

The Evolution of Forward Surgery in the US Army

FROM THE REVOLUTIONARY WAR TO THE
COMBAT OPERATIONS OF THE 21ST CENTURY

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Published by the
BORDEN INSTITUTE
US Army Medical Department Center and School
Health Readiness Center of Excellence | Fort Sam Houston, Texas

2018

Library of Congress Cataloging-in-Publication Data

Names: Steahly, Lance P., editor. | Cannon, David W., Sr., editor.
Title: The evolution of forward surgery in the US Army : from the Revolutionary War to the combat operations of the 21st century / edited by Lance P. Steahly, MD, Colonel, Medical Corps US Army (Retired) and David W. Cannon, Sr., Major, Medical Service Corps US Army (Retired).
Description: Sam Houston, Texas : Borden Institute, [2018] | Includes bibliographical references and index.
Identifiers: LCCN 2018047833 (print) | LCCN 2018048270 (ebook) | ISBN 9780160940088 (ebook) | ISBN 9780160940095 (ebook) | ISBN 9780160940101 (ebook) | ISBN 9780160947841 (pbk.)
Subjects: LCSH: Medicine, Military—United States—History. | Surgery, Military—United States—History. | United States. Army—Medical care—History.
Classification: LCC UH223 (ebook) | LCC UH223 .E94 2018 (print) | DDC 355.3/450973—dc23
LC record available at [Caution-https://lccn.loc.gov/2018047833](https://lccn.loc.gov/2018047833)

For sale by the Superintendent of the Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

ISBN No. 978-0-16-094784-1

PRINTED IN THE UNITED STATES OF AMERICA

Chapter Seven

Forward Surgery in the Korean War: The Mobile Army Surgical Hospitals

SCOTT C. WOODARD

INTRODUCTION

NAPOLEON'S SURGEON TO THE IMPERIAL GUARD, Dominique Jean Larrey, in Europe and the Army of the Potomac's Medical Director, Jonathan Letterman, in the War Between the States were both faced with a similar dilemma—how to quickly render surgical aid to the wounded soldier in combat.

Their struggle has continued to plague the surgeon in modern times. The critical challenge is balancing the close proximity of surgical care near the front lines where the wounded need it most, with the need to not become a casualty as well. The military surgeon must weigh his ability to protect himself and save others to fight another day.

Popular culture's most highlighted medical story of the Korean War is the Mobile Army Surgical Hospital

(MASH). Hollywood wove the tale of the MASH through the movie and television series, *M*A*S*H*. However, one actual MASH surgeon, Dr Otto F Apel Jr, cautioned that, "the interpretation [presented by the movie and television series] is several times removed from the reality it purports to depict. . . . The artistic presentation is always four or five times removed from reality."^{2(p93)} He did add, however, that the appearance of irreverent attitudes and lighter moments often depicted had basis in truth.^{2(ppxi-xiii,122-123)} Intended originally to be close to the fighting front, the MASH was equipped to move on its own³⁻⁶ (Table 7-1). The light scale of medical services provided reflected this efficient mobility. As combat on the peninsula matured, becoming large and stalled, the MASH evolved into a stationary

[I]N EVERY NEW WAR THE SAME STUPID MISTAKES ARE MADE AGAIN AND SOLDIERS LOSE THEIR LIVES AND LIMBS, BECAUSE THE DOCTOR WAS IGNORANT OF PAST EXPERIENCE. I CANNOT OVER EMPHASIZE THE NEED TO STUDY MILITARY MEDICINE AND SURGERY. ^{1(P716)}

Colonel Edward D Churchill
US Army

TABLE 7-1. MASH MOVES BY YEAR

Unit	1950 No. of moves	1951 No. of moves	1952 No. of moves	1953 No. of moves
8055th	(9 Jul–31 Dec) 14	(1 Jan–31 Dec) 9	(1 Jan–31 Dec) 0	(1 Jan–1 Feb) 0
8063rd	(18 Jul–31 Dec) 23	(1 Jan–31 Dec) 9	(1 Jan–31 Dec) 0	(1 Jan–1 Feb) Unknown
8076th	(2 Aug–31 Dec) 7	(1 Jan–31 Dec) 9	(1 Jan–31 Dec) 0	(1 Jan–31 Dec) 1
1st 8209th	(26 Sep–31 Dec) 4	(1 Jan–31 Dec) 4		
8209th		(22 May–31 Dec) 2	(1 Jan–31 Dec) 0	(1 Jan–1 Feb) 1
2nd 8225th		(15 Apr–12 May) 1		
8225th		(13 May–31 Dec) 2	(1 Jan–31 Dec) 2	(1 Jan–1 Feb) 0
8228th		(15 Jun–31 Dec) 0	(1 Jan–31 Dec) 2	(1 Jan–1 Feb) 0

Data sources: Annual reports of Medical Department activities for each MASH unit, National Archives II, Suitland, Maryland, boxes 144, 146, 239, 240, and 241.

facility with more capabilities. Initially, the unit was formed to provide surgical capabilities for one division. It transformed through the course of the war into a multidivision and multinational all-purpose hospital.^{7(pp88–89)} For example, as early as November 1950, the 1st MASH transformed from a 60-bed to a 200-bed capacity hospital. There was an expansion in workload (medical cases in addition to surgery) without a commensurate increase in personnel. Rapid patient evacuation was the only means of keeping up with the workload.^{8(pp115–116)}

WORLD WAR II: PRELUDE TO MOBILE ARMY SURGICAL HOSPITALS

The MASH story began before the well-known fictional account of “Hawkeye” Pierce and the comedic 4077th in Korea. The idea was actually quite old. The experience of Americans in France during the “War to End All Wars” saw the emergence of this idea.

In World War I, hospital equipment and mobile surgical teams were transported, together with their equipment and tentage, in trucks across the front.^{7(p69)}

In World War II, the European and North African theaters of operation generally employed linear battlefields where combat support and combat service support units provided services by doctrine along fairly defined battle lines in the mountains and fields of the European continent and the deserts of Africa. The intent was to bring definitive care to the seriously wounded in far forward areas through auxiliary surgical groups. Close attention was paid to the selection of individuals to compose surgical teams within the groups, balancing the need for varying specialties, as well as the requirement of healthy young men capable of performing major surgery of the abdomen, chest, and extremities. The theory of bringing well-trained surgeons to the critically wounded, rather than the older method of evacuating the seriously wounded far to the rear for definitive surgical care, was proven logical and sound. This helped reduce the mortality and morbidity among the troops wounded in the combat zone. Because chest and abdominal wounds formed the majority of wounded cases, it was emphasized that the specialist must also be a good general surgeon.^{9(pp385–386)}

The other side of the conflict in Asia is contrasted in the surgical support provided in World War II to the Pacific and China-Burma-India theaters of operation where the jungle canopy and island combat made the fight nonlinear. Here portable surgical hospitals bore the brunt of front line definitive surgery. They lacked generators, electrical illumination, refrigerators, suction apparatuses, and resuscitation equipment. Because of this, the portable surgical hospital could not operate independent of clearing companies and reinforcement by surgical teams.^{9(p573)}

INTERWAR YEARS (1948–1950)

After defeating the Axis powers, the United States Army Medical Department improved upon the knowledge gained in Africa, Europe, and Asia. Immediate far forward surgical care to front line troops was obtainable and proven in all theaters of operation.

Of the five MASH units between 1948 and early 1950 (Exhibit 7-1), none were in the Far East.¹⁰ Prior to the Korean conflict, the MASHs were organized under Tables of Organization and Equipment (T/O&E), but were not ready for deployment. The

EXHIBIT 7-1. INTERWAR YEARS (1948-1950)

The five MASH units were as follows:

Unit	Location	Assignment
1st	Fort Lewis, Washington	VI Army
2d	Fort Bragg, North Carolina	III Army
3d	Fort Meade, Maryland	II Army
4th	Munich, Germany	EUCOM
5th	Heidelberg, Germany	EUCOM

Source: *Station List, World Wide, US Army Medical Department Units*, 31 January 1950, National Archives II, Suitland, Maryland, box 239.

1948 T/O&E called for a self-mobile, 60-bed holding capacity, tented surgical hospital. It contained the headquarters and headquarters detachment, preoperative and shock section, operating section, postoperative section, pharmacy, radiography section, and holding ward. Authorized personnel were 14 Medical Corps officers, 12 Army Nurse Corps officers, two Medical Service Corps officers, one warrant officer, and 97 enlisted soldiers. To meet the need of far forward surgical intervention, the physicians included a commander, radiologist, two anesthesiologists, an internist, four general medical officers, and five surgeons.^{7(pp69-70)} Typical of postwar drawdown, this organizational table was how the unit was supposed to be staffed, not how a unit might actually be staffed. For example, Fort Bragg's 2nd MASH's 1949 Annual Report of Medical Activities detailed the inadequacies they faced as they "stood up" the new unit and implemented the T/O&E approved on 28 October 1948. With a skeletal crew of only 22 enlisted men, two administrative officers, and one warrant officer, the unit struggled to support a maneuver exercise and conduct its medical proficiency training. The unit equipment was fielded, but the personnel were slow in arriving. In the report's closing remarks, the 2nd MASH commander requested that all incoming personnel not be raw recruits, that the aptitude test results for those to be assigned in the future be increased, and that medical noncommissioned officers be utilized when filling the authorized slots because this was such a "specially trained organization."^{11(pp3-4)}

MASH Table of Organization Review (1948)

During the MASH T/O&E review, at least one agency within the Medical Department reported on several mistakes and made recommendations to the Army Field Forces in Fort Monroe, Virginia. The observation of inadequate personnel and support equipment came from the Surgeon General's Office and only addressed organizational and equipment issues pertaining to supply and field operations. No clinical review was documented.¹²

Mobile Striking Force (1948)

The Office of The Surgeon General, Deputy for Plans, focused on unit allocations to support divisional forces during the interwar years. As early as 1948, the intent for the newly created "Hosp, Surg" T/O&E 8-571 was to support a division-sized element. As the correspondence described, one surgical hospital would support one division in combat whether the total Army was 18, 20, 22, or 25 divisions strong. However, it noted the future requirement to identify whether the units would be procured from the Regular Army, National Guard, or the Organized Reserve Corps.¹³

As with all branches of the armed forces at the time, contingency plans to counter the perceived threat of Soviet aggression were instituted within the Medical Department through its support of the Mobile Striking Force of 1948. Initially, the minimum service support for this contingency operation was 60 days of overseas combat service. Each task force was configured to deploy as a divisional element. The medical portion supporting this Mobile Striking Force contained six "Med Hosp, Surg, Mbl" with a T/O&E 8-571 dated August 1945. However, even though the "intended" MASH included specialty surgical teams for far forward care, the Mobile Striking Force, in addition to the six MASHs, had 18 medical detachments with labels such as neurosurgical, orthopedic, shock, surgical, and thoracic.¹⁴

MEDICAL FIELD SERVICE SCHOOL (1950–1951)

The concept of far forward surgical care had been proven in war and staffed during peace. What were young officers attending the Medical Field Service School, the predecessor of the United States Army Medical Department Center and School, at Fort Sam Houston in San Antonio, Texas, learning about the newly formed MASH unit? A student “special text” reiterated the allocation of one MASH per division and emphasized there were currently 12 in the inventory.¹⁵ This publication devoted one paragraph to one of the most critical medical units in an unexpected war merely months away:

Mobile army surgical hospitals are mobile units of the *field army medical service* [emphasis added] designed primarily to provide adequate facilities near the front for major operative

procedures necessary to save life or limb, and which cannot be postponed until the casualty reaches an evacuation hospital; and to relieve clearing stations immediately of nontransportables in order to prevent the immobilization of such stations through the accumulation of casualties that cannot be immediately evacuated.^{15(p193)}

During the 1951 Army Medical Service Organized Reserve Corps and National Guard Instructors’ Conference at the Medical Field Service School, Captain (CPT) RL Devine, Medical Corps, relayed his experience in treating frontline casualties. As if foreshadowing reports typical of conditions on the peninsula, he spoke of the extreme difficulties in traversing the harsh terrain, whether in attempting evacuation or resupply. Operations and support discussions concerning the MASH followed along doctrinal guidelines, just as the earlier referenced student special text had delineated.^{16(pp49–58)} This would hold true in the early phases of the war, but as the mission changed and the front began to stabilize, so too the character of the MASH changed (Exhibit 7-2).

EXHIBIT 7-2. MASH UNITS AND NOMENCLATURE

Throughout the war, the MASH changed numerical designations and nomenclature

Unit	Numeric Change	Numeric Change
8055th		43rd
8063d		44th
8076th		45th
1st	8209th	46th
2nd	8225th	47th
Prewar	Mobile Army Surgical Hospital	
1950	Mobile Army Surgical Hospital xxxx Army Unit	
1953	Surgical Hospital (Mobile Army)	

Sources: (1) Eighth United States Army Annual Report, Army Medical Service Activities, 1950, National Archives II, Suitland, Maryland, boxes 195–196; (2) Eighth United States Army Annual Report, Army Medical Service Activities, 1951, National Archives II, Suitland, Maryland, box 196; (3) Eighth United States Army Annual Report, Army Medical Service Activities, 1952, National Archives II, Suitland, Maryland, box 197; and (4) Eighth United States Army Annual Report, Army Medical Service Activities, 1953, National Archives II, Suitland, Maryland, box 198.

KOREAN WAR

The joyous and peaceful years after the Allied victory in World War II soon transformed into the uneasy and fearful years of the Cold War. The Soviet Union, the United States' former ally, was perceived as building Communist satellite-nations within Eastern Europe in preparation for a war against the forces of Western democracies. The perception gained momentum with the Soviet Union's successful atomic bomb test in 1949. That same year, the Communist forces in the Chinese revolution established the People's Republic of China. On 25 June 1950, Democratic People's Republic of Korea (North Korea) forces, supported by fellow Communist China (in word) and the Soviet Union (in deed), invaded the Republic of Korea (South Korea). The United States immediately moved troops from Japanese occupation duty to block the Communist invasion. With this move, the United States spearheaded a United Nations (UN) force composed of 21 countries to combat the aggressive action of North Korea.^{17(pp445-446)} Thus, the local conflict became an international effort.

EXHIBIT 7-3. **RAYMOND W BLISS, SURGEON GENERAL (1 June 1947–31 May 1951)**

Raymond W Bliss replaced Norman T Kirk as Surgeon General of the Army in June 1947 during a time of transition for the recently victorious US Army. A former surgical student and subsequent instructor at Harvard College, Bliss eventually served as the Chief of Operations Service in the Surgeon General's Office in World War II. It was here that he made a reputation for himself in the art of planning medical support that entailed patient evacuation and distribution, and the establishment of specialized hospitals. When the war ended, he was Assistant Surgeon General. During the interwar years, Bliss' focus was on preparing for the next conflict and providing specialized training for new physicians. Army hospitals began offering residency training, emphasizing clinical and preventative medicine, research and pathological study. From this desire to enhance the professionalism of the Medical Service, Major General Bliss incorporated civilian consultants in the training hospitals. The early ability of the Army Medical Department to react strongly to the rapid chaos early on the Korean Peninsula exemplifies his judgment in equipping the surgeons in accomplishing low death and high recovery rates, and high morale.¹

Source: (1) Heaton LD. Raymond W Bliss. *Mil Med*. 1966;3(5):458-459.

Post-World War II had been marked by the rapid demobilization of the military as the United States had traditionally done in all previous wars. The United States Army Medical Department was no exception (Exhibit 7-3). From June 1945 until June 1950, the Army lost 86% of its wartime officer strength and 91% of its enlisted strength.^{7(p8)} This was difficult by itself. With the initiation of what President Harry S Truman agreed to describe as a "police action" (a quickly realized misnomer) in Korea, the results were disastrous. A dangerously small military poised against a large-scale enemy force was a recipe for failure. The nation, and subsequently the Army, had made no plan for partial mobilization or limited war.^{7(p3)}

Unlike the Axis Powers in the European Theater of Operations in World War II, the North Korean People's Army and Chinese Communist Forces were not signatories to the Geneva Convention. Indeed, the medical "red cross" now became the aiming point for enemy soldiers.

Medical units were specifically attacked and, therefore, the red cross was covered and medics carried M-1 rifles, just like their infantry counterparts. In this environment, medical organizations now surrounded themselves with armed troops whenever possible.

Korean War (1950)

Colonel (COL) Chauncey E Dovell, the Eighth Army Surgeon, reported that the activities of the Eighth Army in the last 6 months of 1950 were “highlighted by many events which have both cheered and tested the spirit of the entire army.”^{3(Preface)} There was the UN breakthrough from the Nakdong River in September, the pursuit of the Communist forces up the Korean peninsula, and finally the victorious entrance of UN troops in the North Korean capital of Pyongyang in October 1950. In opposite measure were the devastating reverses suffered in the very beginning of the conflict by the 24th Infantry Division and Task Force Smith, the Nakdong Bulge penetration in August, the entry of Chinese Communist Forces in October, the 1st Marine and 7th Infantry Division’s bitter fighting in the Changjin Reservoir (“Frozen Chosin”) in November and December, and finally, the death of the Eighth Army commander, Lieutenant General (LTG) Walton H “Bulldog” Walker, at the end of December 1950.^{17(pp661–662)}

Shortages of personnel, equipment, and supplies, and the lack of trained medical units characterized the medical problems present since June 1950, the beginning of the war. Therefore, centralized control was important in distributing the scarce resources across the combat zone. As doctrine had dictated, the MASH was utilized in direct support to the combat division. But the Army’s 400-bed evacuation hospital could not properly function on the peninsula because of the lack of transportation, an inadequate road and rail network, and the volatile tactical situation. Under COL Duvall’s direction, the MASH was “organized” to provide surgical care for all patients, not just nontransportables. The MASH now became a small 200-bed capacity (a 140-bed increase) evacuation hospital providing care to the division in addition to its intended surgical role. In some instances, the MASHs exceeded 400 patients a day.^{3(p5)} There were three MASHs to support four United States infantry divisions and other United Nations forces until 26 December 1950. By the end of the year, when all medical assets from X Corps were transferred to the Eighth Army, there were four MASH units in support of seven divisions and attached United Nations troops. As a recommendation in his annual report, Dovell urged the US Army to develop an authorized unit, similar to the *de facto* MASH units struggling in Korea, to be planned and activated to cover the current needs in Korea.^{3(p5)}

The MASHs organized for Korea were not intended for any extended service. They were actually filled utilizing a Table of Distribution (TD), today referred to as a Table of Distribution and Allowances (TDA).^{7(p69)} The theory developed by the Surgeon General in the United States and the reality in the Far East Command were not one and the same. This rapid adjustment to the critical needs on the ground manifested itself within the field surgical ward. It was described by a real-life MASH surgeon, Dr Richard Hornberger, in his fictional account from the novel *MASH*.¹⁸ His character explained,

This is certainly meatball surgery we do around here, but I think you can see now that meatball surgery is a specialty in itself. We are not concerned with the ultimate reconstruction of the patient. We are only concerned with getting the kid out of here alive enough for someone else to reconstruct him. Up to a point we are concerned with fingers, hands, arms, and legs, but sometimes we deliberately sacrifice a leg in order to save a life, if the other wounds are more important. In fact, now and then we may lose a leg because, if we spent an extra hour trying to save it, another guy in the preop ward could die from being operated on too late.^{18(p195)}

The 8055th MASH relayed critical elements to rapid field surgery in their 1950 *Annual Report of Medical Department Activities* emphasizing triage techniques to quickly weed out nonsurgical cases coupled with the use of radiographs and lab work to quickly move patients into vital surgery. Most patients were evacuated in 2 to 3 days following recovery in the postoperative ward. Unfortunately for the 8055th, their medical technicians (corpsmen) and operating room technicians, enlisted strength, was only 65%.^{19(pp2-4,7-8)} On-the-job training was the only measure to fill the gap created by the lack of these qualified personnel. From this gap in specialty skills, it is logical to conclude the huge emphasis made in assigning and maintaining nurses in this type of unit.^{19(pp14-15)} The report conveys that,

Corpsmen are not a suitable replacement for nurses, as demonstrated by the experience of this unit. At least this hospital has not found an adequate substitute for nurses during the short periods when operations were carried on without them. This is especially true in surgery where they are considered the most essential.^{19(p13)}

According to its annual report, the 8063rd MASH began to feel the strain of not having enough enlisted soldiers on hand. Cold weather affected the radiographic developer, but was mitigated once better heaters were used. During the 23 moves in 1950, women were transported by helicopter because of the security issues en route to each destination. In reviewing the types of surgical cases, the commander recommended additional orthopedic surgeons because 60% of all surgical cases required orthopedic interventions.²⁰ More generator power was requested. This continued to be a common theme throughout all the MASHs in theater for the entire conflict. Tent heaters had to be used in the operating room to manage the extreme cold of the winter; insect screens had to be requested to combat the vermin that came from open windows in the summer. This time of the war was particularly difficult. The annual report noted that the local civilian population was starving and resorted to taking the hospital's food waste for any kind of nourishment. Air evacuation was cited as excellent. By continuously locating near airfields, patients could be evacuated to the rear when defenses were overrun in order to prevent capture. In closing, the 8063rd commander commented that the medical troops needed overall "tightening" up in military discipline and training.²⁰

During the first move of the 8076th MASH in combat that August 1950, the unit worked through the night while fighting off "guerilla" attacks. They were operational and ready to receive casualties the very next day. Their own mess sergeant was their



FIGURE 7-1. Captain Joseph W Hely of St Louis, Missouri, 2nd Helicopter Detachment, 2nd Logistical Command, lands a Bell H-13 at his detachment headquarters following an evacuation from the front (31 December 1950). Note the litters covering patients like a “casket,” and skids replacing the wheeled landing gear. Photograph courtesy of the AMEDD Center of History and Heritage, Army Nurse Corps Photo Collection, Korean War, Box 25, Item #B4-O4-02(1).

first patient. In November, American forces were surprised by the intervention of the Communist Chinese Forces, and had no cold weather gear for fighting. Over the course of 6 days the 8076th admitted 1,836 patients, 661 in one day.^{21(pp1-2)}

The casualty flow matched the intensity of the cold where temperatures ranged from 20 to 30 degrees below zero Fahrenheit. Some of these patients froze to death while waiting transport into the hospital after the ambulances dropped them off. Shelter within the canvas was not always sufficient. Patients froze inside the hospital confines, too. The chaos of battle, and its subsequent injuries, was always exasperated by the elements.^{21(pp2-3)}

It was during this particular time in November 1950 that the tactical situation necessitated the order to “bug out” in advance of the Communist Chinese Forces. The roads were clogged with retreating UN vehicles and personnel. After all means of evacuation had been exhausted, 40 patients remained that required transport. Unable to move, one doctor and several corpsmen stayed with the remaining patients while the MASH rapidly escaped under orders to move. Fortunately, 4 hours later the entire group was rescued before capture by enemy forces.^{21(p3)}

In that same move from Kunuri to Pyong-yang along a designated route, Lieutenant Colonel (LTC) Kryder Van Buskirk, just promoted earlier that month, decided that the prescribed left turn at a fork was unsafe and chose to continue along the right. This decision saved the 8076th MASH and its patients from disaster. Every unit that took the



FIGURE 7-2. The Korean civilian hospital in Incheon, Korea, was operated by the 1st MASH and had little or no supplies initially (3 October 1950). Fixed facilities were much better than canvas tents and were utilized whenever possible. Photograph courtesy of the AMEDD Center of History and Heritage, Army Nurse Corps Photo Collection, Korean War, Box 25, Item #B4-03-02(1).

left turn encountered a Communist Chinese roadblock and the soldiers were killed or taken prisoner. Van Buskirk's unit continued to experience enemy attacks.^{21(p3)} In response, he fashioned a 10-man guard section that he felt did not disrupt the medical shifts.^{22(p2)}

Several recommendations were made to improve orthopedic sets for this particular type of field environment. Additionally, there were several recommendations made to improve the surgical procedures included in Technical Bulletin Medical 147 (TB Med 147), *Notes on the Care of Battle Casualties*.²³ Those included specific procedures for intraabdominal wounds, chest wounds, and wounds of the genitourinary tract.^{22(pp2,6-7)} In the area of environmental controls, much dissatisfaction was heaped upon the assigned gas-powered space heaters, which were referred to as “gadgets rather than as functional pieces of equipment.”^{22(p3)} In fact, one had been converted to run using an electric motor. Litter and blanket exchanges worked well with the train system, but not within the air evacuation platform. Because of the extreme cold, each patient had six blankets during evacuation to the rear, but the helicopters could not exchange the patient blankets with six more blankets from their supply stock upon their delivery. It was commented that “too much cannot be said in praise of the helicopters”^{22(p3)} (Figure 7-1) in getting patients in remote and inaccessible locations on the front lines quickly transported to the MASH, therefore, minimizing shock and delay in surgical intervention. The standard method of evacuation from the regimental area was by ground evacuation in wheeled ambulances accompanied

FIGURE 7-3. Colonel Thomas N Page, Eighth Army Surgeon, in Joju, Korea (March 1951). In a note to his mother, he remarked how much weight he had lost. Photograph courtesy of the AMEDD Center of History and Heritage, Thomas N Page Collection, Box 1, Image #2010.11.5.



by medics, unless distance or medical condition dictated a quicker response with rotary-winged aircraft. Hospital trains were used to move patients throughout Korea. Fixed-winged aircraft were used to move patients out of the combat zone to Japan. However, these airplanes were utilized to transport within the peninsula at times as well.

The 1st MASH (later designated the 8209th in 1951) arrived late in September 1950. The hospital began caring for enemy prisoners of war while awaiting the arrival of its equipment. Because of this, this treatment became pure “clinical medicine” inasmuch as there were no supplies. The hospital at one time set up in an old school (Figure 7-2). One can only imagine the frustration of the early days in Korea as described in the annual report,

The abysmally insanitary conditions and revolting nature of the gangrenous and maggoty wounds and accompanying complications were of such nature as to stir all concerned to their utmost endeavor to relieve the suffering. It was an experience which impressed each and every member of the unit with the value of the supplies and equipment which are ordinarily taken for granted in our modern medicines.^{24(p8)}

They finally became fully operational as a MASH late in the year, 27 December 1950. Compared to the textbook and academic training they had undergone in the United States, in combat they became fully functional on patient movement, unloading, and set-up.^{24(p9)}

Korean War (1951)

The following year, 1951, the new Eighth Army Surgeon’s report from COL Thomas N Page (Figure 7-3) to the Surgeon General (Exhibit 7-4) was much more upbeat. The Army Medical Service had suffered and succeeded along with their fellow soldiers in the Eighth Army under General (GEN) Matthew Ridgway. As COL Page reported, many of the problems faced in the early days of the war no longer existed. The UN regained the

EXHIBIT 7-4. GEORGE E ARMSTRONG, SURGEON GENERAL (1 June 1951-31 May 1955)

Unique to most physicians, George E. Armstrong began his career as an enlisted member of the National Guard. Upon commissioning, he rose through the ranks obtaining vast experience in the Philippines and China during the interwar period and World War II where he eventually served as the Theater Surgeon, China Theater. Before his appointment as Major General and The Surgeon General, he was the Deputy Surgeon General for 4 years under Major General Raymond Bliss.¹ Some of the highlights of his tenure were the remarkable decrease of the death rate from World War II's 4.5% to Korea's 2.3%. Helicopters and their use in medical evacuation became an integral part of the medical field organization. Surgical Research Team investigations and progress in vascular surgery marked the increased knowledge gained from focused research as witnessed to an 80% arterial repair success rate compared to the previous 50% in World War II.²

Sources: (1) Biographical Files (Armstrong GE), 2010.71, AMEDD Center of History and Heritage, Archival Repository, Joint Base San Antonio-Fort Sam Houston, Texas; and (2) Armstrong GE. Military medicine in Korea. *US Armed Forces Med J* [USGPO, Washington, DC]. 1954:1-7.

those in medicine and neuropsychiatry, were assigned. This further raised the standard of medical professionalism of the Eighth Army and began the remarkable record of surgical intervention, primarily in neurosurgery, displayed in the MASH on the battlefields of Korea. Research teams in surgery and cold injury arrived to work with the MASHs to fully capitalize on newly developing techniques in modern medicine. Through the latter part of the year a concerted effort was made to move the MASHs closer to the front lines of the fighting, usually 10 to 20 miles away. This balanced easy access for the wounded and still allowed surgeons to operate with a “fair margin of safety.”^{4(p24)} Because the MASH received the greatest casualty load, relatively inactive hospital staffs in the rear were moved to augment the heavily burdened MASHs. As a matter of concern for Page in his annual report, certain individuals, presumably from higher headquarters in the continental United States, visited “supposedly to check”^{4(Preface)} on conditions in the field. Inasmuch as these individuals were inexperienced in field service, he stated that the “desirability of continuing this somewhat extravagant policy becomes questionable.”^{4(Preface)}

The pace and movement of the MASH in 1951 was a replication of the experience from 1950. The introduction to the MASH operations in the 1951 annual report is exactly the same as the earlier annual report of 1950. But now there were five US MASHs

offensive in late January, including the great counterblow to Communist Chinese Forces at Chipyeong-ni in February, the UN stood its ground at the 38th parallel in June that began the truce talks, and battles such as Heartbreak Ridge beginning in August ensured the lines were held through the year. The Chinese had taken Seoul in January, but the aforementioned UN offensive directly reclaimed Seoul in March. Fierce fighting and testing of the lines characterized the combat, but UN forces under the direction of GEN Ridgway (after GEN Douglas MacArthur's recall in April), held fast the new cease-fire line. From this movement in leadership, LTG James A Van Fleet assumed command of the Eighth Army.^{4(Preface),17(pp662-663)}

The previous staff policy of centralized administration began to change as Page better utilized the abilities of various staff members upon his appointment in July. Surgical consultants, as well as



FIGURE 7-4. Aerial view of the 8076th MASH in Chounchon, Korea (29 July 1951). Note the Basic “U” used to build the tented hospital. It was here that the core functions were established—preoperative, postoperative, and surgical wards. Photograph courtesy of the AMEDD Center of History and Heritage, Thomas N Page Collection, Box 4, Image #8A/854-9/FEC-51.

and a Norwegian Mobile Surgical Hospital (60-bed capacity) in support of US and UN troops. One MASH, with the exception of the higher medical professional personnel, was held in reserve. Standards were established as these MASHs developed through the year. They disassembled, loaded on vehicles, and were ready to depart with a 6-hour notice. After arrival at their new destination, they were operational within 4 hours. Each MASH operated five surgical tables in a shift with a highly organized system of managing shock patients. A ground ambulance platoon was attached to each MASH to facilitate the rapid evacuation when postoperative recovery was complete. Additionally, four helicopters were attached to each MASH. They, in turn, were utilized for resupply, rapid patient delivery to the MASH, and comfortable (compared to a bumpy ground) evacuation from the MASH.^{4(p5)}

Through Page’s direction, auxiliary surgical and neurosurgical teams were assigned to augment and aid the “extremely busy and somewhat overworked”^{4(p24)} mobile surgical hospitals. The surgical cases followed the flow of battle. The hospitals were crowded with Allied and enemy wounded personnel during the winter and early spring. The situation

changed in late spring and summer following the slackened intensity of fighting and, therefore, the flow of wounded was sporadic. However, after the ceasefire negotiations seemed to be failing in September and October, the flow of wounded mirrored the pace of fighting on the front.^{4(pp23-24)}

CPT Samuel L Crook, detachment commander of the 8076th MASH, described in an after-action interview the utilization of the basic “U” and split operations of his MASH developed by the previous hospital commander, LTC Kryder Van Buskirk, and the current hospital commander, LTC John L Mothershead (Figure 7-4).

The hospital is moved in two phases. In Phase I, the tents housing Registrar, Receiving, and Holding are taken down. The laboratory, the pharmacy, and the admitting functions of Receiving are moved into the Pre-operative ward. The tentage which has been struck is then moved to the new location with half the personnel of Pre-operative, Post-operative, Surgical, Central Supply, and one receiving clerk. This tentage is erected at the new location to form the Basic “U,” consisting of Pre-operative, Post-operative, and Surgical. Central Supply functions, which consist of sterilizing instruments and dressings, are carried out in the surgical tent.

At one point, therefore, there are two completely functioning hospitals. The hospital in the rear continues to admit patients until the forward installation is ready to operate. When the advance unit opens to patients, the rear installation ceases to receive. When all its patients have been evacuated, the rear unit moves up and joins the advance hospital as Phase II of the move. Tentage brought up is added externally to the Basic “U” in the new location.^{25(pp4-5)}

Dr Otto F Apel Jr, chief surgeon at the 8076th MASH, wrote of his experience as a medical eyewitness from 1951 to 1952. As relayed earlier, the MASH was still in its infancy. Unlike the end of the war, the MASH was still truly mobile during the second year of fighting. Within Apel’s first year with the 8076th, the unit moved about every 3 weeks, just as described by CPT Crook.^{2(pp49,57)} In addition to constant movement, continuous sustained operations characterized the busy MASH. Upon his arrival, Apel operated for 72 hours on combat casualties and had to cut off his boots due to the swelling in his feet.^{2(pp36-37,39)} The 8055th Table of Distribution increased their manpower strength and equipment. Patients flowed from the front lines 20 to 50 miles away into the MASH within an hour to an hour and a half from the time of injury. Plasma and whole blood were the agents used to fight shock, using intraarterial transfusion and positive pressure oxygen inhalation. It should be noted that there was discussion within the surgical community as to whether intraarterial transfusion was more beneficial than the traditional intravenous method in the resuscitation of the wounded. Studies conducted by the Surgical Research Team later in 1952 to 1953 at the 46th Surgical Hospital (formerly the 8209th MASH) determined “no definite conclusions”^{26(p64)} could be drawn. Sometimes surgical staff had to conduct surgery before the shock was controlled, but a large percentage of patients improved quickly from the surgeons finding the source of bleeding and stopping it. The radiograph was a critical tool in identifying foreign objects and became the policy of the unit for all battle

FIGURE 7-5. A litter patient is presented for triage at the entrance to the 8063rd MASH (1951). Note the results of fewer moves reflected in the “garden.” Photograph courtesy of the AMEDD Center of History and Heritage, Joseph Hely Collection, Box 2, Image #2010.1113.



casualties to have radiography performed to simplify the work of the surgeons. The old authorization tables were created in 1948, but now the 8055th was transforming to new authorizations and steadily increased their size. In the first part of 1951, the hospital was all in canvas tents. But by December, the preoperative, operative, and postoperative wards were in prefabricated buildings. Across the board Japanese products were cited as inferior in quality and this caused major problems in the upkeep of the hospital and, in medical products specifically, hurt patient care. Patients also were referenced as reasons to adopt electric heaters because of the noise and maintenance required from the poorly performing gas heaters then on hand. One could minimize the importance of heat for the staff because winter clothing was on hand; however, it was often the wrong size.^{27(pp2-5,11-13,18-20)} This would continue to plague the MASH staffs throughout the theater and the war.

In an endorsement for the 8063rd's annual report for 1951, COL Page acknowledged the poor quality of Japanese procured equipment and supplies and mentioned that they were being replaced. While acknowledged throughout the theater for its benefits, the radiography equipment had problems from the heat of the summer. The 8063rd commander insisted that visits from the radiological consultant be longer and more often because they did not have their own radiologist assigned to the MASH.^{28(End4)} Ironically, the leadership of the 8055th argued the radiologist should be deleted from the authorization the following year because there were no problems in interpretations among the technicians.^{29(p10)} With the increased equipment, a pattern emerged where units remarked that the current level of equipment and supplies on hand was beyond the capability of relocating the hospital in one move (Figures 7-5 and 7-6). With the addition of a neurological team, the lack of enough generator power was troublesome for the daily operations of the MASH because it could not carry the full load of the hospital when it was operating at its maximum capacity. The first part of the year, strangely enough, saw the preponderance of all the illness (sick; noncombat wounded) cases within the unit for the entire year. By the command's own admission, there was no explanation for this. By late



FIGURE 7-6. Operating room of the 8063rd MASH (1951). Note the wooden floors improved the environment, but limited directional lights and single bulbs still provide lighting. The procedure in the foreground appears to be on a surgical table and the background shows several instrument set boxes holding up a litter replicating a surgical table. Photograph courtesy of the AMEDD Center of History and Heritage, Thomas N Page Collection, Box 2, Image #2010.11.5.

June 1951, however, the first cases of hemorrhagic fever discovered and properly diagnosed in the war were seen at Kachae-Ri. For epidemic hemorrhagic fever, this was the beginning of a long battle for UN forces with this disease, first identified in 1939 by the Japanese in Manchuria. The unit praised and benefitted from the clinical consultant program instituted by the Far East Command and Eighth US Army Korea Surgeon. The 8063rd commander specifically lauded the benefits to general surgery, ear-nose-throat surgery, and oral surgery. He did, however, request that the visits should last at least 2 to 3 days.^{28(pp5,8-9,11-13)}

Throughout the year, the 8076th was 5 to 10 miles from the front. The weather was a constant aggravation where the rain and mud oftentimes would not allow the tent stakes to stay in the ground, and thus the tents collapsed under the deluge (Figure 7-7). The hospital had to resort to placing its vehicles under the tents to keep the tentage up.^{21(pp4-5)} In the opinion of the 8076th's command in 1951, the guard section was inept in its duties,



FIGURE 7-7. Ground view of the 8076th MASH in Chounchon, Korea (29 July 1951). Note the condition of the road network approaching this section of the hospital. Rain and mud proved to be constant environmental challenges. Photograph courtesy of the AMEDD Center of History and Heritage, Thomas N Page Collection, Box 4, Image #8A/854-8/FEC-51.

with average or below average intelligence. In LTC Maurice R Connolly's opinion, they were of poor quality, possessed low morale, and had a slovenly appearance while on guard duty. In his assessment they were not fulfilling their mission based upon the numerous thefts and penetration of the perimeter and he, therefore, disbanded the group. Instead of a permanent group, most enlisted soldiers rotated through the duty, but this soon affected MASH operations. A newly formed guard section was created under better selection criteria and supervision and proved to be worthwhile.^{30(pp5-6)} The 8076th's interaction with the Communist Chinese Forces was not at an end. There was an enemy clearing company overrun by UN forces and 200 wounded Chinese were admitted to the hospital within an hour. One Chinese nurse stayed with the patients for 1 month, taking care of them.^{21(p6)}

Within the clinical realm, the preoperative and shock treatment sections were combined with great results and remained so, even though the new Table of Authorization separated them. More gas heaters were converted to electric-motor-operated heaters. The hospital had to improvise in making operating room and orthopedic tables, surgical lights, and scrub sinks. Several feats of improvisation and ingenuity were detailed in drawings of these recommendations that included a portable version of an operating room table, an operating lamp that moved (original one did not bend), a surgical scrub sink with a heater, and a transtracheal anesthesia apparatus.^{30(pp6,8,12,77-80)}

By late December 1951, the preoperative and postoperative wards, as well as the operating room, were in prefabricated buildings. Much improvement to temperature control was evidenced through the use of 250,000 BTU (British thermal units) blowers used in the hospital (when the motors worked). Cases of suspected epidemic hemorrhagic fever were immediately evacuated to the rear. Because of the high suspicion of disease, not all of those evacuated were shown to have this illness.

The unit focused on efforts to improve the clinical practice of the MASH and again made recommendations to the newly revised Technical Bulletin Medical 147, now titled *Management of Battle Casualties*.³¹ Specifically, the report addressed treatment and intervention in intraabdominal, intrathoracic, and neck wounds, as well as vascular injuries and anesthesia. Supplies requisition continued to be problematic with several needed articles marked “not in stock.” With the construction of five prefabricated hutments to house the hospital, the basic-U plan for the 8076th MASH, in practical terms, became immobile.^{30(pp8,16,18–19,21–24,28,33)}

It is interesting to note that the 1951 annual report recommended a “mobile surgical platoon” that could keep up with division clearing stations. Initially the mobile surgical platoon would stay with the main hospital. Evacuation flights would come directly from regimental clearing stations. Because of inadequate road networks between the MASH and division clearing stations, the idea of this mobile surgical platoon was born. In concept and design, it foreshadowed the current forward surgical team concept. According to the plan, the surgical platoon would

leave the main hospital and attach itself to the Division Clearing Station. The platoon would use the facilities of the clearing station for shock, pre-op, and x-ray. (For many years the need of a portable x-ray for the Division Clearing Station has been evident, and would be necessary for *our concept*). It would set up a two table operating room, work-room and a small anesthesia recovery ward. The two surgical teams would select only those cases who obviously would not live to reach the main hospital, and would not stock-pile a group of cases. Most of their work would probably be during the hours of darkness when the helicopters can not (*sic*) evacuate direct to the main hospital.^{30(p42)}

It was in 1951 that the 1st MASH was redesignated to be the 8209th MASH.^{32(p1)} Evacuation was primarily through fixed-wing aircraft and train, while helicopters were used in emergencies, simultaneously solving the problem of prompt refill of a depleted blood supply. Most reports of the MASH described the challenges of balancing security and the mission. The 1st actually had a Raider platoon—elite volunteers who fought irregular warfare—assigned to the hospital to provide security. Like the year previously, abandoned buildings were used when available. At one time the surgical suite occupied a former bank building. Blankets became a problem during exchanges with aircraft. During one operation, the MASH went through about 1,000 blankets per week and had to begin using staff blankets to keep patients warm.^{33(pp1–2,4–5)} The 8209th staff served as consultants to the Korean Army and civilian hospitals. Interestingly, the 8209th never used their holding

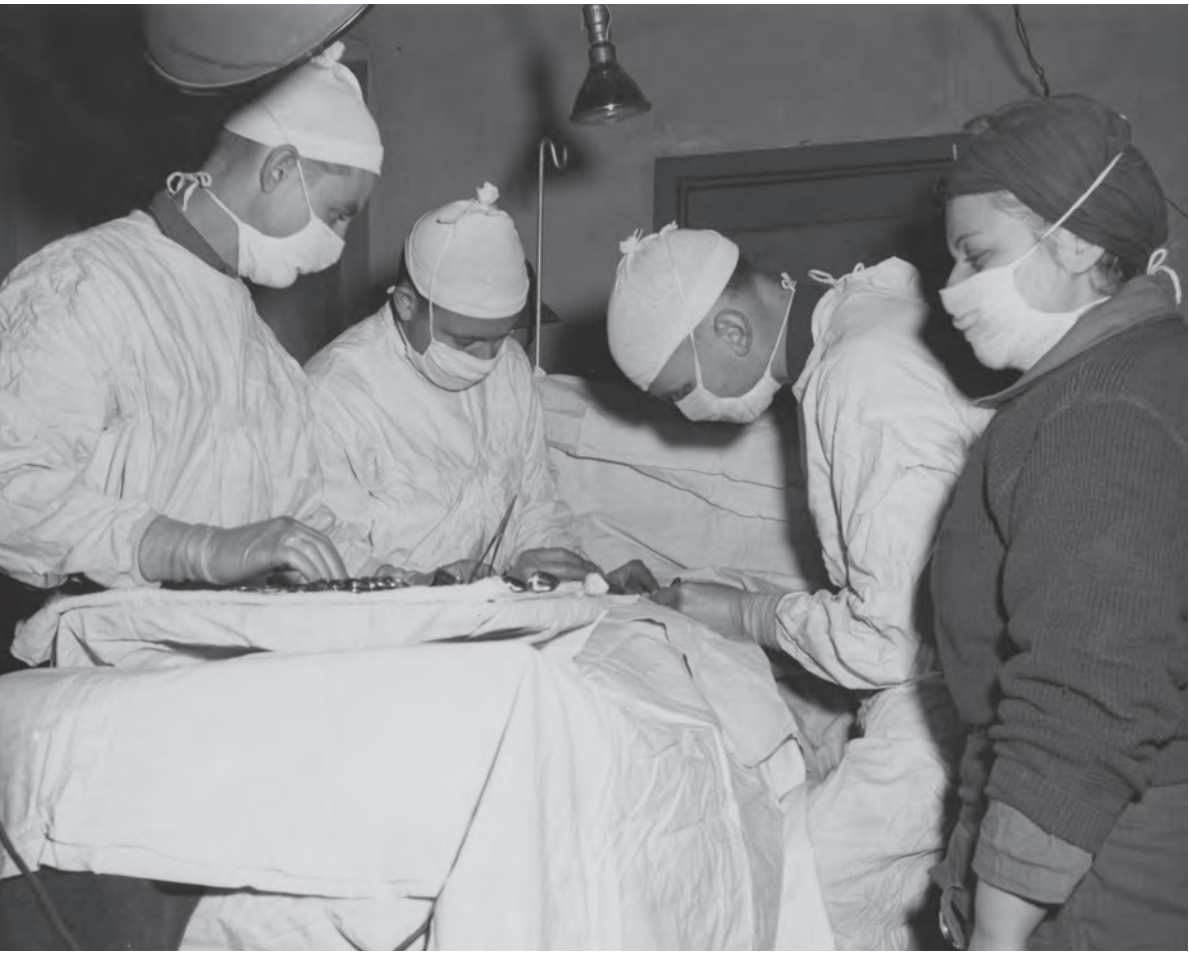


FIGURE 7-8. A team from the 1st MASH performs surgery on a wounded soldier in Inchon, Korea (14 February 1951). Left to right are: Corporal Bob Crain of Los Angeles, California, surgical technician; Lieutenant Junior Grade Bruce Meiers of Berlinger, California, Navy surgeon; Captain John J Wilsey, Newark, New York, surgeon; and First Lieutenant Marie Smarz of Shelton, Connecticut, Army Nurse Corps. Note what appears to be a vehicle light serving as an improvised surgical lamp. Photograph courtesy of the AMEDD Center of History and Heritage, Army Nurse Corps Photo Collection, Box 25, Image #B4-03-02(1).

section during this time because patients did not stay long. At each location, patients were rapidly evacuated, enabling the hospital to “leap frog” to the next position. The forward hospital received the more severely injured patients, while the rear hospital took the overflow of the lightly wounded. Before each move, patients were evacuated from the two functioning sections of the MASH conducting split operations. Extra duty details were performed by the staff.^{32(pp4-5)}

Field expediency dictated replacing the issued light sets with improvised lights in the operating room (Figure 7-8). Like the other MASHs, the equipment authorized exceeded

the power generation system that was available. Furthermore, gasoline engine heaters were notoriously inoperative (nine of 12 were out at one time) and were replaced with electric motors. This, of course, only strained the already overburdened generators.^{32(pp6-7)}

As the year progressed, morale was enhanced through numerous outdoor recreational activities that included baseball, softball, volleyball, horseshoes, and swimming parties. Nightly movies were shown in the tent theater that held 400 people, which also made for the perfect venue for a United Service Organizations tour stop. It was no wonder the 1951 annual report cited these amenities as a reason for a significant reduction in depression among the staff.^{32(p8)}

The 8209th 1951 annual report noted that the incoming enlisted personnel were so poorly trained that only a small percentage could be used immediately upon their arrival. For example, out of the 70 new soldiers who arrived in 1951, 43 had to be given other temporary jobs before being allowed to practice their “trained” skill set. A medical society, which included medical personnel from a supported division, met weekly. Here they followed up cases, reviewed patient care summaries from patients transferred to Japan, and produced medical papers. By year’s end all sections were still in tents with frames and floors except for the prefabricated buildings containing the preoperative ward, operating room, postoperative ward, and the combined admissions, dental, optical, refraction, and pharmacy sections.^{32(pp11-12)}

After its arrival to the peninsula from Japan, the 2nd MASH became operational in April 1951 with about 95% of the authorized 10 days of supplies. However, they had to request additional material to transform from a 60-bed to a 200-bed hospital. With only a little over a month in combat, the hospital was redesignated as the 8225th MASH. While most of the unit was under tentage with dirt and tarp floors, winterization brought wooden and concrete floors, walls, wooden frames and doors, tent liners, and, most importantly, Herman Nelson heaters. The Admission and Disposition Sections morphed into an Outpatient Clinic. Like other MASH units, they had to evacuate any head, neck, and eye injuries for a lack of the specialty to treat those injuries. With the exception of small burns, no plasma was administered, but rather whole blood was given to treat shock. During the summer months (when the war raged in the heat), there was a great demand for intravenous fluids and blood. Until July, there were actually four Navy doctors on the surgical staff.^{34(pp2-7,9)} The presence of Navy doctors in Army units was indicative of the severe shortage of medical personnel in the Far East Command. Army interns and residents from hospitals in Japan, and Navy residents, had filled the gaps in field units facing the North Koreans and eventual Communist Chinese early in the war.^{7(p140)} A cold-injury ward was created and physicians collaborated with the Army’s Cold Injury Research Team in the care and in research of these patients. It was policy to radiograph every combat wound, which assisted the surgeon in debridement, and the film was then transported with the patient during evacuation. But this created a scenario where two of the six radiography technicians’ blood count displayed evidence of excessive radiation exposure.^{34(pp12-13)}

The triage effort between the preoperative section and the operating section was critical and several recommendations were made based on the unit’s experience: (a) there

was a great need for more anesthetists; (b) there should be at least two orthopedists; (c) acute head injuries should be dealt with in the MASH; and (d) the MASH should have well-trained surgical teams where the commander was a surgeon and provided policy and consultative advice. During heavy patient flow, the dentist was used as a surgical assistant. Defective Japanese equipment was lamented, with examples describing syringes breaking, intravenous bags leaking, and plaster of Paris falling apart. The problem of not having enough generator power was evident once again. Blood was good only because of the transport by helicopter and fixed wing aircraft. Clothing for hospital staff was abysmal. When patients no longer needed items, staff used their boots and clothing. There was also a period of clothing issuance where sizes were just too small. For the lack of proper uniforms, women were issued male clothing.^{34(pp10,16-17)}

The year 1951 was the first year for the 8228th MASH. COL Page described it as the only replacement MASH in the Eighth Army. Initially the unit was composed of a small cadre: two medical service corps officers and four to six carefully selected enlisted soldiers. Toward the end of the year they were busy unloading equipment from the train and using replacement personnel as guards, some of whom had transferred from other MASHs. Within the barbed wire containing the newly arrived hospital equipment, two-man patrols were required to keep vigilance against theft. Making good use of their time and consulting with the other MASHs, the unit began realistic training and had 95% of their medical equipment along with 85% of the technical services equipment by year's end.^{35(pp1-4)}

Korean War (1952)

The fighting stalemated and resembled the entrenched defenses of World War I as peace talks slowly drug on through April 1952. Enemy prisoners of war held in UN hands began rioting in April, with the rioting lasting through June. This even included an enemy prisoner of war patient riot in two field hospitals. General Mark Clark became the third Korean War commander of the Far East Command when he replaced Ridgway in the summer. The casualty flow, in turn, mimicked the steady waiting in which the two forces engaged in bearing down upon one another. When battle cries and horn blasts erupted from the Chinese Communist Forces on hilltops, the wounded flowed once again through the MASH.^{5(pp1,3-4)} As the war pressed on and the battle lines became fixed, so did the MASH. Concrete and wooden buildings replaced the canvas tents of earlier months. Specialized surgical consultants and research teams began to develop and improve the status of care and surgery on the front lines.

The Eighth Army Surgeon, Brigadier General (BG) L Holmes Ginn Jr (Figure 7-9), in his annual report for 1952 again lamented the shortages of personnel. Of the 139 field-grade Medical Corps officers authorized by T/O&E in country, only 36 were present. Fortuitously, the battle lines remained relatively static. Only two of the six US Army MASHs moved the entire year. MASHs began to establish permanent residence and construct temporary buildings or were issued prefabricated buildings (tropical shells with insulating kits) to provide better care and comfort to patients. Few individuals on duty in a 1952 MASH in Korea had ever seen their unit move. In contrast to the first 2 years of combat in Korea, the MASHs functioned within their authorized 60-bed capacity for



FIGURE 7-9. Major General George E Armstrong, US Army Surgeon General, visits the X Corps Headquarters in Chounchon, Korea (22 January 1952). Standing left to right are: Colonel Thomas N Page, Eighth Army Surgeon; Brigadier General Lawrence E Dewey, IX Corps Chief of Staff; Major General Armstrong; Lieutenant Colonel Francis L Carroll, IX Corps Surgeon; Brigadier General Earl E Standlee, Army Field Forces Surgeon; Brigadier General William E Shambora, Far East Command Surgeon; and Colonel Holmes Ginn, incoming Eighth Army Surgeon. Photograph courtesy of the AMEDD Museum Photo Collection, Korean War, Volume 2, Image #KW-0309.

priority surgical patients. The 8055th was the only exception.^{5(pp1,4-5;AnnexIV,pp7,26)} Because battle injuries remained constant, disease and nonbattle injuries “accounted for the preponderance of our hospitalization,”^{5(p1)} according to Ginn. The 8228th MASH became host to the onslaught of teams researching Eighth Army hemorrhagic fever cases. Moving from field conditions to a fixed facility in Seoul with 62 concrete-floor Quonset huts,^{36(p6)} the 8228th became the logistical and support center for hemorrhagic fever in Korea. As cases of hemorrhagic fever decreased in the winter and cold weather injuries increased, the 8228th emerged as the consolidated center for the treatment of cold injuries^{5(pp4-5;AnnexIV,pp7,13)} (Figure 7-10).

A stabilized combat situation, coupled with a lack of resources, resulted in each MASH beginning to develop its own specialization, similar to the 8228th. Neurosurgical detachments were stationed with both the 8209th MASH, in the east, and 8063rd MASH, in the west. It is interesting to note Ginn’s knowledge of the auxiliary surgical groups in World War II in his annual report. He stated the past concept was sound and could also work in Korea, if only the staff were available. In his opinion, the use of “professional



FIGURE 7-10. Doctors' tents serve as the background for a reunion of University of Pennsylvania Nursing School colleagues now with a Surgical Research Team (February 1952). From left to right are: Captain Howard, Medical Corps; 1st Lieutenant RE DeLaney, Army Nurse Corps; and 1st Lieutenant Scott, Medical Corps. Photograph courtesy of the AMEDD Center of History and Heritage, Army Nurse Corps Photo Collection, Box B24, Image #B4-02-03.

service detachments,” as he called them, however, were much diminished because the MASH was organized as a fully staffed surgical hospital superseding the field hospital platoons that performed the priority surgery at forward locations in the past. Significant reductions in infections were seen because minor surgical cases and debridement were properly handled at the division clearing stations. Now priority surgery could be done more quickly at the 60-bed MASH instead of waiting along with all other surgery patients in the 200-bed MASH.^{5(p5;AnnexIV,p26,Section2;AnnexVI,pp1-2)}

From 1952 to 1953, Dr Mel Horwitz served in the 8055th MASH and 8225th MASH (later designated 8225th Army Surgical Hospital, Mobile).^{37(p212)} As discussed earlier, the lack of hospital movement reflected the stationary warfare of the third year of fighting.^{7(pp88-89,167)} Dr Horwitz worked in a more mature MASH with prefabricated buildings and new equipment, in correlation to the stagnated front lines.^{37(p99)} Just as the experiences of Drs Apel and Horwitz differ, so does the MASH differ according to the time and place.

The biggest “medical lesson to remember” that unfolded in 1951 and came to resolution by 1952 was the debate on medical specialization versus field medical education.



FIGURE 7-11. Medics from the 23rd Infantry Regimental Collecting Station, 2nd Infantry Division, load a casualty onto a Bell H-13 litter for air evacuation near Sangchon, Korea (14 April 1951). Photograph courtesy of the AMEDD Center of History and Heritage, Thomas N Page Collection, Box 4, Image #X/FEC-51-12427.



FIGURE 7-12. Medics from Company A, 32nd Infantry Regiment, 7th Infantry Division, climb Hill 902 carrying litters in preparation to evacuate the wounded from Companies A and B to the division clearing station for further treatment (23 April 1951). Note that the "red cross" is not displayed on the uniforms to identify medical personnel. Photograph courtesy of the AMEDD Center of History and Heritage, Thomas N Page Collection, Box 3, Image #X/FEC-51-13264.

In competition with the civilian medical community during the interwar years, US Army Medical Department officials had emphasized the opportunities to specialize in a particular field of medicine in order to attract more physicians. The result was that there was no interest in field medicine, but only specialties. Doctors were supplemented with Medical Service Corps (healthcare administrative) officers who were versed in procedural paperwork and field/combat operations. This concerted effort, in effect, halted the training of young medical officers in combat medicine after World War II. Clinical expertise and military medicine/field expertise were not the same. The lack of combat acumen for physicians proved to be disastrous, resulting in preventable soldier and doctor deaths.^{7(pp34-35,189,191)} The leader in condemnation for the condition of Army field medicine was BG Crawford F Sams, former Chief of Public Health and Welfare in Korea. Sams had extensive experience as a “field soldier” and physician. (In March 1951, for instance, he led a three-man special operations “commando-type” infiltration mission into Wonson, North Korea, to determine whether intelligence reports of bubonic plague were true, but determined they were not.^{7(pp175-176,188)})

BG Sams blamed the current program of placing recently graduated medical residents fresh from the halls of a hospital directly into a battalion aid station for the amateurish state of military field medicine (Figures 7-11 and 7-12). There was no field or tactics training. His son-in-law, a battalion surgeon, was killed defending his patients in November 1950. He painfully recalled how his son-in-law was not prepared for his assignment, had fired a weapon for the first time just months before, and was “largely ignorant of field procedures, organizations, and weapons.”^{7(p188)} Sams rightly argued in June 1951:

Our younger men were thrown into combat without a day’s training—similar to taking a boy out of a drugstore and saying “I’ll give you a gun—go fight the Koreans.” We did this to our young doctors. They were pulled out of the specialty programs, arrived in Japan, because we had nothing else; given field equipment which they had never seen before, told they were going to be assigned to field units the names of which meant nothing to them. Those young men, within five days after their arrival, were being shot at by the enemy. . . . That, I think, was one of the most disgraceful things in the military service. And still, a year later, we are almost in the same fix insofar as the men who are physically in the forward echelons are concerned at this time.^{7(p189)}

Professional medical experience was common, but unfortunately, command rank and military experience were not.^{7(p234)} Dr Apel received no military field medicine training prior to reporting to Korea and pointed out that there was no remedy for lack of experience. He painfully remarked how he and his fellow physicians did not know how to establish a defensive perimeter, had no field manuals, and did not know tactics. Everything they did to survive in combat was from figuring it out by themselves.^{2(pp15,35)} Improvements and recommendations were implemented to correct the obvious problems within the training of the Army Medical Department at the Medical Field Service School under Sam’s direction as the Assistant Commandant.^{7(pp195-196)} By the end of the first year of fighting, better field training was initiated for officers and enlisted personnel.^{7(pp192-195)} A clear example of this change is evidenced by Dr Horwitz’s 8 weeks of field medical training at Fort Sam



FIGURE 7-13. Students from the first class of the Seoul Branch Medical Field Service School listen as the commander of the 44th MASH, Colonel WS Cornell, explains the function of the Neuro Surgical Ward (22 February 1953). Note the improved facilities—hardened structure, bug screens, built up tables, and three surgical lights configured together. Photograph courtesy of the AMEDD Museum Photo Collection, Korean War, Volume 2, Image #KW-0450.

Houston, Texas, in 1952 prior to reporting to Korea,^{37(p7)} compared to Dr Apel's complete lack of field training in 1951.^{2(p35)}

Paralleling the changes taking place at the Medical Field Service School under Sams' leadership, Ginn instituted a tough in-country training program for officers and enlisted medical personnel in Korea in 1952 (Figure 7-13). He stated,

Field training with a division, is an indispensable ingredient of [the medical officer's] education, especially if he is in the regular service, no matter how rarified and sacrosanct his MOS [military occupational specialty]; . . . along with knowledge and skill, a young medical officer must be taught a sense of mature responsibility toward his patients which comes from experience and from living with his mistakes.^{7(pp196-197)}

The 8055th treated shock as it had previously and also emphasized that in surgery the type of agent or technique in anesthesia was not as important as the manner used.^{29(pp2-4,7-9)} Looking with modern lenses, the 1952 annual report's discussion of surgical preparation seems strange, but the message is delivered with all seriousness: "We feel that the wounded man is entitled, if feasible, to undergo surgery while asleep."^{29(p7)} Some of the problems



FIGURE 7-14. Chaplain (Captain) Thomas L Doyle (left) from Lowell, Michigan, and Airman First Class Peter J Farpell (right) from Albany, New York, tend to a casualty just arrived from the front lines in an Sikorsky H-5 rescue helicopter at the 8055th MASH (20 November 1952). Note the litter cover lying on the ground has a transparent viewing area, removing the “casket” experience of early Korean War evacuations. Photograph courtesy of the AMEDD Museum Photo Collection, Korean War, Volume 2, Image #KW-0400.

affecting the radiograph’s ability to assist the surgeon were the great fluctuations in temperature, which affected the quality of the film development. It was noted, however, that the films were good enough for a general surgeon to interpret and the command recommended replacing the authorized radiologist with another general surgeon.^{29(pp9–10)} This was the opposite opinion held by the 8063rd commander just the year before^{28(p4)} (Figure 7-14).

By December, the headquarters detachment and mess facility were in prefabricated buildings, following the earlier preoperative, operative, and postoperative wards transitions. Japanese products, again, accounted for complaints of inferior quality. And again, winter clothing was on hand, but not the right size. The unit was challenged with getting

replacements into the hospital. Enlisted soldiers with medical specialties were diverted to fill administrative jobs to keep the unit functioning. The quality of the soldiers also affected the performance. Of the 132 enlisted personnel, only 53 were high school graduates. Low morale concerning promotion and rotations was countered with interventions such as building a club tent, Red Cross reading and game room, hosting unit parties, and showing movies every night.^{29(pp11,14-20)}

The Far East Command's endorsement of the 8063rd annual report supported the units' request for improved radiographic capabilities and facilities to continue the essential task of identifying foreign bodies. This ability, combined with the presence of a neurological team, would greatly increase favorable outcomes for the battle casualties arriving at the MASH.^{38(End,pp1-2)} Ground and air ambulance evacuation means were "heartily recommended"^{38(p2)} to continue in providing care to and from the hospital. Interestingly, the commander was severely critical of his medical counterparts because of their insistence in transferring ambulatory patients for radiography, labs, and general medical illnesses. LTC WS Cornell's comments echoed BG Sams' concerns from 1951 when he lamented,

A misunderstanding seems to exist on the parts of the medical officers in forward echelon stations as to the capacity of the MASH. The function of this unit as stated in the Service Regulations is to treat emergency surgical conditions and the unit is not in a position to administer any more or better treatment of non-surgical conditions than is available in the division clearing stations. This fact should be made apparent to the medical officers of these installations.^{38(p4)}

Additionally, the report warned it would be stressed under sustained action because of its current minimum staffing. The command had to train its nurses in anesthesia because of want of an anesthesiologist and had to train its surgical technicians with on-the-job training because they were unprepared out of the schoolhouse. Because the laboratory was still in tentage, reagents froze and the blood box overheated. This was corrected once the lab moved into a prefabricated building. The pharmacy also found it hard to keep medicines and liquids from freezing, but this also was remedied after moving into a tropical shell. Two and a half years of wear and tear were taking its toll on the vehicles of the unit. There was a considerable record of waiting for vehicle parts and the return of unserviceable vehicles. Recreational outlets such as swimming, softball, and ice skating, and entertainment through movies and United Service Organizations shows helped to improve morale.^{38(pp5,7,10-11)} The radiograph was emerging as a critical piece to the ability of surgeons to properly identify and remove the elements of battle that damaged their young patients, but the machines in the MASH were not adequate. This knowledge and plea was supported by the report's citing Dr Eldridge Campbell in the March 1952 *Symposium on Treatment of Trauma in the Armed Forces*,

Prior to debridement of a wound of the brain or spinal cord, it is essential to ascertain the location of in-driven bone, skull and rock fragments. Plain films, even of good quality, are inadequate. Good stereoscopic views are necessary, since not only the



FIGURE 7-15. US doctors and medics of the 8063rd MASH treat a Republic of Korea battle casualty from the Battle of White Horse Mountain (8 October 1952). Note the standard surgical lights are now configured to hang from a movable structure above. Photograph courtesy of the AMEDD Museum Photo Collection, Korean War, Volume 2, Image #KW-0361.

depth and exact location but even the identification of many small shadows can be determined only in this manner. This technique was not available in World War II, and thus far not in the Korean conflict. This can and should be adopted without delay.^{38(p12)}

Not surprisingly, the 8063rd commander states that most personnel in the unit were “not used to the rigors of Army life and life in the field.”^{38(p15)} Within the realm of clinical experience, the hospital made improvements in vascular repair by using clamps fashioned after Potts arterial anastomosis clamps. These clamps and subsequent training program came about directly from the general surgery consultant from the Far East Command. The treatment of severe burns and traumatic shock were improved through the use of polyethylene tubing for continuous intraarterial and intravenous fluid administration. Because the forward aid stations were using less morphine, patients were now able to go into surgery much sooner than they had in the past because the complications with anesthesia were far less. The unit now had eight tropical shells, concrete floors, and framed tents^{38(pp18–19,22–23)} (Figure 7-15).

The 8076th began the transition from a surgical hospital mission to a *de facto* area medical support-type hospital. The care they began to provide was equal to the evacuation and station hospitals in other locations throughout the peninsula. Because of the lack of increased authorizations of enlisted personnel, the command utilized indigenous labor in support of the Post Exchange, sanitation requirements, and utilities details. The security requirements of the enlisted personnel affected the surgical, preoperative, and postoperative sections' efficiency. There was obviously an institutional memory within the organization, enough to gain notice in the annual report and admit their current situation was not as bad as it had been in 1950 and 1951. It was acknowledged that the current fleet of vehicles, 24 in all, was not enough to move the hospital personnel and equipment. The winterizing and improvements of the MASH had created a larger and more spread out unit. Tents were replaced with wooden frames and new tentage, liners, and wooden and cement floors. The postoperative, preoperative, and surgical wards were all in prefabricated buildings. The prefabricated structures also bought comfort to a new chapel/theater, enlisted day room, garage for the motor pool, and an officer's mess. (Half-way through the year these separate dining facilities were established for the enlisted and officers. This was considered "more desirable" according to the annual report.^{39(Encls1-2,10)}) In fact, the summer brought about a change of attitude, if not mission.

Prior to this everyone was too occupied in work, keeping warm and moving to be very much concerned about the adequacy of latrines and quarters, the suitability of the Enlisted Men and Officers Clubs, etc. Now a concerted effort was put forth to improve the living conditions and the recreational activities in order that personnel could derive some comfort from their fairly comfortable surrounds. In conjunction with the improvement program, a training program was also put into effect for the first time in the history of the unit. Paper work, reports and red tape in general commenced to increase to an extent that times the expression "police action" seemed a vague term as applied to the general situation as far as the 8076th was concerned.^{21(p7)}

Along the lines of health of the command, three cases of hemorrhagic fever were diagnosed after some staff members were walking and hunting in a surrounding brushy area, which was soon put off-limits. Those three and the other 13 cases were evacuated to the 8228th MASH. The unit received only 67 cold injuries compared to 400 from the previous year. This decrease was attributed to the improved tactical situation, better cold weather protection, and education of the troops. The first half of the year US soldiers made up the surgical cases, but the second half were mostly Republic of Korea soldiers. Unfortunately, the higher morbidity rate for the South Koreans was directly attributed to the slower Republic of Korea Army evacuation system because it delayed arrival to definitive surgical intervention. Noteworthy surgeries included abdominal cases with thoracotomies, fractures, vascular injuries, and amputations.^{39(Encls3,5-6)}

A team from Walter Reed Army Medical Center trained staff on vascular surgery, focusing on the repair of peripheral arteries. Verbal approval was given for the Potts-type arterial clamps, but the unit was presently still awaiting their receipt.^{39(Encl6)} It appears the

clinical practice of fashioning on-hand clamps to replicate the clinically preferred Potts clamps was making the rounds as also documented earlier in the 8063rd.^{39(p19)} Dr Apel told of paying a silversmith to make a clamp based upon his own hand drawing while he was on rest and relaxation leave in Japan.^{2(p162)}

These surgeons all knew they were in a unique time and opportunity. Across the command, the doctors agreed that, “the experience gained as a result of being assigned to a MASH has no counterpart in the Army or civilian life.”^{39(Encl7)} There was an added note for nursing. The command supported 6-month rotations back to Japan citing “at best the field conditions under which they are required to live in is considerably harder on females than males.”^{39(Encl7)} Thus, nurses were authorized to request a rotation back to Japan after being in Korea for 6 months. On the enlisted side, an influx of less intellectual and technically trained personnel toward the latter part of the year was troublesome. This, combined with their concerns for points and promotions, produced low morale. The MASH replicated the usual on-the-job training for the enlisted, but the doctors and nurses started a formal professional training program. Of interest to note, it was recommended that the dental technician be taught operating room techniques in order to assist the maxillofacial surgeon. The technician’s skills in the dental chair were good, but lacking in the operating room.^{39(Encls7,12)}

The 8209th served as a 200-bed surgical hospital in the beginning, but transformed into the 60-bed MASH variety by October. The hospital provided neurosurgical support and had the Surgical Research Team of the Army Medical Service and Graduate School assigned the entire year. Much medical literature and research was produced during this time. In fact, the annual report, consisting of only three pages, seems to suggest that the Surgical Research Team was the *de facto* reservoir of any official record of unit history and clinical research. On-the-job training occurred, but the unit lacked an anesthetist, a recurring theme in the anesthesia story of the war. Interestingly, it was noted that one-third of the intravenous fluids were lost due to the glass bottles breaking in shipment. The commander ended his terse report suggesting the MASH may finally move because it was “somewhat far behind [the] Division which it supports”^{40(pp1-3)} some 8 miles forward.

The 8225th functioned in its prescribed manner until 18 May. Then it was closed for training until 24 September. During this training phase, the unit practiced individual military and branch training, field training, and use of medical equipment. Technicians were also sent on temporary duty to other medical units to receive required training. During this time there was terrible flooding, so there was plenty of opportunity to exercise the evacuation plan of the hospital. Once the training cycle was complete, the MASH temporarily occupied an old rice paddy that required draining while waiting for improvements on the final destination just 700 yards away. Once the site was properly prepared, the entire hospital moved piecemeal into the new location. For several hours there were patients in the operating room at both locations simultaneously. The division clearing station was now 7 miles away and ground ambulances traversed the evacuation route. Oftentimes, however, helicopters travelled straight from front line battalion aid stations. The airstrip was 1 mile away. Priorities were set for determining further evacuation requirements. It was deemed that wounds of the spinal cord, brain, and eye requiring specialized care warranted evacuation to a higher-level care, while those presenting with only minor wounds could be further

transported to evacuation hospitals for care. In November, the Eighth US Army in Korea Surgeon directed that all minor battle casualties be given surgery in the clearing stations. This filtered out many patients normally bound for the MASH.^{41(pp1-3,Encls2-3)}

The 8225th's annual report described the advantages of collocating the administration and disposition, preoperative, and radiography sections in the same building. This collocation eliminated crossing over other sections and improved the electrical distributions and prevented "bottlenecks." This proximity also enabled the radiograph's use in finding all debris in battle wounds early in the process.^{41(pp3-5)}

Problems with supplies and personnel still existed, however. The pharmacy reported the arrival of smallpox vaccine after its expiration date. The laboratory technicians' skills were found lacking and on-the-job training ensued. This situation may have contributed to the US Armed Forces–Far East Command arguing against the use of fresh whole blood within the MASH in its endorsement memo for the report. The higher command insisted that a mistake would be fatal and the dangers outweighed the advantages.^{41(End,p6)}

There was gradual improvement in some areas. In reviewing the layout, the two hospital sites described in the 8225th's annual report provide examples of this improvement to MASH facilities in the theater, compared to the crude canvas of earlier years. The first operating room was a prefabricated building with wooden floors containing two standard field-operating tables, two litter frames, and one cast table for the five operating room tables. The lights were a three-cluster arrangement of 100-watt bulbs that moved on a cable and slide. These were augmented with truck lights running off the truck's batteries. Once the hospital occupied the well-prepared site, an additional field-operating table replaced a litter frame. Now the operating room was in a prefabricated building, but with concrete floors. Two portable lamps replaced the old truck lights. Curtains were even arranged on cables between patients, which enabled surgery on an unconscious patient to be private, and not intimidate the adjacent patient only receiving local anesthetic administration.^{41(p7)} However, the lack of nurses caused operating room technicians to function as nurses if one nurse supervised. But sometimes there were no nurses at all.

Efficiencies were incorporated that saved numerous staff hours and are interesting to read in light of today's advancements, which have incorporated some of them or used the method to alter modern practices. These included:

- a glove powdering box limiting the dust in central supply;
- suspended drapes and intravenous bottle holders allowing draping and decreasing the number of poles on the floor;
- cast cart at surgical table saving time in walking;
- leg traction holder within the ceiling allowing surgical preparation at table;
- prep stands at surgical table allowing for consolidation of all items for surgical preparation;
- lighting that allowed movement of the lights over a cable system;
- portable intravenous stands allowing blood to be given in transit while attached to the litter;



FIGURE 7-16. Visitors like Maurine Clark, wife of the Far East/United Nations Commander, General Mark Clark, were able to visit because the MASHs began to remain in place as the battlefields became stagnant (12 August 1952). Here Mrs Clark is visiting the hospital staff of the 8228th MASH. Photograph courtesy of the AMEDD Museum Photo Collection, Korean War, Volume 2, Image #KW-0335.

- sterile mimeographed supply check list allowing for item listings with levels for rapid reference;
- card index of unsterile supplies allowing for a quick reference and standardization;
- procedure book providing more MASH-centric surgical procedures readily available; and
- prepacked lockers and cases allowing for rapid mobility.^{41(pp8-9)}

Beginning in September, the 8225th started to train all enlisted technicians in nursing because the 60-bed MASH had only two nurses. The eventual intent was to train and increase the enlisted medical proficiency in order for them to operate without nurse supervision at all.^{41(pp11-12)} The Eighth Army Surgeon reported it as “entirely successful.”^{5(AnnexIV,p7)} This is interesting in light of the 1950 annual report from the 8055th arguing the opposite, that “corpsmen are not a suitable replacement for nurses,”^{19(p13)} and emphasizing the incredible reliance and importance of nurses in the MASH.^{19(p13)}

The 8228th MASH was unlike any of the other MASHs on the peninsula. The first 4 months of 1952 were dedicated solely to training. On 7 April, the 8228th was designated as the primary hemorrhagic fever center and on 27 November, it was also designated as

the primary facility for cold weather injuries. Their first move entailed 33 trucks and 25 trailer loads over 3 days in March. As the hemorrhagic fever center, surgical supplies were not needed, but more laboratory and ward spaces were needed. The second move, in November 1952, took 7 days with 132 patients distributed among 17 ground ambulances and five helicopters. The MASH occupied 60 new prefabricated buildings with sidewalks, enough space for 500 beds and a detachment of 200 (Figure 7-16). There was no canvas tentage for the entire hospital. Because of the mission, treatment was medical rather than surgical. The medical officers were internists. Most were experienced with extensive residency training. Surgical technicians became medical technicians. On-the-job training related to hemorrhagic fever was conducted.

The mission change affected the ability to get the right types of supplies, which required letters of justification because the MASH was only authorized those items integral to surgical care. Some drugs had to be pulled from other installations in Korea by the medical depot trying to fulfill the new requirements. The commonly recurring saga of inferior Japanese products still emerged, even within this pristine MASH, but it was limited to light bulbs. Clothing in the wrong sizes continued to be a prevalent problem. One interesting note on equipment sustainability is seen where Japanese stapling machines were issued to the hospital, but only American staples were available through the supply system. In the spirit of redistributing desperately needed equipment, the unit received authorization to turn in unnecessary equipment needed elsewhere.

Along the lines of the clinical investigations, the clinicians knew the vector for hemorrhagic fever was an arthropod. Soon the center was conducting studies on rodent ectoparasites such as ticks, fleas, and mites (chiggers). As of the 1952 annual report, studies were looking into the theory that chiggers were the vector for hemorrhagic fever.^{36(pp1-6;AppC,pp1-3)}

Korean War (1953)

The closing events of the Korean War only covered the first 7 months of 1953. The earlier stalemate following the deadlocked truce talks continued on through the beginning of the year. General (GEN) Maxwell Taylor replaced GEN Van Fleet as the Commander, Eighth Army, in February. Not all the battle lines were quiet, however. Veterans from Pork Chop Hill that April, and the subsequent savage fighting through May, would testify to an eventful “stalemate” while peace talks were negotiated. On 27 July 1953, a little over 3 years from the North Korean invasion of South Korea, a ceasefire agreement was finally signed that ended the fighting.^{17(p664)}

In June, the 30th Medical group assumed medical service support to the Eighth Army. The medical units that had previously provided third-echelon medical care to the Eighth Army were organized under this new structure and commanded by BG Paul I Robinson. There were six MASHs in country, with one listed as inoperative. Following the armistice, additional equipment was assigned to the MASH to meet the increased demands of providing support to newly repatriated prisoners and maintaining the health of the populace in the devastated countryside. With this new command structure came a new name for the MASH—the “Surgical Hospital, Mobile Army.” However, everyone still



FIGURE 7-17. Members of the 45th MASH conduct a mission rehearsal for the exchange of sick and wounded prisoners on a Sikorsky H-19 helicopter in support of Operation Little Switch to begin the next day (19 April 1953). Photograph courtesy of the AMEDD Museum Photo Collection, Korean War, Volume 1, Image #KW-0173.

called it the MASH.^{6(pp1-2,4-5)} As discussed earlier, the MASH moved into fixed facilities, in the words of Robinson, “so that hospitals could render more effective Medical and Surgical type care.”^{6(p4)} And he added, “With the construction of semi-permanent buildings the fire hazard in the Surgical Hospitals has been decreased.”^{6(pp4-5)}

A shortage of personnel plagued the 8076th as it sought the ability to handle additional duties and, again, local nationals were used to fill these positions. The “mobile” hospital now had 19 vehicles on hand, even less than the previous year’s warning that there were too few to adequately carry out their mission, and again declared they would not be adequate to perform their mission when they transferred their excess and reached their authorized 14 vehicles.^{42(Encls2,9)} A good news story clinically, the final report of the 8076th MASH noted that,

[t]here has been a change in the form of new incoming men in our surgical service from a professional viewpoint and also enlisted men for our operating room. Both of these changes have brought well trained men to our service and should be adequate for the performance of good work, carried out in a logical and well supervised manner.^{42(Encl6)}

It appears that the ebb and flow of training had come back to producing better-trained medical personnel after the strained effort to get many medical men into the battle very quickly. Medical services were in abundance over surgeries due to the stagnant front.

FIGURE 7-18. On the back of this photograph (circa late 1952/early 1953) anesthesiologist Captain Louis Eisenberg, Medical Corps, handwrote the following personal message, "46th A. S. H. [Army Surgical Hospital] My BOQ [Bachelor Officers' Quarter] is in rear—Nurses Janeway type of hut [Quonset Hut] in foreground. Notice Diesel oil drums on stand with rubber hose into tent. Oil brought up every day by KSC's [Korean Service Corps]." Photograph courtesy of the AMEDD Center of History and Heritage, Louis Eisenberg Collection, Box 1, Image page #2010.11.30.



Because of this move to general medicine, the command actually requested two more general duty medical officers to supplement their authorizations.^{42(Encls6-7)}

The MASH continued to train 4 hours every week on required subjects such as guard duty, security of the unit, physical training, close order drill, firefighting and prevention, military courtesy, and air-raid precaution, augmented with subjects related to management of battle casualties for the doctors and nursing staff (Figure 7-17). With the transfer of excess equipment, the 200-bed 8076th MASH was transforming into the 60-bed 45th MASH.^{42(Encls8-9)} The 45th practiced tearing down and then resetting the new unit for patients within 5 hours.^{21(p9)}

During "Operation Little Switch" in April, the first prisoner exchanges occurred and 213 UN patients were seen at the MASH. It was a relatively short visit; each patient averaged about 40 minutes in the hospital. In August, a section of the hospital was sent forward to provide direct surgical support to the 40th Infantry Division, while the remaining portion supported "Operation Big Switch," treating five UN patients and 15 Korean People's Army and Communist Chinese Forces soldiers. Most injuries to the enemy, however, were from stone-throwing civilians. The unit conducted split operations, once again, during September through October, in order to move forward. The heavy winds whipping through rugged mountainous terrain pounding the tents tethered to soft ground helped to ensure a rapid transition to Quonset huts to replace the old canvas^{21(pp9-10)} (Figure 7-18).

The 8209th made the move alluded to in the previous year's report and conducted a two-phased move closer to its supported divisional elements in January (Figures 7-19 and 7-20). The new location was much better because it was off from the main supply route, avoiding the usual dust, and was more dispersed. However, any plans to dig drainage and latrines were postponed until the ground thawed later in the summer. The Surgical Research Team of the Medical Service and Graduate School was still assigned there.^{43(p1)}

The 8225th MASH continued on with its normal surgical care of nonevacuated battle casualties, but now had the mission of training enlisted technicians to replace nurses. The



FIGURE 7-19. Members of the 46th MASH pack up the hospital to move forward on the battlefield (April 1953). It was at the 46th MASH, converted from the 8209th MASH in February 1953, where the Surgical Research Teams conducted studies 8 to 10 miles from the front. Photograph courtesy of the AMEDD Center of History and Heritage, Louis Eisenberg Collection, Box 1, Image page #2010.11.30.



FIGURE 7-20. Jumping forward, the Central Supply section is shown conducting a typical split operations move on the battlefield (April 1953). Note the rice stalks along the ground to mitigate mud and dust. Photograph courtesy of the AMEDD Center of History and Heritage, Louis Eisenberg Collection, Box 1, Image page #2010.11.30.

60-bed configuration only had two nurses authorized and this was obviously a strain within the operating room and elsewhere. Medical officers often had to serve and nurse in the postoperative sections. The commander emphasized the importance of incoming enlisted personnel possessing high intellect and scores to fulfill the task of replacing nurses in the MASH.^{44(pp3-7)}

The 8228th MASH continued to serve as the hemorrhagic fever and cold weather injury centers. All suspected cases of hemorrhagic fever were evacuated there for confirmation and treatment. A medical clearing company was assigned and became the convalescent and rehabilitation section of the hospital. Five more prefabricated buildings were added, bringing the total hospital building count to 65, which included eight 20' x 108' wards. All surgical cases were transferred to the 121st Evacuation Hospital and only minor procedures were performed at the 8228th. In the first part of the year the Army Surgeon General MG George Armstrong, Far East Command Surgeon MG William Shambora, and BG Ginn were presented with the preliminary results of the hemorrhagic fever research. Outdoor sports and military formations were conducted for the convalescents and this therapy was found to be productive. Universal praise was given to the educational teaching within the hemorrhagic fever center and the quality of training coming out of the Medical Field Services Staff School.⁴⁵

The Surgical Research Teams

The Surgical Research and Renal Insufficiency Teams were lauded with praise. Through their efforts every department of the hospitals improved as they encountered various combat medicine problems.^{6(pp3-4)} The major research unit was established at the 46th Surgical Hospital (formerly the 8209th MASH) where most of the studies took place, about 8 to 10 miles from the front lines. Monthly statistics of patients were compiled by the surgeons and reviewed, allowing for on-the-spot improvement to patient care. This, along with data in annual reports, shows the evolving patient statistics through the war (Table 7-2). Results were pulled from the operating room records and statistical data sheets that were part of the patient's charts upon admission. The more active Western Front hosted the vascular surgical unit located at the 43rd Surgical Hospital (formerly the 8055th MASH).^{46(pp5-6),47(p4)} Surgeons from the Surgical Research Team instructed at each hospital. Immediate results of the work done through primary arterial repairs and vein grafts resulted in amputation rates falling sharply after arterial injuries. For example, following popliteal anastomosis, the amputation rate fell from World War II's 72% to approximately 20% in the Korean War.^{46(pp9,17)} The research work was primarily performed from the summer of 1952 through the winter of 1952 to 1953. The liver function study was one part of the entire effort and took place simultaneously with all the other research. It documented this ideal clinical setting, a relatively immobile front line, providing a picture of conditions in the mature MASH:

The casualties usually arrived at the hospital between 3 and 5 hours after wounding with range of 1 to 9 hours. The soldiers were all young and previously healthy. As a generalization, the more severely injured men were selected for study. Shortly after

injury, the casualty was treated at the battalion aid station. When needed, plasma, albumin or dextran was administered along with tetanus toxoid and penicillin. The casualty was then evacuated to the forward Surgical Hospital for definitive therapy where this study was begun. . . . Detailed clinical records were maintained throughout the period of study. Blood, 10 to 20 days of age, was used almost exclusively after the casualty reached the hospital. Operations were performed under pentothal, nitrous oxide, oxygen and ether anesthesia.^{48(pp149-150)}

Another study conducted from May to August 1953 provides an additional snapshot of events at the mature MASH (Figures 7-21 and 7-22). Even though the survey was a short one, it appeared to replicate the previous 15 months of experience at the MASH. Of 250 battle casualties, except for open fractures where ground ambulance was the mode of transportation, approximately half of all casualties were evacuated by helicopter. From the data collected, it is apparent that the length of time in surgery for abdominal and thoraco-abdominal wounds was greater than all other types of wounds. For patients with abdominal wounds and those requiring amputations, an average of 3.5 liters of blood was given in the first 24 hours following their battle injury. And finally, the feared “gut wound” of so many wars before had an 82% survival rate.^{49(pp9-12)}

Each war presents different circumstances that affect the casualty rate, and therefore, mortality rate. In relation to casualty care at the MASH, the last year of the Korean conflict was almost ideal. The battle line was stable, the UN forces had air dominance, and the hospital was close to the front. Because of shorter evacuation times and the availability of helicopters for evacuation, more patients were evacuated than would have survived in the past. This created a situation where more seriously wounded casualties were present at forward surgical hospitals. Survivability was improved because of the shorter evacuation times, large administration of resuscitative fluids before and after surgery, and the routine use of antibiotics.^{49(p20)}

It was the opinion of the lead author, then-Major Curtis P Artz, who had been a member of the Surgical Research Team assigned to the 46th Surgical Hospital (formerly the 8209th MASH),^{49(p1)} that the “greatest single difference in the management of casualties in Korea appears to be the large quantities of blood administered throughout resuscitative periods.”^{49(p20)} In the 46th Surgical Hospital from January 1952 to August 1953, the overall fatality rate for the 4,671 casualties admitted was 2.4%. Of the 402 abdominal wounds, the casualty rate was 12.6%.^{49(p1)} These results also coincide with the statistics bearing out the cumulative results of the Korean War showing the fatality rate was a “new low of 2.5 percent compared to the 4.5 percent experienced in all of World War II.”^{50(p83)}

In laying out the ideal surgical team during the *Course on Recent Advances in Medicine and Surgery* at the Army Medical Service Graduate School in April 1954, Artz argued there should be two groups, each able to perform 12-hour shifts.^{51(pp237-239)} Each group should have a team captain, a deputy supervised by the chief surgeon, and both should possess the most experience in battle casualty management among the other surgeons. He believed they should both visit the evacuation hospital to monitor follow-up care. The relationship between the chief surgeon and his deputies would mimic that

TABLE 7-2. PATIENT STATISTICS BY UNIT AND YEAR

Patient Statistics		1950	1951	1952	1953
8055th		(9 Jul 1950-31 Dec 1950)	(1 Jan 1951-31 Dec 1951)	(1 Jan 1952-31 Dec 1952)	(1 Jan 1953-1 Feb 1953)
Admission		8,577	29,579	15,012	510
Surgical Patients		1,516	5,751	5,689	292
Surgical Procedures		2,280	8,245	12,421	610
8063rd		(18 Jul 1950-31 Dec 1950)	(1 Jan 1951-31 Dec 1951)	(1 Jan 1952-31 Dec 1952)	
Admission		5,173	20,359	10,125	
Surgical Patients		1,008	Not reported	Not reported	
Surgical Procedures		1,048	5,416	4,787	
8076th		(2 Aug 1950-31 Dec 1950)	(1 Jan 1951-31 Dec 1951)	(1 Jan 1952-31 Dec 1952)	(1 Jan 1953-1 Feb 1953)
Admission		9,008	21,408	8,253	155
Surgical Patients		Not reported	Not reported	Not reported	Not reported
Surgical Procedures		Not reported	5,176	2,917	74
1st					
8209th		(26 Sep 1950-31 Dec 1950)	(1 Jan 1951-20 May 1951)		
Admission		95	6,642		
Surgical Patients		Not reported	Not reported		
Surgical Procedures		282	Not reported		
8209th			(1 Jan 1951-31 Dec 1951)	(1 Jan 1952-31 Dec 1952)	(1 Jan 1953-1 Feb 1953)
Admission			8,806	9,360	416
Surgical Patients			2,128	Not reported	273
Surgical Procedures			2,400	9,485	350

TABLE 7-2 CONTINUED. PATIENT STATISTICS BY UNIT AND YEAR

Patient Statistics	1950	1951	1952	1953
2nd				
8225th		(15 Apr 1951-12 May 1951)		
Admission		1,409		
Surgical Patients		Not reported		
Surgical Procedures		Not reported		
8225th		(13 May 1951-31 Dec 1951)	(1 Jan 1952-31 Dec 1952)	(1 Jan 1953-1 Feb 1953)
Admission		8,108	3,155	328
Surgical Patients		Not reported	Not reported	318
Surgical Procedures		2,312	1,541	Not reported
8228th		(15 Jun 1951-31 Dec 1951)	(1 Jan 1952-31 Dec 1952)	(1 Jan 1953-1 Feb 1953)
Admission for Hemorrhagic Fever		0	1,936	21
Confirmed Hemorrhagic Fever		0	885	3
Admission for Cold Injury		0	193	105
Evidence of Cold Injury		0	170	85

Data sources: Annual reports of Medical Department activities of each MASH unit; National Archives II, Suitland, Maryland, boxes 146, 239, 240, and 241.



FIGURE 7-21. Captain Louis Eisenberg, Medical Corps, commented that these vehicles were the “new ambulances” for the new 46th MASH (February 1953). They appear to be Dodge M43 ambulances. Photograph courtesy of the AMEDD Center of History and Heritage, Louis Eisenberg Collection, Box 1, Image page #2010.11.30.

of the teaching professor conducting training with two assistants. With adequate rest, many operative procedures without an assisting surgeon could be performed with the aid of one or two capable operating room technicians. In cases with multiple wounds, two surgical teams could operate on the same patient—one team on the upper body while the other team performed on the lower body. This decreased the time required for surgery and anesthesia, thus benefitting the patient.

The chief surgeon should be a more experienced Regular Army officer trained in the principles of resuscitation and combat surgery. Oftentimes the most junior were sent forward and the more senior surgeons remained in the rear, but this was not the most ideal situation for the patient. In fact, Artz believed all Regular Army surgeons should be thoroughly trained in trauma with a subspecialty in forward surgery. His insistence that “Young career surgeons in the Regular Army should always be given an opportunity to gain experience in forward surgical hospitals”^{51(p239)} seems to advocate the flip side and positive reason for pushing surgeons to the front versus the policy of reluctantly sending surgeons into combat for 90-day rotations to limit the effect on patient care back at the home station. Finally, as COL Page had implied in 1951, MAJ Artz emphasized that a surgical consultant visiting the MASH was better used for 2 weeks instead of 1 to 2 days so that his “knowledge could be better utilized if he actually performed some surgery and, by first-hand experience, became extremely familiar with the problems of the particular institution he visited.”^{51(p239)}



FIGURE 7-22. While routine/nonurgent patients were evacuated by ground, the Sikorsky H-19 helicopter was one of the workhorses for rapid evacuation of urgent wounded (March 1953). Note this is the same helicopter pictured before in the Operation Little Switch rehearsal at the 45th MASH. Photograph courtesy of the AMEDD Center of History and Heritage, Louis Eisenberg Collection, Box 1, Image page #2010.11.30.

Ironically, the Eighth United States Army Surgeon's Annual Report for 1953 notes less time for research was available as the war ended. Staff members found themselves occupied with promotion, courts-martial boards, and so forth. Now the fixed/garrison MASH had to train for combat and began to participate in field exercises to train the surgeons in the practice of military surgery.^{6(pp3-4)} The MASH had come about full circle.

CONCLUSION

The innovations seen in the Korean War MASH were not effectively matched in the civilian world for another 15 to 20 years. The combined effort in trauma management through rapid helicopter evacuation, enlisted medics (paramedics), and advanced methods in the treatment of shock would be the model for future modern metropolitan trauma

centers.^{7(p209)} LTC Kryder Van Buskirk, previous commander of the 8076th MASH, looked back upon his experience and stated, “Those of us who were fortunate enough to command this new unit in the recent Korean conflict are well satisfied with its performance, flexibility and versatility.”^{52(p31)} Dr Otto F Apel Jr, a MASH surgeon from the same unit, emphasized that the personnel of the MASH were particularly different from their medical compatriots in rear-echelon hospitals. MASH members saw, smelled, and heard the battle.^{2(ppxii-xiii)} COL Charles L Leedham, Medical Consultant in the Far East Command, aptly closes this chapter in forward surgery,

These hospitals were, to me, the most remarkable field installations of the Army. The number of lives and limbs saved because of the MASH’s special location and function cannot be comprehended unless one could see such a unit during a military operation when the flow of wounded was heavy. Many a veteran now living owes his life or one or more of his limbs to these units. Really emergency life-saving surgery was done here. The job they did was a truly outstanding one, while their accomplishments were rarely paralleled.^{53(p23)}

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