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**Welcome** to the latest issue of the *AMEDD Historian*! This edition features a variety of articles. Since we are experiencing historic events I would again ask that you also take a moment to consider the preservation of your COVID-19 experiences or those of your unit. In order to preserve the institutional memory of the AMEDD and to share the history of Army Medicine, the AMEDD Center of History and Heritage (ACHH) relies on the contributions of historical materials from its community of Soldiers, veterans, and civilians. We (ACHH) are collecting internal documents, public information, and some interviews and photographs, but we cannot be everywhere.

If you are considering donating material please contact us through these web addresses: [usarmy.jbsa.medcom.mbx.hq-medcom-office-of-medical-history@mail.mil](mailto:usarmy.jbsa.medcom.mbx.hq-medcom-office-of-medical-history@mail.mil) or [usarmy.jbsa.medcom.mbx.amedd-museum@mail.mil](mailto:usarmy.jbsa.medcom.mbx.amedd-museum@mail.mil). Please use "COVID History" in the subject line. Unit POCs can contact the ACHH History Office to document and arrange the transfer of files to secure storage. Gathering historical materials transcends the COVID-19 emergency. If you have questions about whether something is historically significant or worth preserving please contact us. We are seeking labeled images (date, unit, location) of the deployment that show patient care/unit deployment areas. Be sure any images you wish to donate do not have PII or HIPAA information visible!

Additionally, the AMEDD Museum has received several important donations of items related to the Army response to COVID-19. If you feel you have an important item to donate, (continued on back page)

## Large Scale Ground Combat Operations: An Analysis of World War II Army Medicine in the European Theater of Operations, Part 3 Scott C. Woodard, ACHH

*Part 2 described 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 into France, with its logistical challenges. Focusing on the US First Army's experience, this article will begin from September 1944 and follow the enormity of evacuations, circumstances upon the inability to evacuate in the push through Belgium, challenges with replacing medical personnel, and the final crossing of the Rhine River into the Rhineland through April 1945.*

### Evacuation Numbers and Means

The monumental increase in hospitalization and numbers of evacuation are remarkable. By December 1944, hospital centers on the Continent controlled 45 general hospitals, 11 station hospitals, and 2 convalescent facilities. Evacuations from Europe in November 1944 were 987 by air and 4,665 by ship. In just three months those numbers jumped to over 2,500 by air and 15,682 by ship. While the "forest" of statistics are large in themselves, all evacuations begin at the point of injury. Most of those "trees" entail the tactical movement of wounded soldiers from the front.

The Army ambulance went through several experimental modifications in the 1930s and into the war balancing patient capacity, terrain negotiation, transport capa-



MG Paul Hawley, ETO Surgeon

bility, and chassis standardization. By the invasion of Europe, compromise for frontline use was reached by modifying the 3/4-ton (4x4) ambulance and issuing litter kits to use on standard trucks. This functionally used the best medical evacuation vehicle for the arduous terrain of the front and allowed for motorization of litter bearers by mounting litter racks into other vehicles.

While not classified as an ambulance, which requires *en route* care, a jeep with litters strapped on often replaced the soldier as a litter bearer in the field. This vehicle, modified to hold litters, provided effective frontline evacuation saving the medic or litter bearer from distances documented from 1,000 yards to 4-miles. The litter racks were eventually standardized and issued to evacuation units. The number of patients carried by these 'motorized litter bearers' were often limited only by the individual ingenuity of its driver. On a typical haul, described by Lieutenant Elliott Richardson (a 4th Infantry Division medic turned litter platoon leader) "there would be ... two litter cases side by side on the rear half of the jeep, then usually one across the hood, and then I would have sitting beside me a severely wounded man, or a couple of them, who could ... sit up." However, his personal best was 14 ambulatory patients at one time. (Richardson would later become the Secretary of Defense and Ambassador to the United Kingdom among other positions.)



An ambulance jeep in the winter of 1944-45.

When the terrain was a snowy mass of mud and mire, even the jeep could bog down. The M-29 Weasel, a small tracked cargo vehicle, moved patients when jeeps could not. In an environment where the unprotected and open jeep was insufficient for recovering and protecting a wounded soldier, the 5th Armored Division used their Sherman tanks for evacuation. The tank drove above the wounded man, straddled him, and pulled him into safety through the escape hatch in the bottom of the hull.

In the quest to improve evacuation, several experiments were tried to produce an evacuation vehicle that could provide *en route* care, move surgical teams, carry labs, etc. One vehicle could not satisfy all requirements. The AMEDD developed a "truck, surgical" as a mobile operating room, and each armored division was issued six. This should not be confused with the surgical operating truck used by auxiliary surgical groups, which could support approximately 100 major surgeries attached to an outside tent and sterilizing room. Stepping through the delicate choice of rapid evacuation and/or rapid surgery, for the U.S. First Army "the rule was to sacrifice full resuscitation for early evacuation."

#### Inability to Evacuate - 101st Infantry Division Surrounded

The December 1944 encirclement of the 101st Airborne Division, with elements of the 9th and 10th Armored Divisions at the critical Bastogne, Belgium crossroads, may foreshadow future large scale combat operations where surrounded forces are unable to evacuate the wounded. Just before the complete envelopment of the city, the 326th Airborne Medical Company had established a clearing and surgical station at an intersection just west of Bastogne. Attached to the company was an auxiliary surgical team serving in the capacity of a field hospital platoon. A German reconnaissance unit, with some enemy disguised in civilian clothing, captured the company and its attachments. On December 19, 1944, the forces inside Bastogne lost their hospitalization and were cut off from their emergency surgical facility.

Improvisation marked the week-long siege. From a convent serving as a regimental aid station, a small hospital was formed. For protection against the deadly bombings of the *Luftwaffe*, the parking garage of a nearby Belgium barracks was soon utilized. Across the division and city, medical personnel were consolidated in a fight to keep the wounded alive. Probably assisted by the sound of Bing Crosby's "White Christmas" in the cold air, morale was high. Inside the perimeter other sanctuaries of medical aid took the form of farmhouses and barns. Most patient evacuations used the modified jeeps bearing litters, but ingenuity was the hallmark of this battle. Using sheet metal from the area housing, the wounded were also pulled along the snow in makeshift toboggans.

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Bravery was met with the same exertion as invention. One sector of the perimeter was secured by the 502d Airborne Infantry Regiment. The regimental command post at the Rolle Château received the brunt of German tanks and infantry attempting to break through the line on Christmas 1944. An assembly of cooks, clerks, radio operators, and chaplains cobbled together under the leadership of the Headquarters, Headquarters Company commander. From the stables serving as a temporary hospital, Regimental Surgeon, Major Douglas T. Davidson, could see the obvious danger posed. Dr Davidson was no stranger to combat having been awarded the Silver Star in June 1944 for gallantry in action. Within minutes, he gathered all the walking wounded and armed them for the defense. He personally led the reborn combatants in the headquarters' last stand successfully defending against the enemy tanks. Another example of bravery and ingenuity was later displayed by medical aidman Private First Class Floyd P. Marquart, who had previously earned the Silver Star on D-Day. On December 29, 1944, the aidman observed a fellow paratrooper suffocating from a wound in the neck. He rushed through enemy fire to render assistance. Within seconds he "calmly performed a delicate surgical operation, cutting the man's throat with his belt knife and ingeniously inserting a piece of his thermometer case in the opening to permit breathing." Following the incredible battlefield tracheotomy, the medic then dragged his patient 75-yards across the murderous field of fire to safety and evacuation. For his actions, Private First Class Marquart was awarded the Distinguished Service Cross.



Cargo aircraft dropping bundles of medical supplies over fields near Bastogne.

The encirclement created obvious evacuation problems. In addition, the shortage of medical supplies and surgical capability soon became a dangerous condition. Medics were fortunate to find an abandoned corps-level cache of medical supplies and relief from the 1st Medical Depot Company that remained in Bastogne. The Class VIII soon dwindled and scrounging around the village and removing blankets from the dead became commonplace. Organized supply relief came on December 23, 1944 from an airdrop resupply of Penicillin, plasma, Vaseline impregnated gauze, anesthetics, morphine, distilled water, syringes, sterilizers, litters, and blankets. The cloth parachutes and packing cloth were even repurposed for hospital patient care. Unfortunately, the whole blood storage area was destroyed in an artillery barrage. Making matters worse, the whole blood parachuted in to mitigate severe losses, was destroyed on impact. Toward the latter stage of the siege when the U.S. Third Army's 4th Armored Division finally broke through in relief, an all-volunteer team from the 4th Auxiliary Surgical Group and the 12th Evacuation Hospital established an emergency surgical capability. Initially planned to conduct a parachute drop, the team arrived by a much easier mechanism. One member arrived as a Christmas gift by light plane with the remaining members landing in a glider the next day.

In the defense of Bastogne, U.S. forces were surrounded December 21-26, 1944. For just the 101st Infantry Division, the butchers bill was 189 dead, 1,040 wounded, 407 sick and injured, and 412 missing. The majority of these souls were trapped for the duration of the siege.

### Medical Trickle and the Problem with Replacements

The term "short" was the adjective best describing the later-arriving medical units into the European Theater. Most were short in personnel and training. Some general hospitals arrived with only 50 percent of their authorized physicians. If credentials and experience were less than desirable, the individuals were broken up and moved to units with more experience. Schools were established to train those staff deemed lacking the required skills. Professionals were cross-trained in other skills to make up for shortages. For example, general surgeons were trained in orthopedics. Some hospital units were sent into the theater without nurses at all. Medical unit strength was bad enough when "shipped short" of their authorized personnel, but this problem was compounded from attrition of medical casualties. Most of these losses were surgeons, medics, and litter bearers in infantry units. The 9th Infantry Division had to replace over 100 percent of their aidmen in the first 6-months of combat.



The desperately needed flow of replacements was more analogous to a trickle. Those replacements that did arrive were often not ready to perform their job in combat. The 5th Infantry Division Surgeon remarked, "As a rule, Medical Department replacements have been received not adequately trained to function under fire ... Many ... had no idea of how to take care of themselves in the field in ... darkness, rain and mud." There was a serious "field competency" crisis in the replacements arriving in Europe. Of the 21 medical officer replacements in the 2d Armored Division, 8 had to be evacuated because they were "unsuited for combat." The influx of Medical Administrative Corps (MAC) officers helped in this dilemma. In general, MAC officers replaced Medical Corps officers enabling doctors to provide needed clinical services on the battlefield. As one historian wrote in the official history, "MAC lieutenants, by most accounts, performed creditably." Medical Corps authorizations decreased while MAC authorizations increased. Eventually, MAC shortages led to the Army authorizing direct commissions to noncommissioned officers to serve as MAC officers.

Like supplies, the critical skill of returning wounded to the fight was dwindling. Combat arms soldiers and other nonmedical series were detailed to augment the medics as litter teams. Issued Red Cross brassards, they were given a quick lesson in first aid and the Geneva Convention. With personnel strength waning, the manpower pull on tactical evacuation clearly demonstrated the importance of the jeep's utilization as a motorized litter bearer.

The incompetence of replacement quality and operations was shared. Investigations revealed Field Army G-1 (Personnel) replacement commands did not manage highly skilled occupational specialties well. Medical and surgical technicians were misdirected to serve as drivers and cooks. Finally, the ETO Surgeon's staff had to get involved in correcting the mismanagement. Ironically in early 1945, the 19th Replacement Depot started a school to train clerks, cooks, and drivers as aidmen. In a demonstration of the importance of frontline combat medics, infantry soldiers were trained to fill these medical shortages even though they were also short personnel.

#### The Last Major River Crossing

The US First Army bore the brunt of the Ardennes offensive in February 1945 and sped quickly to the Rhine River by March 1945, the last obstacle before pouring into Germany. The US First Army Surgeon, now Brigadier General John A. Rogers, commanded U.S. First Army medical troops including a medical group (controlling medical evacuation from divisions) and army-level hospitals. The Corps Surgeons supported the attack with command of corps-level medical battalions. Air evacuation was coordinated through Supreme Headquarters Allied Expeditionary Forces and U.S. First Army units established close to newly-acquired airstrips.

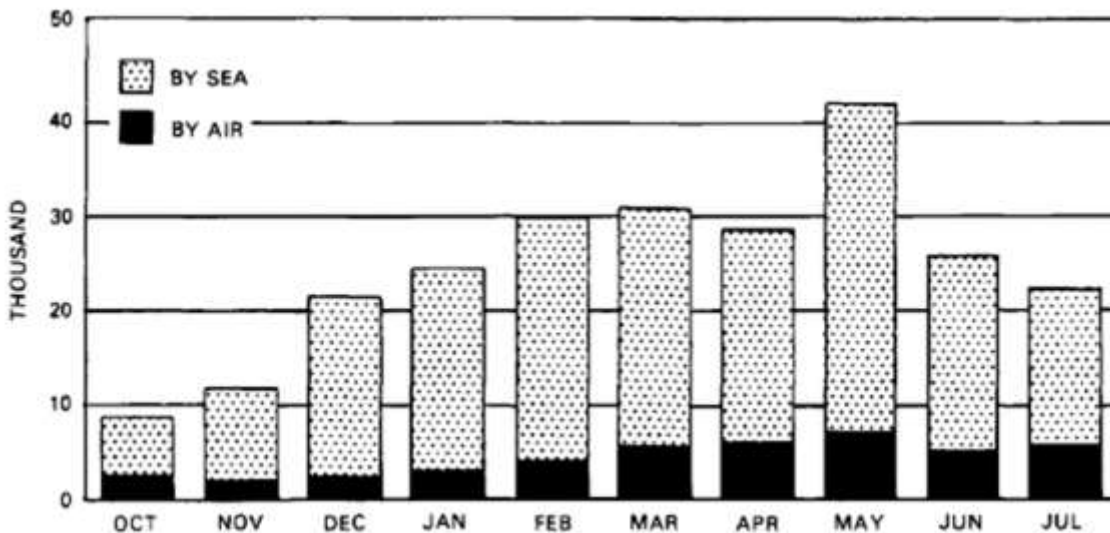
Wintry white snow followed the forces maneuvering out of the Bulge. Upon the US First Army's approach to the Roer River and area dams, waste-deep snow continued to plague the advance as they slugged toward their Rhine River objective. As this force pushed against the natural water obstacle dams near Cologne, one unit's creativity down at the tactical-level calls for mentioning. The medics of the 2d Infantry Division assembled sleds with broad runners that were used for resupply and evacuation over thick snow. These sleds, combined with the M-29 Weasels, proved to be indispensable spreading the weight over wide treads and skids. The 2d Infantry Division surgeon noted these contraptions were a "must for deep over-snow operations." The ability to ride over snow without triggering the mines on the road was a bonus.

Successfully breaking out of the Roer in the beginning of March 1945, the assault through the Rhine came in earnest. Even with the snow thaw, river crossings were particularly difficult because casualties were often concentrated at the crossing points and under continuous fire. Medics had to hand-carry the wounded through fords before pontoon bridges could be built across each river allowing for ambulances to cross. With the advancing army leaving the convalescent hospital



Medics pulling an assault boat filled with medical supplies for wounded troops on the other side of a nearby stream.

far in the rear, evacuation hospitals, a clearing company, and a gas treatment battalion temporarily held the lightly wounded. In order to keep up the rapid forward momentum, evacuation hospitals compensated for their semi-mobility by leapfrogging along the advance. In the forward movement of this new *Blitzkrieg*, field hospitals split and functionally became evacuation hospitals. Those, in turn, lost all mobility and become holding or station hospitals at airstrips.



ETO evacuations to the United States, October 1944-July 1945.

In this final phase, US Army casualties were relatively light, but there was a huge influx of recovered Allied military personnel (RAMP), German prisoners of war (POW), displaced personnel (DP) and concentration camp survivors all requiring care through the victors. In a unique solution to the overwhelming patient census, US Army officials put the captured Surgeon of German Army Group B, Major General Walter Scherf, in charge of all German civilian and military patients. Under the supervision of proper Allied authorities, care was provided and resources through US First Army medical groups. By the end of April 1945, US First Army maintained 216 German military hospitals, 4 POW camp hospitals, 22 DP centers, and 3 RAMP hospitals – about 90,000 patients. Relief from the weight of the wounded came from much needed air evacuation. The impassable roads, damaged railways, and few standing bridges made ground evacuation almost an impossibility. Medical evacuation flights from the eastside of the Rhine were the only reliable source of US patient movement.

### Looking Back

The last phase of the push to defeat Germany was marked with challenges – evacuation totals, land obstacles, replacements, and water obstacles. The aspect, or lack of, that envelopes them all is mobility. The lack of it, was deadly.

In combat, hospital beds mean nothing without transportation for moving those patients to the hospital bed. The semi-mobile evacuation hospital was not mobile in practice. A growth in size was also a decrease in mobility. This caused other units to augment and hold patients. It was serendipitous that entire gas warfare medical units could be re-assigned as medical holding units. So, patient care and mobility were two opposite ends of the care spectrum. Lightning-fast movement created an environment where everyone was desperately trying to get more mobile assets.

Army surgeons worked field hospitals into three sections allowing for leapfrogging and augmentation of surgical care at the collecting stations. This functionally replicated much of the forward surgical team and brigade support medical company concept seen in Operations Enduring and Iraqi Freedom. One surgeon foreshadowed the mobile army surgical hospital successfully used in the Korean War by emphasizing the importance of mobility, “A completely mobile surgical hospital was a necessity for the support of a division.” The authorization of such a unit should provide a “two-platoon arrangement which would permit leapfrog

movement of the platoons or forward displacement of one while the second retain[s] the post-operative cases until they become transportable.”

The risk of losing a wounded soldier unable to get to surgical care was met by pushing ambulance assets forward and routinely placing the higher echelon asset to the lower echelon: *you must keep up with the mobility of the fighting units*. In the Communications Zone, surgeons recognized the futility of fixed facilities when trying to keep up with mobile warfare. Medical leaders transferred general hospitals back to rear base sections and doubled the field hospitals: *you cannot support a rapid advance with fixed facilities*. At the Rhine River, holding units were staged on both sides of the water. Westside holding units evacuated by collocating with railheads. Wounded on the east were transported by jeep and returning supply vehicles, like the M-29 Weasel, since there were no complete railroads there. As mentioned before, once airfields were captured, forces in the East were able to use air evacuation effectively.

The various solutions to the mobility problem were met at the tactical and operational levels. Medics used ingenuity and quite a bit of frontline bravery in the face of enemy fire. Staff officer tenaciousness in the heat of office and international politics pushed for solutions that went against the status quo. As addressed in previous parts, however, there were still unresolved issues of medical command in the theater. Despite this, the medical venture in the Second World War Europe was a success. It would not be until 1970 that a theater-level medical command performed in combat with the establishment of the US Army Medical Command, Vietnam (USAMEDCOMV). The Theater Chief Surgeon in WWII, Major General Paul Hawley, was able to administer a theater medical system through sheer fortitude and will. Prudent action to realities on the ground enabled this success. What was his motivation and inspiration? Keenly aware of history, Hawley corresponded in the post war period and may have revealed the answer.

*I was the Chief Surgeon of the European Theater of Operations during World War II, a position similar to that of Letterman in the Army of the Potomac. At that time I often wondered whether, had I been confronted with the primitive system which Letterman fell heir to at the beginning of the Civil War, I could have developed as good an organization as he did. I doubt it. There was not a day during World War II that I did not thank God for Jonathan Letterman.*

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All illustrations from U.S. Army sources.

## Preventive Medicine Reconsidered in the Burma Campaign

### By Nolan A. (Andy) Watson

The 5307th Composite Unit (Provisional), code named Galahad, but better known as Merrill's Marauders, has a firm reputation in Army history. Despite fame and successes, the unit ceased to operate largely due to disease. The toll of fighting in the tropics without proper attention to preventative medicine was extremely high. Fortunately the follow-on units were able to make immediate improvements.

The unit operated in the China-Burma-India (CBI) Theater. The unit's mission was to disrupt Japanese military operations in Burma. The 5307th Composite Unit (Provisional), began operations on 24 February 1944 with 2,705 field troops advancing into Burma and 247 remaining in India. Deployed as a light infantry unit, the 5307th would often serve in mountainous jungle areas with little support from larger forces. Due to the rough terrain, long marches, and lack of roads, 600-700 horses and mules were part of the unit to haul supplies and gear. The 5307th's three battalions had a medical detachment with 30-40 personnel each, including one veterinarian. Despite providing medical personnel, there were some very big problems that were not resolved at the unit's formation. Mosquito netting was not available or not used properly. Also, the use of anti-malaria drugs, especially atabrine for the 5307th was not strictly enforced, and water purification efforts became lax during operations. Medical evacuation was largely restricted to non-disease cases. While airplane evacuation of wounded personnel was attempted at clearings, without helicopters or effective ground ambulance networks, moving the injured was challenging.

Quickly moving ahead, the 5307th was able to prevent Japanese advances through raids, ambushes, and other actions, culminating in a victory at the town of Myitkyina. Despite successes the unit ceased operations in August 1944 at the conclusion of the Myitkyina battle. Inadequate methods to prevent insect-borne illness, careless water purification standards, physical exhaustion, and an unwillingness by the leadership to break contact with the enemy and evacuate casualties led to appalling numbers of casualties.

Although the 5307th was not able to continue operations, there was still a need for the force in Burma. As personnel were evacuated, transferred, and tried to recover, new plans were being made for the follow-on unit. Daring and swift attacks were still needed, but so was a conservation of the force. Remaining personnel that were healthy enough to serve were consolidated to form the 475th Infantry Regiment. The 475th would form the nucleus of the new unit, the 5332d Brigade (Provisional), known as the MARS Task Force.

| BATTLE CASUALTIES:             |                     |
|--------------------------------|---------------------|
| Battle deaths                  | 93                  |
| Nonbattle deaths               | 30                  |
| Wounded in action              | 293 <sup>(19)</sup> |
| Missing in action              | 8                   |
| <b>SUBTOTAL</b>                | <b>424</b>          |
| DISEASE CASUALTIES:            |                     |
| Amoebic dysentery              | 503                 |
| Typhus fever                   | 149                 |
| Malaria                        | 296 <sup>20</sup>   |
| Psychoneurosis                 | 72                  |
| Miscellaneous fevers (approx.) | 950                 |
| <b>SUBTOTAL</b>                | <b>1970</b>         |
| <b>TOTAL</b>                   | <b>2394</b>         |

By now my dysentery was so violent I was draining blood. Every one of the men was sick from one cause or another... I didn't worry any more about letting the colonel down. All I wanted was unconsciousness.

CPT Fred O. Lyons

Medical problems were reviewed with the formation of a new unit. Preventive medicine measures were to be strongly enforced, and better medical care in the field would be provided by three portable surgical hospitals. Similar to its precursor unit, there were medical detachments (to include veterinary and dental officers) for each of the four battalions and three cavalry squadrons.

The larger force had more materiel, so there was not only an increase in the number of pack animals, but also a focus on animal, as well as human health. The 18th Veterinary Evacuation Hospital was attached to the MARS Force to care for its numerous horses and mules. All heavy supplies, to include artillery and the hospitals, were carried by the equines. As with the precursor unit, operations would be conducted with Chinese forces when possible. The more robust MARS Task Force had peak numbers of 7,300 personnel (but av-



eraged 5,700) with 2,900 horses and mules. Equine power would also aid in evacuation of the wounded if local litter bearers were unavailable.



(left) The operating environment: a trail through the Burmese jungle. (Right) General Joseph "Vinegar Joe" Stilwell presents medals to the remnants of the 5307th after the Battle of Myitkyina. The ragged appearance of the Soldiers receiving medals from a Lieutenant General illustrates their condition.

As evacuation policies were modified, an active program for preventative medicine received command oversight. In camp areas ground cover was cleared and burned off to limit mite and tick numbers, since they were vectors for scrub typhus. Insect repellent dimethyl phthlate was utilized on uniforms and all facility areas and tents were sprayed with DDT. Every Soldier was instructed to boil their water in all circumstances. Hala-zone tablets were furnished to purify water as well. A water purification unit filtered and chlorinated water, and all water for human consumption was additionally boiled for 20 minutes, cooled, and then re-chlorinated.

Although malaria was being combated by DDT and other methods, the anti-malaria drug atabrine would have the greatest effect. However, atabrine could not work unless it was taken. A daily atabrine tablet was given under officer supervision, and random checks were made of the urine of hospitalized Soldiers to determine if atabrine was present. Malaria discipline continued to be an issue with incoming troops or those leaving forward areas.

While the focus of this article is preventive medicine, the unit also experienced casualties from its combat actions. The MARS Task Force continued with its allies, seeking to recapture Burma instead of disrupting the Japanese Army's progress. Advancing to capture Japanese forces in the eastern and southern parts of Burma, the task force marched on. The apex of fighting would occur in the months of January and February 1945, with the unit suffering 954 combat casualties (105 deaths). Operations for the unit would wind down after the capture of the city of Mandalay. The MARS Task Force concluded missions in March of 1945 after roughly 7 months of existence.

### Results

Despite improvements in sanitary conditions, decreased morale affected the willingness to follow through with preventative medicine measures. As with malaria deterrence, the importance of command oversight cannot be overstated. One problem that was not resolved was the continuing



Howard Baer, "Moon Over Burma." Surgical care for casualties was also a challenge in Burma.



issue of skin infection due to less frequent changes of clothing and the humid environment. Diarrheal disease causes were also not completely solved and may have been an issue additional to having clean water.

Malaria rates per thousand troops were significant in the first month of the MARS Task Force. The rate for September 1944 was 154, but were greatly decreased by March 1945 with 43 per thousand troops. Scrub typhus numbers had peaked in October 1944 with 64, but similarly decreased to 10 per thousand troops by March 1945. Evacuation policies were also credited with allowing Soldiers to recover from illness. Unlike the 5307th, the MARS Task Force's inactivation and dispersion was based upon theater goals instead of being worn down by combat and disease.

On September 22, 2020 Congress approved Gold Medals to recognize surviving members of Merrill's Marauders.

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## The Texas City Disaster and Army Medicine's Response

### Lewis Barger, MEDCoE historian

Sometime around 8:00 a.m. on the morning of Wednesday, April 16, 1947, longshoremen loading the last of the freighter *Grandcamp*'s cargo smelled and saw smoke rising from several layers down in the stacks of fertilizer lining the bottom of hold number 4. They initially tried to stop the fire with water, and then two fire extinguishers, but the smoke continued to increase. The captain, in an attempt to save the cargo, ordered the hatches closed and the steam system opened in the hold in an attempt to suppress further combustion.

The *Grandcamp* was a Liberty ship, the former *Benjamin R. Curtis*. For three years during World War II she had transported cargo around the Pacific. With the war over, the *Curtis* was donated to France to help with the post-war recovery. Renamed *Grandcamp*, she served on the Atlantic run, transporting supplies from the U.S. to Europe to assist in restarting farms, industry, and commerce. She had taken on numerous supplies: bales of twine, mechanical equipment, agricultural products, even some cases of small arms ammunition. The largest portion of her cargo, though, was 2,300 tons of ammonium nitrate.



Ammonium nitrate is particularly useful as a fertilizer and is reasonably stable. Under the right circumstances, though, it can also be a powerful explosive. The 2020 explosion in Beirut and the 2013 explosion in West, Texas were both ammonium nitrate explosions, and ammonium nitrate was the major component of the bomb used in the Oklahoma City bombing.

Around 8:30 a.m., the growing heat and pressure from the fire and steam release blew the hatches off the cargo hold of the *Grandcamp*. Orange smoke rose in a column above the ship, attracting onlookers to the area near the port. The ship's whistle sounded the alarm which was picked up by sirens on shore. The Texas City volunteer fire department and Republic Oil Refining Company fire fighters both arrived and began setting up to battle the fire. A fire boat was called for from Galveston.

Fighting the fire on board the *Grandcamp* during the 1947 Texas City Disaster, April 16, 1947 .  
<https://texashistory.unt.edu/ark:/67531/metapht11825>

Texas City is located on the mainland behind the bar-

rier island city of Galveston. World War II had been a time of prosperity for Texas City whose ports provided safe harbors to load materials for shipment to support the war effort. Piers, railroads, oil and chemical refineries and storage tanks, warehouses and other industrial areas has all grown up during the war, supporting ever increasing requirements for goods. New industries came to the town as well. The Longhorn Smelter opened when the Allies tin supply was threatened and by the end of the war would produce 44% of the world's tin. The government developed aviation gas and styrene production plants at Texas City as well. Styrene, used in the production of synthetic rubber, became a critical supply item after the Japanese occupied Southeast Asia's rubber plantations. Industry crowded the shores of Texas City, but behind the tanks, warehouses, railheads, and piers stood the houses of the workers who had kept them operating 24 hours a day during the war.

By 9:00 a.m. flames could be seen through the hatches. Water sprayed onto ship from the shore was vaporizing from the heat. Orange-gold smoke rising from the ship dominated the entire waterfront. At 9:12, a massive explosion tore the ship apart. A mushroom cloud rose 2,000 feet into the air. Two light planes observing the fire were knocked from the sky. The shockwave traveled outward knocking down nearly 1,000 buildings and shattering windows as far away as Houston 40 miles distant. Oil tanks ruptured and ignited. Refineries burned and erupted in secondary explosions. Cars in a parking lot  $\frac{1}{4}$  mile from the blast were bent and twisted. The *High Flyer*, another Liberty ship anchored near the *Grandcamp*, caught fire threatening its own load of 961 tons of ammonium nitrate and 1,800 tons of sulfur. Shattered pieces of ship, cargo, pier, buildings, and machinery riddled everything nearby. A nearly two-ton anchor was thrown over a mile and a half inland. People standing anywhere near the blast were killed instantly. All but one of Texas City's 28 volunteer firemen were killed along with 3 of the 4 Texas City Heights volunteer firemen. The size of the explosions and the huge column of smoke alerted respondents in nearby communities and help began to arrive from Galveston and the communities leading up towards Houston.

The first reports came into Fourth Army Headquarters at about 10:30 a.m. The Fourth Army Surgeon at Fort Sam Houston, Texas reported first being notified of the disaster at 11:05 a.m. when staff from the operations section told him that there had been an explosion at Texas City. By 11:35 a.m. all of Fourth Army Headquarters had been told to prepare to assist and the first of what would be many requests for assistance began to arrive. The first requests for medical supplies arrived in the surgeon's office at noon. Requests were filled as much as possible from local stocks at Fort Sam Houston and were put on a plane bound for Texas City by 1:00 p.m. Those supplies which couldn't be filled were requested from the Army's regional medical depot in St. Louis, and planes were launched from San Antonio to St. Louis to pick up the supplies there and then fly them down to Texas City with the first stock of supplies from St. Louis arriving at 11:00 p.m. that night. Finally, the surgeon's office put in requests for penicillin, morphine, and tetanus antitoxin, anticipating that there would be requests for all those items as the response unfolded.

As the magnitude of the disaster became apparent, Fourth Army took steps to establish an Army commander in the area to oversee military relief activities. An ad hoc staff with officers representing operations, logistics, medicine, and public information flew to Fort Crockett at 1:20 p.m. An hour later, the Fourth Army Commander, General Jonathan Wainwright, and Brigadier General Josef R. Sheetz departed San Antonio for Texas City to tour the disaster site. After assessing the situation on the ground, General Wainwright put BG Sheetz in charge of the military relief operations, and made all of Fourth Army's capabilities available to him.



Aerial view of the grain elevator, the Monsanto building and the *Wilson B. Keene* after the explosion.

<https://texashistory.unt.edu/ark:/67531/metaph11729>

The Surgeon's office, through the Headquarters, sent out the first directions to deploy medical personnel at 12:50 p.m. Fourth Army issued directives to the surrounding military bases and organizations which sent their packages of personnel, for the most part by air, as quickly as they could get them together. Personnel were ordered to report to Fort Crockett, on Galveston Island, where they would receive further orders. 36 doctors and 11 nurses launched from Randolph Field. Brooke Army Medical Center (BAMC) sent 30 enlisted men commanded by one Medical Administrative Corps officer as well as 29 nurses on two separate flights. All these groups arrived between 7:00 p.m. and 8:45 p.m. Most of the doctors, nurses, and BAMC's enlisted men were set to work reopening Fort Crockett's station hospital. Remaining personnel were sent out to augment other hospitals in Galveston already caring for casualties from the disaster.

At the Texas City docks, workers on the *High Flyer* fought a losing battle against the ship's fire. When it became apparent no more could be done, crews worked to cut the anchor chain and tugboats attempted to pull it from its slip, away from the docks and the city in the event it too exploded. The blast from the *Grandcamp* seemed to have wedged it into position, though, and the tugs were unable to move the ship. Finally, as flames were seen shooting out of the open hatches on deck, the word was given to evacuate the area. Shortly after 1:00 a.m., 16 hours after the explosion of the *Grandcamp*, the *High Flyer* blew up in an explosion that seemed even stronger than the first, sending red hot fragments of the ship into the sky, igniting new fires, and sinking a third Liberty ship in the harbor, the *Wilson B. Keene*.



32d Medical Battalion Ambulances ready to respond after the 1947 Texas City Disaster.  
<https://texashistory.unt.edu/ark:/67531/metapht11693>

The Medical Field Service School's contingent from the 32d Medical Battalion travelled by ground, deploying the battalion headquarters, a clearing company, and a collecting company, arriving at Fort Crockett around midnight. The 32d Medical Battalion remained at Fort Crockett for the evening and the following day was tasked so they could best support relief efforts. Doctors and nurses from the battalion headquarters were sent to augment Galveston's hospitals as operating teams. Dispensary and aid teams were sent to Texas City and to Camp Wallace, a recently closed World War II camp about 10 miles southwest of Texas City which had been reopened for refugees. The Clearing Company was sent to help fill out Fort Crockett's Station Hospital and the collecting company was given the mission of evacuating casualties from the dispensaries and aid stations that were established in the disaster area.

Nearly all living casualties were collected by Thursday, the 17th of April. Survivors fell into two categories, those who were indoors and those who were outdoors at the time of the explosion, and each had its own pattern of injuries. Indoors casualties tended to have multiple penetrating injuries from shattered glass as well as major contusions and crushing injuries from collapsing structures. Those who were outdoors suffered from the effects of blast along with compound injuries received by the missiles that formerly had been ship, building, or machinery. Most fatalities resulted from crushing injuries or major contusions, with head injuries being most likely fatal for those who survived the initial blast. Ruptured eardrums were common, burn injuries were infrequent. The on-scene director of the American Red Cross' medical unit, Dr. Harold Wood, attributed the rapid collection of casualties and their efficient treatment chiefly to two factors: first, the types of injuries incurred resembled those seen in casualties during World War II; and second, most of the civilian doctors and nurses had served in the military's medical services during the war. As a result, casualties were managed in military fashion and with military efficiency.

One of the greatest challenges facing the healthcare professionals was treating patients with multiple penetrating wounds and retained foreign bodies. Given the hundreds of wounds some patients received, the decision was made to forego debridement of all of them and rely instead on dosing patients with 100,000 units of penicillin every hour. When suppuration occurred, surgical drains were inserted and foreign bodies removed. Many patients suffered bone fractures and their initially was concern that gas gangrene infections would present a significant problem, but it turned out that only nine confirmed cases occurred. Five patients



required amputations for extremities too mangled to save and which had developed anaerobic infections.

Interestingly, Dr. Wood reported that chest and abdominal injuries were not a significant problem among the survivors. Some showed signs of blast injury to their lungs, but only those who also had broken ribs experienced significant problems with breathing. Penetrating injuries, to chest or abdomen did not seem to be an issue, at least for the survivors, although it is not unreasonable to expect that those suffering significant wounds to the torso may not have survived long enough to be evacuated.

By the 18th of April, few new casualties were being collected and the search for survivors transitioned to the recovery of the dead. Requests for supplies diminished, and the need for surgical augmentation began to drop. By Saturday, the first small groups of doctors and nurses began to return to the posts around San Antonio. That evening the 32d Medical Battalion took over operations of the Station Hospital at Fort Crockett.

By Monday the 21st of April all military medical personnel except the 32d Medical Battalion and six nurses from BAMC had been returned to their home stations, and the 32d was in the process of re-shuttering Fort Crockett's station hospital and preparing to leave.

Having returned all patients and functions to civilian control, the remaining soldiers loaded their gear and returned to Fort Sam Houston on Tuesday, the 22d of April.

The Texas City Disaster is an example of what we would today call Defense Support to Civil Authorities done well. In 1947, General Wainwright didn't have to wait for a national disaster declaration. As a result, he had relief supplies and personnel moving towards the site of the disaster within hours of his being notified. Army doctors and nurses and medical supplies arrived during the first two days after the disaster when they were most needed, and although most serious casualties had already been taken to hospitals by the time the 32d Medical Battalion arrived, they still provided valuable support to a population that found themselves living like refugees and in need of low acuity healthcare. For those healthcare professionals working in hospitals, both military and civilian, recent experience working with war wounded was doubles a benefit, preparing them to encounter the horrific injuries resulting from high explosives. As relief transitioned to recovery, the military was successful in transferring the functions they were performing to civilian control and returning to their home stations. The disaster site received expert assistance, and the military benefitted from performing a real world trauma mission.



Medical staff and a survivor in the hospital after the 1947 Texas City Disaster.  
<https://texashistory.unt.edu/ark:/67531/metapht11774>

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## In-Patient Behavioral Health Facilities: Healing Environments Positively Impacting Health Outcomes

### LTC Robert J. Schultz

Casualties of war have always consisted of both the visibly and invisibly wounded, regardless of conflict type, duration, or location. There has always been a psychological aspect, whether pride through victory or shame through defeat. However, all at war experience stress as it is inevitable that dead and wounded will be encountered on both sides. Many of the physically wounded are viewed as viable combat assets who can recover with rest, nourishment, and medical treatment to fight another day. With the mentally wounded, however, identification and diagnosis is more difficult: determining where the “mental scab” disappears and the patient is free of the complication is challenging. Although 20+ years of combat in Southwest and Central Asia has decreased, invisible wounds (e.g. combat stress, Post-Traumatic Stress Disorder (PTSD) and Traumatic Brain Injury (TBI)) continue to persist amongst service members, complicating their personal health as well as family and societal reintegration.

Historical studies of military behavioral health treatments show that focusing on curative solutions alone yielded minimal success. Instead, integrated treatment programs, medicinal innovations, and facility designs have proven effective at improving behavioral health patient outcomes. While screening should exclude recruits that were “insane, feeble-minded, psychopathic, and neuropathic” collective efforts are still required to positively impact treatment. These collective efforts include physical exercise, isolation, rest and they should be conducted by trained medical officers as far forward as possible. By WWII, use of a new series of drugs (barbiturates - sodium amytal, known as the “truth drug”) enabled psychiatrists to reach “difficult” patients. There are more psycho-therapeutic drugs available now, and building upon the lessons learned from previous conflicts, military leaders now recognize success through holistic approaches, treating both the soldier mind and body as a complete unit.

One of the more critical pieces to the collective effort that has not received its due diligence or consistent focus over time is facility design. Safety of the patient and staff should always be of vital concern, but designs that instill patient pride and dignity with proper spatial layouts are important as well. Historically, behavioral health facility designs did not provide suitable living conditions for patients, as they were subjected to deplorable conditions resulting in them being “stored” away from society instead of being properly cared for with prudent living conditions. Commonly dubbed as “houses of horror,” many facilities would have hundreds of patients crammed into large filthy wards with patients secured to the walls and floors with mechanical restraints. In

fact, one doctor said animals in nearby pig farms were better fed, housed, and treated. Towards the end of the 18th Century, facility design truly began to revolutionize construction protocol for the behavioral health patient. One example was the Vienna General Hospital in Vienna, Austria. Built in 1784, the facility was a circular design called *Narrenturm* (Fool’s Tower) that had a prominent lightning rod installed as it was believed that electricity complimented patient treatment. Another example is the York Retreat in York, England. Built in 1796, this facility design incorporated spaces for new treatment methodologies inclusive of occupational therapy, social activities, and most importantly no mechanical restraints.

As previously stated, the most critical aspect of care in the BH environment is patient and staff safety.



The Narrenturm, Vienna, Built in 1784, it is continental Europe’s oldest facility for psychiatric patients. Courtesy Wikipedia Commons

Most patients are admitted to behavioral health facilities due to attempted suicide or events that have them categorized as potential risks to inflict harm on themselves or others. For the military, most In-Patient Behavioral Health (IPBH) facilities were not completely designed to address the needs of patient and staff safety. However, there is at least one IPBH facility that has captured all aspects of the ideal treatment environment, and that facility is located within the Evans Army Community Hospital (EACH) at Fort Carson, Colorado. The EACH IPBH provides 16 spaces incorporating evidence based design through rounded corners, wood-grain flooring and nature artwork for therapeutics and patient & staff safety within this 47,000 square foot space.

Designed primarily with safety in mind, the facility is comprised of multiple innovations that include but are not limited to: no ligatures (hanging points), door handles that slope downward, bathroom towel hooks that give way to significant weight, shower doors that are tear-away Velcro mats, bathroom mirrors that are highly reflective steel instead of glass and the bedroom furniture that is bolted to the floor. Furthermore, two dozen security cameras on the ward project onto TV screens for centralized, comprehensive visibility from the nursing station. Finally, color palettes incorporate soothing shades of blue that complement the views of miles of rolling mountainous landscapes. Most importantly, the facility has been open now for over six years and of the 3,000+ acute psychiatric patient admissions (most for suicidal intentions) there have been no injuries or deaths.



Areas of the IPBH area at Evans Army Community Hospital. (Left) Staff & Patient Area (center) Patient Room (right) Patient Lavatory. U.S. Army photos.

Over the past 100 years of conflicts, the Army has taken major strides to enhance all aspects of the healing environment for BH patients. A combined approach addressing medicines, treatment protocols, and most importantly safe and therapeutic facilities have come a long way to improve Soldier BH outcomes. BH continues to be one of the most important factors in readiness, even as 20+ years of overseas contingency operations decline. As previously indicated, the correct combination of treatment programs, innovations and facility designs (as witnessed with EACH's IPBH) will adhere to / address the complete "healing environment" that has and continues to yield positive patient outcomes and most importantly, protect and save soldier lives.

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## Hospital Centers: Old Name, New Role Sanders Marble, ACHH

Hospital Centers started in WWI, when they were groups of hospitals in buildings of opportunity (often hotels) in the same city, or were purpose-built in the countryside for 10 hospitals. These purpose-built sites were selected for various practical features such as water supply and rail connections, so a hospital train could unload all its patients (up to 600) in one stop. Thus the centers were planned for 10,000 beds and expansion to 20,000 plus convalescent camps. Whatever the facilities, they were well away from the battlefield, and the role was the same: the hospital center (HC) administered the hospitals to economize on administrative personnel, handle utilities, balance staff among the hospitals, and manage the patient flow – especially when the hospital trains dropped off. There was no staff except those taken “out of hide” from the hospitals and augmented with personnel ad hoc. Total staff was maybe 40 personnel and they had limited equipment, mainly to manage utilities. Other responsibilities included sanitation, supply and medical supply, band, and laboratory. The center at Mesves, in charge of 10 hospitals, had 40 officers, an unknown number of enlisted men, local civilian workers, and used convalescent patients.

Centers proved themselves useful in WWI, and the concept and the unit were retained afterwards. 24 were in the Organized Reserves, what is now the Army Reserve. Their mission was command, control, and administration of a group of general hospitals plus any attached units – such as laundry, bakery, ambulance, medical depot, postal, etc. Because it included a convalescent hospital, the HC had 391 total personnel. But in peacetime they had no personnel, and most of the inter-war units were disbanded in 1942 or 1944 (two separate batches) although some survived into WWII.

The existing units were the wrong structure for WWII, but HC were needed, so new units were formed. A 1942 model had 289 personnel to perform command and control functions, but also run a central laboratory for their hospitals and they had a 1000-cot convalescent hospital. Only a handful of those units were formed, then all the non-command functions were removed and a 1944 unit structure had only 32 personnel, purely for command and control – it was noted they would have to pull any other personnel from their subordinate units. Six HC were activated in the Pacific Theater and sixteen in Europe (there were none in the Mediterranean). The HC centralized receiving and evacuation, supply, utilities, sanitation, transportation, laboratory, and guard activities. They were intended to oversee 5-7 hospitals, but at times handled up to eleven.

In Britain, HC were directed to “act as Headquarters for a group of general hospitals; to correlate and coordinate their activities, to relieve them insofar as possible from administrative details and supply problems; to supervise evacuation and reception of patients; and by frequent inspections, to aid and assist them in maintaining the highest possible degree of professional, administrative and training excellence.” (Available sources do not have the numbers of all HC activated in WWII, but they included 12, 15, 26-28, 801-4, 811-2, 814-5, and 818-21.)

During the Cold War HC mostly returned to the reserves. Two were kept active to administer TDA hospitals and MEDDACs (then called medical support areas), the 819th in France (through 1968) and the 9th Hospital Center in Germany (until 1970, when MEDCOM-Europe took over). The 627th was formed in 1965 and deployed to Japan to coordinate the hospitals (totaling 3,700 beds) that were deployed there to support operations in Vietnam. The hospitals in Japan would eventually treat over half the wounded that left Vietnam, most of whom returned to duty). In Germany, the 9th HC was the largest AMEDD unit, with 113 subordinate units and covering 50,000 square miles. It could not have operated according to its TO&E, which called for only 42 personnel. The HCs in the reserves did not deploy, although one was activated in 1970 for Operation Graphic Hand, military support to replace striking postal workers in New York City. Another HC had some personnel mobilized during Operation Desert



The 818th Hospital Center at Camp Drum, NY, 12-26 July 1953.

Shield, but the unit was not mobilized. By the mid-1990s some hospital centers had been converted into Medical Brigades and the rest were inactivated presumably because doctrine no longer envisioned deploying large numbers of hospitals. The Medical Force 2000 redesign deleted hospital centers, and also medical groups; medical brigades and battalions would be the command echelons.

In all these cases, hospital centers were immobile units, intended to command other immobile units well behind the front lines. The new generation of hospital centers is intended to command mobile units in the combat zone. They have 27 personnel to command up to two field hospitals and augmentations, potentially totaling 240 beds. As implied in the name, field hospitals are mobile, and hospital centers have to be mobile too, including commanding hospitals in widely separated places. The name is the same, and some hospital centers are being numbered to recognize the work of their predecessors, but the task is different.

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## A Corps Surgeon's Office, as it started

On 11 February 2020, the Army reactivated V Corps to improve synchronization of U.S., allied, and partner formations in Europe to promote regional stability and security. V Corps had been organized in 1918, conducted three campaigns in WWI, and five in WWII. It was inactivated in 2013 as part of reorganization to make U.S. Army Europe a more agile force.

In WWI the Army reorganized, adding corps and army headquarters to oversee the large number of troops. The Army had not had corps since the 1898 war with Spain, and those corps were nothing like the organizations that were started in France. The new ones routinely had over 100,000 combat soldiers, plus support units. Naturally, the HQ was larger than before.

One result was a robust surgeon's office to handle AMEDD matters. There were five officers (the surgeon, his assistant, an XO, a sanitary inspector, and the commander of the corps sanitary train) and thirteen enlisted men (three sergeants, eight privates, and two field clerks – a position that would become warrant officers). To provide clinical expertise, consultants were authorized in internal medicine, neuropsychiatry, urology, orthopedics, and gas warfare. These positions were not always filled, and could be filled by double-hatting someone in a subordinate unit. The Corps Surgeon was both a staff officer and exercised command (on behalf of the Corps commander) of the corps' medical units. This dual role of staff and command would continue through the Korean War but staff and command roles would be split in the early 1960s. The corps 'owned' a sanitary train of 4 ambulance companies and 4 field hospitals (roughly equivalent to ASMCs) that provided medical support for non-divisional units and provided more capacity for evacuation and treatment from frontline units.

The corps surgeon's office had to be mobile, and was advised to keep minimal papers, only "a loose-leaf file, and diary (data for his final report)", and information on the medical officers assigned in the corps. All the office equipment needed to fit on a single 3-ton truck.



As the first surgeon of I Corps, COL Jay W. Grissinger, MC, was the first Corps Surgeon in WWI. He had been Division Surgeon of the 42d Division and later was Army Surgeon for 3d Army and American Forces in Germany. Courtesy National Library of Medicine.

## “Doc” Ortega’s Baptism of Fire

### Scott C. Woodard, ACHH

*By direction of the President, under the provisions of the Act of Congress approved 9 July 1918, a Silver Star for gallantry in action is awarded to Private First Class Henry J. Ortega, United States Army, who distinguished himself by acts of heroism on 27 March 1968. While conducting a reconnaissance force operation in the vicinity of Hue, Republic of Vietnam, Company C, 1st Battalion (Airborne), 327th Infantry was attacked by an undetermined size North Vietnamese Army force. The enemy employed automatic weapons and machine guns in their assault. In the initial stages of the fire fight that ensued, one man was killed and two were seriously wounded and were lying in an open area completely exposed to the murderous enemy fire. A platoon medical aidman, Private First Class Ortega, dashed forward across the bullet swept terrain to render aid to his fallen comrades. With complete disregard for his own personal safety, and the bullets that pitted and raked the ground around him, Private First Class Ortega remained in his position to administer aid to the stricken troopers. Realizing he must move the wounded to a more tenable location, he laid his weapon aside to allow him to carry them to safety. Private First Class Ortega made two trips through the seemingly impenetrable wall of fire to drag the troopers to safety. After making the wounded as comfortable as possible he returned to the fire fight to offer words of encouragement and rally the troops. Once the attack had been broken and the enemy had been routed, Private First Class Ortega supervised the orderly evacuation of the dead and wounded. Private First Class Ortega’s personal bravery and devotion to duty were in keeping with the highest traditions of the military service and reflect great credit upon himself, his unit, and the United States Army.*

Hank Ortega conducted 11 separate oral history interviews with the US Army Medical Department Center of History and Heritage. After much cajoling and fighting, he finally relented to discuss his role in the awarding of the Silver Star. His actions, according to Ortega, were in line with anyone just doing their job. An Air Force brat, Hank Ortega volunteered for service as an Army paratrooper in 1966 soon after the deployment of conventional forces into South Vietnam. He was 18 years old, arrived in the combat zone on 10 February 1968 and reported to the 1st Battalion (Airborne), 327th Infantry Regiment, 1st Brigade, 101st Airborne Division. Assigned as a line medic with C Company, within weeks of his arrival, his baptism of fire began on 27 March 1968.

Inside the humid and bug infested platoon perimeter, two radio telephone operators positioned on one side of Ortega as the platoon lay in a deliberate L-shaped ambush. The hand mic cable from the radio men crossed in his view up toward the platoon sergeant on his other side. The usual sounds of the jungle insects, lizards, and occasional monkey were interrupted with a bang. It always started with a bang. A claymore mine initiated the ambush attack on a combat patrol of the North Vietnamese Army. Screaming Eagles barked orders to engage the enemy now desperately fighting in a counter attack to flee the kill zone. Within the counter movements and dissipation of black smoke, an American soldier was dead almost on top of Ortega and his aid bag. The combat medic relayed,

That was one of my first firefights. I just was kind of overwhelmed at the end of it. During it I was bustling from one guy to the next and running over here to this, running over there to that ... Patching this guy up, patching that guy up, asking this guy to help me patch somebody else up. The platoon sergeant had gotten hit in the head ... he was standing right next to me. He was standing up and I was laying down and he just fell right there and his helmet rolled off. There was an explosion and it blew my helmet clean out of reach. So I reached over and grabbed his ... and I put it on my head and ran over to where there were some other guys that were hurt...



Former Specialist Fifth Class Henry Ortega conducted a series of oral history interviews in October and November 2018. In this photograph, “Doc” Ortega is holding an image of himself as a Tiger Force medic circa August 1968.



In the melee, Ortega rushed to a wounded buddy among a hail of bullets. He stated, “Any sort of activity involving shooting and explosions ... everybody gets down behind cover. But as soon as they say ‘medic’ you’ve got to jump up and move forward.” Kneeling over his patient, the bullet appeared to enter through the inside thigh and exit the right side of the buttocks. Fear of severe internal bleeding raced through his mind. In the corner of his vision, Ortega also saw another comrade who was killed outright. Private First Class Ortega instructed a sergeant in providing treatment for another wounded infantryman’s shoulder who was now in the lap of his noncommissioned officer. Upon stabilizing his first patient, Ortega inspected the shoulder wound of the other paratrooper and provided them further movement back. Upon returning from releasing those two casualties, two more soldiers with minor wounds awaited repair. All four wounded and the dead were extracted with a jungle penetrator through the thick jungle canopy. Again, immediately returning to his location in the initial attack, Ortega continued to engage the enemy. Upon his return, his comrades were in disbelief at his fortune as they had seen him running in the swarm of bullets. “I looked at my shirt ... I always wore my shirt open, it was so hot and muggy – that was one of the first times I found holes in my shirt where they had been shooting at me.” The platoon cleared the area and Ortega explained “after the fight was over I went and found my helmet and traded it back.”

When asked about his job and the relationship he formed with his fellow soldiers, Ortega reflected, “The guys call you Doc. And for myself, I don’t know if this is true for anybody else, but I tried to earn that. I tried to be worthy of that name.” Ortega painted a picture that many readers may find familiar where combat creates a bond where you can count on the other person beside you when times get tough. “When the guys holler ‘medic,’ I tell them ‘I’m coming’ and I’ve already got two steps into it before I could get that out. That was my job, and I took to it.” The mutual respect and honing of your medical craft is deemed extremely important to the now retired physician assistant. Looking back, his year of combat between C Company and later, the famous and highly selective Tiger Force, Hank Ortega recalled,

The infantry guys already want to love you. They already do. They already want to like Doc. But if you’ve got it together and you are worthy of that name it’ll pay off in spades, because every second that you’re exposed to fire they’re going to do their best to protect you. They are going to do their best. When you’ve got a bunch of well-trained infantrymen doing their best it doesn’t get any better; that’s how I came home alive.

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## New ACHH Archival Donations

- USB containing videos featuring the 109th Evacuation Hospital (Semi-Mobile) during World War II
  - World War II Veterinary Corps Army Regulations
  - Copies of congressional documentation from MG (Ret) Surindar Bhaskar, Assistant Surgeon General and Chief, Army Dental Corps.
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## The Cachet

### Chuck Franson, AMEDD Museum

There are many ways of dosing a patient with medicine. Common oral dosing forms include liquids and pills, but sometimes the amount of medicine exceeds the carrying capacity of a pill, and liquid forms are not possible. In addition, many substances are unpalatable, so the patient may be noncompliant.

An early solution was to encase the substance in thin rice or wheat paste sheets, folding it over like an envelope. Unfortunately, these often came unfolded, resulting in medicine sticking to the mouth or throat. As early as 1817, attempts were made to make individual “shells” for the medication, but it was rather time consuming. In 1872, French pharmacist Stanislaus Limousin developed a method to produce small round concave pockets, or “cachets”, easily and quickly. This simplified the process, enabling practitioners to efficiently create large numbers of dosage units. The cachet was molded from a thin wheat or rice paste sheet, with matching tops. These were placed in a series of holes in a wooden or metal plate. The medicinal substance was placed in each cachet, the edges moistened, and the tops put on and pressed together tightly, using an upper plate. This resulted in a neatly sealed dosage unit, which could be dispensed to the patient, with directions for use.

The cachet was consumed by first dipping briefly in water to soften it, then placed in the mouth and quickly washed down with water. The disadvantage lay mostly with the fragility of the cachets, leading to the adoption of the modern gelatin capsule once the ability to create and fill large quantities of capsules was developed. (Development paralleled the use of cachets for a number of years). While the cachet was a common dosing form in Europe, beginning in the 1870s, it did not catch on in the U.S. until the 1890s, lasting until the 1920s. The U.S. Army found the cachet to be an excellent way to deliver doses of quinine in Panama. Following extensive experimentation during the First World War, physicians of the American Expeditionary Forces discovered that cachets were superior to compressed tablets and injections as a method for administering emetine in the successful treatment of amebic dysentery, achieving a cure rate of near 100%. This remained the preferred treatment in both the Army and Navy through the 1920s.

The AMEDD Museum has a “Morstadt” “Wafer Cachet” machine, made by the Thomas Christy Company of London, dating from around 1900. It consists of hinged plates, with holes for three different cachet sizes. The cachets were placed in the bottom plate, and a thin plate was placed over them. Each was filled with powdered medicine, using an appropriately sized funnel, and tamped down with a thimble. The thin plate was removed, the edges of the cachets were moistened, and a cap placed on each. The upper plate was then lowered, and the cachets sealed. Each was then punched out of the plate, and dispensed.



(Top) the Morstadt wafer cachet apparatus. In the top of the case are instructions on how to take the cachet without having it dissolve. (Bottom) instructions on how to make the cachets.

The upper plate was then lowered, and the cachets sealed.

please contact the AMEDD Museum Director: [usarmy.jbsa.medcom.mbx.amedd-museum@mail.mil](mailto:usarmy.jbsa.medcom.mbx.amedd-museum@mail.mil). The museum is seeking items used in patient care that were either field developed, or field modified, as well as field-made posters or signs used in Army staffed locations. These should relate to the unit, mission, or COVID directly.

Please let us know your thoughts. We would like to hear your comments and are always seeking new articles for publication.

History: <http://history.amedd.army.mil/>

The AMEDD Regiment: <http://ameddregiment.amedd.army.mil/>

The AMEDD Museum: <http://ameddmuseum.amedd.army.mil/index.html>

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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### Writing for *The AMEDD Historian*

We are seeking contributions! We believe variety is the way to attract a variety of audiences, so we can use:

Photos of historical interest, with an explanatory caption

Photos of artifacts, with an explanation

Documents (either scanned or transcribed), with an explanation to provide context

Articles of varying length (500 word minimum), with sources listed if not footnotes/endnotes

Book reviews and news of books about AMEDD history

Material can be submitted to [usarmy.jbsa.medcom.mbx.hq-medcom-office-of-medical-history@mail.mil](mailto:usarmy.jbsa.medcom.mbx.hq-medcom-office-of-medical-history@mail.mil)

Please contact us about technical specifications.

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### AMEDD Center of History and Heritage

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