 2, No 10 (Oct 1945), p 336.

## FOOTNOTES

## CHAPTER III

1. Msg No 1542, Harmon to AGWAR, 29 Nov 1942.
2. Robert Sherrod, History of Marine Corps Aviation in World War II (Washington: Combat Forces Press, 1952), pp 111-12; Hist 13th TC Sq, 1 Dec 1940 - 31 Dec 1943, pp 1-2; Pictorial Hist 801st MAETS to 31 Aug 1944 (XIII AFSC Hist. Monograph No 7, 15 Sept 1944), pp 5-6.
3. Pictorial Hist. 801st MAESq, pp 4-5, 7-8.
4. Hist 801st MAE Sq, 25 May 1942 - 1 June 1944, pp 6-7; Air Eval. Bd. Rpt No 35, The Medical Support of Air Warfare in the South and Southwest Pacific, 7 Dec 1941 - 15 Aug 1945, Vol. II, p 478.
5. Rpt, Lt Col Frederick J. Frese, Jr., Surgeon Thirteenth AF, to The Air Surgeon AAF, subj: Report from Surgeon, Thirteenth Air Force, 9 Apr 1943; Hist 801st MAET Sq, 25 May 1942 - 1 June 1944, pp 8-9; ltr, Maj James E. Crane, Cmdr 801st MAET Sq to Surgeon I TC Comd, subj: Air Evacuation, 20 Mar 1943.
6. Hist 403d TC Gp, 12 Dec 1942 - 31 Dec 1943, pp 1-2.
7. Rpt, Lt Col George F. Baier, III, C/Opns Div Air Surgeon's Off AAF to TAS, subj: Medical Report of Thirteenth Air Force, 11 Dec 1943.
8. Rpt, Maj Charles C. Mixter, Jr, Comdr, 801st MAE Sq to Surgeon, Thirteenth AF, subj: Report of Activities of the 901st Medical Air Evacuation Transport Squadron, 26 Sept 1943.
9. Rpt, Mixter to Surgeon, Thirteenth AF, 26 Sept 1943; Hist 801st MAE Sq, 25 May 1942 - 1 June 1944, pp 10-13; rpt, Baier to TAS, 11 Dec 1943.

10. Rpt, Baier to TAS, 11 Dec 1943; Grant, "A Review of Air Evacuation Operations in 1943," p 3.
11. Hist Directorate of Air Transport, <sup>[DAT]</sup> Allied Air Forces, Southwest Pacific Area, and 322d Troop Carrier Wing, 1941-1945, pp 1-5.
12. Samuel Milner, Victory in Papua (Washington: Office of Chief of Military History, 1957), pp 43-77.
13. Rpt, Capt<sup>a</sup> Murice M. Steinberg, Offt of Surg, U.S. Advanced Base (New Guinea), subj: Report Evacuation of Patients by Air, 29 Mar 1943.
14. Memo Adv Hqs Allied Land Forces, SWPA, subj: Air Evacuation of Casualties, 14 Oct 1942.
15. Hist 374th TC Gp, 28 Jan 1942-31 Jan 1944, p 8; rpt of F/Lt F. W. Kial, Med Off No 36 Sq RAAF, Dec 1942.
16. Hist DAT and 322d TC Wg, 1942-1945, pp 8-9; Hist 374th TC Gp, 28 Jan 1942-31 Jan 1944, pp 10-14.
17. Steinberg rpt, 29 Mar 1943; ltr, Brig Gen R. W. Harper, AC/AS Tng AAF to CG, I TC Comd, subj: Role of Troop Carrying Aircraft in Buna Operations, 7 May 1943.
18. Rpt, Maj Alonzo J. Beavers, Flt Surg Adv Ech Fifth AF, to Chief Surgeon, U.S. Army Services of Supply SWPA, subj: Report of Activities, Advance Echelon, Fifth Air Force, 31 Dec 1942 - 12 Mar 1943.
19. Flt/Lt Kial rpt, Dec 1942, with attached statements.
20. Hists 374th TC Gp, 28 Jan 1942-31 Jan 1944, pp 15-19 and 317th TC Gp, Jan 1943 - Jan 1944, Vol I, pp 16-20; Air Evaluation Bd SWPA, Air Transport Operations, Battle of Wau, Jan - Feb 1943, pp 1-24.
21. AEB, SWPA, Troop Carrier Aviation in SWPA, pp 38-39.

22. Ltr, Baier to TAS, subj: Medical Report of Fifth Air Force, 27 Nov 1943; memo for record by Meiling, subj: Interview with 1st Lt, Mary L. Keer, Chief Nurse, 804th Medical Air Evac, Trans, Sq, 10 May 1944.
23. Hist 804th MAE Sq, 10 Dec 1942 - Jan 1944, pp. 1-8, 804th MAE Sq, Air Evacuation of Casualties, ca. July 1943.
24. Hist 804th MAE Sq, 10 Dec 1942 - Jan 1944, pp 8-15.
25. Ibid, pp 18-27; ltr, Maj M.M. Vuksich, Asst AG, USASOS to CG, Adv Sec USASOS, subj: Relief from Assignment, 16 Oct 1943; msg. XA-12740, COMAAFSWPA to COMAAF Five, 23 Dec 1943; Hist 54th TC Wg, Activation to 31 Jan 1944, p 9; ltr, Col Bascom L. Wilson, Fifth AF Surgeon to Meiling, 18 Oct 1943.
26. 804th MAE Sq, Medical Evac Rpts, Oct, Nov, and Dec 1943; Col Bascom L. Wilson, Fifth AF Surgeon, Medical Hist of the Fifth Air Force for 1943, 19 June 1944, par 36.
27. Rpt, Lt Col Alonzo J. Beavers, Surgeon, Fifth AF Adv Ech to Surgeon, Fifth AF, subj: Quarterly Report of Medical Activities, 11 Jan 1944.
28. Hist Twelfth AF Med Sect, Aug 1942 - June 1944, p 5.
29. Ltr, Col R. A. Elvins, Air Surgeon Twelfth AF to TAS, subj: Report of Air Evacuation, 12 Sept 1943; Hist 51st TC Wg, Activation to 15 May 1943, pp 1-8.
30. Memo Off of Surg Twelfth AF, subj: Medical Plan for the Evacuation of Certain Casualties by Air, 19 Sept 1942; Hist Twelfth AF Med Sect, Aug 1942 - June 1944, I, 8.
31. Memorandum on the Organization of the Western Desert Air Force, for Co-operation with 8th Army - July 1942.

32. Capt. John F. Blalock, "Aerial Evacuation of Casualties in the Western Desert," in The Air Surgeon's Bulletin, Vol. I, No. 1 (Jan. 1944), p. 23; Rexford-Welch, The Royal Air Force Medical Services, I, 485-489.
33. Hist. 51st TC Wg., Activation to 15 May 1943, pp. 8-19; hist. Twelfth AF Med. Sect., Aug. 1942 - June 1944, II, 90-91.
34. Capt. Frederick H. Simmons (M/C), Air Evacuation Early in the Tunisian Campaign, n.d.
35. Hist. 51st TC Wg., Activation to 15 May 1943, p. 20.
36. Hist. of the Twelfth AF Med. Sect., Aug. 1942 - June 1944, II, 91.
37. Quoted in Grant, "A Review of Air Evacuation Operations in 1943," p. 3.
38. Lt. Col. W. F. Cook, Asst Surg. Twelfth AF, Plan for Air Evacuation of Wounded, 14 Jan. 1943.
39. Northwest African Air Forces (NAAF) Report on Air Evacuation of Casualties in the Northwest African Theater of Operations, 27 June 1943; Hist. 51st TC Wg., Activation to 15 May 1943, pp. 20-21; memo for TAS from Col. W. S. Woolford, C/Opns. Div. Surg's Off. AAF, subj: Observations made in Northwest African Theater, 13 Apr. 1943.
40. NAAF Rpt. on Air Evacuation, 27 June 1943; Simmons, Air Evacuation Early in the Tunisian Campaign; memo for TAS from Woolford, 13 Apr. 1943.
41. Memo for TAS from Woolford, 13 Apr. 1943.
42. Hist. Twelfth AF Med. Sect., Aug. 1942 - June 1944, II, 93; Outline Hist., 802d MAET Sq., Mar. 1943; ltr. Cook to Col. M. C. Grow, Surg. Eighth AF, 1 July 1943.
43. Outline Hist. 802d MAET Sq.; Apr. and May 1943; Hist. Twelfth AF Med. Sect., Aug. 1942 - June 1944, II, 94.

792

44. NAAF, Rpt<sup>y</sup> on Air Evacuation, 27 June<sup>y</sup> 1943.
45. Ltr<sup>y</sup>, Elvins, Air Surg<sup>y</sup> NAAF<sup>y</sup> to TAS, subj: Report on Medical Services, Northwest African Air Forces, 16 Apr<sup>y</sup> 1943.
46. Rexford-Welch, <sup>CAF</sup> The Royal Air Force Medical Service, I, 488-489; Hist<sup>y</sup> 316th TC Gp<sup>y</sup>, 1942-1943, p<sup>y</sup> 1.
47. Rexford-Welch, <sup>CAF</sup> The Royal Air Force Medical Services, I, 490-491; ltr<sup>y</sup>, Lt<sup>y</sup> Col<sup>y</sup> H. B. Wright, Asst<sup>y</sup> Surg<sup>y</sup> Eighth AF<sup>y</sup> to Grow, subj: Report of Inter-Allied Medical Meeting, 4 Nov<sup>y</sup> 1943.
48. Rexford-Welch, <sup>CAF</sup> The Royal Air Force Medical Services, I, 491-492.
49. Rexford-Welch, <sup>RAF</sup> The Royal Air Forces Medical Services, I, 485-492; Hist<sup>y</sup> 316th TC Gp<sup>y</sup>, 1942-1943; "Air Transport," in RAF Mediterranean Review, No<sup>y</sup> 4 (Jul-Sept 1943), pp<sup>y</sup> 129-135; Grant, "A Review of Air Evacuation Operations in 1943," p<sup>y</sup> 3.
50. Rexford-Welch, <sup>CAF</sup> The Royal Air Force Medical Services, I, 497-501; ltr<sup>y</sup>, Elvins to TAS, subj: Report on Medical Services, Northwest African Air Forces, 16 Apr<sup>y</sup> 1943.
51. NAAF Rpt<sup>y</sup> on Air Evacuation, 27 June<sup>y</sup> 1943; Rexford-Welch, The Royal Air Force Medical Services, I, 490, 495-501; RAF Transport Command, Principles and Practice of Casualty Air Evacuation, Feb<sup>y</sup> 1944; ltr<sup>y</sup>, Elvins to TAS, subj: Report on Medical Services, Northwest African Air Forces, 16 Apr<sup>y</sup> 1943; ltr<sup>y</sup>, Cook to Grow, 1 July<sup>y</sup> 1943.
52. Ltr<sup>y</sup>, Cook to Grow, 1 July<sup>y</sup> 1943.
53. <sup>C</sup> W. R. Graven and <sup>J. L.</sup> J. Cate (eds)<sup>y</sup> The Army Air Forces in World War II, Vol. II (Chicago: University of Chicago Press, 1949), 161-165, 415-419, Hist<sup>y</sup>-Data, Mediterranean Air Transport Service, 25 May 1943-31 May 1944, p<sup>y</sup> 2.

54. Craven and Cate, eds, The AAF in World War II, II, 442-445; Off<sup>r</sup> of Surg<sup>r</sup> Twelfth AF, Air Evacuation of Casualties Prior to and During the Sicilian Campaign, 3 Sept<sup>r</sup> 1943; Rexford-Welch, The Royal Air Force Medical Service, I, 492.
55. Twelfth AF, Air Evacuation Sicilian Campaign, 3 Sept<sup>r</sup> 1943; Hist<sup>r</sup> 802d MAET Sq<sup>r</sup>, July<sup>r</sup> 1943.
56. Twelfth AF, Air Evacuation Sicilian Campaign, 3 Sept<sup>r</sup> 1943; Rexford-Welch, The RAF Medical Services, I, 493.
57. Twelfth AF, Air Evacuation Sicilian Campaign, 3 Sept<sup>r</sup> 1943.
58. Ibid.
59. Air Cdrc<sup>r</sup> T. J. Kelly, RAF, Rpt<sup>r</sup> on Casualty Air Transportation during the Invasion of Sicily, n<sup>d</sup>; Rexford-Welch, The RAF Medical Services, I, 492-493.
60. Kelly, Rpt on Casualty Air Transportation during the Invasion of Sicily; Rexford-Welch, The RAF Medical Sources, I, 493-495.
61. Twelfth AF, Air Evacuation Sicilian Campaign, 3 Sept<sup>r</sup> 1943; Kelly, Rpt<sup>r</sup> on Casualty Air Transportation during the Invasion of Sicily.
62. Ltr<sup>r</sup>, Elvins to TAS, subj: Report of Air Evacuation, 12 Sept<sup>r</sup> 1943; Twelfth AF, Air Evacuation Sicilian Campaign, 3 Sept<sup>r</sup> 1943.
63. Kelly, Rpt<sup>r</sup> on Casualty Air Transportation during the Invasion of Sicily.
64. Rexford-Welch, The RAF Medical Services, I, 495-96.
65. Ltr<sup>r</sup>, Baier to CG Services of Supply, subj: Air Evacuation, 18 Sept<sup>r</sup> 1944; msg<sup>r</sup>, Marshall to CG Greenland Base Comd<sup>r</sup> et al<sup>r</sup>, 25 Sept<sup>r</sup> 1942. Smith, The Medical Dept Hospitalization and Evacuation, p<sup>r</sup> 325.

66. Capt Frank H. Heck, Hist of the ATC, 29 May 1941 - 30 Sept 1945, 8 Mar 1946.
67. Heck, Hist of the ATC, 29 May 1941 - 30 Sept 1945; AAF Staff Digest; World War II, p 300.
68. Oliver La Farge, The Eagle in the Egg (Boston: Houghton Mifflin Company, 1949), p 230.
69. Memo for Jensen from Meiling, subj: 2nd Lt Elsie S. Ott, N-722669, Army Nurse Corps, Report of Initial Air Evacuation from Karachi, India, to Bolling Field, Washington, D C, January 17-23, 1943, n.d.
70. Ibid.
71. Ibid.; ATC Wkly Rpt of Activities, 27 Feb 1943; The Army Nurse, Vol I, No 5 (May 1944), pp 8-9.
72. Ltr, Lt Col Paul C. Gilliland, Surgeon ATC, to all Wing Surgeons, subj: Letter of Information on Air Evacuation by an Air Transport Command, 3 Mar 1943.
73. ATC Air Priorities Instruction No 4, 26 Feb. 1943.
74. Memo for AC/As Plans AAF from Grant, subj: Hospital Ships, 25 June 1943; Grant, "A Review of Air Evacuation Operations in 1943," p 4; Air Trans Service, Med, - Air Evac Activities, Air Trans Serv; 1943-1947.
75. Ltr, Maj E. A. Mosley, Asst AG Eighth AF to CG ETOUSA, subj: Evacuation of Patients by Air To the Zone of the Interior, 25 Apr. 1943; 1st ind; Lt Col. R. P. Fisk, Asst AG ETOUSA to CG Eighth AF, 4 May 1943; memo for Grant from Col M. C. Grow, 5 Sept 1943.
76. Air Evacuation of Sick and Wounded by the Pacific Wing ATC, Jan 5, 1943 - June 30, 1944, pp. 7-8; Hist. PACD-ATC, Jan, 1943 - June 1944, p. 61; ltrs, Baier to TAS, subj: Medical Report of Fifth Air Force, 27 Nov 1943 and 11 Dec, 1943.

796

77. R&R, Col. H. C. Chennault, Exec Off Opns Div TAS to AC/AS OC&R AAF, subj: Assignment, Medical Air Evacuation Flight, 21 Dec 1943.
78. Official Hist South Atlantic Div ATC, pt IV. pp 9-13; Hist Rpt of Med Activities, June 1942 - Dec 1943, South Atlantic Wg ATC, pp 30-34; Med Hist Central African Div ATC, May 1941 - June 1943, p 26.
79. Med Hist Eleventh AF, 12 Aug 1940 - 1 May 1944; Hist Med Dept Alaskan Div ATC, 4 Sept 1942 - 31 Dec 1944, p 5.
80. Med Hist Eleventh AF, 12 Aug 1940 - 1 May 1944; Hist Med Dept Alaskan Div ATC, 4 Sept 1942 - 31 Dec 1944, p 5; ltr, Brig Gen R. V. Ignico, Dep Comdr Eleventh AF to CG AAF, subj: Air transport Operations, Alaskan Theater, 11 Aug 1943; R&R, Brig Gen L. S. Kuter, AC/AS Plans to AC/AS OC&R, 10 Sept 1943; The Air Surgeon's Bulletin, Vol I, No 10 (Oct 1944), p 12.

## FOOTNOTES

## CHAPTER IV

1. Grant, "A Review of Air Evacuation Operations in 1943," pp 4; TAS, Summary of Outstanding Accomplishments in 1943; memo from the CG AAF for Col Chas. E. Sissinger, Exec Plans and Opns ASF, subj: Potentialities of Air Evacuation of Patients to the United States from Overseas, 2 Mar 1944.
2. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior, pp 357 - 358; memo for CG AAF from Sissinger, 2 Mar 1944.
3. Brown, Development of Transport Airplanes, pp 139, 162, and 208; Daily diaries, Asst. Chief Air Staff, MMSD, 15 May and 26 May 1944.
4. Craven and Cate, (eds), The Army Air Forces in World War II, II, 492-502.
5. NAAF, Plan for Air Evacuation of Wounded in Support of Operations on the Mainland of Italy, 1 Sept 1943.
6. Hist Twelfth AF Med Sect, Aug 1942 - June 1944, vol II, pp 120 - 121.
7. Ibid, p 121.
8. Ibid, p 212; Hist 802d MAE Sq, Nov 1943; Hist 807th MAE Sq, May - Dec 1943.
9. Link and Coleman, Medical Support of the Army Air Forces in World War II, pp 490 - 491.
10. Ibid, pp 491 - 493; ltr, Elvins to Grant, 29 Nov 1943.
11. Craven and Cate, (eds), The Army Air Forces in World War II, II, 744-751, and III, 335. Hist Twelfth AF Med Sect, Aug 1942 - June 1944, I, 28.

12. Hist Twelfth AF Med Sect, Aug 1942 - June 1944, vol II, pp 121 - 122; Maj Ray C. Stark, "Air Evacuation Italian Campaign," The Air Surgeon's Bulletin, vol 2, No 1 (Jan 1943), p 11.
13. Ibid, pp 123 - 124; Twelfth AF, Troop Carrier Operations, 1944, 15 Mar - 1945, pp 93 - 106.
14. Hist Twelfth AF Med Sect, Aug 1942 - June 1944, I, 28; Twelfth AF, Troop Carrier Operations, 1944, 15 Mar - 1945, pp 93 - 106; Hist 802d Sq., June 1944.
15. Hist Twelfth AF Med Sect, June - Dec 1944, IV, 59; Memo for Dep C of S AAF MTO from Col E. J. Tracy, Actg Air Surg AAF MTO, 6 June 1944.
16. Hist Twelfth AF Med Sect, June - Dec 1944, IV, 59 - 60; Hists 51st TC Wg, June and July 1944; Twelfth AF, Troop Carrier Operations, 1944, pp 93 - 95; Hist, 50th TC Wg, July 1944.
17. Ltr, Col M. C. Grow, Surg Eighth AF to CG Eighth AF, subj: Light Ambulance Airplane Evacuation Squadrons, 28 July 1942; R & R Comment, C of S Eighth AF to Grow, subj: Airplane Ambulances, 28 July 1942.
18. Oron P. South, Medical Support in a Combat Air Force (Air University, Documentary Research Division, 1956), p 45.
19. Ltr, Grow to TAS, subj: Medical Service, Air Force, 29 Jan 1943; Annual Report, Med Dept, Activities of the Eighth AF, 1943.
20. Memo for Col C. B. Spruit, Chief Surgeon's Off ETOUSA, from Grow, 3 Aug 1942.
21. Ltr, Grow to TAS, 29 Jan 1943.
22. Annual Rpt, Med Dept Activities of Eighth AF, 1943; Eighth AF Med Sect Mtg, 12 July 1943; ltr., Grow to Meiling, 26 July 1943; Hist, 806th MAE Sq, 17 July 1943 - 31 Dec 1945.

23. Craven and Gatewells, The Army Air Forces in World War II, III, 5-6.
24. John C. Warren, USAF Hist Studies No 97: Airborne Operations in World War II (Air University: USAF Hist Div, 1956), pp 2 - 3; R & R, Baier to AC/AS OC&R Theater Br, subj: Requirements of the Eighth Air Force, 23 Sept 1943; memo for CG USSTAF from Maj Gen Hugh J. Knerr, Dep Com Adminis USSTAF, subj: Air Transport, 23 July 1944; Hist of USSTAF, Vol III, ch IV (Transportation), pp 16 - 54.
25. Annual Rpt Med Dept Activities of the Eighth AF, 1943; Eighth AF, Med Sect Mtgs, 7 Oct - 15 Nov 1943; ltr, Brig Gen C. C. Chauncy, C of S US AAF, UK, to CG Ninth AF, subj: Air Movement of Hospital Patients from Northern Ireland to England, 11 Dec 1943.
26. Off of Surg, Ninth AF, Preliminary Operational Rpt, 18 July 1944; ltr, Brig Gen H. B. Lewis, ADC Gen ETOUSA to CG First Army, et al, subj: Planning for Air Evacuation, 9 Dec 1943; ETO ltr to CG's, First US Army Gp, et al, subj: Air Evacuation of Casualties, Air Force, Field Force and SOS Responsibilities, 14 Apr 1944.
27. Med Hist USSTAF, Jan - July 1944, p 15; ltr, Brig Gen E. T. Curtis, C of S USSTAF to Supreme Commander Allied Expeditionary Force, subj: Air Force Responsibility in the Air Evacuation of Casualties, 3 Sept 1944.
28. Hists, 50th TC Wg, Dec 1943 - Apr 1944; Hist IX TC Troop Carrier Comd, Sept 1944, sect V; ltr, Grow to T&S, subj: Hospitalization of Air Force Personnel in UK, 22 Mar 1944.
29. Link and Coleman, Medical Support of Army Air Forces in World War II, pp 598 - 600; Off of Surg, Ninth AF, Preliminary Operations Rpt, 18 July 1944.
30. Off of Surg, Ninth AF, Preliminary Operational Rpt, 18 July 1944; Med Hist USSTAF, Jan - July 1944, p 15; Lt Col John W. Pace, "Air Evacuation in the European

Theater of Operations," The Air Surgeon's Bulletin, vol. II, no. 10 (Oct. 1945), pp. 323-24.

31. Hist. IX TC Comd., Sept. 1944, Annex V; First U. S. Army (FUSA), Report of Opns, 20 Oct. 1943 - 1 Aug. 1944, Annex 16: Medical, p. 69; Off. of Surg., Ninth AF, Preliminary Operational Rpt., 18 July 1944; hist. 53d TC Wg., June 1944, p. 12; hist. 819th MAE Sq., June 1944.
32. Off. of Surg., Ninth AF, Preliminary Operational Rpt., 18 July 1944; Hist. 806th MEE Sq., June 1944; Pace, "Air Evacuation in the European Theater of Operations," p. 324.
33. Off. of Surg., Ninth AF, Preliminary Operational Rpt., 18 July 1944; rpt., Kendrick to C/Surg. ETO, subj: Annual Report of Med. Dept. Activities, 20 Feb. 1945; FUSA, Rpt. of Opns., 20 Oct. 1943 - 1 Aug. 1944, Annex 16, p. 69; Hist. 50th TC Wg., June 1944, pp. 8-9; Hist. IX TC Comd., June 1944, p. 11; Air Effects Committee, 12th Army Gp., Effect of Air Power in Military Operations, Western Europe, Chap. VI, p. 69.
34. Rpt., Lt. Col. J. M. Cassidy, Off. of Surg. Ninth AF to Histman, Ninth AF, subj: Report of Medical Dept. Activities, June and July 1944, 18 Aug. 1944; Off. of Surg. Ninth AF, Preliminary Operational Rpt., 18 July 1944; rpt., Kendrick to C/Surg. ETO, 20 Feb. 1945; Hist. 50th TC Wg., July 1944, p. 2; FUSA Rpt. of Opns. 20 Oct. 1943 - 1 Aug. 1944, Annex 16, p. 69; ltr., Kendrick to Grant, 18 July 1944; Air Effects Committee, 12th Army Group, Effect of Air Power on Military Opns., Ch. VI, p. 69.
35. Campaign Summary, 51st TC Wg., 1 July - 30 Sept. 1944.
36. Craven and Cate, (eds.), The Army Air Forces in World War II, III, 408 - 420.
37. Ltr., Brig. Gen. Lauris Norstad, D/Opns. and Intel. NAAF, to Lt. Col. N. Nikolic, 5 June 1944.

38. Hist of Med Sect, Twelfth AF, June - Dec 1944, pp 3 - 9.
39. Hists, 802d, 807th, 819th MAE Sqs, 50th, 51st, and 53d TC Wgs, July 1944; memo for Dep C of S AAF MTO from Lt Col Robert B. Nelson, Jr., Asst Surg AAF MTO, subj: Report of Visit ... to Provisional Troop Carrier Air Division, 30 July 1944.
40. John C. Warren, Airborne Missions in the Mediterranean 1942-1945 (USAF Hist. Studies No. 74, Sept. 1955), pp. 93-110; Craven and Cate, (eds.), The Army Air Forces in World War II, III, 426-438.
41. Hists 802d, 807th, and 819th MAE Sqs, 50th, 51st, and 53d TC Wgs, Aug. 1944; Hist Med. Sect. Twelfth AF, June - Dec 1944, pp 9, 62.
42. Hists 802d and 807th MAE Sqs and 51st TC Wg, Sept. 1944.
43. Hist 51st TC Wg, Sept. 1944
44. Hists 51st TC Wg, Oct. and Nov 1944.
45. Monthly Rpt, IX TC Comd. Surg, 4 Dec. 1944; ltr, Maj. R. S. Gilfillian, Asst Air Evac Off to Public Rel. Off. subj: Medical Activities for October, 19 Nov. 1944; msg. 5-65868, SHAEF MAIN to CG 6th Army Group, 7 Nov. 1944.
46. Memo for CG USSTAF from Maj Gen. Hugh J. Knerr, Dep. Cmdr Admin USSTAF, subj: Air Transport, 23 July 1944.
47. Memo for Chief Med Off SHAEF from Hawley, 21 Aug. 1944; memo for Chief Med Off SHAEF from Hawley, subj: Evacuation by Air, 30 Aug 1944.
48. Pace, "Air Evacuation in the European Theater of Operations," p 324; Link and Coleman, Medical Support of the AAF in World War II, p 609.

49. Ltr, Grow to C/Med Off SHAEF, 30 June 1944.
50. Msg, AWW-2103 Bg, CG Ninth AF to CG USSTAF (Vandenburg to Spaatz), 24 Aug 1944; memo for Chief Med Off SHAEF from Hawley, 21 Aug 1944.
51. Off of Surg Ninth AF, Preliminary Opnl Rpt, 18 July 1944.
52. Draft USSTAF Rpt, subj: Air Evacuation of Battle Casualties in the ETO from June 10, 1944 to Dec 15, 1944, n.d.
53. Memo for Chief Med Off SHAEF from Hawley, subj: Evacuation by Air, 30 Aug 1944.
54. Ltr, Maj Gen Paul L. Williams, CG IX TC Command to CG AAF thru channels, subj: Supply and Resupply by Air, 20 Nov 1944; 2d ind, Lt Gen Carl Spaatz, CG USSTAF to CG AAF, 17 Jan 1945.
55. Warren, Airborne Operations in World War II, European Theater, pp 81-82; ltr, Spaatz to CG ASC USSTAF, subj: Overall Air Transport Service in European Theater of Operations, 30 Aug 1944; Hist 302d Transport Wg, Sept 1944; Hist of USSTAF, vol III, Chap IV, Transportation, p 38.
56. Ltr, Brig Gen E. T. Curtis, C of S USSTAF to Supreme Commander Allied Expeditionary Force, subj: Air Force Responsibility in the Air Evacuation of Casualties, 3 Sept 1944; USSTAF Med Hist, 1 Aug - 31 Dec 1944, p 34; ltr, Kendrick to Brig Gen Charles R. Glenn, Dep Air Surg AAF, 24 Oct 1944; ltr, Brig Gen R. B. Lovett, adj Gen ETOUSA to CG's Each Army Gp, et al, subj: Evacuation of Army Medical Installations, 24 Sept 1944.
57. Ltr, Grow to Chief Med Off SHAEF, subj: Air Evacuation of Casualties, 2 Sept 1944; USSTAF Med Hist, 1 Aug - 31 Dec 1944, p 34.

58. Memo for Div<sup>D/</sup> Admin<sup>/</sup> Serv<sup>/</sup> ASC-USSTAF from Grow, 2 Sept<sup>/</sup> 1944; ltr<sup>/</sup>; Grow to TAS, subj: Air Evacuation, 2 Jun<sup>/</sup> 1945.
59. The History of the IX Engineer Command, pp<sup>/</sup> 92 - 98.
60. Craven and Gate, eds<sup>/</sup>, The ~~AAF~~ in World War II, pp<sup>/</sup> 275-277. <sup>III.</sup>
61. FUSA, Rpt<sup>/</sup> of Opns<sup>/</sup>, 1 Aug<sup>/</sup> 1944 - 22 Feb<sup>/</sup> 1945, Annex II: Medical, pp<sup>/</sup> 135-136; memo for G-4 from Hawley, subj: Status of Evacuation, 20 Sept<sup>/</sup> 1944; ltr<sup>/</sup>, Hawley to Bergquist, 28 Sept<sup>/</sup> 1944.
62. Msg<sup>/</sup> E-46027, Fwd Ech Com Zone to SHAEF Main, 8 Sept<sup>/</sup> 1944; ltr<sup>/</sup>, Spaatz to Arnold, 30 Sept<sup>/</sup> 1944; memo for Grow from Col<sup>/</sup> H. B. Wright, Off<sup>/</sup> of Surg<sup>/</sup> USSTAF, 21 Sept<sup>/</sup> 1944; ltr<sup>/</sup>, Twelfth Army Group to SHAEF, subj: Aircraft for Casualty Evacuation, 25 Sept<sup>/</sup> 1944.
63. USSTAF Med<sup>/</sup> Hist<sup>/</sup>, 1 Aug<sup>/</sup> - 31 Dec<sup>/</sup> 1944, pp<sup>/</sup> 34-35; draft USSTAF Rpt<sup>/</sup>, subj: Air Evacuation of Battle Casualties in the ETO from Jun<sup>/</sup> 10, 1944 to Dec<sup>/</sup> 15, 1944; ltrs<sup>/</sup>, Hawley to Bergquist and Williams, 28 Sept<sup>/</sup> 1944; Air Evac<sup>/</sup> Rpt<sup>/</sup>, IX Troop-Carrier Comd<sup>/</sup>, Sept<sup>/</sup> 1944.
64. Ltr<sup>/</sup>, Lt<sup>/</sup> Gen<sup>/</sup> W. B. Smith, C<sup>/</sup>of<sup>/</sup>S SHAEF to CG Twelfth Army Gp<sup>/</sup>, subj: Evacuation of Casualties, 30 Sept<sup>/</sup> 1944.
65. Memo for AC<sup>/</sup>of<sup>/</sup>S G-4 SHAEF from Knerr, subj: Air Lift, 30 Sept<sup>/</sup> 1944.
66. USSTAF Hist<sup>/</sup>, Vol<sup>/</sup> III, Chap<sup>/</sup> IV: Transportation, pp<sup>/</sup> 27-30.
67. Wkly<sup>/</sup> Activity Rpt<sup>/</sup>, Off of Surg<sup>/</sup> USSTAF, 29 Sept<sup>/</sup> 1944; ltr<sup>/</sup>, Gross<sup>/</sup> to Chief Med<sup>/</sup> Off<sup>/</sup> SHAEF, subj: Air Evacuation, 6 Oct<sup>/</sup> 1944. Although this letter was not sent out, it records actions taken by Gen<sup>/</sup> Gross<sup>/</sup>; Hq<sup>/</sup> IX TC Comd<sup>/</sup>, No<sup>/</sup> 25-5, Subj: Medical: Standing Operating Procedure, Medical Air Evacuation of Casualties, 18 Oct<sup>/</sup> 1944.

68. Ltr, Smith to CG Twelfth Army Group, subj: Evacuation of Casualties, 30 Sept 1944.
69. Msg S-65868, SHAEF MAIN to CG 6th Army Gp, 7 Nov 1944.
70. Ltr, Gilfillan to Public Relations Off IX TC Comd, subj: Medical Activities for October, 19 Nov 1944.
71. Ltr., Gross to Chief Med Off SHAEF, subj: Air Evacuation, 6 Oct 1944; Rpt, IX TCC Surg in Hist IX TC Comd, Nov 1944; USSTAF Operational Chart Air Evacuation 4 Oct 1944; Wkly. Activity Rpt, USSTAF Surg, 6 Oct 1944.
72. Ltr, Crow to T/S, subj: Air Evacuation, 2 June 1945; memo for Crow from Lt Col R. E. Stone, Off of USSTAF Surg, 28 Sept 1944.
73. USSTAF Med Hist, 1 Aug - 31 Dec 1944, pp 34 - 37; Hist 50th TC Wg, Oct 1944; ltr, Gilfillan to Public Relations Off IX TC Comd, 19 Nov 1944.
74. Air Evac Rpt, IX TC Comd, Oct 1944; Hist 50th TC Wg, Oct 1944.
75. Draft USSTAF Rpt, subj: Air Evacuation of Battle Casualties.... to Dec 15, 1944; memo for Crow from Wright, subj: Air Lift, 4 Dec 1944.
76. Rpt IX TC Comd Surg in Hist IX TC Comd, Nov 1944; Hist 50th TC Wg, Nov 1944; IX TC Comd. ltr, subj: Airdromes for Reception of Patients Evacuated by Air, 2 Dec 1944; IX TC Comd, Air Evac Rpt, Nov 1944.
77. Air Evac Rpt, IX Troop-Carrier Comd, Dec 1944; Hist IX TC Comd, Surgeon Sect, Dec 1944; Hist 50th TC Wg, Dec 1944.
78. Msg D-2240K, Dep for Admin USSTAF to CG USSTAF, 25 Dec 1944; ltr, Col Martin A. Bateman, Comd 302d Trans Wg to CG ASC-USSTAF, subj: Weekly Activity Rpt, 3 Jan 1945; ltr, Crow to TAS, subj: Air Evacuation, 2 June 1945; memo for Knerr from Wright, 3 Jan 1945.

79. Air Evac Rpts, IX TC Comd, Jan and Feb 1945; memos for Comdr 8th Hist Unit from Maj W. B. Oliver, Off of Surg IX TC Comd, subj: Air Evacuation Activities, 31 Jan and 28 Feb 1945; memo for Knerr from Wright, 3 Jan 1945; Hists 50th TC Wg, Jan and Feb 1945.
80. FUSA, Rpt of Opns, 1 Aug 1944 - 22 Feb 1945, Annex II: Medical, pp 135 - 136; Hist 50th TC Wg, Mar 1945; Pace, "Air Evacuation in the European Theater of Operations," p 325.
81. Memo for Comdr 8th Hist Unit from Oliver, subj: Air Evacuation Activities, 1 Apr 1945; Hist, 50th TC Wg, Mar 1945; FUSA Rpt of Opns, 23 Feb - 8 May 1945, Annex II: Medical, pp 109 - 110.
82. Rpt, Air Supply and Evacuation, <sup>700,2</sup> First U.S. Army, April 1945; EUSA, Rpt of Opns, 23 Feb - 8 May 1945, Annex II, pp 109 - 110; Pace, "Air Evacuation in the European Theater of Operations," p 326; The History of IX Engineer Command, p 118.
83. Memo for Comdr 8th Hist Unit from Pace, subj: Air Evacuation Activities for April 1945, n.d.; Hq IX TC Comd, Tactical and Non-Tactical Opns during the Final Phase of the War in Europe, June 1945, pp 98 - 100; FUSA, Air Supply and Evacuation, Apr 1945; FUSA Rpt of Opns, 23 Feb - 8 May 1945, Annex II, pp 109 - 110.
84. Air Evac Rpt, IX TC Comd, May 1945; memo for Comdr 8th Hist Unit from Pace, subj: Air Evacuation Activities for May 1945, n.d.
85. Link and Coleman, Medical Support of the AAF in World War II, p 609.
86. Fifth Army History, pp 175 - 188.

87. 51st TC Wg Operations, First Quarter 1945, p 1; Twelfth AF Surg, Medical Hist, 16 Jan 1945, p 1.
88. 51st TC Wg Operations, First Quarter 1945, p 4; Hists 802d and 807th MAE Sqs, Jan - Mar 1945; Lt Col M. Robert Halbonny, Maj A. D. Puppel, and Capt C. E. Bybee, "Air Evacuation in the Combat Zone," in The Air Surgeons Bulletin, vol. 2, no. 10 (Oct 1945), pp 337; Hist Mediterranean Air Transport Service, Jan - Mar 1945, pp 1-6.
89. Hists, Twelfth AF Med Sect, June - Dec 1944, p 62 and Jan - Mar 1945, pp 22 - 23.
90. Hist 802d MAE Sq, Feb 1945, p 2.
91. Hist 51st TC Wg, Apr 1945; Fifth Army History, Part IX, pp 123 - 127; Hists 802 and 807 MAE Sqs, Apr 1945; Hist Med Sect Twelfth AF, 1 Apr - 15 Aug 1945, p 1.
92. Hists 802d and 807th MAE Sqs, May 1945; Hist 51st TC Wg, May 1945, p 3; Fifth Army History, pt IX, pp 129 - 137.
93. Hist 51st TC Wg, June 1945; Med Hist 51st TC Wg, 1 Jan - 27 Aug 1945; Hist Mediterranean Air Transport Service, Apr - Aug 1945.
94. Link and Coleman, Medical Support of the AAF in World War II, p 486.

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## CHAPTER V

~~AIR EVACUATION IN ASIATIC AND PACIFIC THEATERS, 1943-1945~~

1. See Craven and Cate, <sup>eds. *Our Air Forces*</sup> The AAF in World War II, IV, 435-459.
2. Charles T. Romanus and Riley Sunderland, Stilwell's Mission to China, United States Army in World War II, China-Burma-India Theater (Washington: GCH Dept of Army, 1953), pp. 103-104, 204.   
*C. of Chief of Military Hist.*
3. Lt Col H. E. Porter, Surgeon, Tenth AF, Medical Plan-10th Air Force, 13 July 1942.
4. ~~Col H. E. Porter~~, Medical Plan: Tenth U. S. Air Force, 27 Nov 1942.
5. Taylor, Air Supply in the Burma Campaigns, p. 15; Hist. of the India-China Ferry under the Tenth Air Force.
6. RAF Narrative, The Campaigns in the Far East, Vol III, India Command, Sept 1939 - Nov 1943, pp. 176-196.
7. Air Hist. Br., British Air Ministry, Air Supply Operations in Burma, 1942-1945, pp. 5-7; Taylor, Air Supply in the Burma Campaigns, pp. 14-15; RAF Narrative, The Campaigns in the Far East, III, 197-228.
8. Craven and Cate (eds.), <sup>*Our Air Forces*</sup> The AAF in World War II, IV, 453-59.
9. Taylor, Air Supply in the Burma Campaigns, p. 17.
10. Memo for AC/AS Program Planning from Grant, subj: Requests for Assignment of a Medical Squadron, Air Evacuation, Transport, 8 Mar 1943; Memo for CG AAF et al, from Brig Gen J. E. Hull, Actg. Asst. CofS OPD, subj: Movement of Units to Asiatic Theater, 2 June 1943; Hist. 803d MAE Sq., 10 Dec 1942-July 1944.
11. U.S. Army Forces, CBI, Circular No. 88, Evacuation of Casualties by Air, 19 Oct 1943; memo for CofS AAF-IBS from Col Aubrey L. Moore, subj: Assignment of 803d MAE Sq., 6 Oct 1943; G.O. 12 (Corrected Copy), AAF-IBS CBI, 3 Nov 1943.
12. Hist. 803d MAE Sq., Dec 1942-July 1944; ltr, Maj N. Kaplan, Comdr 803d MAE Sq. to Stevenson, 25 Apr 1944.

13. Memo for C/Post War Div AC/AS Plans AAF from Col Jasper N. Bell, C/Airborne and Liaison Br, Requirements Div, AC/AS OC&R AAF, subj: Liaison Aircraft Operations in India, 9 Feb 1945; US Mil Observer Gp, New Delhi, India, Growth, Development and Operating Procedures of Air Supply and Evacuation System, Northern Combat Area Command Front, Burma Campaign, 1943-1945, sect IV: Evacuation of Wounded and Medical Supply by Air.
14. Memo for EAC SEA Opns from Col W. F. DeWitt, subj: Air Evacuation, 29 Dec 1943; memo for EAC Surgeon from EAC Opns, 7 Jan 1944.
15. Diary of Brig Gen W. D. Old, CG TC Comd, EAC, 26 Jan, 31 Jan, 4 Feb, 9 Feb, 11 Feb, 18 Feb, 22 Feb 1944; Hq Air Comd EAC, Minutes of Mtg. Held on 28 Jan 1944 to Discuss Evacuation of Casualties by Air, 4 Feb 1944.
16. Ltr, Brig Gen W. D. Old, Air Comdr TC Comd, to Air Comdr EAC, subj: Air Evacuation in Theaters of Operations, 6 Feb 1944; 1st ind, Col A. R. Luedicke, AC/AS Opns, EAC, to CG, TC Comd, 21 Mar 1944; Hist, 803d ME Sq, Dec 1942-July 1944; Opnl Directive No 5, EAC, to Air Comdr, TC Comd, subj: Medical Evacuation, 18 Feb 1944.
17. Old Diary, 11 and 22 Feb 1944; ltr, Air Marshal Sir John Baldwin, Air Comdr Third TAF to EAC, SEA, 24 Feb 1944; ltr, Luedicke to Air Comdr Third TAF, subj: Evacuation of Casualties, 29 Feb 1944; ltr, Baldwin to EAC, 8 Mar 1944.
18. Old Diary, 11 and 18 Feb 1944; Rexford-Welch, R7A7F. Medical Services, p. 523; Med Hist of . . . The First Air Commando Force, 18 Sep 1943-30 Apr 1944, pp. 67-68.
19. Taylor, Air Supply in the Burma Campaigns, pp. 65-68; Med Hist of . . . The First Air Commando Force, pp. 77-78.
20. Taylor, Air Supply in the Burma Campaigns, pp. 68-74; Rexford-Smith, R.A.F. Medical Services, 523-524; JICA/CBI, Rpt No 2330, subj: Burma-First Combat Use of Helicopter in, 3 May 1944; ltr, W/Cdr R. E. Dranke, Off. Comd Operation River, to Air Comdr 3d TAF, subj: Operation River, Preliminary Report, 6 July 1944.
21. Taylor, Air Supply in the Burma Campaign, pp. 74-75; Charles F. Romanus and Riley Sunderland, Stilwell's Command Problems, United States Army in World War II, China-Burma India Theater (Washington: OCMH Dept of Army, 1956), pp. 172-175.

22. Taylor, Air Supply in the Burma Operations, pp/ 76-77; Hist/ of Air Supply in CBI, 13 Dec 1944.
23. Taylor, Air Supply in the Burma Campaigns, pp/ 77-89; Craven and Cate, eds/, The AAF in World War II, V, 206.
24. Taylor, Air Supply in the Burma Campaigns, pp/ 81; Rexford-Smith, R.A.F. Medical Services, p/ 524; Old Diary, 31 Mar 1944; India-China Wing ATC, Story of Spring Divisions, Feb-June 1944, p/ 25.
25. Med/ Hist/ I-C-Wg ATC, 26 July 1944; ltr/, Kaplan to Stevenson, 25 Apr 1944; Hist/ 803d MAE Sq., Dec 1942-July 1944.
26. Hist/ 803d MAE Sq., Dec 1942-July 1944; ltrs/, Kaplan to Stevenson, 25 Apr 1944.
27. Taylor, Air Supply in the Burma Campaigns, pp/ 23-28; Hist/ 803d MAE Sq., Dec 1942-July 1944.
28. CBI Roundup, 20 July 1944, p/ 4.
29. Hist/ 803d MAE Sq., Dec 1942-July 1944; US/ Military Observer Gr., Growth, Development and Operating Procedures of Air Supply and Evacuation System, Northern Combat Area Command Front, Sect/ IV.
30. Ltr/, Col I. B. March, Off of The Air Inspector AAF to The Air Inspector AAF, subj: Summary of Medical Inspection of ATC and Stations in the China-Burma-India Wing, 21 Aug 1944.
31. Ltr/, Kaplan to Stevenson, 25 Apr 1944.
32. Med/ Hist/ Fourteenth AF, Mar 1943-Apr 1944, p/ 70; ltr/, Lt Col E. A. Abbey, Surg/ I-C-Wg, ATC to CG I-C-Wg, ATC, subj: 803d Medical Air Transport Squadron, 30 June 1944; Med/ Hist/ ICD-ATC, July-Sep 1944.
33. Med/ Hist/ Fourteenth AF, Mar 1943-Apr 1944, p/ 66.
34. Hist/ Sec/ ICD-ATC, The Story of Search and Rescue in the India-China Division ATC, Dec 1942-Dec 1945, pp/ 111-113.
35. Craven and Cate, eds/, The AAF in World War II, V, 225-232; Taylor, Air Supply in the Burma Campaign, p/ 53; memo for C/Post War Div, AC/AS Plans AAF from Bell, subj: Liaison Aircraft Operations in India, 9 Feb 1945; Lt Col James H. Hammond, "Air Evacuation on Very Heavy Bombardment Fields in China," The Air Surgeon's Bulletin, Vol 2, No/ 10 (Oct. 1945), pp/ 332-333.

36. Craven and Cate, (eds), The AAF in World War II, V, 204-207, 208, 232; Taylor, Air Supply in the Burma Campaign, pp 96-97.

37. Ltr, Kaplan to Stevenson, 29 Apr 1944; ltr, Lt Col E. A. Abbey, Surg AFO I-C Wg to CG I-C Wg, subj: 803d MAEF Sq, 30 June 1944 and 2 ind, Stratemyer to CG U.S. Army Forces CBI Theater, 4 July 1944; ltr, Lt Col E. O. Shaw, Asst CG U/S Army Forces CBI Theater to CG, AAF IBS, subj: Air Evacuation Squadron, 4 July 1944, 1st ind, Stratemyer to CG U.S. Army Forces CBI, 14 July 1944, and 2d ind, Col Frank Milani, CG U/S Army Forces CBI to CG AAF, IBS, 16 July 1944; ltr, Chennault to Stratemyer, 4 Aug 1944; ltr, Stratemyer to Chennault, 8 Aug 1944; ltr, Stratemyer to Col E. P. Williams, Theater Surgeon, U/S Army Forces, CBI, 8 Aug 1944; Hist 821st MAE Sq, 20 Jan 1944-31 Dec 1944.

38. Hists Med Sect, XX Bomber Command, May and June 1944; rpt, Lt Col J. H. Hammond, subj: Medical Activities of Surgeon, Forward Echelon, XX Bomber Command, Aug 1944; Hammond, "Air Evacuation on Very Heavy Bombardment Fields in China" p 303.

39. Hammond, "Air Evacuation on Very Heavy Bombardment Fields in China" p 303.

40. Med Hist Fourteenth AF, May-Oct 1944, pp 20-21; ltr, Col T. C. Gentry, Surgeon Fourteenth AF to Glenn, 3 Oct 1944.

41. Med Hist Fourteenth AF, 1943-1945, pp 6-7; ltrs, Gentry to Glenn, 3 Oct 1944; Wkly Sum ICD-ATC, 2 July 1945.

42. Ltr, Glenn to Col Clyde Brothas, Surgeon AAF-IBT, 23 May 1945.

43. Memo AAF 25-7, AAF IBS CBI, subj: Medical Department, Air Evacuation, 17 Aug 1944.

44. Annual Rpt (1944), Med Dept Activities AAF-IBT and I-B Air Serv Comd, 11 Apr 1945.

45. Annual Rpt (1944), Med Dept Activities AAF-IBT and I-B Air Serv Comd, 9 May 1945, incl 4; Hist 821st MAE Sq, Jan-Dec 1944, pp 8-9; Med Hist Rpt ICD-ATC, July-Sep 1944; ICD-ATC Reg No 25-4, subj: Medical-Air Evacuation of Casualties, 24 Aug 1944.

46. Hist/ Med/ Activities Tenth AF, Nov 1944; Hist/ <sup>821</sup> 832st MAE Sq, Jan-Dec 1944; Annual Rpt, (1944), Med/ Dept/ Activities AAF-IBT and I<sup>W</sup> ASC, 9 May 1945, incl/ 4; Med/ Hist/ ICD-ATC, 1944, 9 Jan 1945.
47. Hists/ , 5th, 71st, and 115th Ln/ Sqs/ , Oct-Dec 1944; Hist/ 1st Ln/ Gp (P), Oct-Nov 1944; Tenth AF, Monthly Stat/ Review, Feb 1945, p/ 13.
48. Tenth AF, Monthly Stat/ Review, Feb 1945, pp/ 13-14 and Mar 1945 Annex.
49. Hists/ , <sup>2</sup> 821st MAE Sq/ , Jan-May 1945; Hists/ Med Activities Tenth AF, Jan-Mar 1945; Taylor, Air Supply in the Burma Campaigns, pp/ 30-33.
50. Craven and Cate, eds/ , The AAF in WWII, Vol V, pp/ 208-232.
51. Ltrs/ , W/Comdr/ T.A.F. Elsdon, Asst/ C/Opns/ Sect/ ~~CCTF~~ Staff of DC/AS Opns/ EAC SEA to Luedecke, subj: An Appreciation on Casualty Evacuation by Air, 1944-1945, R.A.F., 16 Aug 1944; CCTF, Intel/ Extract No/ 12, RAF Casualty Air Evacuation Units of CCTF, 9 Apr 1945; Rexford-Welch, R.A.F. Medical Services, 525.
52. Ltr/ , Lt Col J D. Evans, Surgeon CCTF to The Surgeon General, subj: Medical History, 22 Jan 1945; ltr, Capt/ E. W. Sutherland, Adg/ Gen/ CCTF, subj: Casualty Air Evacuation, 24 Feb 1945; ltr/ , Air Commodore W. E. Barnes, RAF Bengal/Burma to Allied Land Forces SEA, subj: Air Evacuation of Casualties, 20 Mar 1945. 31/5075
53. Ltr/ , Elsdon to Luedecke, subj: An Appreciation of Casualty Evacuation by Air, 1944-1945, R.A.F., 16 Aug 1944; ltr/ , Air Commodore G. H. Vasse, Actg/ Senior Air Staff Off/ Air Comd SEA, to Third TAF, subj: Light Aircraft Casualty Evacuation, 5 Oct 1944.
54. W/Comdr/ G. R. Guinn, Hqs/ , RAF Burma, Medical Aspects of Burma Campaign, 30 June 1945.
55. Ltr/ , Elsdon to Luedecke, subj: An Appreciation on Casualty Evacuation by Air, 1944-1945, R.A.F., 16 Aug 1944; ltr/ , Air Commander, Third Tactical AF to Air Command SEA, subj: Light Aircraft/ Casualty Evacuation, 12 Oct 1944; Air C/ Marshal Sir Keith Park, Allied Air CINC, Air Comd/ SEA; Dispatch on Air Operations from 1st June 1944 to Occupation of Rangoon, 2 May 1945, pp/ 32-34.

56. Rexford-Welch, R.I.A.F. Medical Services, pp 526-527; Taylor, Air Supply in the Burma Campaign, p 129.
57. Taylor, Air Supply in the Burma Campaigns, pp 128-129.
58. Ltr, Abbey to CG ACD, Attn: Surgeon, subj: Standard Operating Procedure for Air Evacuation in the India-China Division, Air Transport Command, 17 Jan 1945.
59. Med Hists <sup>ICD-</sup> India-China Div ATC, Jan-Mar 1945, Apr-Jun 1945, July-Sep 1945; Hist 803d MAE Sq, 1945.
60. Hist. 804th MAE Sq, May 1944, p 1.
61. Air Evaluation Board SWPA Rpt No 35, The Medical Support of Air Warfare in the South and Southwest Pacific, 7 Dec 1941-15 Aug 1945, Vol II, pp 484-487.
62. FEAF Med Hist, 1944, p 12; Hists 804th MAE Sq, Jan-Mar 1944.
63. Hists 804th and 820th MAE Sqs, Feb-Apr 1944.
64. Hists 804th MAE Sq, Apr and May 1944; Hist 54th TC Wg, Apr 1944, pp 40-43.
65. Hists 804th and 820th MAE Sqs, Apr and May 1944; Hist 54th TC Wg., Apr 1944, pp 40-43 and July 1944, pp 16-17.
66. Hqs 54th TC Wg, Communication Plan for Medical Air Evacuation, 21 Apr 1944; ltr, Capt G. P. Wiedeman, Opns. Off 804th MAE Sq, subj: Daily SOP for Air Evacuation, 12 May 1944; Hists, 804th MAE Sq and 54th TC Wg, Apr and May 1944.
67. Hist 804th MAE Sq., May 1944, p 16; ltr, Maj Walter S. Miller, Jr, Comdr 804th MAE Sq to CG 54th TC Wg, subj: Suggested Operative Procedure for Air Evacuation in Operational Areas, 16 May 1944; Hist 54th TC Wg, May 1944, pp 15-17.
68. Hists 804th and 820th MAE Sqs, Apr 1944.
69. Hists 804th MAE Sq, June 1944, pp 2-3 and 820th MAE Sq, June 1944, pp 135-136; ltr, Capt David D. Fried, Asst Surg, 54th TC Wg, to whom it may concern, subj: Air Evacuation, Biak and Owi Island, 26 Nov 1944.

70. Ltr, Grant to CG AAF, thru CG FEAF and CINCSWPA, subj: Reports on Special Mission, 23 Nov 1944.
71. Hist 804th MAE Sq, June 1944, pp 4-6; ltr, Maj R. H. Hoffman, Air Inspector 54th TC Wg to Hist Off 54th TC Wg, subj: Supplementary Historical Staff Study, 15 July 1944.
72. Hist 820th MAE Sq, June 1944, pp 137-138; Hist 54th TC Wg, July 1944, pp 16-17; Hist 804th MAE Sq, July 1944, p 2.
73. Hists 804th and 820th MAE Sqs, July and Aug 1944; Hists 54th TC Wg, July 1944, pp 16-17 and Aug 1944, p 11. FEAF Med Hist 1944, p 12.
74. Hists 801st MAE Sq, Jan-June 1944.
75. Hists 801st MAE Sq, June-Oct 1944.
76. Med Hist of FEAF, 1944, pp 1-3.
77. Ltrs, FEAF Surg to TAS, 24 Mar 1945 and 22 June 1945; Quarterly Hist Rpt of (FEAF) Med Activities, 1 Apr-1 July 1945, 1 Aug 1945; AEB, SWPA, The Medical Support of Air Warfare, II, 486-487.
78. Craven and Cate, (eds), <sup>See also Feaf in WW II</sup> ~~The AAF in WW II~~, V, 324, 333-334, 340, and VII, ~~Services Around the World~~ (Chicago: University of Chicago Press, 1958), 192-193.
79. Hist 804th MAE Sq, Oct 1944, p 4.
80. Hist 54th TC Wg, Sep 1944, p 9; ltr, Wiedeman to CG 54th TC Wg, subj: Liaison between 6th Army and Air Evacuation, 17 Sep 1944.
81. Hist 804th MAE Sq, Oct 1944, pp 4-5.
82. Hists 801st and 804th MAE Sqs, Oct 1944; Hist 54th TC Wg, Oct 1944, pp 5, 7.
83. Hist 54th TC Wg, Nov 1944, pp 1, 6, 90; ltr, Grant to CG AAF, subj: Reports on Special Mission, 23 Nov 1944; rpt, Capt D. C. Kissell to Comdr 801st MAE Sq, subj: Report on Mission to Leyte, 14 Nov 1944; Hist 804th MAE Sq, Nov 1944, p 3. FEAF Med Hist, 1944, p 12.

84. Hists<sup>r</sup>, 801st, 804th, and 820th MAE Sqs<sup>r</sup>, Dec 1944; Hist<sup>r</sup> 54th TC Wg<sup>r</sup>, Dec 1944, pp<sup>r</sup> 10-11; FEAF Med<sup>r</sup> Hist<sup>r</sup>, 1944, p<sup>r</sup> 12; ltr<sup>r</sup>, Lt Col J. C. Ivins, Surg<sup>r</sup> 77th Div<sup>r</sup> to CG Fifth AF, subj: Commendation, 18 Jan 1945 w/ind. by Maj Gen A. D. Bruce, CG 77th Inf<sup>r</sup> Div<sup>r</sup>, 18 Jan 1945.
85. Rpt<sup>r</sup>, Capt George L. Ray, 820th MAE Sq<sup>r</sup>, to Comdr<sup>r</sup> 820th MAE Sq<sup>r</sup>, subj: Report of Experiences as Air Evacuation Surgeon with the Task Force on the Lingayen Operation, 12 Mar 1945; Hist<sup>r</sup> 54th TC Wg<sup>r</sup>, Jan 1945, p<sup>r</sup> 12.
86. Hists<sup>r</sup> 801st, 804th, and 820th MAE Sqs<sup>r</sup>, Jan 1945; Hist<sup>r</sup> 54th TC Wg., Jan 1945, pp<sup>r</sup> 12, 66.
87. Hists<sup>r</sup> 804th and 820th MAE Sqs<sup>r</sup>, Jan and Feb 1945.
88. Hists<sup>r</sup> 804th MAE Sq<sup>r</sup>, Jan-June 1945; Sixth U<sup>S</sup> Army, Report of the Luzon Campaign, Vol<sup>r</sup> III, p<sup>r</sup> 162.
89. Quarterly Rpt of (FEAF) Medical Activities, 1 Apr - 1 July 1945; ltr<sup>r</sup>, Surg<sup>r</sup> FEAF to TAS, 18 July 1945; Link and Coleman, Medical Support of the AAF in World War II, pp<sup>r</sup> 782-785; Sixth U<sup>S</sup> Army, Report of the Luzon Campaign, III, 158.
90. Ltrs<sup>r</sup>, Surg<sup>r</sup> FEAF to TAS, 4 Feb and 24 Mar 1945; Hists<sup>r</sup>, 801st, 804th, and 820th MAE Sqs<sup>r</sup>, Jan-Mar 1945.
91. Hists<sup>r</sup> 801st, 804th, and 820th MAE Sqs<sup>r</sup>, Mar-June 1945; Hist<sup>r</sup> 54th TC Wg<sup>r</sup>, Mar 1945, pp<sup>r</sup> 17, 103.
92. Hist<sup>r</sup> 804th MAE Sq<sup>r</sup>, Mar 1945, p<sup>r</sup> 4.
93. Hists<sup>r</sup> 801st, 804th, and 820th MAE Sqs<sup>r</sup>, Jan-June 1945; Sixth U<sup>S</sup> Army, Report of the Luzon Campaign, III, 162.
94. Eighth Army Reports on the Palawan and Zamboanga Operations, pp<sup>r</sup> 154-166; Panay-Negros and Cebu Operations, pp<sup>r</sup> 156-166; and Mindanao Operation, pp<sup>r</sup> 160-186.
95. Hists<sup>r</sup> 801st and 820th MAE Sqs<sup>r</sup>, Feb-June 1945; Eighth Army Reports on the Palawan and Zamboanga Operations, pp<sup>r</sup> 154-166; Panay-Negros and Cebu Operations, pp<sup>r</sup> 156-166; and Mindanao Operation, pp<sup>r</sup> 160-186; Hists<sup>r</sup> 25th Ln<sup>r</sup> Sq<sup>r</sup>, Apr-June 1945.

815

96. Hists <sup>g</sup> 801st MAE Sq <sup>g</sup>, Jan-June 1945; ltr <sup>g</sup>, Surg <sup>g</sup> FEAF to TAS, 4 Feb 1945.

97. Hists <sup>g</sup> 54th <sup>TC</sup> Troop-Carrier Wg <sup>g</sup>, Jan-June 1945.

98. Hists <sup>g</sup> 801st, 804th, and 820th MAE Sqs <sup>g</sup>, July 1945.

99. Hists 801st and 820th MAE Sqs <sup>g</sup>, Aug 1945.

100. Hist <sup>g</sup> 54th TC Wg <sup>g</sup>, Aug-Sept 1945, A-3 Sect; Hist <sup>g</sup> 804th MAE Sq <sup>g</sup>, Sept 1945; rpt <sup>g</sup>, Capt Howard H. Gradis, subj: Rpt <sup>g</sup> of Air Evacuation Operations at Atsugi, Japan, cr: 23 ca Sept 1945.

FOOTNOTES

## CHAPTER VI

1. Craven and Cate, (eds.), The Army Air Forces in World War II, VIII, 19.
2. Brown, Development of Transport Airplanes, p. 208; AAF Statistical Digest, World War II, p. 300.
3. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior, p. 324; ltr., Baier to Col. Paul C. Gilliland, ATC Surg., 17 Feb. 1944; memo for Baier from Gilliland, 22 Feb. 1944.
4. Memo for CG AAF from Col. Chas. R. Dissinger, Exec. Plans & Opns. ASF, subj: Potentialities of Air Evacuation of Patients to the United States from Overseas, 2 Mar. 1944.
5. Draft memo for C of S prepared by TAS, subj: Air Evacuation of Casualties from Theaters of Operations to the United States, 17 Mar. 1944.
6. Memo for Baier from Gilliland, 14 Mar. 1944.
7. Memo for Baier from Gilliland, 22 Feb. 1944.
8. Lt. Col. L. C. Parker, Actg. Asst. C of S Priorities and Traffic, ATC to CG AAF, Subj: Evacuation of Wounded, 7 Apr. 1944; Craven and Cate, (eds.), The AAF in World War II, VII, p. 27; memo for record by Maj. R. C. Love, Opns. Div. Air Surgeons Off. AAF, subj: Conference on Air Evacuation, 13 Apr. 1944, 15 Apr. 1944.
9. Link & Coleman, Medical Support of the AAF in WW-II, pp. 403-404; Hist. Med. Dept. ATC, 1 Jan 1945 - 13 Mar 1946, pp. 72-74; msg., WARX-23598, AGWAR to ETOUSA, 22 Jan. 1945.
10. Memo for AC/AS OC&R from Col. H.C. Chennault, Exec. Off. Air Surg's Off. AAF, subj: Assignment, Medical Air Evacuation Flight, 21 Dec. 1943.

11. Hist Rpt. of Med Activities SATLW-ATC, June 1942 - Dec 1943, pp 30-34; Med Hist Rpt; SATLD-ATC, Jan - July 1944; Hist ATC in Central Africa and Middle East, pt III: 15 Dec 1943 - 30 June 1944, pp 31-32; Annual Med Hist Rpt, Central African Division, 1944, pp 4-6.
12. Hist ATC in Central Africa and the Middle East, pt III, pp 31-32; Annual Med Hist Rpt Central African Division ATC, 1944; pp 4-6; Final Med Hist Rpt. Central African Div; ATC, 1 Jan - 14 July 1945, p 8; Hist Central African Div ATC, Aug 1944, p 10.
13. Med Hist Rpts, SATLD-ATC, Jan - July 1944; July - Oct 1944; Oct - Dec 1944; 1945; Annual Hist of Med Dept Satld-ATC, 1944, pp 15-20; Official Hist SATLD-ATC, pt V, pp 44-46.
14. Med Hist Rpts, Caribbean <sup>log</sup> and Div ATC <sup>Inception</sup> to 30 June 1944; July - Sept 1944; Oct - Dec 1944; Jan - Mar 1945; Apr - June 1945; July - Sept 1945.
15. Annual Rpt of Med Dept Activities, EURW-ATC, 1943; Memo for Grant from Grow, 5 Sept 1943; ltr, Grow to Surg EURW-ATC, subj: Air Evacuation Rpt, 10 Dec 1943.
16. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior p 327.
17. Med Hist Rpts, EURD-ATC, 3 Feb 1943 - 1 Nov 1944.
18. Hist Air Evacuation Station 1403d AAF Base Unit Prestwick 1944.
19. Ltr, Col R. F. Atwood, C of S EURW-ATC to CG, USSTAF, subj: Assignment of Medical Air Evacuation Squadrons to the European Wing ATC, 12 July 1944; 2d ind, Ninth AF (Rear) to CG USSTAF, 29 July 1944.
20. Ltr Lt Col Allen G. Dingwall, Adj NAW-ATC, to Comdrs Stations 4, 6, 14 and 15, subj: Evacuation Plan, 29 Mar 1944; Hists NAW-ATC, Apr 1944, pp 34-38 and May 1944, pp 27-31.

21. Hist<sup>o</sup> NAW-ATC, May 1944, pp<sup>o</sup> 27-31; ltr<sup>o</sup>, Dingwall to CG Army Service Forces, subj: Essential Technical Medical Data, 31 May 1944.
22. Hist<sup>o</sup> NAW-ATC, June 1944, pp<sup>o</sup> 20-27.
23. Hist<sup>o</sup> NAW-ATC, June 1944, pp<sup>o</sup> 20-27; Hist<sup>o</sup> NAD-ATC, July - Sept 1944, pp<sup>o</sup> 73-88.
24. Ltr<sup>o</sup>, Bulla to ATC Surg<sup>o</sup>, subj: Wkly Activity Rpt<sup>o</sup>, 1 Aug 1944; Hist<sup>o</sup> NAD-ATC, July - Sept 1944, pp<sup>o</sup> 73-88.
25. Hist<sup>o</sup> NAD-ATC, July - Sept 1944, pp<sup>o</sup> 73-88; ltr<sup>o</sup>, Dingwall to CG ATC, Attn: Surgeon, subj: Air Evacuation 6 Sept 1944.
26. Hist<sup>o</sup> NAD-ATC, July - Sept 1944, pp<sup>o</sup> 73-88.
27. Memo for Kane from Grow, subj: Airlift for Casualties to the Continental United States, 8 Oct 1944; Med<sup>o</sup> Hist<sup>o</sup>, NAD-ATC, Oct - Dec 1944, p<sup>o</sup> 4.
28. Hist<sup>o</sup> NAD-ATC, July - Sept 1944, pp<sup>o</sup> 73-78; Med<sup>o</sup> Hist<sup>o</sup> NAD-ATC, Oct - Dec 1944, pp<sup>o</sup> 4, 22-25.
29. Rpt<sup>o</sup> of USSTAF Chief Surgeon's Consultants Mtg<sup>o</sup>, 22 Sept 1944; 2<sup>nd</sup> Foreign Transport Gp<sup>o</sup>, Mission to Paris: A Historical Monograph Covering Crescent Caravan's Foreign Transport Assignment, Oct 1944 - June 1945, pp<sup>o</sup> 97-98; A History of Air Evacuation at Orly Airport, in Supplement No<sup>o</sup> 2, Med<sup>o</sup> Hist<sup>o</sup> Rpts<sup>o</sup>: EURD-ATC, Jan 1945 - 30 June 1945; EURD-ATC, Intel<sup>o</sup> and Security Sum<sup>o</sup> No<sup>o</sup> 52, 17 Dec 1944, p<sup>o</sup> 16.
30. Med<sup>o</sup> Hist<sup>o</sup> NAD-ATC, Oct - Dec 1944, pp<sup>o</sup> 4-26; Daily Staff Sum<sup>o</sup> NAD-ATC, 24 July 1945.
31. Off<sup>o</sup> of Chief Surg<sup>o</sup>, ETO, Admin<sup>o</sup> Memo No<sup>o</sup> 2, 11 Jan 1945.
32. Memo by Wright, Off<sup>o</sup> of D/Med<sup>o</sup> Serv<sup>o</sup> USSTAF, ca<sup>o</sup> Jan 1945; Memo for General Kenner from Wright, 28 Jan 1945.
33. Hist<sup>o</sup> NAD-ATC, Oct 1944 - Oct 1945, pp<sup>o</sup> 403-407; Hist<sup>o</sup> EURD-ATC, Jan - Sept 1945, pp<sup>o</sup> 52-53.

34. Msg S-78195, SHAEF MAIN G-4 to US ATC London, 8 Feb 1945.
35. Hist NAD-ATC, Oct 1944 - Oct 1945, p 409; 2d Foreign Trans Gp, Mission to Paris, pp 97-98; Hist EURD-ATC, Jan - Sept 1945, pp 52-53; 88; Wkly Activity Rpt, NAD-ATC, 2 Apr and 18 May 1945.
36. Ltr, Capt J.S. Imirie, Actg Asst AG NAD-ATC to 1378th AAFBU et al, subj: Proposed Evacuation Plan, 14 Apr 1945; Med Hist Rpts, EURD-ATC, Jan - June 1945, pp 1-3; Hist EURD-ATC, Jan - Sept 1945, pp 10-11.
37. Smith, The Medical Department: Hospitalization and Evacuation, Zone of Interior pp 300, 330; Med Hist Rpts, Jan - June 1945.
38. Hist EURD-ATC, May - Sept 1945, p 83; Wkly Activity Rpts, NAD-ATC, 6 Sept - 30 Oct; Daily Staff Sum NAD-ATC, 18 July, 28 July, 1 Aug, 28 Aug, 2 Oct 1945.
39. Hist NAFW-ATC, 15 Dec 1943 - 30 Apr 1944, pp 1-6.
40. Ibid, p 24; Med Hist NAFW-ATC, Jan - July 1944.
41. Craven and Cate (eds), The Army Air Forces in World War II, VII, 80-89.
42. Ltr, Col J. A. O'Keefe, AG NAFW-ATC to CG ATC, subj: Air Evacuation Personnel, 19 May 1944; Med Hist NAFW-ATC, Jan - July 1944; ltr, O'Keefe to Comdrs Stations 8 and 14 NAFW-ATC, subj: Air Evacuation of Litter Patients 17 June 1944; Hist NAFW-ATC, June 1944, pp 26-30.
43. Msg M-19354, CG MAAF to CG NAFW-ATC, 4 June 1944; Craven and CATE (Eds), The Army Air Forces in World War II, VII, 89.
44. Hist NAFW-ATC, July 1944, pp 47-48; ltr, NAFW-ATC to CG ATC, subj: Weekly NAFW Priorities and Traffic Rpt #25, 17 July 1944; Hist NAFD-ATC, Aug 1944, I, 159-170; Hist NAFD-ATC, Mar - Sept 1945, p 301.

80

45. Ltr, Lt Col J. M. Collins, Asst Surg NAFD-ATC to CG ATC, Attn: Surgeon, subj: Report on Air Evacuation Activities, ca Aug 1944; Med Hist Rpt ICD-ATC, July - Sept 1944.
46. Hist NAFD-ATC, Sept - Nov 1944, I, 222-224.
47. Hists NAFD-ATC, Dec 1944 - Feb 1945, I, pp 100-102, 129, 132; and Mar - Sept 1945, I, 301.
48. Hist NAFD-ATC, Mar - Sept 1945, pp 214, 301; Med Hist NAFD-ATC, Jan - Dec 1945.
49. Air Evacuation of Sick and Wounded by the Pacific Wing ATC, 5 Jan 1943 - 30 June 1944, p 5.
50. Seventh AF Participation in Galvanic Operation, 13 Nov 1943 - 6 Dec 1943, p 25; Hist 809th MAET Sq Nov 1943; Hist 812th MAET Sq, Dec 1943; Air Evacuation of Sick and Wounded by the Pacific Wg ATC, 5 Jan 1943 - 30 June 1944, p 11.
51. Hists 809th MAET Sqs Nov and Dec 1943.
52. Hists 809th and 812th MAET Sqs, Jan - Mar 1944; Seventh AF Participation in Galvanic Operation, p 25; Participation in the Kwajalein and Eniwetok Operations by US Army Forces in the Central Pacific Area, 30 Nov 1944, pp 162-164.
53. Hists 809th and 812th MAETS, May 1944; Air Evacuation of Sick and Wounded by Pacific Wing, 5 Jan 1943 - 30 June 1944, pp 33-34.
54. Air Evacuation of Sick and Wounded by the Pacific Wg ATC, 5 Jan 1943 - 30 June 1944, p 23; ltr Brig Gen. W. O. Ryan, CG PAW-ATC to Maj Gen H. L. George, CG ATC, 4 Jan 1944; msg form, George to CG Pacific Wg ATC, subj: Assignment of Five C-54 Airplanes, 27 Jan 1944.
55. Craven and Cate, (eds), *The AAF in WW II, IV*, 693; VII, 184-193; Hist PACD-ATC, July 1944, pp 18-19.

56. Air Evacuation of Sick and Wounded by the Pacific Wing ATC, 5 Jan<sup>r</sup> 1943 - 30 Jun<sup>e</sup> 1944, pp<sup>r</sup> 12-13; Hist<sup>r</sup> PACD-ATC, July<sup>r</sup> 1944, pp<sup>r</sup> 12-16.
57. Air Evacuation of Sick and Wounded by the Pacific Wg<sup>r</sup> ATC, 5 Jan 1943 - 30 Jun<sup>e</sup> 1944, p<sup>r</sup> 13; Hist<sup>r</sup> PACD-ATC, July<sup>r</sup> 1944, pp<sup>r</sup> 12-16; Med<sup>r</sup> Hist<sup>r</sup> PACD-ATC, July<sup>r</sup> - Sept<sup>r</sup> 1944; ltr<sup>r</sup>, PACD-ATC to CG ATC, subj: Medical Air Evacuation Transport Organization, 19 Aug<sup>r</sup> 1944; ltr<sup>r</sup>, Col<sup>r</sup> Walter S. Jensen, Surg<sup>r</sup> AAFPOA to TAS, 23 Aug<sup>r</sup> 1944; ltr<sup>r</sup>, Grant to Jensen, 14 Sept<sup>r</sup> 1944; ltr<sup>r</sup>, Jensen to Grant, 23 Sept<sup>r</sup> 1944.
58. 2<sup>nd</sup> ind (ltr <sup>PACD-</sup>Pac Wg ATC, subj: Air Evacuation Plan, Central Pacific Area, 1 Jun<sup>e</sup> 1944), Brig<sup>r</sup> Gen<sup>r</sup> W. O. Ryan, CG PAW-ATC, to Comdr<sup>r</sup> Det<sup>r</sup> Station No<sup>r</sup> 12 PAW<sup>r</sup>-ATC, 7 Jun<sup>e</sup> 1944.
59. Air Evacuation of Sick and Wounded by the Pacific Wg<sup>r</sup> ATC, 5 Jan<sup>r</sup> 1943 - 30 Jun<sup>e</sup> 1944, p<sup>r</sup> 23; Med<sup>r</sup> Hist<sup>r</sup> Rpt<sup>r</sup>, PACD-ATC, July<sup>r</sup> - Sept<sup>r</sup> 1944, pp<sup>r</sup> 1-2.
60. Hists<sup>r</sup> 809th and 812th MAE Sqs<sup>r</sup>, July<sup>r</sup> and Aug<sup>r</sup> 1944, Hist<sup>r</sup> PACD-ATC, July<sup>r</sup> 1944, pp<sup>r</sup> 12-16 and Aug<sup>r</sup>, pp<sup>r</sup> 17-23; Med<sup>r</sup> Hist<sup>r</sup> Rpt<sup>r</sup>, PACD-ATC, July<sup>r</sup> - Sept<sup>r</sup> 1944, pp<sup>r</sup> 1-3.
61. Ltrs, Jensen to Grant, 23 Aug<sup>r</sup> 1944 and 23 Sept<sup>r</sup> 1944.
62. Hists<sup>r</sup> PACD-ATC, Aug<sup>r</sup> 1944, pp<sup>r</sup> 17-23; and Sept<sup>r</sup> 1944, pp<sup>r</sup> 8-12; Hist<sup>r</sup> 812th MAE<sup>r</sup> Sq<sup>r</sup>, Sept<sup>r</sup> 1944.
63. Hists<sup>r</sup> PACD-ATC, July<sup>r</sup> 1944, pp<sup>r</sup> 12-16 and Aug<sup>r</sup> 1944, pp<sup>r</sup> 17-23; LaFarge, The Eagle in the Egg, p<sup>r</sup> 237.
64. Hists<sup>r</sup> PACD-ATC, Sept<sup>r</sup> 1944, pp<sup>r</sup> 8-12 and Oct<sup>r</sup> 1944, pp<sup>r</sup> 33-38; LaFarge, The Eagle in the Egg, p<sup>r</sup> 237; Maj<sup>r</sup> R. E. Falconer, Hist<sup>r</sup> Record of the Air Evacuation of Casualties, Admiralty Islands to Guadalcanal, 13 Sept<sup>r</sup> - 25 Oct<sup>r</sup> 1944.
65. Med<sup>r</sup> Hist<sup>r</sup> Rpt<sup>r</sup> Southwest Pac<sup>r</sup> Wg ATC, Aug<sup>r</sup> - Dec<sup>r</sup> 1944; Hists<sup>r</sup> PACD-ATC, Sept<sup>r</sup> 1944, pp<sup>r</sup> 8-12; and Oct<sup>r</sup> 1944, pp<sup>r</sup> 33-38; Hist<sup>r</sup> Med<sup>r</sup> Dept<sup>r</sup> ATC, Jan<sup>r</sup> 1945 - Mar<sup>r</sup> 1946, pp<sup>r</sup> 72-97.

66. Med Hist Rpt PACD-ATC, Oct - Dec 1944, pp 5-6;  
Hist PACD-ATC, Jan 1945, pp 43-75.
67. Med Hist Rpt, PACD-ATC, Oct - Dec 1944, pp 2-3.
68. Med Hist Rpt <sup>SWP</sup> Southwest Pacific Wg ATC, Aug - Dec 1944; Hists PACD-ATC, Nov 1944, pp 30-38; Dec 1944, pp 16-22, and Jan 1945, pp 43-57; ltr Maj H. E. Wild, Comd Det SWP Wg to CG, SWP Wg, Subj: Report on ATC Det Activity in Philippines, 1 Nov 1944.
69. Hists PACD-ATC, Jan 1945, pp 43-57 and Feb - Apr 1945, pp 91-92; Med Hist Rpt, PACD-ATC, Jan - Mar 1945, p 7.
70. Hist PACD-ATC, Jan 1945, pp 48, 51, 53.
71. The Air Surgeon's Bulletin, Vol 2, No 5 (May 1945), p 142; Guilford and Soboroff, "Air Evacuation, Air Historical Review," in The Journal of Aviation Medicine, Vol. 18, No. 6 (Dec 1947), pp 614-15.
72. Hist PACD-ATC, Feb - Apr 1945, pp 87-97; Robert Sherrod, History of Marine Corps Aviation in World War II, (Washington: Combat Forces Press, 1952), pp 349-350.
73. Hist PACD-ATC, Feb - Apr 1945, pp 97-98; Med Hist Rpt PACD-ATC, Apr - June 1945, pp 6-7, 10; LaFarge The Eagle and the Egg, pp 222-223; Robert Sherrod, History of Marine Corps Aviation in World War II, pp 386-387.
74. Hist PACD-ATC, May - Sept 1945, pp 72-77; Roy E. Appleman, James M. Burns, Russell A. Gugeler, and John Stevens, Okinawa: The Last Battle (Washington: <sup>of Military Dept</sup> Hist. Div., Dept of the Army, 1948), pp 412-414; Sherrod, History of Marine Corps Aviation in World War II, p 414.
75. Hist PACD-ATC, May - Sept 1945, pp 58-62.
76. Hist PACD-ATC, May - Sept 1945, pp 65-72; Hist SWP Wg ATC, Aug 1944 - June 1945, pp 17-19.

77. Med Hist Rpt, PACD-ATC, Jan - Mar 1945, p 7.
78. Med Hist Rpt, PACD-ATC, Jan - Mar 1945, p 7, citing Pac Div ltr, 25-1, subj: Medical Air Evacuation Standard Operating Procedure for the Pacific Division, ATC, 17 Feb 1945; Memo for Giles from Kuter, subj: Answer to CG AFPOA's Comment Regarding Reassignment of Medical Air Evacuation Squadrons from Theater to Air Transport Command, 2 Feb 1945.
79. Med Hist Rpt PACD-ATC, Apr - June 1945, p 11; PACD ltr 25-1, subj: Medical Air Evacuation Standard Operating Procedure for Pacific Division, ATC, 18 June 1945.
80. Med Hist Rpt PACD-ATC, July - Sept 1945, pp 4-5; Hist Air Surg's Off AAFPOA, June 1945; Med Hist Rpt, PACD-ATC, Oct - Dec 1945, p 7.
81. Hists PACD-ATC, Jan 1945, pp 44-48; Feb - Apr 1945; pp 103-104; May - Sept 1945, pp 79-98.
82. Hist PACD-ATC, May - Sept 1945, pp 18, 90-93; Med Hist Rpt, PACD-ATC, July - Sept 1945, pp 3-7.
83. Hist Med Dept Activities of the Central Flying Training Command, Sept 1939 - Nov 1944, III, 202-213.
84. Annual Rpt Opns Div Off of TAS for FY-1945.
85. Hist First Air Force Med Dept, Jan 1941 - Dec 1944, pp 36-39.
86. Hist of Aviation Medicine Third Air Force, 3 Jan 1941 to 31 Dec 1944, pp 37-38; Third AF Reg 25-1, subj: Medical Air Evacuation of Patients within the Third Air Force, 22 Dec 1944; Hist of Aviation Medicine in the Third Air Force, 1 Jan - 15 Sept 1945, p 12.
87. Med Hist Sixth AF, 1942-1945, pp 3, 20; ltrs, Col Walter A. Carlson, Surgeon Sixth AF to TAS, 25 Apr 1944 and 9 Aug 1944; Link and Coleman, Medical Support of the AAF in WW-II, p 399.
88. Memo for Giles from Kuter, subj: ATC Functions in Alaska, 9 Oct 1944; 8th ind Giles to CG ATC, 13 Oct 1944.

824

- 89. Med Hist Eleventh AF, 12 Aug 1940 - 1 May 1944, 1 May 1944 - 1 Jan 1945, 1 Jan - 30 June 1945, and 1 July - 31 Dec 1945; ltr Col. D.M. Young, Surg Eleventh AF to Glenn, 25 Oct 1944; Hist Med and Dental Activities Alaskan Div ATC, 1945, p 1.
- 90. Rpt of Air Support Activities by IV Air Support Comd, Desert Maneuvers, Aug - Oct 1942; ltr Col D. M. Schlatter, D/Air Support AAF to Brig Gen J. H. Rudolph, CG IV Air Support Comd, 28 Oct 1942; Hist Med Sect III TAC Air Div, 20 Jan 1943 - Mar 1944; ltr Lt Col R. T. Stevenson, Comdr 349th Air Force Gp to CG AAF, Attn: Col. Wood S. Woolford, subj: Flight "C", 805th Medical Air Evacuation Transport Squadron, 21 June 1943.
- 91. The Air Surgeon's Bulletin, Vol. 1, No. 4 (Apr 1944), pp 12-13; Guilford and Soboroff, "Air Evacuation, <sup>Over</sup> Air Historical Review," in The Journal of Aviation Medicine, Vol. 18, No. 6 (Dec. 1947), p 614.
- 92. Memo for record by Maj R. C. Love, Opns Div TAS, subj: Conference on Air Evacuation, 13 Apr 1944; Smith, <sup>On</sup> Hospitalization and Evacuation, Zone of Interior p 358.
- 93. Ltr, Brig Gen W. D. Old, CG I TCComd to Kuter, 12 Sept 1944.
- 94. Wkly Rpt, Opns Div TAS, 15 Apr 1944; Initial Med Hist FERD-ATC, 11 Feb 1943 - 30 June 1944; Hist Military Air Transport FERD-ATC, May - Nov 1944, pp 158-160.
- 95. Annual Rpts of Opns Div TAS, for fiscal years 1944 and 1945; S/SGT E. T. Wallace, "GI Airline for the Wounded," in Air Force, Sept 1944, pp 11-13, 21.
- 96. Quarterly Med Hists FERD-ATC, July 1944 - Dec 1945; Hists 592d AAFBU, Fort Dix AAB, July - Sept 1945.
- 97. Hist Military Air Transport FERD-ATC, May - Nov 1944, pp 170-173.
- 98. Ibid, pp 174-177.

99. Hist First AF Med Dept, Jan 1941 - Dec 1944, pp 36-39; Hist Mitchel Field, 1944, pp 49-50; ltr, Col C. H. Morhouse, Surg Station Hosp Mitchel Field to CG First AF, subj: Evacuation of Patients, 2 Mar 1945.
100. Hist FERD-ATC, 1 Aug 1944 - 31 Dec 1944, pp 502-506; Quarterly Med Hist FERD-ATC, July - Sept 1944.
101. Hist FERD-ATC, Jan - Mar 1945, pp 54-55.
102. Ltr, Old to Kuter, 12 Sept 1944; Link and Coleman, Medical Support of the AAF in WW-II, p 382.
103. Hist FERD-ATC, Jan - Mar 1945, pp 55-57. *Under the Force in World War II*
104. Ltr, Morhouse to CG First AF, subj: Evacuation of Patients, 2 Mar 1945; Hist Mitchel Field, Jan - June 1945, pp 55-58.
105. Hist FERD-ATC, Apr - Sept 1945, pp 272-273; Quarterly Med Hists, FERD-ATC, Apr - June and July - Sept 1945; Weekly Activity Rpt, NAD-ATC, 30 July 1945.
106. Quarterly Med Hist FERD-ATC, Oct - Dec 1944; Hist Med Admin and Practice in Fourth AF, 1945, pp 4-6; Hist FERD-ATC, Aug - Dec 1944, p 501.
107. Hist Med Admin and Practice in Fourth AF, 1945; pp 4-6; Hist West Coast Wg PACD-ATC, June - Sept 1945, pp 74-88.
108. Hist FERD-ATC, Apr - Sept 1945, pp 272-280; Hist 556th AAFBU (6th Ferrying GP), Aug 1945.
109. Ltr, Col W. F. Cook, C/Opns Div Off of TAS, to CG's Continental AF's, subj: Air Evacuation for Regional Hospitals, 13 June 1945.
110. Hist FERD-ATC, Apr - Sept 1945, pp 129, 245, 247, 273, 274; memo for CG ATC from Brig Gen Walter E. Todd, C/Opns Plans Div AAF, subj: Domestic Air Evacuation Program, 30 June 1945.
111. Quarterly Med Hist FERD-ATC, July - Sept 1945.

112. Hist<sup>r</sup> FERD-ATC, Apr<sup>r</sup> - Sept<sup>r</sup> 1945, p<sup>r</sup> 288; Hist<sup>r</sup> 434th TC Gp<sup>r</sup>, 2 Sept<sup>r</sup> 1945 - 30 June 1946, p<sup>r</sup> 23; Quart<sup>r</sup> Med<sup>r</sup> Hist<sup>r</sup> FERD-ATC, Oct<sup>r</sup> - Dec<sup>r</sup> 1945.
113. Quart<sup>r</sup> Med<sup>r</sup> Hists<sup>r</sup> FERD-ATC, Feb<sup>r</sup> 1943 - Sept<sup>r</sup> 1945; Hists<sup>r</sup> FERD-ATC, Aug<sup>r</sup> - Dec<sup>r</sup> 1944, p<sup>r</sup> 505, and Apr<sup>r</sup> - Sept<sup>r</sup> 1945, p<sup>r</sup> 280.
114. Annual Rpt<sup>r</sup> 27th AAFBU (AAF SAM) for FY-1945, p<sup>r</sup> 83; Annual Rpt<sup>r</sup> Med<sup>r</sup> Plans and Services Div<sup>r</sup> Off<sup>r</sup> of TAS, FY-1946, incl.
115. Col Andreas G. Oliver and Maj. H. C. Robinson, Jr., "Domestic Air Transportation of Patients," in Air Surgeon's Bulletin, Vol. 2, No. 11 (Nov<sup>r</sup> 1945), pp<sup>r</sup> 400-401; Hist<sup>r</sup> FERD-ATC, Apr<sup>r</sup> - Sept<sup>r</sup> 1945, p<sup>r</sup> 272.

## FOOTNOTES

## CHAPTER VII

1. Quoted in Grant, "Air Evacuation Activities," in The Journal of Aviation Medicine, Vol. 18, No. 2 (Apr 1947), pp. 177-181.
2. The General Board, U.S. Forces, European Theater, Study No. 92: Evacuation of Human Casualties in the European Theater of Operations, ca. 1946, pt. 6.
3. Grant, "Air Evacuation Activities," pp. 177-181.
4. Aero Medical Section, AAF School, Reference Data, 1 Sept. 1945, pp. 20-21; Comments of Col. M. S. White, M.C., at Meeting of Aeromedical Association of the United States, 9 Apr 1946, in The Journal of Aviation Medicine, Vol. 18, no. 2 (Apr 1947), pp. 183-191.
5. Remarks by Col. Erling Berquist at Meeting of Aero-medical Association of the United States, 9 Apr 1946, in The Journal of Aviation Medicine, Vol. 18, No. 2, (Apr 1946), pp. 181-83.
6. Capt. Grace H. Stakeman, ANC, "Medical Care of Casualties in Long Distance Air Evacuation," in The Journal of Aviation Medicine, Vol. 18, No. 2 (Apr 1947), pp. 192-198.
7. The General Board, ETO, Study No. 92: Evacuation of Human Casualties in the European Theater of Operations, ca. 1946. USAF Surgeon General, The Necessity for an Organic Medical Service within the USAF, ca. July 1950.
8. Col. W. L. Lovelace, Lt. Col. A. P. Gragge, and C. W. Bray, Aviation Medicine and Psychology, A Report Prepared for the AAF Scientific Advisory Group, (Dayton: Air Materiel Command, May 1946), pp. 62-66.
9. Air Intel Contact Units reports, Atlantic City, 29 Aug. 1945; Miami Beach, 7 Sept. 1945; and San Antonio, 13 Sept. 1945.

10. Remarks by Brig Gen. Eugen Reinartz at <sup>117</sup>meeting of Aero-medical Association of the United States, 9 Apr 1946, in The Journal of Aviation Medicine, Vol. 18, No. 2, (Apr. 1947), p. 191.
11. Lovelace, Gragge, and Bray, Aviation Medicine and Psychology, pp. 62-66.
12. Remarks of Colonel (M. S.) White, 9 Apr 1946, in The Journal of Aviation Medicine, Vol. 18, No. 2 (Apr. 1947), p. 183.
13. Link and Coleman, Medical Support of the AAF in World War II, p. 971; Annual Rpt. of Med. Plans and Services Division Off. of TAS, FY 1946.
14. Memo for CG ATC from Brig Gen W. E. Todd, C/Opns Plans Dev. AAF, subj: War Department Policy Regarding ATC Intra-Theater Operations, 6 Aug 1945.
15. R&R, Lt Gen I. C. Eaker, Dep. Comdr, AAF to AC/AS-3 and AC/AS-5, subj: Future Plans for Air Transport Command, 10 Dec 1945.
16. Daily Diary, AC/AS Mat. and Services AAF, 14 July 1945.
17. Memo for Eaker from Arnold, subj: Interim Problems of the AAF, 27 Aug 1945.
18. AAF Stat. Digest, World War II, p. 30; Hist. ATC, Oct. 1945 - Dec. 1946, pp. 14-33; Hists ATLD-ATC, Oct. 1945 - Dec. 1946, pp. 114-115 and July - Dec. 1947, p. 61; USAF Stat. Digest, 1948, II, 20.
19. Draft USAF Historical Study No. 134: Troop Carrier Aviation in the USAF, 1945-1955, pp. 3-11.
20. Annual Rpt. Med. Plans and Services Div. Off. of TAS, FY 1946; Hist. 806th MAE Sq., Sept. 1945.
21. In-India-in-Aug.-1945--the-821st
21. Hist. 54th TC Wg., Oct - Dec 1945; Annual Hist. Fifth AF Surgeon, 1946.

22. Hist 803d MAE Sq, 1942-1946; Annual rpt Med Dept Activities AAF China Theater, 6 July - 31 Dec 1945; Hist 1369th AAF BU (Shanghai), 1945.
23. Hist PACD-ATC, Oct 1945 - July 1946, pp 159-161.
24. Hists. IX TC Comd, 5 Nov 1946 - 31 Mar 1946, pp 3-4; ATC, 1 Oct 1945 - 31 Dec 1946, pp 182-186; CNTLD-ATC, Oct 1945 - Sept 1946, pp 39-46; 434th TC Gp, 2 Sept. 1945 - 30 June 1946, p 23; and Quart Med Hist FERD-ATC, Oct - Dec 1945.
25. Annual Rpt Med Plans and Services Div Off of TAS, FY-1946; 2nd ind (ltr EURD-ATC to CG USAFE, subj: Intra-Theater Air Evacuation of Sick and Wounded, 1 Oct. 1945), Brig Gen L. W. Beau, CG EATS to CG USAFE, 1 Nov 1945; Hist, 801st MAE Sq, Dec 1945.
26. Annual Rpt Med Plans and Services Div. Off of TAS, FY-1946; Hist AAF SAM, 1941-1946, Vol. 5, pp 144-161.
27. Annual Rpt Med Plans and Services Div Off of TAS FY-1946.
28. Annual Rpt Med Plans and Services Div. Off of TAS, FY-1946; Hist ATC, Oct. 1945 - Dec. 1946, pp 182-186.
29. Annual Rpt Med Plans and Services Div Off of TAS, FY-1946; Hist ATC, Oct. 1945 - Dec. 1946, pp 182-186; Hist CNTLD-ATC, Oct. 1945-Sept. 1946, pp 39-46.
30. Hists 349th TC Gp, 2 Sept 1945 - 30 June 1946, pp 5-6, 50-51; Hist 349th TC Gp, 1 July 1946 - 7 Sept. 1946, pp 24, 281-285; Hist ATC, Oct. 1945 - Dec 1946, pp 182-186; Med AE Hist CNTLD-ATC, Jan - June 1946.
31. Hists 594th AAFBU (Topeka Army Airfield), Oct and Nov 1946; Hist ATLD-ATC, Jan-June 1947, pp 72-74; Hists. USAF SAM, July 1947 - June 1948, pp 8-9, 47-49, 213-215; Hists 62d TC Gp, 7 Sept - 30 June 1947.
32. Hist ATLD-ATC, Jan-June 1947, pp 72-74; Hist Eastern Pac Wg PACD-ATC, July-Dec 1946, pp 213-225; AAF Stat. Digest, 1946, p 205.

33. Hists. ATLD-ATC, Jan-June 1947, pp. 28-29, 72-74, and July-Dec 1947, Appen. VII; Daily Activity Rpt., Med. Plans and Services Div. Off. of TAS, 28 July 1947; USAF Stat. Digest, 1947, p. 245.
34. Hists. ATLD-ATC, July-Dec 1947, p. 58 and Jan-May 1958, pp. 115-117; USAF Stat. Digest, 1948, I, 259.
35. Ltr., Col. Hal H. McCord, Actg. CofS EURD-ATC to CG USAFE, subj: Intra-Theater Air Evacuation of Sick and Wounded, 1 Oct. 1945.
36. Ltr., McCord to CG USAFE, 1 Oct. 1945 and 2nd Ind., Beau to CG USAFE, 1 Nov. 1945; Hists. 806th MAE Sq., Oct. 1945-July 1946; Med. Hist. Rpts. EURD-ATC, July 1945 - June 1946.
37. Med. Hist. Rpts. EURD-ATC, Apr-June 1946; SOP, NAFD-ATC, Medical Air Evacuation, 4 Apr. 1946.
38. Med. Hist. Data, AAF Station Hospital Newfoundland Base Comd. ATC, Jan-Mar 1946; Quart. Med. Hist. Greenland Base Comd., 4 Apr. 1946; Med. Hist. Iceland Base Comd., 30 June 1946.
39. Ltr., Lt. Joyce C. Went, Actg. Asst. AG, Wiesbaden, to CG AFD-ATC, subj: Numerical Flight Designation for Air Evacuation Aircraft, 4 Apr. 1946; Med. Hist. Rpts. EURD-ATC, Apr-June 1946; Hists. 806th MAE Sq., Mar-Oct 1946; Hist. EURD-ATC, Oct 1945 - June 1947, pp. 132-133; Hist. ATLD-ATC, Jan-June 1947, pp. 72-74.
40. Hists. 806th MAE Sq., Jan-Apr 1947; Daily Activity Rpt., Med. Plans and Services Div. Off. of TAS, 19 June 1947.
41. Hists. ATLD-ATC, Jan-June 1947, pp. 72-74 and July-Dec 1947, p. 61.
42. Hist. ATLD-ATC, July-Dec 1947, Appen. VII; Hists. 1377th AAFBU (Westover AFB), July-Sept. 1947, p. 52, Oct-Dec 1947, p. 214, Jan-Mar 1948, p. 11, and Apr-May 1948, p. 160.
43. Alaskan Air Comd. Off. of Surg., Information Ltr. No. 4, 1 Apr. 1946.

44. Hist<sup>y</sup> 1st MAE Flight, Oct-Dec<sup>r</sup> 1948; Med<sup>y</sup> Hists<sup>y</sup> Alaskan Air Comd<sup>r</sup>, July-Dec<sup>r</sup> 1945 and Jan-June<sup>r</sup> 1946; Hists<sup>y</sup> Alaskan Air Comd<sup>r</sup>, 1945-1947, p<sup>r</sup> 52 and 1948, pp<sup>r</sup> 3, 15.
45. Med<sup>y</sup>-Air-Evac<sup>y</sup> Hist<sup>y</sup>, CNTLD-ATC, Jan-June<sup>r</sup> 1946; Hists<sup>y</sup> PACD-ATC, July-Dec<sup>r</sup> 1946, pp<sup>r</sup> 149-171 and Jan-June<sup>r</sup> 1947, pp<sup>r</sup> 74-84; Hists<sup>y</sup> Eastern Pac<sup>r</sup> Wg<sup>r</sup> PACD-ATC, Oct<sup>r</sup> 1947, pp<sup>r</sup> 260-262, July-Dec<sup>r</sup> 1947, pp<sup>r</sup> 213-225, and Jan-May 1948, pp<sup>r</sup> 278-88; Hists<sup>y</sup> 1455th AAFBU (Great Falls, Mont<sup>r</sup>), Jan-June<sup>r</sup> 1947, pp<sup>r</sup> 20, 42-44, 86, and July-Dec<sup>r</sup> 1947, p<sup>r</sup> 60.
46. Hist<sup>y</sup> FAF Surgeon's Off<sup>r</sup>, Mar<sup>r</sup> 1946; FAF Regs<sup>r</sup> No<sup>r</sup> 25-1, Air Evacuation, 27 May 1946 and No<sup>r</sup> 25-2, Emergency Air Evacuation of Patients, 18 Apr<sup>r</sup> 1946; FAF Surgeon, Annual Hist<sup>y</sup>, 1946.
47. Memo<sup>y</sup> Col<sup>r</sup> George F. Baier<sup>r</sup> III, Surg<sup>r</sup> FAF to Hist<sup>y</sup> Off<sup>r</sup> FAF, subj: Monthly Hist<sup>y</sup> of Surgeon's Section, Fifth AF<sup>r</sup> for Jan<sup>r</sup> 1948, n<sup>d</sup><sup>r</sup>, Hist<sup>y</sup> 801st MAE Sq<sup>r</sup>, Jan-Dec<sup>r</sup> 1948.
48. Hist<sup>y</sup> Wes<sup>r</sup> Pac<sup>r</sup> Wg<sup>r</sup> PACD-ATC, Oct<sup>r</sup> 1945 - Dec<sup>r</sup> 1946, pp<sup>r</sup> 92-97; Med<sup>y</sup> Hist<sup>y</sup> PACD-ATC, Apr-June<sup>r</sup> 1946.
49. Hist<sup>y</sup> Wes<sup>r</sup> Pac<sup>r</sup> Wg<sup>r</sup> PACD-ATC, Oct<sup>r</sup> 1945 - Dec<sup>r</sup> 1946, pp<sup>r</sup> 92-97; Hist<sup>y</sup> PACD-ATC, July-Dec<sup>r</sup> 1946, pp<sup>r</sup> 149-171; Med<sup>y</sup> Hist<sup>y</sup> Rpt<sup>r</sup>, PACD-ATC, July-Sept<sup>r</sup> 1946.
50. Hists<sup>y</sup> PACD-ATC, Jan-June<sup>r</sup> 1947, pp<sup>r</sup> 74-84; July-Dec<sup>r</sup> 1947, pp<sup>r</sup> 85-96, and Jan-May 1948, pp<sup>r</sup> 94-101; Sq<sup>r</sup> A<sup>r</sup> (Prov<sup>r</sup>) 830th MAE Sq<sup>r</sup>, Reg<sup>r</sup> No<sup>r</sup> 25-1, Medical Air Evacuation Procedures, 20 Apr<sup>r</sup> 1948.
51. Hists<sup>y</sup> PACD-ATC, Jan-June<sup>r</sup> 1947, pp<sup>r</sup> 74-84, July-Dec<sup>r</sup> 1947, pp<sup>r</sup> 85-96, and Jan-May 1948, pp<sup>r</sup> 94-101; Hists<sup>y</sup> Wes<sup>r</sup> Pac<sup>r</sup> Wg<sup>r</sup> PACD-ATC, Jan-June<sup>r</sup> 1947, pp<sup>r</sup> 44-48, July-Dec<sup>r</sup> 1947, pp<sup>r</sup> 75-86, and Jan-May 1948, pp<sup>r</sup> 73-78; Hists<sup>y</sup> Eastern Pac<sup>r</sup> Wg<sup>r</sup> ATC, Oct<sup>r</sup> 1946 - July 1947, pp<sup>r</sup> 368-70, July-Dec<sup>r</sup> 1947, pp<sup>r</sup> 213-225, and Jan-May 1948, pp<sup>r</sup> 278-288.
52. USAF Stat<sup>y</sup> Digests, 1947, p<sup>r</sup> 245, and 1948, Vol<sup>r</sup> I, p<sup>r</sup> 259.

*Working with Respect to Examination of Patents, 7 Sept. 1949*

952

- 53. Hist. MATS, 1948, pp 1-38; Ltr, Lt Col H. H. Hewitt, Asst AG, USAF to Comdrs MATS et al, subj: Organization and Mission of Military Air Transport Service (MATS), 26 May 1948.
- 54. MATS Rpt on Selected Activities, July-Sept 1949, p 7; Hist CNTLD-MATS, July-Dec 1950, I, 60; JAAFR No 1-11-62, 16 May 1949; Dept of Defense, Semi-annual Rpt of the Secy of Def. ... July 1 to Dec 31, 1949, p 119. *mem for the Secy of Def. from Rep. of Hon. Louis Schuman, Aug 1949*
- 55. DAF, First Report of the USAF Medical Service, 1 July 1949 - 30 June 1952, pp 1, 63; USAF School of Aviation Medicine, Flight Nursing, Mar 1954, pp 7-10.
- 56. Hist USAF SAM, July-Dec 1949, pp 22-37-38.
- 57. G/O No 11, ATC, 2 Mar 1948; G/O No 7, 1377th AFBU (Westover AFB), 29 May 1948; Hist 520th AT Wg, June-Sept 1948.
- 58. Hist MATS, 1948, pp 67, 71; First Quarterly Rpt of MATS to Secy of Def, 30 Sept 1948, p 41; G/O's Nos 6 and 11, 3 and 24 Feb 1949; Hist CNTLD-MATS, 1949, p 20.
- 59. Hist CNTLD-MATS, July-Dec 1948, pp 105-114.
- 60. ~~Hist CNTLD-MATS, July-Dec 1948, pp 105-114; USAF Stat Digest 1948, I, 259.~~
- 61. Hist CNTLD-MATS, 1949, pp 71-75, 77, 80-81; National Military Establishment, Rpt of USAF MATS for FY-1948, p 40; USAF MATS Quarterly Rpt, Jan-Mar 1949, pp 26-28.
- 62. DOD, Semi-Annual Rpt of the USAF MATS, July-Dec 1946, p 46.
- 63. DAF, First Rpt of the USAF Medical Service, 1 July 1949 - 30 June 1952, p 211.
- 64. Hist CNTLD-MATS, 1949, pp 138-142.
- 65. Hist MATS, Jan-June 1950, pp 169-170.
- 66. Hist MATS, July-Dec 1950, pp 245-255.

67. Hist<sup>r</sup> CNTLD-MATS, July-Dec<sup>r</sup> 1950, I, 4-6.
68. USAF Stat<sup>r</sup> Digest, FY-1951, p<sup>r</sup> 75.
69. Hist<sup>r</sup> 1501st AT Wg<sup>r</sup>, PACD-MATS, 1 June<sup>r</sup> - 31 Dec<sup>r</sup> 1948, pp<sup>r</sup> 36-39.
70. Ibid<sup>r</sup>; Hist<sup>r</sup> CNTLD-MATS, July-Dec<sup>r</sup> 1948, p<sup>r</sup> 73.
71. Hist<sup>r</sup> CNTLD-MATS, Jan-June<sup>r</sup> 1950, pp<sup>r</sup> 69-70; Hist<sup>r</sup> Alaskan Air Comd<sup>r</sup>, Jan-June<sup>r</sup> 1950, p<sup>r</sup> 52; Med<sup>r</sup> Hist<sup>r</sup> Alaskan Air Comd<sup>r</sup>, Jan-June<sup>r</sup> 1953, pp<sup>r</sup> 6-7.
72. Hist<sup>r</sup> ATLD-MATS, June<sup>r</sup>-Dec<sup>r</sup> 1948, pp<sup>r</sup> 95-97.
73. Hists<sup>r</sup> ATLD-MATS, 1949, pp<sup>r</sup> 109-111 and CNTLD-MATS, 1949, pp<sup>r</sup> 78-79.
74. Hist<sup>r</sup> CNTLD-MATS, Jan-June<sup>r</sup> 1950, pp<sup>r</sup> 8-10, 65.
75. Hists<sup>r</sup> ATLD-MATS, June<sup>r</sup>-Dec<sup>r</sup> 1948, pp<sup>r</sup> 95-97, and 1949, pp<sup>r</sup> 109-111; USAF SAM, Flight Nursing, Sept<sup>r</sup> 1949, pp<sup>r</sup> 8-10; MATS Rpt<sup>r</sup> on Selected Activities, 1 July<sup>r</sup> - 30 Sept<sup>r</sup> 1949, p<sup>r</sup> 7.
76. Hist<sup>r</sup> ATLD-MATS, 1949, pp<sup>r</sup> 109-111; Hist<sup>r</sup> MATS, 1949, p<sup>r</sup> 87.
77. Hist<sup>r</sup> MATS, July-Dec<sup>r</sup> 1950, p<sup>r</sup> 37; Hists<sup>r</sup> 1454th MAE Sq<sup>r</sup>, Aug<sup>r</sup> and Sept<sup>r</sup> 1950.
78. Hist<sup>r</sup> PACD-MATS, Jan-May 1949, pp<sup>r</sup> 87-94; <sup>USAF</sup> Sam, Flight Nursing, Sept<sup>r</sup> 1949, pp<sup>r</sup> 8-10.
79. Hist<sup>r</sup> PACD-MATS, Jan-May 1949, pp<sup>r</sup> 51, 76, 87-94.
80. Hists<sup>r</sup> PACD-MATS, June<sup>r</sup>-Dec<sup>r</sup> 1949, pp<sup>r</sup> 104-106, and Jan-June<sup>r</sup> 1950, pp<sup>r</sup> 12, 62-64.
81. USAF Stat<sup>r</sup> Digests, 1948, I, 259 and FY-1951, p<sup>r</sup> 75; Dept<sup>r</sup> of Def<sup>r</sup>, Semi-Annual Rpt<sup>r</sup> of USAF MATS, July-Dec<sup>r</sup> 1949, p<sup>r</sup> 46.

554

82. Dept of Def, Semi-Annual Rpt of the Secy of Def.... July 1 to December 31, 1949, p 119; Dept of Def, Second Rpt of the Secy of Def....for the Fiscal year 1949, p 121-123; PACD-MATS, Air Evacuation in the Pacific, Jan 1953, Appen. C.
83. Hist PACD-MATS, Jan - May 1949, p 89.

## FOOTNOTES

## CHAPTER VIII

1. Semi-Annual Hist<sup>y</sup>, Off<sup>y</sup> of the Surgeon General<sup>y</sup> USAF, Jan<sup>y</sup> - Jun<sup>y</sup> 1951, p<sup>y</sup> 34.
2. Hist<sup>y</sup> MATS, Jan<sup>y</sup> - Jun<sup>y</sup> 1950, pp<sup>y</sup> 103-104.
3. Hist<sup>y</sup> FEAF, July<sup>y</sup> - Dec<sup>y</sup> 1949, p<sup>y</sup> 148.
4. USAF Hist<sup>y</sup> Study<sup>y</sup> 71<sup>1</sup> USAF Operations in the Korean Conflict, 25 Jun<sup>y</sup> - 1 Nov<sup>y</sup> 1950, p<sup>y</sup> 2; Hists<sup>y</sup> 801st MAE<sup>y</sup> Sq<sup>y</sup>, Feb<sup>y</sup> 1950 and 374th Med<sup>y</sup> Gp<sup>y</sup>, Apr<sup>y</sup> 1950; G<sup>y</sup> O<sup>y</sup> No<sup>y</sup> 9, FEAF, 28 Feb<sup>y</sup> 1950; RSR, FEAF Surg<sup>y</sup> to FEAF Hist<sup>y</sup> Br<sup>y</sup>, subj: Historical Data - Surgeon, 30 Sept<sup>y</sup> 1950.
5. Hist<sup>y</sup> PACD<sup>y</sup>-MATS, Jan<sup>y</sup> - Jun<sup>y</sup> 1950, pp<sup>y</sup> i, ii.
6. USAF HS-71, pp<sup>y</sup> 5-6; Hist<sup>y</sup> 21st TC Sq<sup>y</sup>, July<sup>y</sup> - Oct<sup>y</sup> 1950.
7. Hist<sup>y</sup> Combat Opns<sup>y</sup> Fifth AF, 25 Jun<sup>y</sup> - 31 Oct<sup>y</sup> 1950, p<sup>y</sup> 10.
8. Msg<sup>y</sup> ADCOM (KIAG) to CG FEAF, 2 July<sup>y</sup> 1950; FEAF D/Opns<sup>y</sup> Transport Opns<sup>y</sup> Log, 3 July<sup>y</sup> 1950; PACD<sup>y</sup>-MATS, Air Evacuation in the Pacific, Jan<sup>y</sup> 1953, p<sup>y</sup> 35.
9. FEAF Opns<sup>y</sup> Hist<sup>y</sup>, I, 35.
10. USAF, Korean Evaluation Group (Barcus Board), An Evaluation of the Effectiveness of the United States Air Force in the Korean Campaign, bk<sup>y</sup> II, vol<sup>y</sup> VI: Logistics, pp<sup>y</sup> 27-30; Hist<sup>y</sup> 8th Med<sup>y</sup> Gp<sup>y</sup>, July<sup>y</sup> 1950; Capt<sup>y</sup> Annis G. Thompson, The Greatest Airlift, The Story of Combat Cargo (Tokyo: Dai Nippon Printing Co<sup>y</sup>, 1954), p<sup>y</sup> 49.
11. Barcus Bd<sup>y</sup> Rpt<sup>y</sup>, bk<sup>y</sup> II, vol<sup>y</sup> VI, p<sup>y</sup> 29.
12. FEAF Com<sup>y</sup> Car<sup>y</sup> Con<sup>y</sup> (P) memo for record, subj: Field Trip with General Tunner, 3 Oct<sup>y</sup> 1950, 10 Oct<sup>y</sup> 1950.

13. Hist/FEAF Com[Car]Com(P), 10-30 Sept/1950, Traffic and Surgeon Sections.
14. 3d Air Rescue Sq/, Study of the Third Air Rescue Squadron in Relation to the Korean War, 1 May - 31 Dec/1950, pp/ 285-291; msg/ AX-4205, CG FEAF to C[of]S USAF, 19 Aug/1950; USAF Daily Staff Digest, 22 Aug/1950.
15. Ltr/, Brig/ Gen/ John P. Henebry, Comdr/ 315th Air Div/ (Com Car), to CG FEAF, subj: Medical Air Evacuation Far East Command, 22 Feb/1951.
16. 315th Air Div/, Flexible Air Transport, 15 Nov/1951.
17. Hist/FEAF Com[Car]Com(P), 10-30 Sept/1950, Traffic and Surgeon Sections; Hist/FAF Surgeon Division, Sept./1950.
18. Hist/FEAF Com[Car]Com(P), 10-30 Sept/1950, Surgeon Section; Hists/FAF Surgeon's Division, Aug/ and Sept/1950; G/O No/ 69, FEAF, 14 Sept/1950.
19. Hist/FEAF Com[Car]Com(P), 10-30 Sept/1950, Surgeon Section; FEAF Com[Car]Com Opns Memo No/ 2, Air Evacuation from Korea, 21 Sept/1950.
20. Hist/FEAF Com[Car]Com(P), 10-30 Sept/1950, Traffic Section; Thompson, The Greatest Airlift, pp./16, 54; Hist/FAF Surgeon's Division, Sept/1950.
21. Hist/FEAF Com[Car]Com(P), 10 Sept/1950 - 24 Jan/1951, p/ 55; FEAF Com[Car]Com(P) Memo for Record, subj: Field Trip with General Turner, 3 Oct/1950, 10 Oct/1950.
22. Hist/FEAF Com[Car]Com(P), 10 Sept/1950 - 24 Jan./1951, pp/ 63, 67, 68, 75, 85.
23. FEAF Comd/ Ref. Bk/, 1 Nov/1950, p/ 81.
24. Hist/FEAF Com[Car]Com, 10 Sept/1950 - 24 Jan/1951, pp/ 97, 101, 103, 106, 107.
25. Ibid/, pp/ 60, 91-92.

26. Ibid, pp 55-56; Dept of Def OPI, News Digest Service, 9 Oct 1950.
27. Hist FEAFCOM Com Car Com, 10 Sept 1950 - 24 Jan 1951, pp 109-114.
28. Hist FEAFCOM Com Car Com (a), 10 Sept 1950 - 24 June 1951, pp 97, 104, 121, 126; FEAFCOM Com Car Com's Korean Airlift, 10 Sept - 31 Dec 1950, p 54.
29. Hist 315th Air Div (Com Car), Jan - June 1951, pp 4, 14, 100; Hist 801st MRE Sq, 25 Jan - 31 Mar 1951, p 4.
30. Hist 315th Air Div (Com Car), Jan - June 1951, pp 101-102, 108; Hist 801st MRE Sq, Apr 1951, pp 9-11.
31. Hist 315th Air Div (Com Car), Jan - June 1951, pp 100-101, 103-104; Hist 801st MRE Sq, Feb 1951, p 10.
32. Hist 315th Air Div (Com Car), Jan - June 1951, pp 100, 104.
33. Hist 315th Air Div (Com Car), Jan - June 1951, p 105; Hist 801st MRE Sq, June 1951, p 10.
34. Hist 315th Air Div (Com Car), Jan - June 1951, p 102; US Stat Digest FY-1951, p 61.
35. Msg AX-4205, CG FEAFCOM to C of S USAF, 14 Aug 1950; memo for Maj Gen R. M. Ramey, D/Opns USAF from Overseas Div D/Opns, subj: Helicopters for Front-Line Evacuation, 20 Aug 1950; FEAFCOM Opns Hist I, 119.
36. Msg CX-60724, CINCPAC to DEPTAR, 20 Aug 1950; R. Earl McClendon, Army Aviation, 1947-1953 (Air University Documentary Research Study, May 1954), pp 32-33.
37. 3d Air Resc Sq, Study, 1 May - 31 Dec. 1950, pp 283-295; Hist Data Air Resc Service, Jan - June 1951, pp 47, 94; ltr, Maj G. D. Specht, Adj Air Resc Service to CG, Tac Air Comd, subj: Notes on Combat Helicopter Operations, 1 March 1951.

38. Ltr Gen. N. F. Twining, Vice C of S USAF to CG FEAF, subj: Helicopter Requirements, 23 Feb 1951.
39. Hist Air Resc. Service, July - Dec 1951, pp 45-59; ltr Col E. E. Toro, Adj Gen FEAF to D/Rqmts USAF, subj: Helicopter and Liaison Aircraft Requirements, 24 July 1951.
40. US Air Force Medical Service Digest, vol II, no 4 (May 1951), p 2.
41. E. D. Churchill in Journal of the American Medical Association, 17 Mar 1951, quoted in 315th Air Div. (Com Car), Flexible Air Transport, 15 Nov 1951, pp 40-41.
42. Quoted in Air Rescue Service, Rescue Information Manual, Annex 8-1.
43. Med Plans and Services Div D/Plans and Hosp, TAS USAF, Theater Aeromedical Evacuation System, p 19; Hist 315th Air Div (Com Car), Jan - June 1951, I, 107-108; ltr Brig Gen John P. Henebry, CG, 315th Air Div (Com Car) to CG FEAF, subj: Medical Air Evacuation Far East Command, 22 Feb 1951.
44. Hist of OFF of The Surgeon General USAF, July - Dec 1950, pp 12, 57; Hist SAM, July - Dec 1950, p 8.
45. Hist of OFF of The Surgeon General USAF, July - Dec 1950, pp 59-60; Hist SAM, Jan - June 1951, p 8.
46. Hist of OFF of The Surgeon General USAF, July - Dec 1950, pp 17-18, 62.
47. Hists SAM, July - Dec 1950, pp 53-56, Jan - June 1951, pp 55-62, and July - Dec 1951, pp 64-72; Hists Gunter Branch, USAF SAM, Jan - Mar 1952, Apr - June 1952, July - Dec 1952, and Jan - June 1953; Dept of AF, First Report of the USAF Medical Service, 1 July 1949 - 30 June 1952, pp 107-109.
48. Dept of AF, First Report of the USAF Medical Service, 1 July 1949 - 30 June 1952, pp 33 - 34.

49. Desp<sup>t</sup> form, Brig<sup>t</sup> Gen<sup>l</sup> W. F. Hall, Air Surg<sup>t</sup> MATS to Dep<sup>t</sup> C<sup>o</sup>of<sup>s</sup> Opns<sup>t</sup> MATS, subj: Utilization of Helicopters in Performance of Air Evacuation Mission, 15 Aug<sup>t</sup> 1950; memo for Maj<sup>t</sup> Gen<sup>l</sup> L. S. Kuter, Comdr<sup>t</sup> MATS from Col<sup>l</sup> R. T. Kight, Comdr<sup>t</sup> Air Resc<sup>t</sup> Service, subj: Utilization of Helicopters in Performance of Air Evacuation Mission, 11 Aug<sup>t</sup> 1950; Ltrs<sup>t</sup> Maj<sup>t</sup> Gen<sup>l</sup> G. O. Barcus, CG TAC to CG Con<sup>t</sup>AC, subj: Helicopter Assault Transport Squadrons, and CG TAC to D/Rqmts<sup>t</sup> USAF, subj: T/OSE for Helicopter Assault Transport Squadrons, 23 Sept<sup>t</sup> 1950; ltr<sup>t</sup>, Maj<sup>t</sup> Gen<sup>l</sup> R. M. Ramey, D/Opns<sup>t</sup> USAF to Comdr<sup>t</sup> MATS, subj: Establishment of Helicopter Evacuation Squadron, 22 Nov<sup>t</sup> 1950.
50. Hist<sup>t</sup> Off<sup>t</sup> of the Surgeon<sup>t</sup> General<sup>t</sup> USAF, Jan<sup>t</sup> - June<sup>t</sup> 1951 p<sup>t</sup> 36; Dept<sup>t</sup> of AF, First Report of the USAF Medical Service, 1 July 1949 - 30 June 1952, p<sup>t</sup> 37. *1st*
51. Ltr<sup>t</sup>, Maj<sup>t</sup> Gen<sup>l</sup> W. R. Wolfenbarger, CG Ninth AF (Tactical) to CG TAC, subj: Air Evacuation, Exercise "SOUTHERN PINE," 5 Apr<sup>t</sup> 1951; 1st ind<sup>t</sup> Barcus<sup>t</sup> to Dep<sup>t</sup> C<sup>o</sup>of<sup>s</sup> Opns, USAF, 5 Apr<sup>t</sup> 1951; 2d ind<sup>t</sup> Maj<sup>t</sup> Gen<sup>l</sup> R. M. Ramey, Dep<sup>t</sup> C<sup>o</sup>of<sup>s</sup> Opns<sup>t</sup> USAF to CG TAC, n<sup>o</sup> d<sup>t</sup>; Hist<sup>t</sup> Off<sup>t</sup> of the Surgeon<sup>t</sup> General<sup>t</sup> USAF, Jan<sup>t</sup> - June<sup>t</sup> 1951, p<sup>t</sup> 36.
52. USAFHS No<sup>t</sup> 129, Air Force Participation in Joint Army - Air Force Training Exercises, 1951 - 1954, pp<sup>t</sup> 9-10, 20-21.
53. McClendon, Army Aviation, pp<sup>t</sup> 21-24.
54. Hist<sup>t</sup> Eighteenth AF, 28 Mar<sup>t</sup> - 31 Dec<sup>t</sup> 1951, pp<sup>t</sup> 27-30; USAFHS No<sup>t</sup> 129, pp<sup>t</sup> 33-34, 42-43, 55-56, 68-69; McClendon, Army Aviation, pp<sup>t</sup> 26-27.
55. Dept<sup>t</sup> of AF, First Report of the USAF Medical Service, 1 July 1949 - 30 June 1952, pp<sup>t</sup> 33-34, 35-37.
56. Hist<sup>t</sup> USAFE Surg<sup>t</sup>, May - June<sup>t</sup> 1951, p<sup>t</sup> 10; Hist<sup>t</sup> Twelfth AF Surg<sup>t</sup>, May - June<sup>t</sup> 1951, p<sup>t</sup> 5; Hist<sup>t</sup> 1st MAE Sq<sup>t</sup>, July - Aug<sup>t</sup> 1951.

57. Hists of 1st MAE Sq., Sept. - Oct. and Nov. - Dec. 1951; Hists of USAFE Surg. Nov. - Dec. 1951, pp. 3-4, and Twelfth AF, Nov. - Dec. 1951, p. 18.
58. Hists of Twelfth AF Surg., Jan. - Dec. 1952; Hists 1st MAE Sq., Jan. - Oct. 1952.
59. Hist of USAFE Surg. Nov. - Dec. 1952, p. 17; Hists of 1st and 3d Aeromedical Evacuation Flights, Jan. - Feb. 1953.
60. Hist of Off. of Surg. Twelfth AF, Jan. - June 1953, pp. 18-19; Hists of 1st AE Flight, Jan. - June 1953.
61. Hist of Surgeon's Off. Third AF, Jan. - June 1953, pp. 28-30; Hists of 3d AE Flt., Jan. - June 1953.
62. Ltr of Col. C. B. Warden, AG FEC to CG's Eighth Army et al., subj: Air Transportation of Patients Within the Far East Command and Korea, 18 Dec. 1951.
63. Hist of Air Rescue Service, Jan. - June 1953, p. 48; FEAF Report on the Korean War, II, 44-45; Hist of 315th Air Div. (Com Car), Jan. - June 1952, 167-168; Hist of Air Rescue Service, July - Dec. 1951, pp. 45-59.
64. Hist of Off. of Surgeon FEAF, Jan. - June 1953, pp. 8-13.
65. Hist of 801st MAE Sq., June 1951; G.O. No. 67, 315th Air Div. (Com Car), 6 June 1951; Hist of 801st MAE Sq., Feb. 1952.
66. 315th Air Div. (Com Car) Reg. No. 60-5, Standing Operating Procedure for Air Evacuation Flights, 27 July 1951.
67. Hists of 315th Air Div. (Com Car), Jan. - June 1952, pp. 7-12 and July - Dec. 1952, pp. 8-9, 84-85.
68. Hist of 315th Air Div. (Com Car), July - Dec. 1952, pp. 8-9; Rpt., Utilization of the C-124 for Medical Air Evacuation in the Far East Theater, in Hist of 801st MAE Sq., Oct. 1951.

69. Hists of 315th and 374th TC Wgs, Jan - June 1953; Hist of 315th Air Div (Com Car), July - Dec 1952, p 90; Thompson, The Greatest Airlift, pp 239-242.
70. US/F Stat Digest, FY-1953, p 79; Hist of 315th Air Div (Com Car), July - Dec 1953, p 37.
71. Thompson, The Greatest Airlift, p 234; Hist of 315th Air Div (Com Car), July - Dec 1952, p 77; Hist of 8th Ftr Bmr Wg, July - Dec 1952, p 55.
72. 315th Air Div (Com Car), Flexible Air Transport, pp 40-41; Col Allen D. Smith, "Air Evacuation -- Medical Obligation and Military Necessity" in Air University Quarterly Review, vol VI, No. 2 (Summer 1953), pp 98-111.
73. Smith, "Air Evacuation -- Medical Obligation and Military Military Necessity," pp 110-111.
74. FEAF Report on the Korean War, II, 24.
75. Hist of Off of Comd Surg FEAF, Jan - June 1953, pp 8-13.
76. MATS Participation in the Korean Emergency, July - Dec 1950, pp 4-13; Hist of PACD-MATS, July - Dec 1950, p 68.
77. Briefing for General Kuter by Maj. D. J. Ferguson, Comdr. 1453d MAE Sq, 21 Oct 1950; PACD-MATS, Air Evacuation in the Pacific, Jan 1953, p 36; MATS Participation in the Korean Emergency, June - Dec 1950, p 8; Col Warner F. Bowers, "Evacuating Wounded from Korea," in Army Information Digest, Dec 1950, pp 49-51.
78. Ferguson Briefing, 21 Oct 1950; MATS Participation in the Korean Crisis, June - Dec 1950, pp 111-113; Hist of MATS, July - Dec 1950, pp 104-105.
79. Ferguson Briefing, 21 Oct 1950; MATS Participation in the Korean Emergency, June - Dec 1950, pp 115-116; Hist of MATS, July - Dec 1950, p 108-109.
80. MATS Participation in the Korean Crisis, July - Dec 1950, p 111; Hist of PACD-MATS, July - Dec 1950, p 96.

542

pp 81, 104-118, 137-144;

81. Hist PACD-MATS, July - Dec 1950, pp 96-98; Hist MATS, July - Dec 1950, pp 81, 104-118, USAF Stat. Digest, FY-1951, p 76; G.O. No 150, FEAF, 9 Apr 1951, Hist CNTLD-MATS, Jul - Dec 1950, p 67.
82. Hist MATS, July - Dec 1950, pp 116-117.
83. Hist PACD-MATS, Jan - Jun 1951, p 80.
84. MATS Participation in the Korean Crisis, Jun - Dec 1950, p 121.
85. USAF Stat. Digest, <sup>Dist. 72</sup> ~~Stats~~ FY-1951, p 76, FY-1952, p 66, and FY-1953, p 520; Dept of AF, Second Rpt of the USAF Medical Service, 1 July 1952 - 30 June 1954, p 155; Hist PACD-MATS, July - Dec 1952, p 100.
86. Briefing for General Kuter by Col J. G. Moore, 26 July 1951; ltr, Moore to Brig Gen W. F. Hall, Air Surg MATS, 16 July 1952.
87. Hists PACD-MATS, Jan - Jun 1951, p 82 and July - Dec 1951, p 80.
88. PACD-MATS, Air Evacuation in the Pacific, Jan 1953, pp 74-80.
89. PACD-MATS, Air Evacuation in the Pacific, Jan 1953, pp 48-53; Hists PACD-MATS, Jan - Jun 1951, pp 86-87, July - Dec 1951, pp 85-88, Jan - Jun 1952, pp 106-109, and July - Dec 1952, pp 110-111.
90. SOP, MATS Patient Movement Control System; Air Evacuation in the Pacific, Jan 1953, pp 58-68.
91. PACD-MATS, Air Evacuation in the Pacific, Jan 1953, pp 50, 60, 61.
92. Bowers, "Evacuating Wounded from Korea," ~~Army Information Digest~~, Dec. 1950, pp 49-51.
93. PACD-MATS, Air Evacuation in the Pacific, Jan 1953, p 81; Hist MATS, July - Dec 1951, p 214.

94. Richard F. Dempewolf, "I Rode the Airlift to the Orient, Part II," Popular Mechanics, Jan. 1951, pp. 100.
95. Hist. CNTLD-MATS, July - Dec 1950, pp. 4-5, 69-71.
96. Hist. CNTLD-MATS, July - Dec 1950, pp. 64-65; Hist. 5th and 9th Med Gps, July 1950.
97. Hists. 5th and 9th Med Gps, July - Oct 1950; Dept. of AF, First Report of the USAF Med. Service, 1 July 1949 - 30 June 1952, p. 61; Hist. CNTLD-MATS, July - Dec 1950, p. 64.
98. Hist. MATS, July - Dec 1950, p. 140; Hist. CNTLD-MATS, July - Dec 1950, p. 66; Hists. 5th and 9th Med Gps, Oct and Nov 1950.
99. Hist. 5th and 9th Med Gps, Sept 1950; Hist. MATS, July - Dec 1950, p. 142; Hist. CNTLD-MATS, July - Dec 1950, p. 68.
100. Hist. CNTLD-MATS, Jan - June 1951, p. 60-61; Hist. MATS, July - Dec 1950, p. 142; Hist. 5th and 9th Med Gps, Dec 1950.
101. Hists. CNTLD-MATS, Jan - June 1951, pp. 60-65 and July - Dec 1951, pp. 1-2, 117.
102. Hists. CNTLD-MATS, Jan - June 1952, 26-31, 66-84 and July - Dec 1952, pp. 49-57.
103. USAF Stat. Digests, FY-1951, p. 74, FY-1952, p. 68 and FY-1953, p. 522.
104. Hist. MATS, July - Dec 1950, pp. 145-146.
105. Hists. MATS, Jan - June 1951, p. 292 and July - Dec 1951, pp. 220-221; Hist. CNTLD-MATS, Jan - June 1953, pp. 64-65; Hist. Caribbean Air Comd, Jan - June 1953, pp. 8-9.
106. Hists. MATS, July - Dec 1950, p. 145 and Jan - June 1951, p. 292; Med. Hist. Alaskan Air Comd, Jan - June 1953; Hists. CNTLD-MATS, July - Dec 1952, p. 68 and Jan - June 1953, p. 72.

107. Hists of MATS, Jan - Jun 1951, pp 290-291; July - Dec 1951, pp 217 - 218; and Jan - Jun 1953, pp 237 - 238; Hist of ATLD-MATS, Jan - Jun 1952, pp 60-69.
108. Hists of MATS, Jan - Jun 1951, pp 291-292 and July - Dec 1951, pp 211-212, 218-219; Med Hist of Northeast Air Comd, Jan - Jun 1953, pp 8-9; Hists of ATLD-MATS July - Dec 1951, pp 59-60, Jan - Jun 1952, p 68 and July - Dec 1952, p 71; Med Hist of ATLD-MATS, Jan - Jun 1953, pp 16-19.
109. USAF Stat Digests, FY-1951, p 74, FY-1952, p 68, and FY-1953, p 522.
110. Dept of Defense OPI, Remarks by Thomas K. Finletter . . . at a Luncheon of the Aviation Writers Association . . . September 21, 1950.
111. Hist of MATS, Jan - Jun 1951, p 2.
112. AFR No 23-17, Organization-Field: Military Air Transport Service (MATPS), 26 Aug 1953.

248

## FOOTNOTES

## Chapter IX

1. Dept of AF, Second Report of the USAF Medical Service, 1 July 1952 - 30 June 1954, p 47, citing Joint Army and Air Force Reg 1-11-62, 16 May 1949 and AFR 160-5 (AR 40-95), 8 Dec 1953.
2. Eighteenth AF, Concept of Aeromedical Evacuation in Overseas Combat Areas as Approved by Headquarters USAF on 14 March 1955.
3. A Chronological Hist of the Eighteenth AF, 1951 - 1956.
4. Ibid, p 10.
5. Med Hist Eighteenth AF, July - Dec 1953, pp 2-5; Itr, Maj Gen H. G. Armstrong, USAF Surgeon General, to Comdr Tactical Air Comd, subj: USAF Tactical Medical Center, 1 Oct 1953.
6. Hist T/C, Jan - June 1954, VI, 7; Hist 1st Aeromedical Group, Jan - June 1954; USAFHS No. 129: Air Force Participation in Joint Army - Air Force Training Exercises, 1951 - 1954, pp 104, 117-119.
7. Hist USAF Tactical Med Center, July 1954 - Jan 1955; A Chronological Hist. of the Eighteenth AF, 1951 - 1956, p 19.
8. Med Hist Eighteenth AF, July - Dec 1954, p 39; Eighteenth AF, Concept of Aeromedical Evacuation in Overseas Combat Areas as Approved by USAF, 14 March 1955.
9. A Chronological Hist. of the Eighteenth AF, 1951 - 1956, pp 17, 19, 20; Hist 516th TC Gp (Assault-Rotary Wg), 8 March - 30 June 1955.
10. Hist T/C, Jan - June 1955, III, 31-35; Hist Joint Air Transportation Board, 2 July 1951 - 3 March 1955, p 30.

844

11. Hist. TAC, July - Dec 1955, VI, 2; Med. Hist. Eighteenth AF, July - Dec 1955, pp. 7-8; Hist. 1706th Air Transport Gp, Light (Air Evac), July - Dec 1955, pp. 15-16; Final Rpt. Exercise SAGE BRUSH, 15 Feb. 1956; Hist. USAF Tac. Med. Center, July - Dec 1955, pp. 49-62; Hist. 516th ~~Exo. Carrier~~ <sup>TAC</sup> Co. (Assault-Rotary Wing), July - Dec 1955; USAF Unilateral Critique Exercise SAGE BRUSH, 8 Dec 1955, pp. 49-50.
12. Hists. ~~TAC~~ <sup>TAC</sup> Tac. Air-Comd., Jan - June 1956, p. 29 and July - Dec 1956, pp. 12-20, 31.
13. AFM 160-27, FM 31-8, NAVMED P-5047, Medical Services in Joint Overseas Operations, 9 Jan. 1956; Dept. of AF, Fourth Annual Report of the USAF Medical Service, 1 July 1955 - 30 June 1956, p. 13.
14. Memo for Members of the Armed Forces Policy Council by C. E. Wilson, subj: Clarification of Roles and Missions to Improve the Effectiveness of Operation of the Department of Defense, 26 Nov 1956.
15. Hist. USAF Tac. Med. Center, July - Dec 1955; Med. Hist. Eighteenth AF, July - Dec 1955, pp. 2-3.
16. Hist. USAF Tac. Med. Center, Feb. - June 1955, pp. 3-4; Dept. of AF, Fourth Annual Rpt. of the USAF Med. Service, 1 July 1955 - 30 June 1956, pp. 13-14.
17. Hist. USAF Tac. Med. Center, Jan. - June 1956, p. 32; Dept. of AF, Fifth Annual Rpt. of the USAF Med. Service, 1 July 1956 - 30 June 1957, pp. 21-22.
18. Hists. ~~TAC~~ <sup>TAC</sup> Tac. Air-Comd., July - Dec 1956, pp. 28-29 and July - Dec 1957, pp. 37-45.
19. Hist. ~~TAC~~ <sup>TAC</sup> Tac. Air-Comd., July - Dec 1957, pp. 28-31; Hists. USAF Tac. Med. Center, Jan. - June 1957 and 1 July - 1 Sept 1957.
20. Hists. ~~TAC~~ <sup>TAC</sup> Tac. Air-Comd., July - Dec 1958, pp. 103-105 and Jan - June 1959, p. 47.
21. Hist. ~~TAC~~ <sup>TAC</sup> Tac. Air-Comd., Jan - June 1959, p. 16.

22. Ninth AF Ltr. No. 20-34, subj: Mission of the First Aeromedical Evacuation Group, 4 Nov 1957.
23. Hist. 1st Aeromedical Evacuation Gp., July - Dec 1957, pp. 48 - 51; Med. Hists. Ninth AF, July - Dec 1957, pp. 37-38, Jan - June 1958, pp. 32, 58-59, July - Dec 1958, pp. 25, 28-29, and July - Dec 1959, pp. 25, 47.
24. Hist. ~~Continental Air Comd.~~, Jan - June 1959, pp. 83-86, 87-88, 103-104; "Focal Point: The Reserve Medic," in The Air Reservist, Mar 1960, pp. 8-9.
25. Hist. ~~Continental Air Comd.~~, July - Dec 1955, p. 152; Hist. 1706th ~~Air Transp. Gp.~~ (L-AE), Jan - June 1956, pp. 15-16.
26. Hists. ~~Continental Air Comd.~~, Jan - June 1957, p. 94 and July - Dec 1957, p. 130.
27. Ibid., July - Dec 1958, p. 92.
28. Ibid., Jan - June 1959, p. 148; ~~Continental Air Comd.~~ ANG Operational Readiness Rpt., 24 July 1959, pp. 89-91.
29. Dept. of AF, Second Report of the USAF Medical Service, 1 July 1952 - 30 June 1954, p. 33 and Fourth Annual Report of the USAF Medical Service, 1 July 1955- 30 June 1956, pp. 21, 51.
30. Hists. Gunter Branch - USAF School of Aviation Medicine, July - Dec 1953, p. 6 and Jan - June 1959, p. v; Gunter Branch - USAF SAM, "Guest Brochure," Aug 1956, pp. 7-8, 9, 14-15; USAF Training Prospective, sect. A-90, Sept 1955.
31. Hist. Gunter Branch - USAF SAM, Jan - June 1954, p. 73.
32. Ibid., July - Dec 1954, p. 4-5.
33. Ltr. Col. Fratis L. Duff, Comdr. Gunter Br - USAF SAM, to Comdr. 1st Aeromedical Transport Gp., subj: Medical Training in Polio Evacuation Flights, 14 May 1957; 1st ind. Col. O. H. Rigley, Jr., Comdr. 1st Aeromedical Transport Gp. to Comdr. Gunter Br. - USAF SAM, 17 May 1957; Hists. Gunter Br. - USAF SAM, Jan - June 1957, pp. 16-17 and July - Dec 1957, pp. 23-24.

848

34. Ltr, Duff to Commandant USAF SAM, subj: Changes to Aeromedical Career Field, 17 June 1957, 3d ind., Hq. USAF to Comdr Air University, n.d.; Hist Gunter Br USAF SAM, July - Dec 1958, pp 17.
35. Ltr Duff to Commandant USAF SAM, subj: Student Prerequisites, 20 Nov 1957; ltr, Brig Gen B. C. Harrison, Dep D/Personnel Procurement and Tng USAF to ALL USAF Comds, subj: Prerequisite for Attendance at Advanced Technical Courses, 27 May 1958; Hist Gunter Br USAF SAM, Jan - June 1958, pp 33-35.
36. Hist Gunter Br USAF SAM, Jan - June 1959, pp 35-36.
37. Dept of AF, Fifth Annual Report of the USAF Medical Service, 1 July 1956 - 30 June 1957, p 21 citing Dept of Defense Directive No 5160.22, 18 Mar 1957.
38. Med Hist USAFE, July - Dec 1953, pp 20-21; med hist, Twelfth AF, July - Dec 1953, pp 28-31; med hist., Seventeenth AF, July - Dec 1953, pp 5-6.
39. Hist 322d Air Div (Com Car), 1 Mar - 30 June 1954, pp ii, 1, 3-4.
40. USAFE med Hists, July - Dec 1953, p 10 and Jan - June 1955, pp 19-20.
41. USAFE Med Hist, Jan - June 1954, pp 15-16. The 7416th Medical Air Evacuation Group was redesignated the 7416th Aeromedical Evacuation Group on 29 Sept 1954.
42. USAFE Med Hists, Jan - June 1954, pp 16-17, and July - Dec 1954, pp 12-15; Hist 322d Air Div (Com Car), July - Dec 1954, pp 34-36; Hist 1st Aeromedical Evac Flight, July - Dec 1954, p 6; Med Hist, Third AF, Jan - June 1954, p 19.
43. Staff study for CINC USAFE from 322d Air Div (Com Car), subj: Intra-Theater Aeromedical Evacuation (USAFE), 3 Mar 1955.
44. Ltr, Maj Gen W. H. Powell, Dep Surg Gen USAF to CINC USAFE, subj: Aeromedical Evacuation Aircraft in USAFE, 17 Jan 1955.

8119

45. Hist 7416th Aeromedical Evac Gp, Jan - June 1955, p 5; Hist 7th Aeromedical Evacuation Flight, 8 Mar - 30 June 1955; SOP No 5, 7th Aeromedical Evac Flight subj: Aeromedical Evacuation Procedures, Eastern Mediterranean area, 1 July 1955.
46. GPO No 42, USAFE, 8 June 1955; GPO No 10, 322d Air Div (Com Car), 9 Aug 1955; Hist 322d Air Div (Com Car), July - Dec 1955, p 76.
47. USAFE Med Hist, July - Dec 1955, pp 32-33; Hists 7167th ~~Air Trans~~ Sq (Spl Missions), July - Dec 1955 and Jan - June 1956.
48. USAFE Med Hists, July - Dec 1955, p 31 and Jan - June 1956, pp 29-30; Med Hist Third AF, Jan - June 1956, pp 18-19; Hist 7167th ~~Air Trans~~ Sq (Spl Mission), Jan - June 1956.
49. USAFE Med Hist, July - Dec 1956, pp 39-40, 42-44.
50. ~~USAFE Med Hist, July - Dec 1956, p 43; Dept of AF, Fifth Annual Rpt. of USAF Med Serv, 1 July 1956 - 30 June 1957, p 21; Hist 322d Air Div (Com Car), Jan - June 1957, pp 144 - 145.~~  
*Inc*
51. Hists 322d Air Div (Com Car), July - Dec 1956, pp 4 and Jan - June 1957, p 107; Med Hist USAFE, Jan - June 1957, pp 25 - 28.
52. Hists 7167th ~~ATS~~<sup>Sq</sup> (Spl Missions), July - Dec 1956, pp 5-6 and Jan - June 1957, Appen 2; Med Hist USAFE, Jan - June 1957, pp 25-28.
53. Med Hist USAFE, Jan - June 1957, p 28 and Jan - June 1958, pp 12, 20-23; Hist 7167th ~~ATS~~<sup>Sq</sup> (Spl Missions) July - Dec 1957, p 10; Hists 322d Air Div (Com Car), July - Dec 1957, p 5 and Jan - June 1958, p 2.
54. USAFE Med Hist, July - Dec 1957, pp 20-23; ~~ALSO~~ USAFE, Quarterly Schedule, Cargo & Air Evac Flights, 1 Apr - 30 June 1958.

55. USAFE Med Hists, July - Dec 1957, pp 20-23 and Jan - June 1958, pp 8-12; Med Hists Sixteenth AF, July - Dec 1957, pp 9-11 and Jan - June 1958, pp 9-11; Med Hists Third AF, July - Dec 1957, pp 15-16 and Jan - June 1958, pp 14-15.
56. Med Hists USAFE, July - Dec 1957, p 23, Jan - June 1958, pp 8-12, 19, and July - Dec 1958, pp 9-10; Hisc 7167th ATSS (Spl Missions), Jan - June 1958, Appen.; Hist Data Rcd, Manpower & Organization, 322d Air Div, July - Dec 1958.
57. Hist Data Rcd, 322d Air Div (Com Car), July - Dec 1958, p 3; Med Hist Seventeenth AF, July - Dec 1958, pp 3-4.
58. Hist Data Rcds, 322d Air Div (Com Car), July - Dec 1958, pp 2-3 and Jan - June 1959, appen.; Med Hist USAFE, July - Dec 1958, pp 9-10.
59. USAF CHS No 127, USAF Operations in the Korean Conflict, 1 July 1952 - 27 July 1953, pp 281-289; Med Hist FEAF, Jan - June 1953, pp 8-13; 315th Air Div (Com Car), Reg No 160-1, Medical Service: SOP for Aeromedical Evacuation, 27 July 1953.
60. Hist 315th Air Div (Com Car), Jan - June 1953, pp 3-4; G.O. No 40, 315th Air Div (Com Car), 29 May 1953.
61. FEAF Rpt on the Korean War, II, 24; Hist 6481st Aeromedical Evacuation Gp, Jan - June 1955, pp 11-12; Med Hist FEAF, July - Dec 1955, p 19.
62. 315th Air Div, Recap of Strength Reports, 30 June 1953; 315th Air Div, Monthly Statistical Summaries, Aug - Dec 1953.
63. Hist 315th Air Div (Com Car), July - Dec 1953, pp 46-51.
64. Hist 322d Air Div (Com Car), Jan - June 1954, pp 156, 164, 64-76; Hists 6481st A E Gp, Jan - June 1954 and July - Dec 1954, pp 10-12.

65. Hist<sup>AE</sup> 6481st ~~Aeromedical~~ Evac<sup>AE</sup> Gp, Jan - June 1955. The 6481st M/E Gp was redesignated the 6481st Aero-medical Evacuation Group on 12 Oct. 1954.
66. Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, July - Dec. 1955, pp 19; Hist<sup>AE</sup> 6481st AE Gp, Jan - June 1955, pp 10-12; Hist<sup>AE</sup> 315th Air Div (Com Car), July - Dec. 1955, pp 110-112.
67. Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, July - Dec. 1954, pp 15-16; Hist<sup>AE</sup> 6481st AE Gp, Jan - June 1955, attachment 7, p 2.
68. Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, July - Dec. 1955, pp 18-20; Histo<sup>AE</sup> 315th Air Div (Com Car), Jan - June 1955, pp 4 and July - Dec. 1955, p 3.
69. Med<sup>AE</sup> Histo<sup>AE</sup> FEAF, July - Dec. 1955, p 20 and Jan - June 1956, pp 17, 18; Hist<sup>AE</sup> 6481st AE Gp, pp 2, 10-12, and 29.
70. Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, Jan - June 1956, pp 16-17; Hist<sup>AE</sup> 315th Air Div (Com Car), July - Dec. 1956, pp 30-36.
71. Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, Jan - June 1956, p 19; Hist<sup>AE</sup> 315th Air Div (Com Car), July - Dec. 1956, pp 49-52.
72. Hist<sup>AE</sup> 315th Air Div (Com Car), July - Dec. 1956, pp 49-52; 9th AE Sq, Annual Statistical Rpt, 1956.
73. Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, Jan - June 1957, pp 22-26.
74. Hist<sup>AE</sup> 9th AE Sq, Jan - June 1957; Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, Jan - June 1957, pp 20-22.
75. Hist<sup>AE</sup> 315th Air Div (Com Car), July - Dec. 1957, pp 1-60; Hist<sup>AE</sup> Fifth AF, July - Dec. 1957, pp 34-42; Hist<sup>AE</sup> 6485th Opns Sq, July - Dec. 1957.
76. Hist<sup>AE</sup> 9th AE Sq, July - Dec. 1957, pp 5, 19-20, 33; Med<sup>AE</sup> Histo<sup>AE</sup> FEAF, July - Dec. 1958, pp 10-12 and Jan - June 1959, pp 13-14.
77. Med<sup>AE</sup> Hist<sup>AE</sup> FEAF, Jan - June 1959, p 25.
78. Hist<sup>AE</sup> WTS, July - Dec. 1953, pp 1-2, 49-54.

79. Ibid, July - Dec 1953, pp 49-54, Jan - June 1956, p 90, and July - Dec 1958, pp 43.
80. Ibid, July - Dec 1956, pp 18-20.
81. Ibid, Jan - June 1955, pp 150 - 185, and Jan - June 1956, pp 157-185.
82. Hist MATS, Jan - June 1957, pp 12-16, 90-110.
83. Ibid, Jan - June 1958, pp 2, 29-35, and July - Dec. 1958, p 6.
84. Hist MATS, July - Dec 1957, pp 1-6, citing AFR 23-17, 23 Jan 1958.
85. Hist MATS, Jan - June 1958, p 33.
86. Ibid, July - Dec 1958, pp 179-204, 229-231.
87. Ibid, p 43
88. Statement of Lt Gen W. H. Tunner, Comdr MATS to House Armed Services Subcommittee, U S Congress, ca 20 Apr 1960.
89. Dept of AF, First Rot. of the USAF Medical Service, 1 July 1949 - 30 June 1952, p 38.
90. Hists CNTLD-MATS, July - Dec 1952, pp 21-25 and Jan - June 1953, pp 9, 12; Hist 1706th AE Gp, Jan - June 1953, p 1.
91. Reg No 900-3, CNTLD-MATS, Mission of the 1706th AT Gp (Air Evac), 10 Feb 1953.
92. Hist CNTLD-MATS, July - Dec 1953, pp 8-9, 57-58; Hist 1706th AE Gp, July - Dec 1953, pp 1-5.
93. Hist CNTLD-MATS, July - Dec 1953, pp 57-58; Hist 1706th AE Gp, July - Dec 1953, pp 4-5.
94. Hist MATS, Jan - June 1954, pp 205-208.

95. Med Hist CNTLD-MATS, July - Dec 1954, p 13; Hists 1706th AT Gp (AE), July - Dec 1954 and Jan - June 1955.
96. Hists 1706th ATG(L) (AE), Jan - June 1955 and July - Dec 1955; Hists CNTLD-MATS, Jan - June 1955, pp 76-79 and July - Dec 1955, pp 74-77.
97. Hist. 1706th AT Gp (AE), Jan - June 1956; Hist 1st Aeromedical Transport Gp, L, July - Dec 1956; Hist CNTLD-MATS, July - Dec 1956, pp 14-17, 75, 89-90; Hist ATLD-MATS, July - Dec 1956, pp 54-55.
98. Hists MATS, Jan - June 1957, pp 75-80 and July - Dec 1957, pp 72-77; Hists CNTLD-MATS, Jan - June 1957, pp 12-13, 111, 113 and July - Dec 1957, pp 147-150; Hist 1st Aeromedical Transport Gp, Jan - June 1957.
99. Hist 1st Aeromedical Transport Gp, Jan - June 1957, pp 15-16; Med Hist CNTLD-MATS, Jan - June 1957, pp 14-15; Med Hists MATS, July - Dec 1957, pp 124-125 and Jan - June 1958, p 78; Hist CNTLD-MATS, Jan - June 1958, pp 120-122.
100. Hist 1st Aeromedical Transport Gp, Jan - June 1957, p 49.
101. Hist CNTLD-MATS, Jan - June 1958, pp 120-122; Hist 1st Aeromedical Transport Gp, Jan - June 1958; Hist MATS, Jan - June 1958, pp 86-87.
102. WESTAF Reg No 23-7, Organization-Field: 1st Aeromedical Transport Group, Light, 10 June 1959.
103. Hist 1st Aeromedical Transport Gp, July - Dec 1958, pp 2, 17, 30-31.
104. Hist 1453d MAE Sq, July - Dec 1953; Med Hist P/CD-MATS, July-Dec 1953, pp 7-8, 26-31.
105. Hist MATS, July - Dec 1953, pp 232-233.
106. Hist 1453d MAE Sq, Jan - June 1954, pp 6-7.

107. Rpt. <sup>AE</sup> Maj. John E. Curtis, Comdr. 1453-~~A~~ MAE Det.,  
Subj: Project "Wounded Warrior," 25 Aug. 1954; rpt.,  
Capt. D. E. Draeger, Patient Movement Control Off. -  
1453d Aeromedical Evacuation Sq., subj: "Wounded  
Warrior," 22 Sept. 1954; Hist. MATS, July-Dec. 1954,  
pp. 106-108.
108. Hists. <sup>AE</sup> 1453d Aeromedical-Evacuation Sq., July-Dec.  
1954, pp. 8-9, 12 and Jan.-June 1955, pp. 6-8.
109. Hist. <sup>AE</sup> 1453d Aeromedical-Evac. Sq., July-Dec. 1955,  
pp. 7-8; Disposition Form, Capt. D. E. Draeger <sup>to Co. 1453d</sup>  
<sup>AE</sup> Aeromedical-Evac. Sq., subj: Trip Report of Flight  
No. P232V29, 16 Aug. 1955; Med. Hist. PACD-MATS,  
July-Dec. 1955, p. 10.
110. Hist. <sup>AE</sup> 1453d Aeromedical-Evac. Sq., Jan.-June 1957,  
p. 10; Med. Hist. WESTAF, July-Dec. 1959, p. 7.
111. Med. Hist. MATS, July-Dec. 1958, pp. 134-135.
112. Hists. <sup>AE</sup> 1453d Aeromedical-Evacuation Squadron, July-  
Dec. 1955 through July-Dec. 1957; Hist. MATS, Jan.-  
June 1958, pp. 107-109; Med. Hist. WESTAF-MATS,  
July-Dec. 1958.
113. Med. Hist. MATS, July-Dec. 1956, pp. 65-66; Rpt.,  
Maj. L. A. Somlo, Comdr. 1453d Aeromedical-Evac. Sq.  
to Comdr. 1502d Air Transport Wg. (H), subj: Test  
Project Report-Medical Regulating of Aeromedical  
Evacuation Patients from Overseas Areas, 9 Nov. 1956.
114. Hists. <sup>AE</sup> 1453d Aeromedical-Evacuation Sq., July-Dec.  
1955 through July-Dec. 1957; Med. Hists. PACD-MATS  
and WESTAF-MATS, July-Dec. 1955 through July-Dec.  
1959; Med. Hist. MATS, Jan.-June 1958, p. 83.
115. Hists. ATLD-MATS, July-Dec. 1952, p. 71 and Jan.-June  
1953, p. 67; Med. Hist. ATLD-MATS, Jan.-June 1953,  
pp. 16-18.
116. Hists. ATLD-MATS, Jan.-June 1953, p. 74 and July-Dec.  
1954, p. 118; Hists. 1454th Aeromedical-Evacuation  
Squadron, Jan.-June 1954, p. 6 and July-Dec. 1954,  
p. 1.

117. Hist<sup>r</sup> ATLD-MATS, July-Dec<sup>r</sup> 1958, p<sup>r</sup> 60.
118. Hists<sup>r</sup> ATLD-MATS, Jan<sup>r</sup>-June<sup>r</sup> 1953, p<sup>r</sup> 79, Jan<sup>r</sup>-June<sup>r</sup> 1955, p<sup>r</sup> 118, and July-Dec<sup>r</sup> 1956, pp<sup>r</sup> 48-49, 59.
119. Hist<sup>r</sup> EASTAF, Jan<sup>r</sup>-June<sup>r</sup> 1959, p<sup>r</sup> 84.
120. Hist<sup>r</sup> ATLD-MATS, Jan<sup>r</sup>-June<sup>r</sup> 1955, p<sup>r</sup> 118.
121. Hists<sup>r</sup> 1454th <sup>AE</sup>Aeromedical-Evac<sup>r</sup> Sq<sup>r</sup>, July-Dec<sup>r</sup> 1953 through July-Dec<sup>r</sup> 1956; Med<sup>r</sup> Hist<sup>r</sup> MATS, July-Dec<sup>r</sup> 1954, p<sup>r</sup> 68; Hists<sup>r</sup> ATLD-MATS, Jan<sup>r</sup>-June<sup>r</sup> 1956, pp<sup>r</sup> 55-56 and July-Dec<sup>r</sup> 1956, pp<sup>r</sup> 51-52.
122. Hist<sup>r</sup> 1454th <sup>AE</sup>Aeromedical-Evac<sup>r</sup> Sq<sup>r</sup>, Jan-June<sup>r</sup> 1957, pp<sup>r</sup> 4-7; Med<sup>r</sup> Hist<sup>r</sup> MATS, Jan<sup>r</sup>-June<sup>r</sup> 1957, pp<sup>r</sup> 66-67.
123. Hist<sup>r</sup> ATLD-MATS, July-Dec<sup>r</sup> 1954, pp<sup>r</sup> 119-120.
124. Med<sup>r</sup> Hist<sup>r</sup> MATS, July-Dec<sup>r</sup> 1956, pp<sup>r</sup> 71-72.
125. Hist<sup>r</sup> 1254th <sup>AE</sup>Aeromedical-Evac<sup>r</sup> Sq<sup>r</sup>, July-Dec<sup>r</sup> 1956, pp<sup>r</sup> 7-10; Hist<sup>r</sup> ATLD-MATS, July-Dec<sup>r</sup> 1956, pp<sup>r</sup> 155-180; Med<sup>r</sup> Hist<sup>r</sup> MATS, July-Dec<sup>r</sup> 1956, p<sup>r</sup> 70 and incl.: Hist<sup>r</sup> Rpt<sup>r</sup> Aeromedical Operations "Safe Haven."
126. Hist<sup>r</sup> 1254th <sup>AE</sup>Aeromedical-Evac<sup>r</sup> Sq<sup>r</sup>, Jan<sup>r</sup>-June<sup>r</sup> 1957, pp<sup>r</sup> 10-13; Hist<sup>r</sup> ATLD-MATS, Jan<sup>r</sup>-June<sup>r</sup> 1957, pp<sup>r</sup> 125-126.
127. Hist<sup>r</sup> CNTLD-MATS, Jan<sup>r</sup>-June<sup>r</sup> 1956, pp<sup>r</sup> 83-88.
128. Hists, ATLD-MATS, Jan<sup>r</sup>-June<sup>r</sup> 1956, pp<sup>r</sup> 42-47 and July-Dec<sup>r</sup> 1956, p<sup>r</sup> 48; Hist<sup>r</sup> 1608th USAF Dispensary (Class A), July-Dec<sup>r</sup> 1956, pp<sup>r</sup> 9-10.
129. Hists<sup>r</sup> ATLD-MATS, July-Dec<sup>r</sup> 1957, p<sup>r</sup> 2 and Jan<sup>r</sup>-June<sup>r</sup> 1958, p<sup>r</sup> 5.
130. Med<sup>r</sup> Hist<sup>r</sup> Caribbean Air Command, Jan<sup>r</sup>-June<sup>r</sup> 1958, p<sup>r</sup> 6.
131. Hist<sup>r</sup> CNTLD-MATS, Jan<sup>r</sup>-June<sup>r</sup> 1953, p<sup>r</sup> 72; Hist<sup>r</sup> 1706th <sup>AT</sup>Air-Transport<sup>r</sup> Gp<sup>r</sup> (AE), Jan<sup>r</sup>-June<sup>r</sup> 1953, p<sup>r</sup> 17.
132. Med<sup>r</sup> Hists<sup>r</sup> Alaskan Air Comd<sup>r</sup>, July-Dec<sup>r</sup> 1953, p<sup>r</sup> 2 and July-Dec<sup>r</sup> 1954, pp<sup>r</sup> 14-15.

133. Med Hist Alaskan Air Comd, Jan-June 1955, p 15.
134. Med Hists Alaskan Air Comd, Jan-June 1955, pp 10-11 and July-Dec 1955, pp 10-11; Hist CNTLD-MATS, Jan-June 1955, pp 85-87.
135. Med Hist Alaskan Air Comd, July-Dec 1955, pp 10-11; Hist CNTLD-MATS, Jan-June 1956, pp 88-89.
136. Hist CNTLD-MATS, Jan-June 1956, p 14; Med Hist CNTLD-MATS, Jan-June 1956, pp 3-4.
137. Med Hist Alaskan Air Comd, July-Dec 1956, p 6.
138. Hist MATS, Jan-June 1957, p 14; Med Hist CNTLD-MATS, Jan-June 1957, p 14.
139. Hist MATS, July-Dec 1958, p 6.
140. Med Hist MATS, Jan-June 1958, p 83; Med Hists, 5040th USAF Hosp, Jan-June 1958, p 8 and July-Dec 1958, p 9; Med Hists, WESTAF, July-Dec 1958, p 11 and Jan-June 1959, p 8.
141. Med Hists, MATS, July-Dec 1953 through Jan-June 1959.

## FOOTNOTES

## Chapter X

1. Brig Gen L. Render Braswell, "Military Air Transport Service," Medical Service Digest, vol X, no 7 (Jul 1959), p. 50.
2. Disp forms, Braswell to DCS/Plans MATS, subj: Program Impacts in FY 61 Minimum Essential USAF Budget, 17 and 22 Sep 1959.
3. "Air Evac Praised by Surgeon General," Army Navy Air Force Journal, 19 Mar 1960, p. 33.
4. Disp form, Braswell to DCS/Plans MATS, 17 Sep 1959.
5. "Pentagon Will Reorganize Military Hospital Systems," Army Navy Air Force Journal, 26 Mar 1960, pp. 1, 8.
6. Med Hist USAFE, Jul-Dec 1955, p. 13.
7. Med Hist PACAF, Jan-Jun 1959, pp. 2-4, 7; Air Force Times, 6 Feb 1950, p. 33.
8. Med Hist MATS, Jan-Jun 1958, p. 82; Lockheed Aircraft Corporation, Aeromedical Electra Model CL-355-8, 1 Oct 1958.
9. Med Hist MATS, Jul-Dec 1958, pp. 51-54.
10. Hist Air University, Jan-Jun 1959, pp. 54-56; Med Hist Air University, Jul-Dec 1959, p. 1; "ATC Aerospace Medical Center Established at Brooks," Air Force Times, 3 Oct 1959, p. 30.
11. Med Hist MATS, Jan-Jun 1958, p. 82, "AF Hopes for New Prop-Jet Transports to Speed Evacuation of Military Patients," Army Navy Air Force Journal, 2 May 1959, pp. 1, 26.
12. 85th Cong 2d Sess, House Rpt No 2011, Military Air Transportation, 26 Jun 1958, pp. 5-7.
13. "Airways Say MATS Should Stick to Missiles," Armed Forces Management, Jul 1958, p. 29.
14. Bill Borklund, "MATS and the Mission," Armed Forces Management, Aug 1959, pp. 15-17; Hist ConAC, Jan-Jun 1960, I, 40-42; "Medical Airlift System Will Phase Out by '63," Air Force Times, 19 Mar 1960, p. 18.

15. Asst Sec of Def (Supply and Logistics), Director for Transportation Policy, Air Transport Division, The Role of Military Air Transport Service in Peace and War, Feb 1960; "President Approves MATS Reduction," Army Navy Air Force Journal, 13 Feb 1960, pp. 1, 28.
16. Ltr, Lt Col Raymond L. Towne, D/Information MATS to Research Studies Institute, subj: Review of USAF Historical Division Study, 1 Dec 1960; 1st Ind (ltr, RSI (HAF), subj: Review of USAF Historical Division Study, 29 Sep 1960), Col Donald F. Westra, Exec Off, Off of the Surg Gen USAF to RSI, 15 Nov 1960.
17. 1st Ind (ltr, RSI (HAF), subj: Review of USAF Historical Division Study, 17 Jan 1961), Col M. E. Childs, Exec Dep CofS Opns USAF to RSI (HAF), 16 Mar 1961.
18. Asst Vice CofS USAF, Air Force Position on the Domestic Aeromedical Evacuation Mission, 30 Aug 1960.
19. 86th Cong 2d Sess, Department of Defense Appropriations for 1961 (Washington: Government Printing Office, 1960), pp. 212-213; Med Hist MATS, Jul-Dec 1959, pp. 101-102.
20. "Air Evac Flights Slated for Demise," Army Navy Air Force Journal, 5 Mar 1960, pp. 1, 28; "Medical Airlift System Will Phase Out by '63," Air Force Times, 19 Mar 1960, p. 18.
21. 86th Cong 2d Sess, Hearings before Special Subcommittee on National Military Airlift of the Committee on Armed Services, House of Representatives (Washington: Government Printing Office, 1960), 11 Mar 1960 session; "Air Evac Flights Slated for Demise," Army Navy Air Force Journal, 5 Mar 1960, pp. 1, 28.
22. Med Hists MATS, Jul-Dec 1959, pp. 101-102 and Jan-Jun 1960, pp. 129-131; Hist 1st Aeromedical Transport Group (L), Jan-Jun 1960, pp. 4-10.
23. Ltr, Col L. B. Matthews, Comdr 1st AMTG(L) to Surg Air University, subj: Aeromedical Evacuation Service, 6 Apr 1960.
24. Hist WESTAF, Jan-Jun 1960, pp. 91, 94; Med Hists MATS, Jul-Dec 1959, p. 106 and Jul-Dec 1960, p. 192; ltr, Maj Gen R. L. Waldron, Comdr WESTAF to Lt Gen Joe W. Kelly, Comdr MATS, 5 Aug 1960; Hist 1st AMTG (L), Jan-Jun 1960, pp. 19-20.

25. Med Hist MATS, Jan-Jun 1960, pp. 129-131.
26. Med Hists TAC, Jan-Jun 1960, pp. 19-20 and Jul-Dec 1960, p. 36.
27. Ltr, Kelly to USAF (AFCSG 31.2), subj: MATS Domestic Aeromedical Evacuation Service, 20 July 1960
28. Ibid.; Med Hist MATS, Jul-Dec 1960, pp. 188-189.
29. "Air Evac Demise Plans Rescinded," Army Navy Air Force Journal, 2 Jul 1960, p. 1.
30. Smith, "Air Evacuation--Medical Obligation and Military Necessity," pp. 98-111.
31. 1st Ind, Childs to RSI (HAF), 16 Mar 1961.
32. Med Hist MATS, Jul-Dec 1959, p. 105.
33. Hist TAC, Jan-Jun 1960, I, 21.
34. Hist CNTLD-MATS, Jan-Jun 1951, p. 34.
35. Asst Vice CofS USAF, Air Force Position on the Domestic Aeromedical Evacuation Mission, 30 Aug 1960.
36. Med Hist MATS, Jul-Dec 1957, pp. 7-8.

## GLOSSARY

AAB	Army Air Base
AAF	Army Air Forces
AAFBU	Army Air Forces Base Unit
AAF-IBT	Army Air Forces, India-Burma Theater
AAF MTO	Army Air Forces, Mediterranean Theater of Operations
AAFFOA	Army Air Forces, Pacific Ocean Areas
AAFSWPA	Allied Air Forces, Southwest Pacific Area
AC/AS	Assistant Chief of Air Staff
AC/AS-3	Assistant Chief of Air Staff, Operations
AC/AS-4	Assistant Chief of Air Staff, Supply
AC/AS-5	Assistant Chief of Air Staff, Plans
ACofS	Assistant Chief of Staff
ADCOM	Advance Command
AE	Aeromedical Evacuation
AEOF	Allied Expeditionary Air Force
AFB	Air Force Base
AFHQ	Allied Force Headquarters
AEB	Air Evaluation Board
AF	Air Force
AFM	Air Force Manual
AFPAC	Army Forces Pacific
AFR	Air Force Regulation
AFSC	Air Force Service Command
AFTAS	Air Force, The Air Surgeon
AFWESPAC	Army Forces, Western Pacific
AG	Adjutant General

AGF Army Ground Forces  
AGWAR Adjutant General, War Department  
AMTG Aeromedical Transport Group  
ANC Army Nurse Corps  
ANG Air National Guard  
ASC Air Service Command  
ASF Army Service Forces  
ASMRO Armed Services Medical Regulating Office  
AT Air Transport  
ATC Air Transport Command. Later Air Training Command.  
ATLD-ATC Atlantic Division, Air Transport Command.  
ATLD-MATS Atlantic Division, Military Air Transport Service.  
C/ Chief  
CAATO Combined Army Air Transport Organization  
CAECO Casualty Aeromedical Evacuation Control Officer  
CAEU Casualty Air Evacuation Unit  
CATOR Combined Air Transport Operations Room  
CBI China-Burma-India  
CCTF Combat Cargo Task Force  
CENCATS Central Pacific Combat Air Transport Service  
CG Commanding General  
CINC Commander-in-Chief  
CNTLD-ATC Continental Division, Air Transport Command  
CNTLD-MAPS Continental Division, Military Air Transport Service  
CofAS Chief of Air Staff  
CofS Chief of Staff  
ConAC Continental Air Command

D/	Director
DAF	Department of Air Force
DAT	Directorate of Air Transport
DOD	Department of Defense
EAC SEA	Eastern Air Command, Southeast Asia
EASTAF	Eastern Transport Air Force
EATS	European Air Transport Service
ETO	European Theater of Operations
ETOUSA	European Theater of Operations, U.S. Army
EURD-ATC	European Division, Air Transport Command
EURW-ATC	European Wing, Air Transport Command
FAF	Fifth Air Force
FEAF	Far East Air Forces
FEC	Far East Command
FERD-ATC	Ferrying Division, Air Transport Command
FM	Field Manual
FUSA	First U.S. Army
GCTC	Gulf Coast Training Center
GHQ	General Headquarters
GO	General Order
G-3	Operations and Training
G-4	Supply
IBS	India-Burma Sector
ICD-ATC	India-China Division, Air Transport Command
ICW-ATC	India-China Wing, Air Transport Command
IRAN	Inspection and repair as necessary
JICA	Joint Intelligence Collecting Agency
JMRO	Joint Medical Regulating Office

KMAG	Korea Military Advisory Group
MAAF	Mediterranean Allied Air Force
MADIH	Historical Branch, Directorate of Information, Military Air Transport Service
MAE	Medical Air Evacuation
MATS	Military Air Transport Service
MC	Medical Corps
MM&D	Material, Maintenance, and Distribution
MSC	Medical Service Corps
NAAF	Northwest African Air Forces
NAD-ATC	North Atlantic Division, Air Transport Command
NAFD-ATC	North African Division, Air Transport Command
NAFW-ATC	North African Wing, Air Transport Command
NATO	North Atlantic Treaty Organization
NATOUSA	North African Theater of Operations, U.S. Army
NAW-ATC	North Atlantic Wing, Air Transport Command
OCAC	Office of Chief of Air Corps
OC&R	Operations, Commitments, and Requirements
OPD	Operations Division
OPI	Office of Public Information
OSG	Office of The Surgeon General
O/T	Organizational Table
PACAF	Pacific Air Forces
PACD-ATC	Pacific Division, Air Transport Command
PACD-MATS	Pacific Division, Military Air Transport Service
PACW-ATC	Pacific Wing, Air Transport Command
RAAF	Royal Australian Air Force

RAF	Royal Air Force
RAFME	Royal Air Force, Middle East
RAMC	Royal Army Medical Corps
RAMP	Repatriated Allied Military Personnel
R&R	Routing and record
RSI	Research Studies Institute, Air University
SAM	School of Aviation Medicine
SATLD-ATC	South Atlantic Division, Air Transport Command
SATLW-ATC	South Atlantic Wing, Air Transport Command
SCAT	South Pacific Combat Air Transport Command. Later Solomons Combat Air Transport Command
SHAEF	Supreme Headquarters Allied Expeditionary Forces
SOP	Standing operating procedure
SOS	Services of Supply
SWP	Southwest Pacific
SWPA	Southwest Pacific Area
TAC	Tactical Air Command
TAF	Tactical Air Force
TAG	The Adjutant General
TAS	The Air Surgeon
TC	Troop Carrier
T/O	Table of Organization
UK	United Kingdom
USAF	United States Air Force
USAFE	United States Air Force in Europe
USAREUR	United States Army in Europe
USASOS	United States Army Services of Supply

USEUCOM	United States European Command
USMC	United States Marine Corps
USN	United States Navy
USSTAF	United States Strategic Air Force
WD	War Department
WDGS	War Department General Staff
WESTAF	Western Transport Air Force

INDEX

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