The AMEDD Historian

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Contents

Welcome to the latest issue of the *AMEDD Historian*! This edition features a variety of articles. Although seemingly different, the theme of improvement can be found in many of them. Throughout different circumstances, or differing time-frames these medical personnel are moving forward.

Mr. Lewis L. Barger, begins the issue with an informative piece on early medical training before World War I. Dr. Kevin M. Boylan's article "The 'Angels' of Bataan and Corregidor," explores the hardships and persistence of nurses surrounded and captured during World War II. Mr. Charles E. Franson chronicles the career of Frontier Army Surgeon Curtis E. Munn and his exploits in the Dakota and Wyoming Territories.

Read about the development of the folding wood litter utilized during World War II, by Dr. Grant T. Harward, or peruse the latest archival items received by ACHH. LTC Robert J. Shultz reexamines the need and capabilities to move large numbers of casualties in his article "Rail Evacuation and Hospital Trains". Do you know of Dr. Benjamin Rush? You may want to read the book review for Rush: Revolution, Madness, and the Visionary Doctor Who Became a Founding Father, by G. Alan Knight.

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TRAINING THE AMEDD – The Early Years

Lewis Barger, MEDCoE Historian

First in a series of three articles commemorating the 100th anniversary of the establishment of the Medical Field Service School

One of the problems that has faced the Army Medical Department since it began has been ensuring that its members knew what they were doing. First they had to be competent in their professional field. Second, it was important to ensure that once in the Army, they acquired the soldier skills needed to function effectively in garrison and the field.

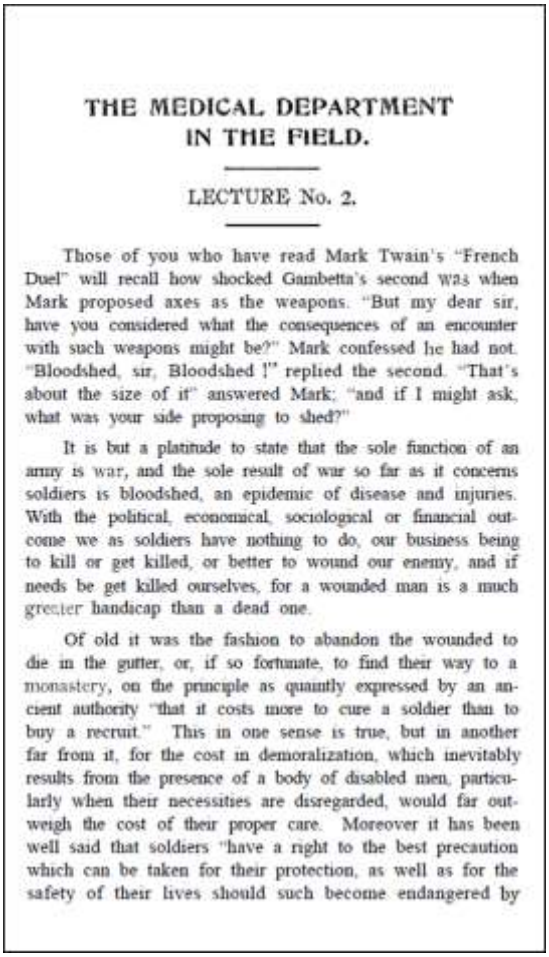
The Army's officer professional training system developed slowly. After 1802, the U.S. Military Academy at West Point, New York produced the Regular Army's commissioned officers. 'Schools of application' for the artillery (1824), engineers (1866) and (combined) infantry and cavalry (1881) were established to provide training in unit-level tactics for officers, but attendance was not universal and many officers (and nearly all enlisted soldiers) received their training in units. In the Medical Department, doctors were expected to be prepared to practice as doctors as soon as they entered Army service. Beginning in 1832, all doctors seeking appointment in the Army had to pass a rigorous examination administered by a board of Medical Corps officers. This ensured that they had a minimum level of competence in the practice of medicine. Acquiring the administrative and tactical skills needed to function as a post surgeon or accompany a tactical unit on campaign, though, was often left up to the individual.

When the enlisted Hospital Corps was authorized in 1887, training was initially

left up to the surgeon at the post where the soldiers were assigned. In 1891, Captain John Van Rensselaer Hoff, serving at Fort Riley, Kansas, organized the first Company of Instruction for training Hospital Corps soldiers. Hoff also prepared a drill manual that served as the basis for instruction as other Companies of Instruction were formed. Two years later in 1893 Surgeon General George Sternberg received permission to establish the Army Medical School in Washington, D.C. The curriculum of the Army Medical School emphasized military-specific preventive medicine practices and familiarized doctors with the diseases they were most likely to encounter in soldiers. It also provided training in administration and tactical skills doctors would need to be effective in their jobs.

In 1890, the Infantry and Cavalry School at Fort Leavenworth, Kansas included a trial course in military hygiene taught by the post surgeon, Major Alfred A. Woodhull. The course was successful and adopted as part of the curriculum, a Department of Military Hygiene was created in the school, and the senior medical instructor was appointed as a full member of the faculty and head of that department. Woodhull would influence generations of line officers as the author of the textbook *Notes on Military Hygiene for Officers of the Line* used to educate line officers both at Leavenworth and later at West Point. Later in life Woodhull promoted the view that responsibility for military hygiene ultimately fell on the line officer who possessed the authority of command, and not on the military surgeon who, as a staff officer, had limited authority.

More importantly for the Medical Department, a Department of Military Hygiene was created in the school, and the post surgeon was appointed as a member of the faculty and head of that department. Serving on the faculty allowed a Medical Corps officer to interact with line officers as a peer within the Army's growing educational system. From this position, he could influence the curriculum which would be used to develop junior officers into field grade commanders and staff. Serving in that position was not without its frustrations, though. As John Van Rensselaer Hoff, by 1904 a lieutenant colonel, complained in his annual report to the school's commandant, the course in hygiene was not given weight comparable to other department's courses in the school's curriculum and the senior instructor was dual-hatted as the post surgeon, which was itself a full-time job. Additionally, the school was closed to Medical Corps officers, although as the Army began to realize the benefits of educating its officer corps to prepare them for increasing responsibility, that would change.



THE MEDICAL DEPARTMENT
IN THE FIELD.

LECTURE No. 2.

Those of you who have read Mark Twain's "French Duel" will recall how shocked Gambetta's second was when Mark proposed axes as the weapons. "But my dear sir, have you considered what the consequences of an encounter with such weapons might be?" Mark confessed he had not. "Bloodshed, sir, Bloodshed!" replied the second. "That's about the size of it" answered Mark; "and if I might ask, what was your side proposing to shed?"

It is but a platitude to state that the sole function of an army is war, and the sole result of war so far as it concerns soldiers is bloodshed, an epidemic of disease and injuries. With the political, economical, sociological or financial outcome we as soldiers have nothing to do, our business being to kill or get killed, or better to wound our enemy, and if needs be get killed ourselves, for a wounded man is a much greater handicap than a dead one.

Of old it was the fashion to abandon the wounded to die in the gutter, or, if so fortunate, to find their way to a monastery, on the principle as quaintly expressed by an ancient authority "that it costs more to cure a soldier than to buy a recruit." This in one sense is true, but in another far from it, for the cost in demoralization, which inevitably results from the presence of a body of disabled men, particularly when their necessities are disregarded, would far outweigh the cost of their proper care. Moreover it has been well said that soldiers "have a right to the best precaution which can be taken for their protection, as well as for the safety of their lives should such become endangered by

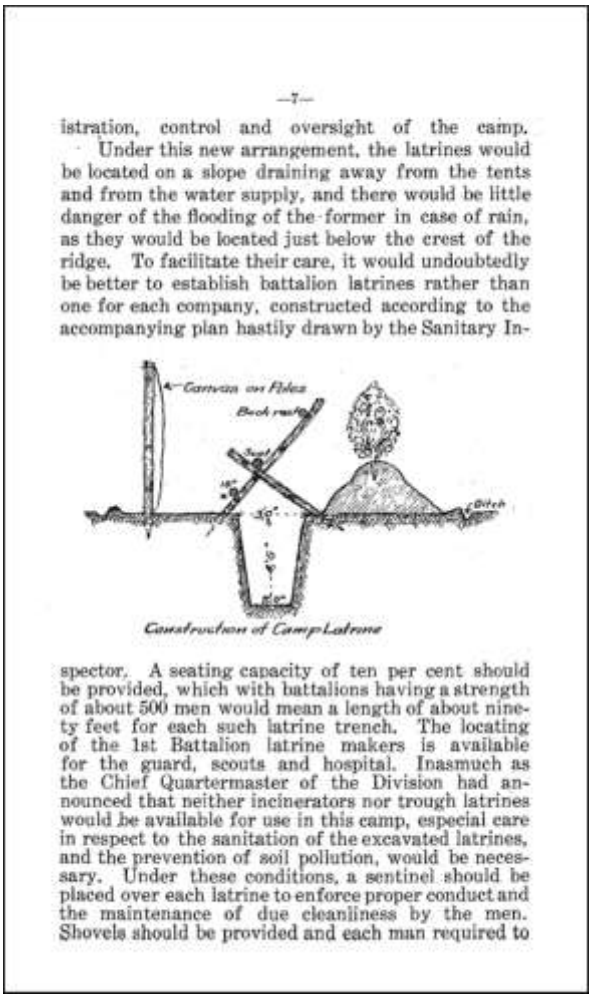
Lecture given during the 1904 class by LTC Hoff, Department of Hygiene

In 1908 the schools at Fort Leavenworth were reorganized into the Army Service Schools, which included the Army School of the Line, the Army Staff College, and the Army Signal School. Two years later a pair of War Department General Orders added a correspondence course and a resident course for Medical Corps officers. Much of the work preparing for both courses fell on Major Edward L. Munson, the senior Medical Corps officer at Fort Leavenworth. The correspondence course, which was projected to last four years for each class, began immediately with eight scenarios mailed out to a list of 30 officers chosen by the Surgeon General. Both the resident course and the correspondence course were deferred during the 1910-11 year because of the general mobilization of forces that took place along the Mexican Border beginning in 1910. By the following year, though, both courses were reinstated and the Army Field Service School for Medical Officers had been elevated to the status of a separate school within the Army Service Schools. Eight Regular Army and five National Guard officers attended the resident course over six weeks from 1 April to 11 May 1912. Additionally, Munson was relieved of all medical responsibilities and was able to serve purely as a faculty member, a minor victory.

The resident course at the Army Field Service School for Medical Officers was not focused solely on

medical topics, but offered an abridged version of the courses given in the School of the Line. Engineer officers oversaw practical exercises in map reading and the elements of military sketching. Line officers conducted conferences on the military art of tactics and strategy and the students participated in a staff ride. The class practiced military maneuvers and were given field problems to solve. Overlain on all this, though, was instruction about the Sanitary Service (Medical Department) in campaign, so that the students attending the course would understand both the requirements of their duties as military medical officers and how they were integrated into the overall mission of an Army in the field.

Resident classes were offered again in 1913 with five Regular Army officers and six National Guard officers graduating, but the next course ended prematurely when the Army Service Schools were ordered to close early on April 28, 1914 to release officers for service in Mexico. The five Regular Army and four National Guard officers were given credit for attending the course. The 1915 course was supposed to include five Regular Army officers, but their orders were revoked due to a lack of funds to send them to Fort Leavenworth. Nine National Guard officers attended, but as the 1915 annual report noted "better results are obtained when the class of this school contains both regular and militia [National Guard] officers, as the former render much assistance to the latter by working with them". The report went on to note that most National Guard soldiers had limited military experience or training. The Army Field Service School for Medical Officers, like other schools in the Army Service Schools, was intended to be an intermediate level education for those who had already mastered unit level tactics and who were preparing for service at the division level. The 1915 class would be the last resident class of the Field Service School for Medical Officers. No officers were sent in 1916, and by 1917, America had entered the World War and all classes at the Army Service Schools were suspended.



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istration, control and oversight of the camp.

Under this new arrangement, the latrines would be located on a slope draining away from the tents and from the water supply, and there would be little danger of the flooding of the former in case of rain, as they would be located just below the crest of the ridge. To facilitate their care, it would undoubtedly be better to establish battalion latrines rather than one for each company, constructed according to the accompanying plan hastily drawn by the Sanitary In-

Construction of Camp Latrine

spector. A seating capacity of ten per cent should be provided, which with battalions having a strength of about 500 men would mean a length of about ninety feet for each such latrine trench. The locating of the 1st Battalion latrine makers is available for the guard, scouts and hospital. Inasmuch as the Chief Quartermaster of the Division had announced that neither incinerators nor trough latrines would be available for use in this camp, especial care in respect to the sanitation of the excavated latrines, and the prevention of soil pollution, would be necessary. Under these conditions, a sentinel should be placed over each latrine to enforce proper conduct and the maintenance of due cleanliness by the men. Shovels should be provided and each man required to

A page from Munson's 1910 lectures on camp sanitation.

The correspondence course had continued to function as well, intended to provide medical officers with the skills needed to be effective at their posts and provide them with a background that would prepare them for attendance at the resident course. Thirty officers were enrolled each year, although the roster changed some from year to year. 1914 marked the fourth year that problems had been mailed out to correspondence course students, and while evaluations from the first two years were mixed, the course director's comments at the end of the fourth year were encouraging:

> *Great improvement was shown by members of the class and the number of officers in the Medical Corps having a working knowledge of sanitary tactics has materially increased since the inception of this course. – MAJ W. N. Bispham*

Given the success of the course, 37 officers were enrolled in 1915, 35 of whom continued on into the second year when an additional 33 officers were enrolled totaling 68 correspondence course students. It is clear from this increase in the number of enrollees that the Medical Department had embraced the value of this training program and encouraged its officers to participate. It is worth noting, though, that by 1916 it was also apparent that the possibility of the United States being drawn into the European war was increasing, spurring a drive for increased readiness. To that end, in September 1915 the Secretary of War authorized the creation of a separate correspondence course for Medical Reserve Officers with 437 reserve officers participating. Those officers would only participate for a little over one year, though; in spring 1917 the schools at Leavenworth closed with the declaration of war on Germany. During the war the Medical Department would establish a school in France to continue the work that had begun at Leavenworth and after the war, a new institution sole-

ly for the education of Medical Department officers and enlisted soldiers, the Medical Field Service School, would open in Carlisle Barracks, Pennsylvania.

One other significant change occurred after the war. Three Medical Corps officers were admitted to the 1919-1920 class of the School of the Line along with officers from branches like quartermaster and ordnance to whom the school previously had been closed. The three Medical Corps officers acquitted themselves well in the course with one honor graduate, one distinguished graduate, and one graduating with the other officers of his class. This marked a turning point not just for the Medical Department, but for the Army, with the recognition that providing officers from all branches with a common education in military doctrine improved integration of their functional expertise on the battlefield.

The Regular Army Medical Corps officers who were selected to take the correspondence course as majors between 1910 and 1916 were the same officers who would hold positions of great responsibility during World War I and the years following. The 1913 list of enrollees included names like Major Sandford H. Wadhams, who would serve as a colonel in the American Expeditionary Force headquarters staff and was responsible for hospitalization in the AEF. Wadhams retired as a brigadier general. Major Albert E. Truby would also be promoted to brigadier general after serving as inspector of camps in the Surgeon General's Office during World War I. Major Bailey K. Ashford had already distinguished himself during the Spanish-American War through a public health campaign in Puerto Rico. During World War I he served as the Division Surgeon for the 1st Division and as the Director of the U.S. Army Sanitary School. Major M.A.W. Shockley would become director of the Army Field Service School for Medical Officers immediately before the war and would return to Fort Leavenworth as the senior medical instructor after serving on the AEF staff in the training section during the war. Shockley ended his career as a brigadier general and commandant of the Medical Field Service School at Carlisle Barracks. Major Charles R. Reynolds, 2d Army Surgeon during World War I, would also take charge of the Medical Field Service School after the war, and in 1935 became the 25th Surgeon General of the Army.

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The 'Angels' of Bataan and Corregidor

Kevin M. Boylan, PhD, Historian OTSG

By the end of WWII, over 350,000 women served in the U.S. armed forces. But the most renowned American servicewomen of the war were the "Angels of Bataan," a group of about a hundred Army and Navy nurses who found themselves serving under combat conditions in the Philippines within hours of the attack on Pearl Harbor.

Most of the Army nurses were stationed at Sternberg General Hospital in Manila, the capital of the Philippines, which was bombed heavily by the Japanese. Although Sternberg was deluged with casualties, three nurses raced 30 miles north by school bus to reinforce the overwhelmed medical staff at Clark Field. There, in little more than an hour on December 8 (December 7 in Hawaii), Japanese planes had wiped out the bulk of American airpower in the Far East.

Deprived of air cover and menaced from all directions by vastly superior Japanese naval forces, U.S. and Philippine Army ground troops were at a hopeless disadvantage. Most of them were poorly-trained and –

equipped Filipino reservists who could not halt invading Japanese regular troops – many of them veterans of the brutal war that had been raging in China since 1937. By December 23, 1941, the situation had become so desperate that Lieutenant General Douglas MacArthur declared Manila an open city and ordered his surviving troops to fall back onto the mountainous Bataan Peninsula and the nearby island fortress of Corregidor.

The 88 Army nurses who had been caring for thousands of patients in Manila were spirited out the city at the last minute. Many went across Manila Bay by boat, sometimes under air attack. One group had barely debarked before the ferry *Hyde* was sunk by Japanese planes – taking with it a priceless load of medical equipment and supplies intended for a General Hospital. 2LT Floramumd Fellmeth was ordered aboard the *Mactan* (a cargo steamer which had been transformed into a Red Cross "hospital ship" although it had no medical facilities whatsoever) to take charge of 11 Filipina nurses. The *Mactan* left Manila on January 31 carrying several hundred badly wounded men (many of them on the open deck) and arrived in Australia after a harrowing, ten-day trip through Japanese-dominated waters. The Navy nurses did not fare as well. Due to an oversight, only one was ordered to Corregidor; the other 11 were taken prisoner on January 2, 1942.

The retreat to Bataan allowed allied troops to establish a shorter line in strong defensive terrain where they fought the Japanese to standstill for several months. Yet, since the Pearl Harbor disaster ruled out any hope of relief, the defenders were doomed from the start because supplies of all sorts were in alarmingly short supply. The troops went on half rations the day they arrived on the peninsula and would suffer the slow agonies of starvation since, on average, they received just 1,000 of the bare minimum 1,800 calories per day required for field service in such harsh conditions. Vitamin deficiency maladies (scurvy, beriberi, and pellagra) soon appeared in force, adding to the misery of troops whose hunger-enfeebled immune systems were being ravaged by malaria, dysentery, dengue fever and other tropical diseases that flourished in Bataan's pestilential environment. For reasons of morale, the troops were led to believe that help was on its way. But as week after week passed with no sign of a relief convoy, they began to feel as if they had abandoned like bastard children. Stranded journalist Frank Hewlett gave them the moniker "Battling Bastards of Bataan."

The Malinta Tunnel hospital.

The nurses shared fully in all these hardships, and Hewlett coined the term "Angels of Bataan" for them. Working alongside male doctors and orderlies, and Filipina nurses, they ran two hospitals on the peninsula. General Hospital #1 was a crude facility located in open-sided, thatch-roofed buildings that still managed to treat 1,200 major surgical cases within a single month. It was hastily pulled back as the front approached in late January, relocating to an equally austere site that was surrounded on three sides by supply dumps. These drew constant enemy air attacks and put staff and patients at risk from spent shells fired by friendly antiaircraft batteries.

Yet Hospital #1 was a paradise compared to General Hospital #2, which hearkened back to Civil War-era conditions. With most of its equipment on the bottom of Manila Bay, Hospital #2's "wards," which steadily expanded as casualties poured in, were simply rows of cots, tarpaulins and blankets sitting on the open ground along a 2.5 mile-long stretch of jungle. Tentage was in such short supply that only the surgery and records office could be put under canvas. On average, a ward with 300 patients had only six medicine glasses, 15 thermometers, and a single teaspoon! It was good that syringes and needles were reusables, with needles boiled and sharpened after being dulled from repeated use.

In these grim circumstances, nurses who were themselves suffering from malnutrition and disease routinely worked 12-hour shifts – and sometimes toiled around the clock. They also came under direct attack on March

30, when enemy planes bombed Hospital #1. Despite a radioed Japanese apology claiming the attack had been accidental, the hospital was hit again more severely on April 6. All told 96 patients and staff were killed and 187 wounded, including two nurses. They were immediately sent to Corregidor for treatment, and were soon followed by all the other nurses since on April 8 the Japanese shattered the final defensive line on Bataan. Major General Jonathan Wainwright, who had succeeded MacArthur after he escaped to Australia in March, personally ordered the nurses to flee. Many were disinclined to obey, since it not only meant leaving behind their male colleagues, but also abandoning patients in violation of their Nightingale Pledge. Although their commander, 57 year-old Major Maude Davison, finally relented, Executive Officer 1LT Josephine Nesbit refused to leave unless the Filipina nurses were evacuated as well.

The nurses were used for wartime propaganda to sustain the war effort.

The April 9, 1942 surrender of 76,000 Filipino and American troops on Bataan left Corregidor as the last allied toe-hold in the northern Philippines. Though heavily fortified, the craggy island was also desperately short of supplies and barely a third of the 12,000-strong garrison were combat troops. The "Angels" worked in a hospital installed in a tunnel network blasted under 390-foot high Malinta Hill during the 1930s. Malinta Tunnel provided complete protection against the bombs and shells that constantly rained down on Corregidor, but the lack of natural light and poor ventilation caused many of its inhabitants to come down with respiratory diseases, fungal infections and skin boils. Casualties on Corregidor were so heavy that, by late April, the doctors relied on the nurses to perform "minor" surgery like amputations, removing shrapnel, and suturing wounds.

On April 29, two U.S. Navy PBY seaplanes evacuated intelligence specialists, cryptographers, elderly senior officers, a few civilians, and 20 nurses to Australia. One plane was holed by a reef after landing to refuel at Mindanao in the southern Philippines and the 10 nurses it had been carrying were captured two weeks later. The other landed in Port Darwin, Australia on May 1 with another 10 nurses aboard. They marched down the main street singing 'Dugout Doug MacArthur,' a ditty which mocked the general for never leaving Malinta Tunnel to visit the troops on Bataan – and then escaping to Australia just days after exhorting them to fight on to the end. Another dozen nurses (including the last Navy nurse) reached Australia several weeks later aboard the submarine *U.S.S. Spearfish*. 1LT Nesbit and Assistant Chief Nurse 1LT Gladys Mealor both passed up opportunities to join the *Spearfish* contingent in order to remain with their "troops."

Eighteen "Angels" were soon back home in the U.S., where they were feted and pressed into service recruiting for the Army and Navy Nurse Corps, and the armed forces' new female auxiliaries. The press didn't know what to make of these women whose experiences were so at odds with contemporary stereotypes of American womanhood. In one story, they would be steady and courageous, while in the next they came across as agitated

and dependent on men to protect them. Paramount Pictures told a fictionalized version of their story in the movie 'So Proudly We Hail,' which depicted the "Angels" as both heroic and histrionic, as dedicated professionals and preoccupied with romance. At one point, a nurse played by sultry Veronica Lake, distraught over her lover's death, helps her colleagues escape from a Japanese patrol by seductively strutting up to the leering enemy so she can blow up them and herself with a grenade hidden in her ample bosom. The "Angels" despised the movie, but it was one of the biggest box office earners of 1943. On the other hand, they met with First Lady Eleanor Roosevelt, who was the only person who addressed them as "Lieutenant." Even in the Army, the formal term of address was "Miss" and their rank did not entitle them to be saluted.

Back in the Far East, Japanese troops had landed on Corregidor on May 5, 1942 and General Wainwright was forced to surrender the following day as they neared the portal of Malinta Tunnel. Among the prisoners were 54 Army nurses. Contrary to expectations, they Japanese did not rape or abuse them. If the sight of women in uniform was a novelty for Americans in 1942, it was utterly alien to the Japanese, who were clearly puzzled by the nurses' presence. Some seem to have thought they were "comfort women." The nurses were allowed to continue caring for wounded on Corregidor until early July, when the Japanese decided to treat them as civilian Red Cross workers instead of as military POWs. To their dismay, the nurses were forced to abandon patients for a second time as they were packed off to the Santo Tomas civilian internment camp in Manila.

The nurses were held incommunicado for seven weeks since the Japanese did not want them describing the shocking maltreatment of prisoners they had witnessed on Corregidor. But from late August 1942 through December 1943, their captivity at Santo Tomas was relatively benign. The camp was run by Japan's Department of External Affairs, which allowed the 3,800 inmates largely to govern their own affairs, purchase food and supplies from Filipino vendors that came into the compound every day, and run their own hospital. The nurses, who had been joined by their colleagues from Mindanao, had no money but were able to secure loans from interned businessmen who knew that their back pay was steadily accruing in the U.S. (though, per Army regulations, they were paid only half as much as male officers of equivalent rank).

Liberation of Stanto Tomas Internment Camp, 1945.

Conditions at Santo Tomas got much worse on January 1, 1944, when the Japanese Army took over the camp. It halted the daily visits by Filipino vendors and instead provided the inmates with food rations which steadily declined to starvation levels. No vegetables were issued after February 1944 and small, half-rotten fish provided the only protein. Sanitary conditions deteriorated in July when the Japanese decreed that laundry could no longer be sent out of the camp nor garbage trucks allowed in. Then, with famine stalking the entire Philippines, the rice ration was cut to just 110 grams daily on New Year's Day 1945. By that point, the inmates were consuming just 700 calories a day, and the average man had lost 51 pounds and the average woman 32. Yet, the appearance of U.S. planes in the skies over Manila during September brought hope of deliverance, and air raids on Japanese targets steadily increased.

On January 9, 1945 American troops landed at Lingayen Gulf 120 miles north of Manila and, by month's end, they had covered half that distance and thrown the Japanese into disarray. General MacArthur, who led the invasion, ordered the 1st Cavalry Division to race to Manila without securing the territory it passed through and

liberate Santo Tomas before the inmates could be massacred. Its tanks crashed through the camp's gate after dark on February 3, but the internee's trials weren't over just yet. Conditions at Santo Tomas actually deteriorated as utilities broke down and the Japanese shelled the camp several times. Moreover, since the 1st Cavalry had to carry its casualties with it, they were brought into the camp and the liberated nurses immediately went to work caring for them. They found it hard to keep up with newly-arrived Army doctors and nurses because there had been so many advances in military medicine since 1941. 2LT Rita Palmer had no idea what one doctor wanted when he asked her to fetch some penicillin.

The 11 Navy nurses, who had been sent to a separate camp at Los Baños, were rescued along with 1,500 other internees in a daring raid conducted on February 23 by U.S. paratroops and Filipino guerillas. Along with the Army nurses freed at Santo Tomas, they found themselves back in the U.S. within a few bewilderingly few short weeks. Like the "Angels" whom had come home in 1942, they were feted and celebrated, but their emotional and psychological scars were ignored. Postwar planners had taken the psychological needs of male POWs into consideration, but not those of women. There seems to have been an assumption that the nurses, as professional clinicians, were somehow less vulnerable to mental problems. If so, it's possible that there was something to it, since nurses routinely have to make life-or-death decision and even in training are assaulted by sights, sounds and odors that most people never have to experience. In the postwar era, many of the "Angels" got married and returned to civilian life (married women were not allowed to serve at the time), but 17 of the Army nurses remained in the military and a few had careers lasting up to 30 years. A number of them served in a combat theater for a second time during the Korean War. Milfred Manning, the last surviving "Angel," died in 2013 at age 98.

The "Angels" offer an outstanding example of selfless service and dedication to the Army Medicine mission. The conditions they and their male colleagues had to work under on Bataan and Corregidor were undoubtedly the most austere and dangerous faced by U.S. Army medical personnel anywhere during World War II. In 1946, COL Wibb Cooper, who had been senior medical officer in the Philippines during 1941-1942, wrote "Never in the history of war have medical personnel been called upon to perform their duties under such arduous circumstances and over such a protracted period."

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Curtis E. Munn, Indian War Surgeon and Innovator

By Charles E. Franson, AMEDD Museum

Curtis E. Munn's Army career began on 21 December 1861 when he was mustered into service as a hospital steward of the 1st Massachusetts Cavalry Volunteers. He was mustered out of service on July 10 1863 to accept an appointment as assistant surgeon. He served through the war in the Army of the Potomac, and was placed in charge of the army hospital at Point of Rocks, Virginia. He later served with the 27th Massachusetts Infantry with the rank of captain and the last two years of the war was at the head of the medical detachment of

the 2d Massachusetts Infantry with the rank of major. He was mustered out of service on July 14 1865.

Dr. Curtis Munn

Munn, who earned his MD from Harvard, was appointed assistant surgeon with the rank of first lieutenant on November 16, 1868, and was promoted to captain and assistant surgeon on December 2 1869. His assignments included service in the Department of Dakota and Division of the Atlantic, before transferring to the Department of the Platte, where he was assigned as post surgeon at Camp Robinson, Nebraska.

On 14 February 1876, Munn was detailed by General Crook to serve as the chief medical officer for the Big Horn Expedition, which had the mission of forcing Cheyenne and Lakota bands back onto their reservations. Munn proceeded to Ft Laramie, Wyoming Territory, and drew supplies and equipment for the expedition. Munn's approach was very thorough. In his final report, he stated "The supplies proved to be abundant, and nothing that was afterward needed in the field, which was not found in the packages." His train consisted of four ambulances and a supply wagon, all tightly packed. He was to be assisted by one Hospital Steward, and two Contract Surgeons, John Ridgely and Charles R. Stephens; these were civilian doctors serving under contract, rather than commissioned medical officers.

The Big Horn Expedition set out on 1 March, 1876 from Ft Fetterman, Wyoming Territory, and marched north under arduous winter weather conditions. Temperatures ranged from 40-60 degrees below zero, with snow and wind. There were skirmishes on 3 and 5 March, resulting in two wounded men, who were carried in an ambulance.

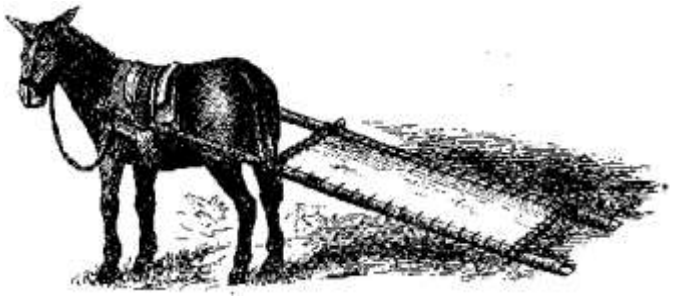
General Crook decided to leave the wagons at a depot established at the abandoned Ft Reno, in Wyoming Territory, and Munn was obliged to pack his supplies, including instruments, dressings, medicines, twenty-four blankets, a rubber bed cover, and bottles of brandy, on the backs of two mules to continue with the expedition. He left Acting Assistant Surgeon Ridgely to establish a field hospital there.

On 16 March the command was divided once again. Now the pack train was also left behind, with Acting Assistant Surgeon Stephens remaining with it and the two battalions assigned to guard it. Munn went on with the three battalions (under Colonel Joseph J. Reynolds) making a night march to follow a fresh Indian trail to attack the village which the scouts had located. In the encounter that followed, six soldiers were wounded and four killed, and the Native Americans were able to withdraw, leaving behind their belongings. The soldiers also briefly captured the pony herd, but lost it in the confusion. Hospital Steward Bryan accompanied the first assault, along with Company K, 2d U.S. Cavalry. His horse was killed, and he found himself afoot. During this time, he attended to the wounded men, carrying two of them to safety, for which he was ultimately awarded a Medal of Honor (his citation states "Hospital Steward Bryan accompanied a detachment of cavalry in a charge on a village of hostile Indians and fought through the engagements, having his horse killed under him. He continued to fight on foot, and under severe fire and without assistance conveyed two wounded comrades to places of safety, saving them from capture."). He brought them to

This case of instruments is from to the later portion of Munn's career. Earlier sets had wooden or bone handled instruments in a velvet lined case, but this set contains all-metal instruments in removable steel trays. This allowed for the sterilization of the instruments by boiling or heat for sterile procedures.

Surgeon Munn, who had set up in a safe location. Bryan also tended to other wounded on the field.

After destroying the village, Colonel Reynolds withdrew and marched his column toward the expected rendezvous with Crook. The absence of ambulances or wagons, however, presented an obstacle to the evacuation of Munn's patients. He had under his charge, 7 men wounded at Powder River, 1 seriously injured from having a horse fall on him, and 66 cases of frostbite. Some men, who were able to ride, were easily placed on horses. There were those, however who could not ride. Munn was able to quickly fashion travois out of tent poles obtained from the abandoned Indian village. The travois were very effective on this occasion; Munn reported that a private with a penetrating abdominal wound was evacuated over 100 miles of rough terrain back to old Ft Reno without harm. Two more of the men who were moved on travois were suffering from severe attacks of rheumatism.



A "travois" consists of two shafts, bound at one end, and arranged one on each side of a horse or mule, with the other ends trailing behind. The travois poles were arranged with a center cradle made of ropes and covered with blankets or buffalo robes. The wounded man lay on this, and was drawn along behind.

Munn had reassured his wounded soldiers, during the arduous winter journey, that they would be properly tended at Ft Reno. To Munn's dismay, the facilities there consisted of a single tent, wet on the inside. An outraged Munn discovered that Acting Assistant Surgeon Ridgely, an elderly physician who had served as a contract surgeon in the Mexican-American War thirty years before, had spent all his time either in sleep or in "querulous controversies." Within two hours Munn had made his patients comfortable.

The ambulances that had been left at Ft Reno were to transport the wounded back to Ft Fetterman. Upon arrival there, however, Munn discovered that several cases of erysipelas, a highly contagious streptococcal infection, had recently occupied beds in the post hospital. Munn, therefore, decided to send most patients with Dr. Stephens, who was returning to Ft D. A. Russell, (near modern Cheyenne) Wyoming Territory. Munn then returned to Camp Robinson on 30 March. His use of the travois was praised by his superiors, and was adopted as doctrine, being illustrated in AMEDD publications.

After the Powder River Expedition, Munn continued to serve at various posts, including serving as chief medical officer to COL Ranald S. Mackenzie's command in the Ute Indian expedition in Colorado from November 1879 to October 1880. His career continued until February 2 1900 when he was retired from active service at 64 years of age as a full Surgeon (Major), in Topeka Kansas.

Following his retirement, he served as the bacteriologist for the Kansas State Board of Health, a lecturer on hygiene and sanitation at the state university, and a lecturer on bacteriology at the Kansas State Medical College. His career spanned the advances of medicine from the 1860s, into the 20th Century, including the advancement of the germ theory, and the advent of sterile surgery. He died June 7 1902 at Topeka.

A Folding Wood Litter

Grant Harward, PhD, ACHH

The AMEDD Museum's collection includes an example of one of the most produced litters of World War II, the Folding Wood Litter. The Folding Wood Litter's popularity was ironic because the Medical Department Equipment Laboratory at the Medical Field Service School at Carlisle Barracks originally conceived it as a specialty piece of equipment.

After World War I, the Army Air Corps required a specialized litter for air transport of wounded. In 1922, the Medical Department Equipment Laboratory developed the Metal Litter, modifying the Navy's metal mesh basket litter, however, the rapid pace of innovation in aircraft design soon made the Metal Litter obso-

lete. In 1932, the Medical Department Equipment Laboratory began developing and testing a new metal folding litter. The Folding Aluminum Litter (based on the newly designed Straight Aluminum Litter) had slip joints that could be pulled apart allowing it to be single-folded. By 1937, the Folding Aluminum Litter was a standard item, but the Medical Department Equipment Laboratory was not satisfied and continued to research ways to improve it. In 1940, with the threat of war looming, the Equipment Laboratory redoubled its efforts to develop a lighter and even more compact folding litter to fit aircraft or pack animals. In early 1942, soon after the U.S. entered the war, the Equipment Laboratory realized the folding litter would also be useful for airborne infantry, mountain troops, and other specialized units. It was quickly decided the new folding litter would be based on the Straight Wood Litter. Laminated wood had several advantages over aluminum, not least of which was it was plentiful; in contrast, aluminum was increasingly scare because the lightweight metal was needed for other war production, particularly aircraft. The Folding Wood Litter had hinges and double folded, so it took up even less space than the Folding Aluminum Litter. The laminated wood also tended to withstand the wear and tear in the field better than steel or aluminum used for other litters. In early-1943, the Folding Wood Litter began mass production. It turned out that the Folding Wood Litter was actually easier to produce than the Straight Wood Litter: its poles consisted of three short pieces of laminated wood were simpler for workers to press than one long piece. The Army eventually procured 69,220 Folding Wood Litters compared to just 5,363 Straight Wood Litters. In early 1944, the Medical Department proposed making the Folding Wood Litter the Army's only standard folding litter, but this proposal was not approved for over a year. By 1945, the original reason for the development of a folding litter had disappeared since aircraft had become larger and could easily accommodate traditional straight litters, moreover, the Air Corps preferred Straight Aluminum Litters and pushed for their procurement whenever aluminum stocks existed. Nonetheless, the Folding Wood Litter was extremely useful for airborne, mountain, and even armored formations for which space was a premium.

The AMEDD Museum's folding wood litter is old enough that it does not fold well.

The Folding Wood Litter is a great example of the Medical Department Equipment Laboratory's important role in quickly developing and testing equipment to meet the rapidly changing needs of the Army during the Inter-War period and World War II. Today, the AMEDD Museum proudly exhibits this and other examples of innovative equipment designed to conserve fighting strength.

New ACHH Archival Donations:

Korean War documents, photographs, 35 color slides, and newspaper clippings that belonged to First Lieutenant Shirley Willis Tompkins.

Two panoramic photographs: Company A, 46th General Hospital at Fort Riley Kansas, 1943; Company A, 106th Medical Battalion at Camp Robinson, Arkansas, 1949.

Documents, correspondence, and ephemera that belonged to Captain George John Geisler, Medical Corps during World War I.

Rail Evacuation and Hospital Trains: historic solution for a future problem?

LTC Robert J. Schultz

Regardless of one's location in the world today, technological advances can be seen in all facets of society from some of the most remote villages in developing countries to densely populated cities across Europe and the United States. Everything we do today, from communications to medical procedures, entertainment to information collection, all exist from technological advances that have evolved and continue to evolve over time. With technological advances affecting almost every aspect of our lives, some people have questioned "when is enough, enough?" Although it is human nature to refine processes and products, some products/concepts do not require modernization and remain beneficial as they are. One thing that remains beneficial without modification is the concept of rail transport evacuation. Although road and air transport are the dominant means of transportation today, one cannot dismiss the concept of rail transport, especially in countries where rail transportation is both an efficient and popularly established network that is already in wide use.

Railroads offered armies significant advantages over horse wagons on dirt roads, both in moving troops and supplies forward and in evacuating wounded or sick personnel to the rear. The first hospital train was built during the Crimean War in the 1850s. The first documented rail transport of the wounded occurred on 2 April 1855 when patients were evacuated seven miles to the dock at Balaclava in the Crimea. (Crimea was then part of the Russian Empire, and is now part of Ukraine.) Initial operating conditions were primitive, but as time and the rail transport concept increased for all facets of logistics, so did the sophistication of rail networks. Due to the success of the hospital train or "railway sick carriage," it was adopted and successfully utilized during the American Civil War. At the close of the American Civil War in 1865, there was over 30,000 miles of railways. Trains had evacuated more than 9,000 sick and wounded following the Battle of Chancellorsville (2-4 May 1863), and over 15,000 after the Battle of Gettysburg (1-3 July 1863). By the end of the war, the North had moved over 225,000 patients by rail from the front to general hospitals in the rear.

A hospital train car of the American Civil War.

The success of hospital trains during the American Civil War prompted their use during World War I in both the United States and Europe; over 5 million patients were transported by rail between August 1914 and December 1918. By the start of World War II, improved train car designs included air conditioning as well as self-generating power. With continued success and increased use of the hospital train, construction was expanded to the greatest extent possible, soliciting assistance from international allies to meet U.S. Army requirements. The French and British governments assisted the United States with the construction of a total of 9 trains (the AMEDD outfitted the trains with all required medical equipment) for delivery prior to 1 February 1945.

Based on performance and details that evolved from the French, British and American construction communities, it was concluded that the "ideal" Hospital Train was French made. Operational experience proved that 250 patients was the maximum that would permit proper patient monitoring and assure the operating staff the comfort necessary to maintain morale and workmanship. Therefore, the ideal hospital train was fifteen cars: Car No. 1 – utility car, Car No. 2 – ambulatory patients car, Cars No. 3 to 5 – ward cars, Car No. 6 – surgery & office car, Cars No. 7 to 10 – ward cars, Car No. 11 – kitchen car, Car No. 12 – diner & lounge car, Car No. 13 – personnel & baggage car, Car No. 14 – enlisted personnel car and Car No. 15 – officer personnel car. Needless to say, peak train utilization was experienced during World War II. Train use decline began during the Korean Conflict and by 1955, U.S. forces in Europe had only six ambulance trains. (The 22d at Einsiedlerhof, the 66th at Nurnberg and the 80th at

A hospital train car of WWII.

La Chapelle, France have been identified, but there were clearly others.) The decline in the use of railway evacuation was primarily the result of the development of air evacuation. Fixed-wing patient transport had been used extensively in WWII for operational and strategic evacuation, and in Korea helicopters were widely used for tactical evacuation. Air evacuation was certainly faster, but at the time rail evacuation allowed more enroute care, including surgery.

Although air evacuation continued to evolve as the preferred means of patient transport, rail and road evacuation remained feasible methods of evacuation in Germany throughout the Cold War. However, in the United States, Army Regulation 40-4 in 1970 stated that ambulance trains and train sections were to be utilized only when the use of aircraft was not feasible. At that point, the Army had ten ambulance trains within the U.S., nine in reserve storage and one in standby status at Fort Sam Houston, TX. The 20th Medical Ambulance Train was the last train unit in the Army inventory. Activated on 24 March 1969, its primary mission was moving patients between hospitals in the U.S. with a secondary mission as a training platform. The train consisted of six ambulance cars, one medical personnel car, one kitchen-dining car and one baggage car. The crew consisted of 26 enlisted and 2 officers, mostly comprised of medical specialties (medics, field medical assistant, etc.), with a cook, a clerk, a railway car repairman, an electrician and a rotary wing aviator. The 20th Ambulance Train was adequately equipped and manned to maintain its 24-hour standby status. However, because the unit had never performed its primary mission and never participated in a readiness test, the Deputy Assistant Secretary of the Army (Manpower and Reserve Affairs) initiated inactivation in December 1970. As the popularity of air evacuation continued to increase, train use continued to decline. In 1971, the Surgeon General concluded that hospital trains were no longer required in the United States for either wartime mobilization or domestic emergency, primarily based on the Air Force's confidence in its airlift capabilities. Therefore, on 1 March 1971, the 20th Ambulance Train was officially inactivated.

Although aerial transport continues to be a quick, even preferred, means of patient evacuation to support the "golden hour" concept, rail transport is a proven, sound means of medical evacuation with South Korea serving as a valid example. South Korea has changed from a traditional, rural farming nation to a modern industrial state, and public transportation has become an integral part of everyday life. Given the North Korean threat, rail transport and hospital trains could provide vital support during combat as well as Non-Combatant Evacuation Operations (more commonly known as NEO, these operations are conducted to assist the Department of State in evacuating noncombatants, nonessential military personnel, select host-nation citizens and third country nationals whose lives are in danger). Even with paved roads throughout the country and 71 airports, these transportation sources are heavily utilized in peacetime and likely would not be enough to support combat or NEO, if required, from the cities of Seoul, Incheon, Suwon, and Wonju that are home to nearly 15 million people.

A modern Korean passenger train.

Technology continually changes our world, even restructuring the landscape where we live and work. Today's innovations in medical technology, new procedures and enhanced medications, save countless lives that historically were unimaginable. Yet one can never write off the success and lessons learned from historical solutions. Additionally, one cannot assume a "canned solution" exists that is applicable to all medical situations or environments. In South Korea, the Armistice has existed since 1953, and hope continues that one day an agreement will enable the reunification of the Korean people. However and until that day comes, whether it be attaching a Red Cross onto a rail car or converting half the seating in passenger car compartments to litter berths, the hospital train and concept of rail evacuation remains a viable means to save lives. In the event relations between North and South Korea go awry or the country is faced with situations requiring Humanitarian Assistance, rail evacuation is a proven concept that has successfully saved lives for over 150 years and can continue to save countless lives, today and well into the future.

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Rush: Revolution, Madness, and the Visionary Doctor Who Became a Founding Father, by Stephen Fried. New York: Crown Publishing Group, 2018. 608 pp., $30.00.

Fried has written a well-researched and complete biography of Benjamin Rush of Philadelphia, a pioneering physician and for a limited time, a key leader in the formation of the U.S. Army Medical Department formed in 1775. He was also one of the founding fathers of the republic.

Practitioners such as Rush were unusual in that he was among only around 200 in the colonies who had earned medical degrees unlike the majority who had completed apprenticeships or were self-taught. Physicians of the period, especially those with formal medical education, saw themselves as community leaders. Five of the fifty-six signers of the Declaration of Independence were physicians. in the revolution, Five physicians served as major generals of the line and another seven as brigadier generals or colonels of the line. Numerous medical men served as line officers at lesser ranks.

Rush became a signer of the Declaration of Independence and an active member of the Continental Congress. He found himself overseeing budgets and decisions of doctors he knew well who now formed the leadership of the Army Medical Department.

In November 1776 the war became up-front and personal to Rush at the Battle of Princeton where, as a volunteer surgeon, he accompanied a volunteer militia unit, the Philadelphia Associators, and provided medical care to the sick and wounded. His duties also exposed him to military medical care, as practiced by the enemy. He noted, approvingly the provisions the British made for their sick and wounded, even in retreat. He noted that company commanders were required to visit their troops "at least once a day to see that they want for nothing." (p.191) He advocated officers of the line take an active interest in the health of their men and institute measures to minimize disease.

Returning to Congress after his service at Princeton, Rush completed his initial term as a congressman but before doing so, continued lobbying General Washington on the need to inoculate American soldiers against smallpox, ultimately securing his agreement and implementation of this measure. Rush also presented a new plan, albeit unsuccessfully, for the re-organization of Continental Army hospitals, based upon the British model. He then reluctantly supported a rival's proposal to get it approved by a floor vote in Congress.

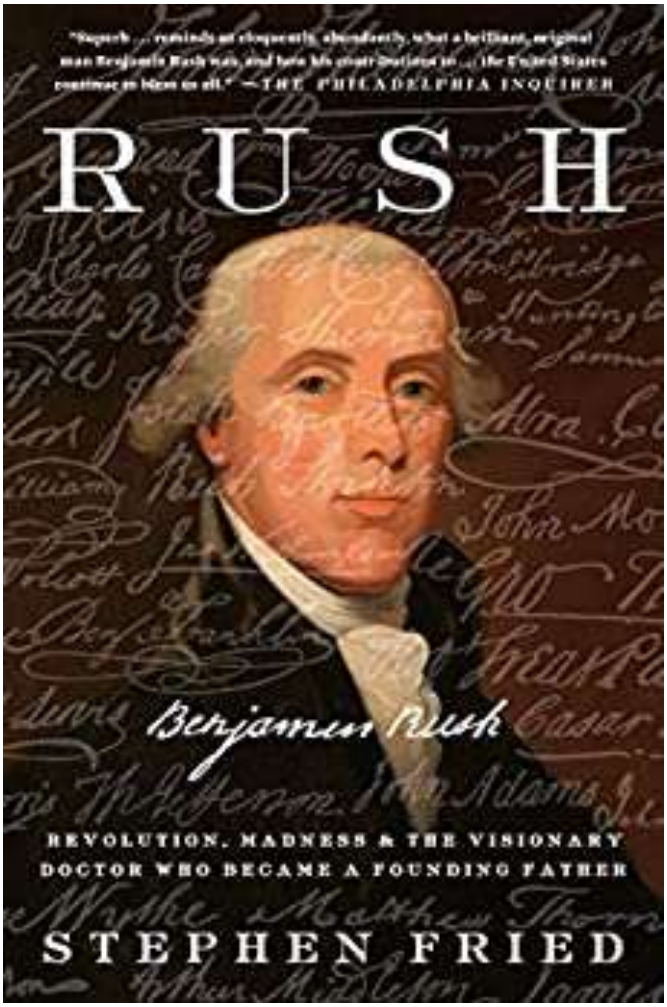
In April 1777, Congress approved the reorganization of the existing military hospitals into four districts or departments. Rush was appointed surgeon general of the Middle Department within whose boundaries the most troops were stationed and the most combat was then taking place. After a short tenure that included

some battlefield medical care, and punctuated by submission of a plethora of complaints to Congress about Dr. William Shippen, a rival who had been named Director of the Army Medical Department, Rush resigned his commission in January 1878, but continued to take an interest in the administration of the department, which unfortunately continued to be plagued by quarrels and charges of incompetency through the remainder of the war. Given the success Rush achieved in getting Washington to institute changes to improve medical care for the troops, he soon regretted his rather hasty resignation.

The bulk of the book highlights Rush's transformation of formal medical training and through his extensive writings and teachings, his impact on the development of American medicine. While the author details the opinions of Rush about his peers and their view of him, in the area of medicine he does not mention a significant negative assessment of him by a major Army Medical Department historian of the early 20th century, Percy M. Ashburn. He castigated Rush as being responsible for the emphasis in American medicine on the use of vomits, purging, and especially of bleeding, salivation and blistering which he claims blackened the record of medicine and afflicted the sick almost to the time of the Civil War. (A History of the Medical Department of the United States Army, p. 5)

Despite the limited space devoted to Rush's connection with military medicine, Fried has written an absolutely superb biography.

G. Alan Knight



A G.I. puts a cast on a stray dog's broken leg, near Saaralbe, France, December 1944.
For some reason, the censor did not want the upper material reproduced, thus the red marks.

AMEDD Professionalism, 1921

After World War I, the nation demobilized most of its military. The Army returned to many small posts around the US, in the Panama Canal Zone, and in the Philippine Islands. There was not a single infantry division at full strength in the US, yet each post required some medical support. Thus the AMEDD was as scattered as the Army, although there were 6 general hospitals, roughly equivalent to today's medical centers, and the Army needed most doctors to be generalists rather than specialists. At the time, there was only one specialty board (ophthalmology, since 1914) so board certification was rare in civilian life as well. The AMEDD had to balance the growing depth of clinical knowledge and increasing specialization among physicians (several specialty boards would organize in the 1920s) with the Army's need for generalists – and the Army's need for professional officers.

The result was this call for medical officers to study both Army developments and medical developments.

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Keeping Abreast of the Times
Specialization – Generalization

This is an age of specialization. The need for specialists in the Army is fully appreciated by the Surgeon General, and it will be his aim to do everything possible to promote and support the ambition of any officer of the Medical Department who desires to qualify as a specialist. In assigning an officer to duty every reasonable effort will be made to detail him to duties connected with his specialty.

However, it is to be remembered that the functions of the Medical Department cover an extensive field and there will be times when it will not be possible, under the exigencies of service requirements, to retain an officer permanently in one line of work.

During a tour of duty occasions will arise, particularly at the smaller stations, where an officer who has been following a specialty closely, will be called upon, perhaps suddenly, to perform general Medical Department duties. In directing or passing upon administrative and professional matters of a general nature an officer's judgment is influenced largely by his knowledge of the progress being made in fundamental Medical Department subjects.

While it is not to be expected that an officer, who has devoted years of study to internal medicine as a specialty become ipso facto qualified to perform major operative surgery merely through the issuance of an order assigning him to a duty requiring those qualifications, he should nevertheless, and as far as possible, attempt to keep himself informed of the theory and progress being made in all phases of Medical Department activities which play an essential role in its success during peace or war. Identically the same may be said of the laboratory man, or any other officer, whose entire time is taken up by one specialty.

Without a moment's notice, and of these men, by virtue of their rank or because of a military emergency, may have the functions of command thrust upon them, in which event an up-to-date knowledge of administrative methods become of paramount importance. Under these circumstances there will arise every day weighty questions upon which sound decisions cannot be made in the absence of a well-balanced professional and administrative education.

That some danger exists today in permitting too close a confinement to one specialty, to the exclusion of other professional and administra-

tive matters equally as important in the operation of the Medical Department, is confirmed by reports being received in this office relating to the results of recent examinations for promotion, particularly in the cases of junior officers.

In these examinations it is clearly disclosed that many officers possess a knowledge, theoretical if not practical, of a specialty that would compare favorably with that of the leaders of those specialties in civil practice. On the other hand there has been exhibited by some of them a regrettable lack of knowledge and interest in collateral subjects equally as important to the Medical Department.

Having in mind an old adage, it may be said that the very nature of the multiform duties required of an officer of the Medical Department will seldom permit us to have more than a few "masters." Of necessity we must always have a preponderance of "jacks."

Owing to the stress and variety of work with which the Medical Department finds itself confronted the Surgeon General views the existing tendency with some feeling of alarm as to just what end results the practice of specialization, which he approved and desires to encourage, is going to bring about. Fear is entertained that we are going too far afield and hewing too closely to one line of thought and action.

The Surgeon General is insistent that the high standard of promotion examinations, which may be taken as an index of an officer's ability to discharge any function that may devolve upon him, be maintained and successfully met by all concerned. Obviously, an officer cannot quality in these promotion examinations without attempting to keep up-to-date, in theory if not in practice, in the collateral subjects of great moment to the Medical Department but perhaps of little direct connection with the work upon which he happens to be engaged. This applies particularly to those junior officers of less than five years' service.

Without putting a damper on specialization, how may the problem be solved and the desired results achieved?

In view of the demands being made upon the Medical Department incident to the reorganization of the Army, the Surgeon General believes that for the present the remedy must remain a local matter. It is primarily one of direct responsibility upon the various commanding officers concerned. Until the return to normal is effected it is the desire of the Surgeon General to avoid the issuance from this office of mandatory orders on this subject.

Believing that the sounding of this warning as to the trend of specialization is not only warranted but timely, he urges that every department and corps area surgeon, division surgeon, commanding officer of the larger hospitals, and of other commands, who are on the ground and know just how far we can go in this matter, take steps to correct the possible bad results of too much specialization.

In the opinion of the Surgeon General much good can be accomplished at each station by having the officers assemble at regular intervals for an exchange of ideas and discussion of current professional and administrative matters. These meetings may be termed conferences, talks, lectures, or what-not, provided that they are properly directed and deal in a systematic manner with the subject under consideration. It is urgently

recommended that as far as practicable all officers be assembled thrice weekly for a one hour conference on each of the following topics:

Administrative

At this meeting all orders, bulletins, circulars, etc. received during the current week should be read in full if necessary, but at least discussed until they are understood by all.

The reason for the promulgation of these administrative items, and how they fit into the military machine should also be made clear. If one-half hour were devoted to these communications it is believed that the remainder of the hour might well be given over to a discussion of the major phases of military administration with particular reference to the broad organization and functions of the Medical Department, but not neglecting those basic military principles affecting other branches of the service and the Army as a whole. For example a new Manual of Courts-Martial has recently been issued. It contains many radical changes from the old system. The new material might well be given attention in these "talks." Army Regulations are being wholly revised, new pamphlets are being published at frequent intervals.

Professional

It is believed that this field can best be covered by following the practice that has been in vogue for many years in some of our general hospitals and at our larger stations, i.e., by conducting "Journal Classes." To the uninitiated it might be said that each officer is assigned a journal, preferably one relating to a subject in which he is specializing. Once a week all officers are assembled, and with the senior officer presiding, each officer in turn gives a brief abstract of interesting or progressive items appearing in the current journal he has reviewed. The primary aim of these journal classes, it is to be remembered, is only to bring out new features. When his turn comes an officer is often heard to remark that "I have before me the February 7th number of the Journal of _____ and there is nothing of special interest in it to report."

On the contrary the next officer may say "In the Annals of _____ for January I find two articles of special interest to this meeting. One of them is by Dr. _____ on the subject of 'Fractures of Long Bones.' In the article he brings out several interesting points, namely _____. I find another article by (name) on (date) (here give discussion)."

Clinical

Wherever suitable arrangements can be made and material is available a clinic should be held once a week at the hospital and attended by all the officers whose duties will permit them to attend. Interesting cases should be presented, examined, and discussed.

In lieu of the presentation of clinical material, under this heading there could also be given demonstrations in operating room technique, new procedures in laboratory methods, in the X-ray laboratory, etc.

As a routine measure, in all those cases terminating in death, as soon as the pathology report is completed all officers should be assembled for a discussion of both the clinical and pathological findings.

Conference on sanitation and communicable diseases can be made intensely interesting. Whenever opportunity affords local outbreaks of com-

municable diseases can be assigned selected officers for study and report on the value of the control measures employed.

In the division camps, clinics held at the hospital should prove particularly helpful, in that medical officers engaged solely on dispensary (out-patient) service can in that way keep in touch with the methods of treatment being followed in cases hospitalized by them.

Source:
Medico-Military Review for the Medical Department, 4/8 (April 15, 1921), 102-104.

Large Scale Ground Combat Operations: An Analysis of World War II Army Medicine in the European Theater of Operations, Part 2

Scott C. Woodard, ACHH

Part 1 described planning to support the invasion. This article looks at the actions taken by medical planners during the Normandy Campaign, from the beaches – where there was no depth for treatment or evacuation – to the costly and unexpected fighting in the hedgerows and breakout further into France with its logistical challenges.

The Assault

Treatment. Because there was no space to evacuate during the landing phase, extra treatment units, including surgical teams, were part of the landing. However, the surgical teams on the beaches functionally only salvaged equipment and performed first aid for the first 24-hours and were not operational inland until D+4. Enemy activity, terrain, and lack of equipment did not allow for more utilization. Afterward, leaders remarked that surgical teams and clearing companies should have been held back until the beach was secured. On the other hand, the front-loading of medical consumables in the first wave of the assault was lifesaving.

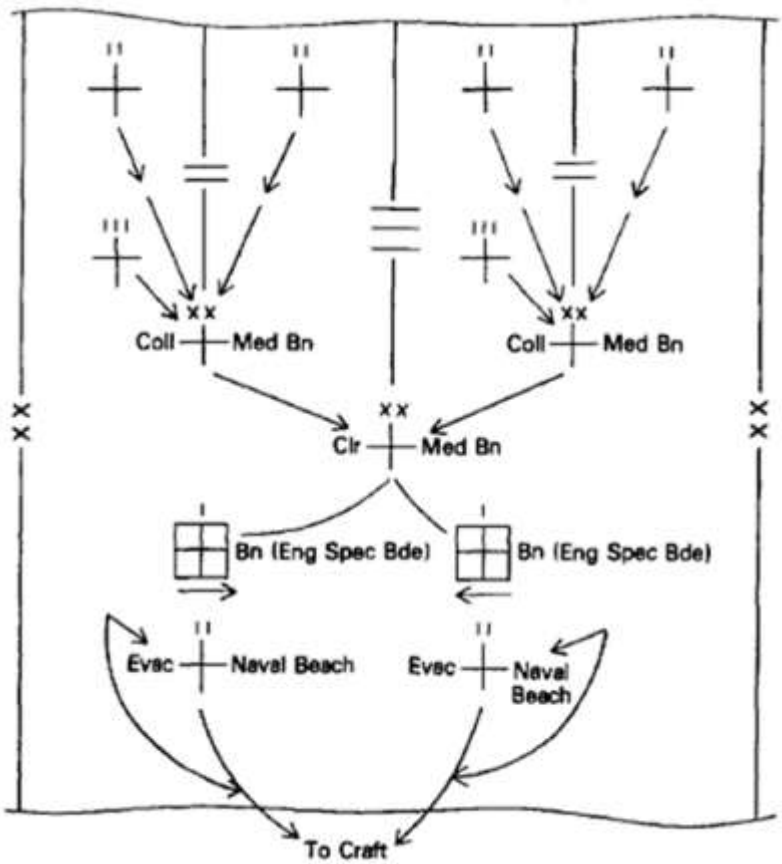
As they progressed inland, divisional medical elements used buildings of opportunity. Medics improvised with carts and horses for patient evacuation and used farmer's tables for surgical tables. Relatively few medical units would arrive until after D+12. The first scheduled elements to come were additional ambulance companies, evacuation hospitals, and field hospitals intended to provide area support and holding units during evacuation. Initially the field hospitals, augmented with surgical teams, functioned as evacuation hospitals because they received and treated all types of wounded. As evacuation hospitals arrived, the field hospitals began serving in their intended role and either pushed their hospital platoons forward to division clearing stations (where they averaged 30 complex surgeries daily) or pulled back to provide area support. Evacuation hospitals, choked with patients, were augmented with surgical teams and mobile surgical teams with x-ray capabilities from auxiliary surgical groups. Planners had identified French buildings to use for fixed-facility hospitals, but there was a vote from the enemy. Many had been used by the Germans (they were, after all, the obvious buildings to use for hospitals) and were run-down after years of occupation and then weeks of heavy German casualties. The planned-for French hospitals lacked water and staff, but possessed plenty of filth. Local French doctors looted the German supplies left behind, and the Allies left the German casualties in place until they could be evacuated to prisoner of war camps. Instead, engineers cleared areas for the hospitals to operate under canvas with the endearing label of "expeditionary hospitals." Because most surgeons were newly minted, direct commission Medical Corps officers, they were not accustomed to echeloned medical care. These "civilians in uniform" tended to do too much surgery up front, and the Theater Surgeon directed the avoidance of definitive surgery in forward areas except to save life.

Evacuation. Heavy losses were expected on the beach with estimates planning for 12 percent on D-Day. The immediate concern for medical planners was evacuation. Since Landing Ships, Tank (LSTs) would be returning to friendly shores already, they were adapted – against the desires of many medical leaders citing they were too rough, dirty, and not marked for protection with red crosses. But they were large enough to transport many casualties, and they could carry a medical team for enroute care. When configured into a surgi-

cal station, the LST could hold 144 litter patients on the deck and 155 below. The Navy and Army partnership in this venture proved effective in the treatment and evacuation of the wounded.

In discussions affecting patient movement from the earlier campaign in Italy, Theater Surgeon Paul Hawley advocated that patients should leave theater on hospital ships. He argued they could not take care of themselves, some had neuropsychiatric issues, and brought up the Geneva Convention protections afforded ships marked with red crosses. With these hospital ships actually lacking, necessity dictated patient travel on returning troop ships. The European Theater relied heavily upon British and Canadian transport vessels to evacuate American wounded early in the war. The first American hospital ship arrived in British waters only days before the Normandy invasion.

Ground evacuation would be the standard tactically throughout World War II. Ground, rail, air, and water evacuation would all be used at times depending on circumstances. Air evacuation from France to England was faster and reasonable for most patients, and plans called for air evacuation (by returning cargo aircraft, there were no red cross-protected airplanes) as soon as possible. Unfortunately, air evacuation initially set up interfered with combat air activities and was halted. It was not until D+14 that fixed wing air evacuation to the United Kingdom was established reliably. Hospital ship evacuation required a real port, and once Cherbourg was captured (and cleared of wreckage and booby-traps) no fewer than eleven hospital ships were waiting to take patients to Britain or straight to the United States for those that would not return to duty. Hospital trains were deployed to France on D+56, and became increasingly useful as tracks were repaired, but intra-theater air evacuation was also important.



Infantry Division Landing Phase Evacuation Plan. The Normandy invasion called for a planned evacuation using Army and Navy assets. Assaulting divisions were reinforced with additional medical assets. From Cosmas and Cowdrey, Medical Service in the ETO, p. 169.

A ward tent on an engineer-constructed concrete base in an 'expeditionary hospital.' From Cosmas and Cowdrey, Medical Service in the ETO, p. 269.

Supply. Units invaded Northern France with an additional 3 days of medical supply. In high contact units, individual soldiers carried personal medical supplies in dry pouches. Mobile hospitals carried 10 days of supply. Medical maintenance supplies were pushed automatically for the first 90 days, based upon projections, before the Communications Zone supply depot was operational. From D-Day until D+40, waterproof 100-pound supply packages were pushed forward to treat every 500 casualties while whole blood, biologicals, and penicillin were to reach the front by special channels through the theater blood service.

Surgical supplies were deemed of little value in the initial combat action. They were not needed and surgeons could not even see and utilize them in the dark. Once various hospitals were established as the battle progressed, the

logistical challenge of the medical infrastructure was impaired by the transporters insisting on keeping staff and equipment separate despite medical authorities' demands to keep them together. In one instance, the hospital staff and equipment landed in two different areas. Many units were without equipment and resorted to looking for equipment throughout the beachhead or have an officer escort the equipment during the landing.

Following the beach invasion on 6 June 1944 until 1 August 1944, the hospitals of the First Army treated and admitted 53,991 soldiers. With the exclusion of neuropsychiatric cases, 7,851 (14.5 percent) of all hospital admissions were for diseases ranging from malaria (1,574 cases), chronic respiratory disease (500 cases) all the way to septic sore throat (1 case). As an incredible testament to enhancing combat power in a time of extremely limited personnel replacements, the First Army's medical service returned to duty 22,942 soldiers, 42.5 percent of all hospitalized, – more than a division's worth of fighting strength.

Breaking through the Hedgerows and Moving West

Treatment. Division medical elements received a smaller casualty count as they progressed from the hedgerows, but all the wounded converging within the single evacuation corridor filled the evacuation hospitals. To keep up the momentum of advance and wounded, field hospital platoons (hospitalization units) leapfrogged forward in borrowed vehicles. Augmented with auxiliary surgical teams, field hospital platoons could run 6 tables (9 in emergencies) around the clock. The planners concentrated medical units along the path of the advancing Allied forces to enable proper support. As hospitals filled with patients, they became holding units awaiting movement to airstrips or a railhead.

Evacuation. As the fight progressed from the hedgerows, the Advance Section of the invading force established an organized system of holding companies to relieve the forward hospitals of their overflowing wards by receiving control of the holding and evacuation units. From this system, patients requiring evacuation were returned to England. However, as observed by Hawley's chief of evacuation, there was no centralized medical authority to control the flow of evacuations within the Advance Section as the First Army medical assets were transferred. So individual hospital commanders within the First Army, Ninth Air Force, and special engineer brigade managed evacuations without knowledge of the larger battlefield operating picture as forces began pushing through the hedgerows. From this lack of control, hospital commanders were unable to see the priorities and assets needed, evacuated patients in a vacuum, and sometimes skipped the holding unit altogether.

Earlier evacuation was along separate lanes, but in the breakout from Normandy, all casualties funneled into a 5-mile wide corridor. Planners mitigated the dangers of the increased ground evacuation distance by pushing extra ambulances and trucks forward. Hospital staffs prepared to hold patients longer if unable to evacuate. As the Army pushed rapidly forward, lines of evacuation became longer and longer. Patients requiring definitive care, other than nontransportables and emergency cases, were evacuated to the rear. Nontransportables were left in place for a clearing platoon to process while the collecting company provided the administrative and logistical requirements.

Where there is no supply by air, there is no evacuation by air. MG Paul Hawley, MC

To meet the challenge of long evacuation and resupply lines, ambulance missions were conducted as individual movements instead of components of a behemoth logistics convoy. This bypassed the mired evacuation convoys stuck along the rearward flow. Some infantry and armored divisions occasionally left wounded in civilian hospitals rather than risk the patients' lives in long ambulance rides to further American hospitalization. During one phase of the pursuit, a 2d Armored Division battalion aid station was 140 miles from the closest Army hospital. For the command, that translated to the loss of ambulance assets for an entire day considering the time expended traveling and then returning to search for the aid station's new location.

With the inability to evacuate large areas, the evacuation policy increased from 15 to 30 days as more beds (with clinical staff) were established. Medical assets could not move forward with patients and holding capability was increased while waiting on patient evacuation. General Hawley was irate at the continued problem of no dedicated airframes for air evacuation. He had no formal visibility of planes enroute or the ability to request more patient loads. In frustration he exclaimed, "How the hell [do] you keep up with the evacuation of three fast-moving armies with absolutely no communications, railroads that operate at two miles per hour, and airplanes that are never to be had when they are needed?" In the same vein looking at the medical functions, patient evacuation was not a separate mission independent of resupply. He stated, "Where there is no supply

by air, there is no evacuation by air." In general, medical authorities had to "throw" general hospitals forward to meet the demand for evacuation with increased bed capacity to temporarily hold patients awaiting transport.

Some relief finally came in September 1944 when General Hawley received 20, UC-64s single-engine high-wing monoplanes for medical missions. Originally designed for freight and passenger service in the Canadian arctic, the aircraft could carry 3-litter and 2-ambulatory patients. Just within the first three months of usage, 1,100 casualties, 30,000 pints of blood, and 460 tons of medical supplies were moved. When one calculates the average daily load for each aircraft, it is limited. What is valuable is the flexibility to meet emergency considerations in this non-doctrinal use of assets and the rapid delivery of precious cargo. With the 25 hospital trains at the end of October 1944, authorities were finally able to meet the daily requirements for evacuation.

Before a systemic solution was applied, there were several instances of "creative" work arounds. Under the previous procedure, there were no dedicated patient evacuation aircraft. However, empty cargo planes could return home with patients. Support for medical evacuation was obtained from cooperative transport officers when they "discovered" an urgent cargo delivery requirement at a location which coincidently had urgent patients requiring evacuation. On the ground transport was often obtained by providing drivers for transportation unit trucks under the condition they could load medical supplies with the cargo.

The UC-64, converted for medical use, was originally designed for use in the Canadian arctic. From Cosmas and Cowdrey, Medical Service in the ETO, p. 333.

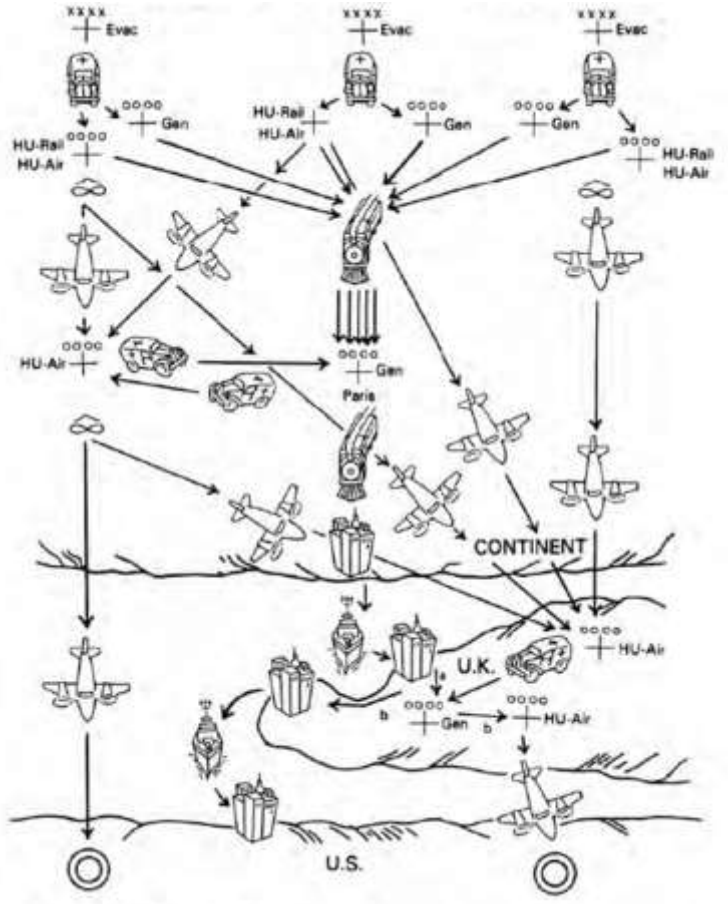
Supply. In tactical logistics, evacuation and supply concerns often intersect. In the move toward Germany, the two were symbiotic. Medical supplies were cached at the breakthrough point and ambulances pulled desperately needed medical supplies from the caches on the way back to the divisions from their evacuation missions. The rapid pace and mobility of the warfare caused the First Army surgeon, Colonel John A. Rogers, to remark that the challenge was "more logistical than medical in nature…. Service rendered to battle casualties was regulated to a lesser extent by surgical skill and experience and more by such factors as distance, available transportation, and supply."

Resupply followed doctrinal procedures. However, ingenuity and quick thinking were required for the exception. In cases of rapidly changing lines, some units were cut off from friendly forces. During the German counter-offensive against the Normandy invasion near Mortain, France in August 1944, the battalion

Packing medical supplies in a 155-mm howitzer shell, to be fired to troops cut off by the Germans. From Cosmas and Cowdrey, The Medical Service in the ETO, p.383.

aid station of the 2d Battalion, 120th Infantry, 30th Infantry Division was surrounded for five days and under constant attack. Line medics resorted to keeping patients in slit trenches for their safety. Dwindling medical supplies were refreshed from artillery firing 105-mm and 155-mm smoke shells filled with bandages, tape, and morphine into the perimeter.

The fast-moving front presented a challenge in providing medical support. Most hospitals did not have organic transportation assets. Those hospitals without movement capability had to coordinate for vehicles. Movement on the battlefield often meant the unit split during the advance. Jumping forward in echelon became standard. Those elements directly supporting the hospitals, such as medical supply depots, also had to borrow vehicles to push forward their supplies. Faced with this never ending challenge, the First Army Surgeon formed a Provisional Medical Department Truck Company consisting of over 200 vehicles pulled from evacuation and gas treatment battalions. While providing a pool of vehicles detached from subordinate elements, Colonel Rogers was able to flex resources where needed to move those elements requiring transportation assets. Scarce fuel was salvaged from residue in abandoned fuel cans along the route of march. In the same push to avoid the clogged road networks, a special airlift from the United Kingdom was established specifically for the delivery of penicillin, sutures, intravenous solution, and plasma.



ETO evacuation system, late 1944. Key: a=by ambulance or hospital train; b=by ambulance, hospital train, or airplane. From Cosmas and Cowdrey, Medical Service in the ETO, p. 335.

By late 1944, the hospital systems reached full maturity. Field hospital platoons attached to division clearing stations handled urgent surgical patients, who could not stand any delay. Evacuation hospitals received the bulk of patients, and convalescent hospitals reconditioned for return to duty. Special facilities for communicable disease, venereal disease, and neuropsychiatric patients were established. Both the field and evacuation hospitals depended on augmentation from auxiliary surgical groups. The mutually tied evacuation and supply systems traversed a balancing act across France. As Communications Zone maturation appeared, so did trains and planes. The linear battlefield was now extended placing the medical system into a full stretch with a little help from ingenuity. The First Army's rapid pursuit of the defeated Germans testified to the Allied victory, but it made the medical service frantically adjust and improvise from the original plans developed across the English Channel. The action went from an initially slow fight, lots of casualties, and short evacuation lines to a rapidly mobile fight, smaller casualty numbers, and long lines of evacuation.

To be continued….

Sources

Cosmas, Graham A. and Albert E. Cowdrey. *The Medical Department: The Medical Department: Medical Service in the ETO*, Center of Military History, Washington, DC, 1992.

First United States Army Report of Operations 20 October 1943 – 1 August 1944, Annexes 15 to 20.

Compare notes with a piece published in 1921 on "AMEDD Professionalism". Is it dated or relevant? Mr. Scott C. Woodard's analysis of Large Scale Ground Combat Operations through the lens of World War II Army Medicine in the European Theater, provides information on the massive need for supplies and logistical expertise.

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These websites serve as great resources for the history of Army Medicine. Peruse our documents online, exploring valorous awards and medical advances as well as interesting biographical information.

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