The AMEDD Historian

Contents

Welcome to Issue #47 of The AMEDD Historian! In this issue we largely focus on Operation Market-Garden, the largest airborne operation in WWII. From personal stories, unit reports, examining medical equipment used by parachute units in action, and analysis, we are able to provide an accurate overview of the operation and its medical support. In addition to Operation Market-Garden, there are additional articles to review.

As always, please let us know your thoughts, or contact us about questions. We would like to hear your comments and are always seeking new articles for publication.

Some of the thousands of Allied paratroopers landing on 17 Sept 1944 as part of Operation Market.
U.S. Army photo.

Operation Market-Garden

Operation Market-Garden was a significant military campaign that took place from September 17 to 25, 1944. It was an Allied plan to strike into Germany from the Netherlands, bypassing the Siegfried Line, a heavily fortified sector of the French-German. The intent was to end the war by Christmas of that year.

It was named "Market-Garden" because it consisted of two parts: "Market" was an airborne operation, where over 34,000 troops were dropped behind enemy lines, while "Garden" was the ground part, with the British XXX Corps supposed to quickly link up with the airborne forces.

The plan was ambitious and risky. Airborne forces needed to capture a series of bridges over Dutch rivers and canals, creating a "corridor" that would allow the British tanks to advance quickly towards the Rhine River and then cross into Germany. A combination of the shock of breaking into Germany quickly and promptly exploiting across north Germany would break the German will to resist.

The operation started well, with the British 1st Airborne Division (later reinforced by the Polish 1st Independent Parachute Brigade) landing near Arnhem and securing the northernmost of the series of bridges. However, they quickly faced intense German resistance, and communication and supply issues. The British XXX Corps,

despite initial successes, encountered unexpected German resistance and struggled to reach the British paratroopers at Arnhem. Far more German troops were in the area than Allied intelligence had realized, and they fiercely counterattacked the corridor of airborne troops, causing the nickname of "Hell's Highway." The Allied forces found themselves outnumbered and attacked on several sides. The battle for Arnhem was particularly brutal, with British forces soon surrounded. Despite heroic efforts, the British forces could not hold the bridge at Arnhem, and the operation ended in strategic failure.

The Allies suffered heavy losses, with over 15,000 casualties; the bridge at Arnhem remained in German hands until the following spring. Critics argue that the operation was overly ambitious, and its failure stretched Allied resources, delaying the end of the war. Eisenhower had prioritized Market-Garden, which reduced supplies available to forces advancing to the German border; this caused still further casualties as the Germans had more time to organize their defenses in the Siegfried Line. Operation Market was the largest airborne operation of WWII. Despite the failure, the operation is still remembered for its audacity, bravery, and the sacrifices made by Allied soldiers.

Medical Support for Operation Market: Overview

Medical planners had learned from experience in Normandy. Support with troops had been barely adequate, and for Market it was reinforced from divisional medical units, for instance adding jeeps and trailers for evacuation and medical supply to regiments. To fill the gap, the U.S. attached hospital elements to each airborne division, plus surgical teams. (The hospital received no specific training for this mission, and their first glider trip was flying into action.) Air-dropped medical supplies proved troublesome in Normandy, although the daytime drop in Holland should reduce the amount that was lost, and more was dropped early. Also, bringing the hospitals in by glider would bring more supplies. Ground resupply was anticipated from D+3. However, the airborne medical units would be caring for wounded from British XXX Corps if the ground lines of communication were ever cut. Perhaps to offset this, there were plans to use civilian hospitals as soon as those were liberated, although they would not rely on Dutch civilian medical personnel to help.

There were no problems on D-Day, and on D+1 121 gliders brought the hospital elements and surgical teams. There was plasma and whole blood, penicillin and sulfa drugs. British and American medical units helped each other when needed, not just with ground evacuation but with treatment. Clearing the hospitals was never easy: roads were full of traffic moving forward, and German fire could delay or attacks could block traffic. Air evacuation was interrupted by weather, and was truly effective only after the main operation was over. From D+3 some Dutch civilian medical personnel helped, very useful because the casualties were heavier than anticipated – the two American divisions suffered 3,544 casualties or 394/day. The first day the main U.S. hospital was operational (the 400-bed 24th Evacuation Hospital) it received 512 patients. By the time the operation had culminated, penicillin and medical oxygen were in short supply, and surgical teams were overworked.

Sources
Stephen Craig, British & American Medical Support for Operation Market-Garden, staff ride guide.
Stephen Craig, "A Medical Bridge Too Far: Medical Support to Operation *Market-Garden*, September 17-26, 1944**"** in John Buckley and Peter Preston-Hough, eds, Operation Market Garden: The Campaign for the Low Countries, Autumn 1944: Seventy Years On (Solihull, West Midlands: Helion, 2016), 170-183.
Graham Cosmas and Albert Cowdrey, Medical Service in the European Theater of Operations. Washington, DC: U.S. Army Center of Military History, 1990.

Interview with Albert J. Crandall, Major, M.C.

[Crandall had jumped into Normandy, attached to the 101st; for more, see AMEDD Historian newsletter #46.]

Then we returned to England, to the same barracks we had previously occupied. At this time we began a period of reorganization. We had learned many things from our experiences in the Normandy Campaign. For example, we had learned that a well-organized surgical service is absolutely essential to such an operation. The ordinary setup of the medical clearing station is not adequate. It cannot handle the medical care for an airborne mission, because when the unit is isolated, it must act as a field or evacuation hospital. It is essential to set up the various departments – triage, shook, preoperative, operative, and postoperative - because there is no way of estimating how long the unit will be isolated.

Of course, we discovered many instruments that we needed, particularly for anesthesia. We also accomplished a reorganization of the surgical service within the medical clearing company. This was all built around the surgical team. We tried to organize the personnel into teams that could care for certain types of cases. We were fortunate in getting some replacements who had had surgical training. We had problems and briefing for missions and checked as far as possible on the results of our work in Normandy, through the general hospitals in England. We also checked the results in general in the theater, so that we had a broad view of the surgical picture.

We decided that it was of prime importance to have surgical personnel who were capable of major surgery. This type of personnel were obtained just before we set out on our next mission. Only a short time before we left the First Auxiliary Surgical Team and one platoon of the 50th Field Hospital were attached to the medical company. We told them about our experiences and worked with them and organized the unit as well as possible.

On 17 September we again left England on an invasion mission. Again we were with the 101st in the first assault wave, but this time there was a larger medical echelon in the assault wave. We used six gliders, three of which carried personnel exclusively and three equipment and some personnel. Instead of the eight men that were sent in on the assault wave in Normandy to handle the medical care, we had ten medical officers, two [Medical Administrative Corps officers], and approximately thirty enlisted men.

At 1345 on 17 September we landed at Zon, Holland, (again a crash landing) with only one injury being sustained in the entire group, and that was a comparatively minor knee and ankle injury which I suffered. We set up a station there, close to the field on which we landed. This was a daylight mission, the planes were close together, and we didn`t have quite as much enemy opposition as we did in Normandy, at least, there wasn`t nearly as much after we hit the ground, although the flak was heavy on the way over.

We set up with two tents and took care of all emergency treatment. Then through a regimental surgeon we learned of a tuberculosis sanatorium in Zon, which was very modern and could be used for our purposes very well, and so two of us went into Zon and made the necessary arrangements with the town officials for the use of the hospital by our men. The Dutch Catholic order which was running the sanatorium gave us permission to use their facilities. At 2000 or 2100 that evening we moved in and set up our surgical station there, and within half an hour we were in operation.

As in Normandy, the initial flow of casualties was very heavy, and even though our staff of medical officers numbered ten, it was still inadequate. The second wave didn`t arrive for about twenty-eight hours, but the casualties from the first wave kept us busy. We operated steadily, using the priority system, and gave everyone emergency shock treatment. We worked continuously the second wave arrived. Our personnel was then greatly augmented, because in this wave was a platoon of a field hospital as well as personnel of the medical clearing station and most of First Auxiliary Team. (Only one member of this team had accompanied me in the first wave.)

I feel that results were very good throughout that campaign. We worked at Zon for three weeks. Fortunately, our chain of evacuation was established to the 124th Evacuation Hospital, of which Colonel Graham was the chief surgeon. The intervening distance was considerable, about forty or forty-five miles over rough road – between Zon and Bourg-Leopold, Belgium. As I recall, the first ambulance came through late in the afternoon on 21 September. However, there was no evacuation of any consequence until the 23d or 24th, and even then it was very limited, because our troops had secured only a very narrow corridor, with enemy positions on either side of the highway. It was a very rough trip for the casualties, and so we held all major casual-

ties, such as the abdomens, at our station.
The mission of the 101st, like that of any airborne division, was to disrupt lines of communication, to stop reinforcements, to take strong enemy positions, and more or loss to create havoc in the enemy positions. Their particular mission was to take the bridge across the Wilhelmina Canal. They took the city of Eindhoven and several enemy positions in that area. Soon they established a corridor between Eindhoven and Nijmegen for the British Second Army. Meanwhile, the British 1st Airborne Division had landed at Arnhem and had suffered terrific casualties. Almost every man was wounded, captured, or killed. The operations of the 101st were entirely successful. They carried out their mission completely.

Over three thousand casualties passed through our station. The number of wounds was actually about twice that figure, because shell fragments caused a minimum of two injuries per person many of the casualties had as many as a dozen wounds. The surgery, in both Normandy and Holland, ran fourteen to sixteen percent head cases, twelve to fourteen percent chests, four to six percent abdomens, and the rest extremities. These percentages are similar to those in other operations. We had more fractures from jump casualties than usual; for instance, there were more leg, back, and ankle injuries than would occur in an infantry outfit. Aside from those, the typical of those seen on any war front. From our station we returned a number of the minor wound cases direct to duty. We always tried to do that in that type of operation, because it was so difficult to get replacements. It would be very difficult to estimate what percentage of cases were returned to duty in our area. Many of them, returned from the battalion and regimental aid stations, we never saw, because those who were brought in to us were mainly major surgical problems and cases that would ultimately be evacuated. I should judge that the percentage whom we returned to duty would be about ten percent.

Our station also received some combat fatigue cases, which were treated by a qualified psychiatrist whom we had with us. The majority of the medical cases were also returned to duty. Since the time element is very important in surgery of the chest and abdomen, we performed these operations there at the station. During the period that we were isolated we operated on every type of surgical patient, rather than take a chance on possible loss of patients through delay.

After approximately twenty-one days at Zon we moved to Nijmegen. The evacuation hospital remained at Bourg-Leopold and our cases now had to be evacuated seventy miles, so that even more than before we had the problem of evacuation. Frequently the enemy would make a night thrust and nip off the corridor. The following day the road would be reopened again. We still evacuated through the 124th and maintained contact with Colonel Graham. We asked him for suggestions and criticisms and he assured us that our results were very, very good, fully as good as any he had seen in other sectors.

We were able to use positive pressure anesthesia, which permitted us to do exploratories on chests, to go into the thoracic cavity in order to take care of the injury. We had a very low mortality rate on this type of case. There were only two or three of these thoracic cases that reached surgery that didn't survive. The ones who did not survive were very severe injuries, of the type that couldn't have been saved anywhere. With the abdominal cases results were excellent. Almost all the cases that reached surgery survived and were evacuated to the 124th. Altogether, the deaths that occurred among the surgical cases were comparable in number to those in other areas. During the time that I spent in England I covered almost every sector and studied their work, and I was convinced that major surgery can be done in airborne operations just as well as it can be done in any sector.

At Nijmegen we established the hospital in a convent school which during the German occupation had been used as a barracks. There were several large buildings in the group. We selected three of them and up a very satisfactory station, with all the necessary departments–admission, triage, operative, postoperative, and shock. We also had medical and combat fatigue sections. There were many combat fatigue cases. Many of these, I believe, were returned to duty after treatment.

We operated there until either late in October or early November, when, although the hospital was plainly marked, we received 4 direct hits which caused total destruction. We lost many of our medical personnel, none of them surgical, however. Many of the men from medical clearing company were killed or injured and also several from the ambulance company that was attached to us at the time. Again we were fortunate in that we had evacuated a number of our casualties the previous day, and we had reached a point in the campaign when the casualties weren't very heavy.

Next we moved to a monastery where we set up a small station to take care of minor cases. By then the area was well secured and the 124th had moved up to Nijmegen, where they established in an old German

hospital. They took care of major surgery there. The platoon of the 50th Field Hospital acted as a small clearing station rather than as a unit giving actual treatment.

— 27 July 1775 —

Headquarters 326th Airborne Medical Company 11 December 1944

SUBJECT: After Action Report.
TO: COMMANDING GENERAL, 101st Airborne Division, APO 472, U.S. Army.

The 326th Airborne Medical Company was committed on the Holland Mission in two waves. The first wave, consisting of six CG-4A glider loads transporting, two (2) trucks 1/4 ton, two (2) trailers, and fifty-two (52) personnel, departed from Ramsbury Airport at 1030 and landed at Zon, Holland at 1345 17 September 1944. The second wave consisting of fifty-four (54) CG-4A glider loads, transporting thirty-one (31) trucks 1/4 ton, twenty-three (23) 1/4 ton trailers, and two hundred nineteen (219) personnel departed Welford Airdrome at 1125 and landed at Zon, Holland at 1440 18 September 1944.
The flight was made without incident on the part of both waves except for light to moderate "flack" encountered in route to the glider landing zone. No personnel were wounded while in the air, no loads were lost, and all equipment arrived in the glider landing zone in serviceable condition.
In the initial wave the two trailers were loaded with two ward tents and the necessary equipment to set up two operating tables. Electrical power, in the form of two field generators, were also transported in these two loads.
The gliders were unloaded immediately and no difficulty was encountered in getting the equipment out of the gliders. The treatment of casualties was begun immediately by the officer personnel while the enlisted personnel were setting up a temporary station at the southern portion of the glider landing field. Casualties began arriving at the station at 1500. By 1700 the tents were in full operation, and the first surgical operations were being performed.
At 1800 the hospital at Zon, Holland was taken over by the company and the equipment and personnel was moved in by 1900. The treatment of casualties was carried on then under ideal conditions. By 2400 17 September 1944, 107 casualties had been admitted to the station.
The second wave was met as it came in on the glider landing zone on 18 September 1944, began the immediate treatment of landing casualties, was assembled, and arrived at the hospital at 1600.
The litter bearer and ambulance sections were sent to the respective regiments the night of 18 September 1944.
By the morning of 19 September 1944, contact had been established with the combat troops at Vechel, and the attached platoon of the 50th Field Hospital was sent to establish a station at Vechel. On the afternoon of 19 September 1944 the 493rd Medical Collecting Company established contact with the company at 1500, and at 1610 sixty (60) walking wounded were evacuated to the 24th Evacuation Hospital. Due to the moving of traffic north, no further evacuation to the south was accomplished until 0615 20 September 1944 at which time evacuation to the rear from Zon was non-interrupted. During the 20th of September the unit had 30 ambulances and 14 2½-ton trucks were available for evacuation to the rear. Since that time this unit had 10 ambulances for evacuation.
On 21 September 1944 at 1500 one surgical team was sent to Vechel to assist the platoon of the 50th Field Hospital located there. This unit having previously been attached to and working with the 326th Airborne Medical Company.
On 25 September 1944 at approximately 1600 the road between St. Oedenrode and Vechel was cut by the enemy. Evacuation from Vechel south was impossible until approximately 2200 26 September 1944.
On the 3rd of October reconnaissance of the Nijmegen area was made prior to moving the company to this location. On 14 October the platoon of the 50th Field Hospital was moved to Nijmegen from Vechel, and the

following day was sent across the Waal River to establish a station and to support the troops located on "The Island".

On 5 October the medical company was moved to Nijmegen by motor convoy to establish and operate a hospital. The first casualties were received at the new location at approximately 0600 6 October 1944.

On 22 October 1944 the company received the first of a series of a new type of casualty. This patient had a traumatic amputation of the left foot as a result of the explosion of a German Shu [Schu] Mine. During the period of 22 October 1944 to 29 October 1944, eighteen (18) such casualties were received at the station. Those casualties were in deeper shock than any other type of casualty received during the entire operation. Two of these casualties died as a result of shock before any definitive surgical procedure could be performed upon them. Practically all of the amputations occurred at the level of the middle of the leg. An unusual feature noticed was that practically all of them were left lower extremity injuries.

The company continued to operate a hospital in its initial location at Nijmegen until 1330 29 October 1944, at which time the station was bombed. Since the station had been struck by anti-personnel bombs at 1000 and by rockets at 1130, it was deemed advisable to move the station to a new location following the bombing which had rendered the building untenable due to the fact that all of the windows had been blown out.

The Company suffered three (3) killed and six wounded as a result of the bombing. In addition, two (2) attached personnel were wounded. The 493rd Medical Collecting Company, which was evacuating the 326th Airborne Medical Company, lost two (2) men killed and fourteen (14) wounded. At the time of the bombing two trucks from the 397th Quartermaster Truck Company were in the station delivering rations. Three members of this unit were killed as a result of the bomb explosion.

The Company was moved to the area occupied by the 24th Evacuation Hospital where it spent the night of 19 October 1944. The following morning it was moved to the Division Rear CP where it continued to operate.

At 1800 14 November 1944 the platoon of the 50th Field Hospital was relieved from duty on "The Island" and was brought to the Division Rear CP. The following day this unit was sent to Mourmelon, France. At the time of relief of the platoon of the 50th Field Hospital; personnel from the company, consisting of two (2) officers and twenty (20) men, established a station in the location formerly occupied by the platoon of the 50th Field Hospital. This personnel was rotated every 48 hours.

This station was closed 27 November 1944, as the last combat troops of the division were cleared, completing seventy-one (71) continuous days of combat medical service in Holland. At this time the entire unit was enroute to or closed in Camp Mourmelon, France, with the exception of one officer and three enlisted men who remained at Nijmegen, Holland to furnish medical coverage for the Division Rear Detachment. This group closed in Camp Mourmelon 1 December 1944.

The Company treated and evacuated a total of three thousand one hundred fifty six (3156) casualties. United States casualties two thousand six hundred fifty three (2653), Allied, civilian and enemy, five hundred and three (503), during the operation.

The 326th Airborne Medical Company suffered the following casualties:

	Officers	Enlisted Men	
Killed in action	2	1	
Missing in action	0	1	
Seriously wounded	0	2	
Lightly wounded	0	5	
Absent sick	0	4	

[Signed]

WILLIAM E. BARFIELD,
Major, M.C.,
Commanding.

326th Airborne Medical Company personnel at the collecting station of the 501st Parachute Infantry Regiment, Veghel, Holland, 19 September 1944.

Courtesy WW2 US Medical Research Centre (www.med-dept.com)

Medics of the 326th Airborne Medical Company with lightly-wounded patients, Veghel, Holland, 19 September 1944.

Courtesy WW2 US Medical Research Centre (www.med-dept.com)

101st Airborne Division

SUBJECT: Annual Report, Medical Department, 101st Airborne Division.

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2. Operation 'Market' commencing 17 September 1944

a. The regimental and battalion medical detachments entered combat with the following personnel strengths: parachute regiments - nine (9) officers and seventy-seven (77) enlisted men; glider regiments - nine (9) officers and one hundred and nineteen (119) enlisted men; engineer battalion - two (2) officers and nineteen (19) enlisted men; antiaircraft battalion - one (1) officer and twenty-three (23) enlisted men; field artillery - eight (8) officers and forty-nine (49) enlisted men. The T/E requirements for these units was revamped and augmented on the basis of the experience gained in Operation "Neptune". Pack boards were found to have been impractical and the recommendation, was made to supplant them with one (1) truck ¼-ton, 4x4, and one (1) trailer ¼-ton, cargo. Litters, blankets, shell dressings, plasma and copper sulfate sponges were carried as in Operation 'Neptune'. The medical personnel entered the combat area in echelons. All medical detachments accompanied their units either as glider or parachute elements.

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c. The Division Surgeon`s Office consisted of three (3) Officers and two (2) Enlisted Men. This personnel landed by glider at Zon, Holland on 18 September 1944 in accompaniment with the 326th Airborne Medical Company.

d. The Division Medical Supply was allocated one (1) 2½-ton truck for combat use to carry in a minimum of three (3) days medical supply and to arrive in the combat zone by sea.

e. The aerial medical resupply calculated for three (3) days requirements was set up in one hundred twenty (120) A-5 aerial delivery containers at United Kingdom airdromes.

f. Casualty Rates:

1. Appendix 2 shows the number of individuals by day treated in medical installations of the division from 17 September 1944 to 29 November 1944. The graph is broken down into Battle Casualties, Injuries (non-battle), and Disease. The totals for this period are as follows:

Total Battle Casualties	3042
Total Injuries	108
Total Disease	820
Aggregate	3972

2. The total number of exhaustion cases (Neuropsychiatric) sustained during this period was one hundred fifty-one (151) and is contained in the above figures under "Disease". The other diseases were ordinary "run of the mill" type seen in garrison.

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4. The jump casualties sustained made up only 1% of personnel jumping.

5. Casualties that died while being treated in a medical installation of the division totaled forty-one (41).

6. The above figures do not include those casualties of the division treated by medical personnel outside of the division.

e. Loss of Medical Personnel.

1. The strength of medical personnel committed to combat was as follows:

75 officers -- 689 enlisted men

2. Of the total number of officers, the losses sustained are as follows:

Killed in action	2
Evacuated	5
Missing in Action	2
Captured	
Total	9
Percentage loss	12

3. The enlisted personnel lost in combat are as follows:

Killed in action	25
Evacuated	78
Missing in action	13
Captured	
Total	116
Percentage Loss	16

— 27 July 1775 —

Loading a medical unit's jeep on a glider, England. Photo courtesy National Archives.

Headquarters 82nd Airborne Division

SUBJECT: Annual Report of Medical Department Activities.

Medical Service in Operation 'Market'

1.Based on experiences in Normandy the following plan was evolved for medical service for the operation.
a. Increased support to the parachute elements by means of a glider lift of second echelon medical personnel and equipment, to accompany parachute lift.
b. Plan for clearing element to be self-sustaining for life-saving surgery, holding patients and preparation of casualties for transportation when evacuation became available.
c. Air resupply to continue service beyond seventy-two (72) hour basis of a and b above.
d. The higher command attached a platoon of the 50th Field Hospital to the organic medical unit for additional medical support, in addition to the two surgical teams requested.
2.In execution, the glider lift with the parachute element was not feasible due to tow craft shortage. Eleven parachutists of the medical company were dropped and by means of captured vehicles and with the aid of the medical detachments of the parachute combat teams, casualties were collected as much as possible in one area awaiting arrival of the medical company and attachments. Twenty-four hours following the initial drop, all second echelon medical service arrived by glider. The collecting detachments were dispatched to the units and evacuation began to the clearing station located in a field two (2) miles west of the village of Grosbeek.
The clearing station was composed of the clearing element of the medical company and the platoon of 50th Field Hospital operating one station. Forty-eight (48) hours later the station was moved to the south of Nijmegen in a Jesuit school being prepared by the Germans for a 'Hitler Mother' obstetrical hospital. Here they remained throughout the campaign.
The first evacuation was available D+3 and approximately two hundred (200) casualties were evacuated. Due to enemy action evacuation was interrupted from D+6 to D+10. Since that time evacuation has been adequate. On D+17 a C-64 transport was made available by the Division Air Office for the evacuation of priority cases to the airfield at Brussels. This aircraft carries three (3) litter cases. To date twelve (12) cases have been evacuated this way.
Supply by air was not adequate to resupply the needs of the medical service. The exact cause is not known, probably a combination of causes. Many items requested were either not dropped or not recovered. As a result there were some shortages, though in practice adequate care of the casualties was not seriously affected. Once evacuation began all supplies were available and British sources insured adequate supplies for the remainder of the campaign. The generosity and wholehearted cooperation of all the British agencies left nothing to be desired.
3.Some details of the organization and statistics of the operation are of interest.
a. The organic medical detachments of the combat teams accompanied their units, taking first aid equipment which included blood plasma. Their function was to collect casualties and give essential first aid and prepare casualties for transportation. Their work has been superior throughout the campaign.
b. Collecting detachments of the medical company landed by glider D+1 and each consisted of one (1) Medical Officer, one (1) Medical Administrative Corps officer and thirty (30) enlisted men. Four (4) jeeps and three (3) trailers of equipment, requiring eight (8) gliders for air transport. There were four (4) such detachments. Their work has been exceptional. Evacuation has been extremely rapid. Casualties have been in the clearing station regularly three to five hours after being wounded. The work of these detachments has not detracted from the superior work of the unit medical detachments, in fact it only stresses the excellent cooperative effort that is the basis for successful operation.
c. The clearing station has operated as a single unit, though capable of operating as two units if needed, the medical company and 50th Field Hospital each as independent units. The tactical situation has not made this necessary.
The clearing element landed D+1 with eight Medical Officers, two Dental Officers, two Medical Administrative Corps officers and one hundred thirty-three (133) enlisted men plus six Medical Officers and four enlisted men of two surgical teams. Eleven jeeps, twenty-two trailers filled with equipment and 3000 pounds of equipment loose in gliders. Air transport was thirty-five (35) gliders. To date (D+22) 2971 patients have been admitted, 2141 transferred, 391 returned to duty and 85 deaths. Over 100 major surgical procedures and many more minor surgical procedures have been done. Housing conditions have been nearly ideal and the very great

help of the Dutch civilians, nurses etc. has contributed, greatly to the success of this part of the operation.
On D+9 the sea lift arrived and was composed of two Medical Officers, one Dental Officer and twenty-five enlisted men. Fifteen (15) ¾-ton ambulances, six (6) 2½-ton trucks, three (3) ¾-ton trucks, two (2) 250 gal. water trailers, all the trucks loaded with equipment.
On D+8 a small X-Ray unit which is organic equipment of the field hospital platoon was air landed at Brussels and arrived overland.
b. In summary 67 gliders were used to air land the medical service units. There were 27 jeeps, 34 trailers, 18 Medical Officers, 2 Dental Officers, 6 Medical Administrative Corps officers, 268 enlisted men and 10 tons of equipment airborne. Two (2) trailers and their equipment were not recovered. No personnel were lost in the airborne phase.
5.Division Casualties:
a. Following is a resume of the casualties within the organic division that were reported for the total operation:
Battle casualties 2641 of which 1562 were evacuated and 263 were killed in action or died from wounds.
Injury 618 of which 288 were evacuated and 5 died as a result of their injuries.
Neuropsychiatric 261 of which 161 were evacuated.
Disease 1110 of which 436 were evacuated and one died (pneumonia).
6.Comments:
a. The organization as outlined and used can adequately service an Airborne Division in operation.
b. Such a unit should be the organic medical service for an airborne Division with the suggested organization: Designated a Medical Battalion, consisting of Headquarters Detachment of three officers and twenty-two enlisted men. One Collecting Company of 8 officers and 120 enlisted men. One Clearing Company of 15 officers and 130 enlisted men. Total 18 Medical Officers, 3 Dental Officers, 5 Medical Administrative Corps Officers and 272 Enlisted Men.
c. Medical service for airborne operations must be self-contained and dependent upon higher echelons only for supply and evacuation.
d. Air resupply should be standardized for daily delivery.
e. Each parachute combat team should have an accompanying glider lift of 2nd echelon medical personnel and equipment.
f. A sea lift as outlined is an essential supporting element for an airborne operation. In operations not over sea, a similar ground follow up is equally essential.

British tanks of XXX Corps crossing the bridge at Nijmegen, captured in conjunction with 82d Airborne personnel. Photo courtesy National Archives.

101st Airborne Medic recalls Op. Market Garden
By Kevin M. Hymel

"You're crazy to go out there!" a paratrooper shouted to medic Al Mampre as he bolted from a trench outside of the Dutch town of Eindhoven. But Mampre had his mission, and he knew what needed to be done.

When he reached Lieutenant Bob Brewer, who was sprawled out in a field, he sat down next to him. "I'll take care of you," he told the wounded officer. A sniper's bullet had gone through Brewer's neck below his chin. He was unresponsive and jaundiced. Despite the severity of the wound, it did not bleed much. Mampre sprinkled sulfa powder on the wound and covered it with a bandage. After struggling to find a good vein in Brewer's arm, he injected a plasma needle and held the IV bottle aloft. Another medic sprinted out to join Mampre. Then shots rang out. The German sniper, occupying one of four houses across the field, had targeted the three Americans. Mampre heard what sounded like a bottle breaking and looked up at the IV, but it was still whole. Then another bullet clipped the other medic's heel, and he took off for the safety of the trench. Bullets kicked up dust around Mampre and Brewer. Three other paratroopers dropped around them.

Then Mampre felt like a mule had kicked him in his left leg. "My leg was opened up like a roast beef," he said, but, like Brewer's neck, his leg did not bleed badly. "I could see the bone." Mampre gave himself a shot of morphine and then lay down next to Brewer and in his best bedside manner asked, "Lieutenant, are you dead? 'Cause if you're dead, I'm leaving." "No," Brewer whispered, "but I don't know why not." As bullets stitched the ground, Mampre told Brewer he would stay with him.

The two men were in desperate straits. It was their second day of combat in the Netherlands. They had parachuted into the area the day before, September 17, 1944, as part of Operation Market Garden, the Allied attempt to cross the Rhine River with a combined armored and airborne force. Mampre had once been a part of Easy Company, 2nd Battalion, 506th Parachute Infantry Regiment, 101st Airborne Division, but had been promoted to battalion medic before departing for Europe. Now, on his second day in combat, he found himself a casualty treating another casualty.

The entire division had jumped in for Operation Market, the Allied effort to jump the Rhine River in Holland. The 101st Airborne had been slated to capture the cities of Eindhoven, Son, Veghel, and Grave, ensuring the bridges in all locations were intact for advancing British armored forces. Although Mampre did not pack a weapon, he weighed himself down with surgical equipment, including two canteens of ethyl alcohol. Being bowlegged, he strapped equipment between his legs. Once loaded up, he had trouble moving under his burden. "I had to be pushed up into the plane," he recalled. His C-47 took off and headed to its drop zone, while Mampre napped for part of the flight. As the plane reached the drop zone, Mampre saw Lockheed P-38 Lightning fighter planes strafing the field.

Then the order came: "Stand up and hook up!" barked the jumpmaster at the door. When a green light by the door lit up, Mampre charged out with the rest of the men. As he jumped, he saw a blue sky before him and a freshly plowed field beneath him. "It was a nice clean jump," he said. But it did not last long. Mampre was about 75 feet from the ground when a fellow paratrooper fell into his parachute and collapsed it. Mampre dropped like a missile and landed hard. The paratrooper landed on top of him, jamming his rifle butt into Mampre's chin. "Where's the enemy?" the paratrooper called out once he got his bearings. An irritated Mampre responded, "You're standing on him!" It was the first time Mampre did not land on his feet. Mampre had volunteered to jump with a center-release chute button on his chest. He hit it, and his parachute straps fell off. Men hustled off the field while clouds of colored smoke designated the different assembly areas. Mampre soon heard another paratrooper call out, "I can't walk!" He painfully walked over to the man, shot painkiller into his leg, gave him a swig from his medicinal canteen, and told him to follow the blue smoke to his group.

As the paratroopers headed to Son, Mampre noticed well-dressed locals waving flags. Suddenly, an enemy machine gun opened up, and Mampre quickly took cover in a doorway. He noticed a woman's hand out of the corner of his eye. "This woman was feeding me cherries," he recalled. When the machine gun stopped, he took off, never having seen the woman or thanking her.

As Mampre raced through the town, he heard a vehicle engine failing to start. He hustled over to a backyard and spotted a German jumping over a fence, leaving a small pickup truck. Mampre found Easy Company's medic, Private Moore. "He could fix anything," said Mampre. Sure enough, Moore started the vehicle, which was used by the paratroopers throughout the Netherlands.

The Germans had destroyed the bridge over the Wilhelmina Canal, the 506th's objective, forcing the regiment's engineers to improvise a footbridge. By the time Mampre crossed, it was getting dark. He bedded down in a barn. When he woke the next morning, he realized he was next to a huge pig. "If the pig had rolled over me, I would have been flattened," he said.

The 2nd Battalion paratroopers headed to Eindhoven through a lightly wooded area that ended at an open field. Across the field stood four houses. Mampre watched as Easy Company riflemen walked ahead of him. Someone called out, "Medic!" and he asked the battalion surgeon, Lieutenant Neavles, "Why are they calling for a medic? They have four medics in Easy Company." He hurried forward to the wood's edge where several paratroopers occupied a trench. They pointed to an officer sprawled in a field. It was Easy's 1st Platoon leader, Lieutenant Bob Brewer. Mampre went out to help him. That's when a German bullet hit him in the leg and wounded the three other paratroopers. As the five men lay in the field with bullets popping all around, a group of Dutch civilians ran to them carrying a ladder. They pulled Brewer onto the ladder while others treated the four Americans. Mampre gave them his bandages and sulfa powder to treat his leg. One of the civilians picked up Brewer's M-1 carbine and emptied the entire magazine at the house bearing the German sniper. The civilians helped the wounded to their feet.

Mampre worried when the civilians led the small group toward the same houses as the German sniper fire. As they neared the second house from the left, a woman standing nearby shouted, "Tote!"—the Dutch word for "dead." Mampre didn't know if she was talking about the German sniper or a relative of hers. Then Easy Company's Sergeant Myron Rainey called out to Mampre, who was hobbling on his own, "We got 'em!" The sniper, who had been in the fourth house, was dead.

The civilians brought the Americans into the house; Mampre was struck by its immaculate floors. Then he felt the urge to throw up, a common reaction to morphine. He quickly made eye contact with a woman, made a circle with his hands, and pointed at his mouth with the expression that he was going to get sick. She understood and got him a bowl. "I'm not going to dirty her floor," he recalled.

Once everyone was treated, they brought the Americans outside and put them in a cart. Some of the Dutch did not want the Americans to leave, but Mampre wanted to get back to his unit. A Dutch doctor wanted to go to Eindhoven, but Mampre wanted to head to Son where he knew there was a division aid station. The discussion ended when the Germans opened fire on the group. The Dutch hauled the cart toward Son, while Mampre dropped headfirst into a German foxhole. Some Dutchmen pulled him out and threw him onto the wheelbarrow, delivering him to Son.

Mampre arrived in time to see the tanks, trucks, and infantry from the British XXX Corps streaming thought the streets, bumper to bumper. Field Marshal Bernard Law Montgomery passed by in his staff car, waving to the crowds, but Mampre was not impressed. "He looked like death warmed over," he recalled. At exactly 4:30 pm, the British stopped to brew tea. Mampre was shocked. "What are you doing!?!" he shouted at the Tommies. "There are Germans all over here!"

Mampre was brought to a hospital where, surprisingly, he gave a pint of blood. [Taking blood from those identified as lightly wounded was common in WWII.] He was then sent to a mobile hospital in Belgium, where he complained of a constant stinging pain in his inner right thigh, which no amount of scratching cured. Then he noticed two holes in his pants. The doctors found a bullet hole in his right groin. They cleaned it, operated, and sewed him up.

We will have more about Mampre's experience in the Battle of the Bulge in the next issue.

This article was abridged from the Winter 2019 Warfare History Network. For more about Mampre's life and military career, see https://warfarehistorynetwork.com/article/101st-airborne-medic-recalls-op-market-garden-and-the-battle-of-the-bulge/

For a transcript of an oral history interview with Mampre, Albert L. Mampre Collection | Library of Congress (loc.gov)

On 17 September 1862, U.S. and Confederate armies clashed along the Antietam Creek. Outnumbered about 2:1, the Confederates held on, but lost over 10,000 men, including around 1,000 captured and over 7,500 wounded. U.S. forces also lost heavily, and combined it was the bloodiest day in U.S. history.

After the battle, U.S. troops took care of the Confederate prisoners. Dr Anson Hurd, regimental surgeon of the 14th Indiana Volunteer Infantry, is seen with some of his patients about 20 September. These improvised shelters are by barns of local physician Otho Smith, about a mile behind where the front lines had been. A civilian visited the farm just after the battle and recorded her thoughts:

... then came on to French's Division hospital, where were one thousand of our wounded, and a number of Confederates. The first night we slept in our ambulance; no room in the small house, the only dwelling near, could be procured. The next day was the Sabbath. The sun shone brightly; the bees and the birds were joyous and busy; a beautiful landscape spread out before us, and we knew the Lord of the Sabbath looked down upon us. But, with all these above and around us, we could see only our suffering, uncomplaining soldiers, mutilated, bleeding, dying. Almost every hour I witnessed the going out of some young life. No words can describe the wonderful endurance -- not a murmur, not a word of complaint or regret.

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Hospital Support to Operation Market: the 24th Evacuation Hospital

The three airborne divisions had airborne medical support, and XXX Corps brough ground medical support. The U.S. 24th Evacuation Hospital had been attached to British 2nd Army, and on 17 September it moved forward about 100 miles to Leopoldsburg, Belgium, arriving after dark. There was not one convoy, they were broken up into small serials that fit themselves into the flow of traffic forward, jostling for road space with tanks, trucks, artillery, and supplies.

Establishing their hospital in a "marshy field of heather," they waited for patients, but the Germans had interdicted the highway. On 19 September patients began to arrive, 512 that day for the 400-bed hospital. Many of these were from the 101st Airborne, the first patients from the division to be evacuated. The next day about 300 patients arrived from the 82d Airborne as XXX Corps linked up with them. There was a collecting company (a 200-cot medical company) working in conjunction with the 24th, and two American ambulance companies in addition to British ambulance units. They spent 20 days on the heather, receiving 3,432 patients (an average of 171/day), with 37 deaths in the hospital.

There was little air evacuation because cargo aircraft were mainly busy supporting the airborne units. They did get a few aircraft bringing supplies forward, and were able to send some patients back to England on those aircraft. As the only large U.S. medical unit in the area, the 24th was used as a supply point for the other medical units, including the airborne divisions. Obviously it was not staffed for that mission, but hard work got it done. Most patients were evacuated by British ground ambulance units to British hospitals established around Brussels. This was apparently planned, an example of inter-allied medical support.

Even though Operation Market-Garden had failed, combat continued, and the 82d and 101st continued in the line. The 24th remained in support, and on 8 October 1944 moved forward to Uden (which turned out to be a very muddy location), then twenty days later to better facilities in Nijmegen. The 24th was close enough that it received fire; a German air attack wounded a nurse in the OR at Leopoldsbourg, and several personnel were wounded by shellfire in Nijmegen. The 24th was finally withdrawn from British Second Army when the airborne divisions were rotated out of the line at the end of November. Afterwards, MG Maxwell Taylor of the 101st commended the 24th for treating approximately one-third of the combat strength of the division, returning many to duty.

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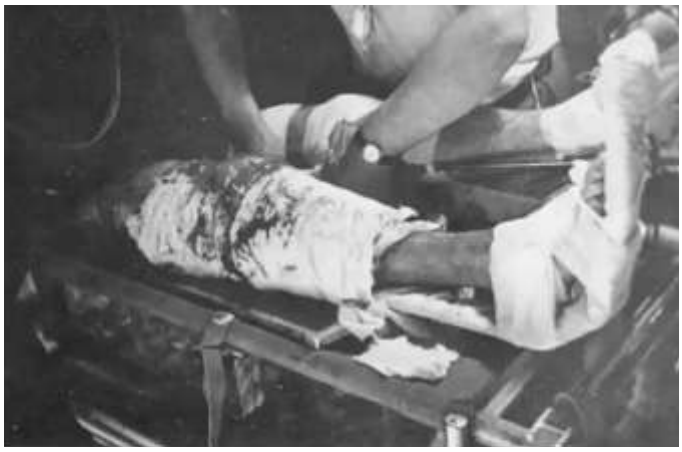
A doctor in the 24th had a personal film camera: www.youtube.com/watch?v=tuOuCeDc2LU from 7:20 mark for the 24th at Leopoldsbourg.



Scenes from the 24th Evac Hospital in action.
From "Lest We Forget": The 24th Evacuation Hospital. Privately printed, Germany, 1945, via www.med-dept.com/unit-histories/24th-evacuation-hospital/

Initial Airborne Medical Supplies

Charles Franson and Paula Ussery, AMEDD Museum

The medical planning for Operation Market and Garden was joint in nature with the 1st British Airborne Corps and the American units working together. The corps' after-action report stated "All medical units to carry with them sufficient medical stores and equipment to deal with the estimated number of casualties for a minimum of 48 hours." In addition "Medical supplies to be pre-packed for daily maintenance by air drop for five days."

Just as individual infantrymen carried a 'First Aid Packet" that contained a field dressing and a packet of sulfa powder to sprinkle in the wound, so too individual paratroopers carried, the "Packet, First Aid, Parachute." Originally developed for use by flight crew, it was also used by airborne forces. Airborne soldiers tied them to their helmets or arms. Inside the waterproof pouch were a variety of first aid items. Although contents evolved during World War II, contents usually included a field dressing, a tourniquet, a morphine syrette, and sulfa, both in powder form and oral tablets.

Paratrooper first aid kit. AMEDD Museum photo.

Although the main body of medical stores were flown in by gliders on D+1, enlisted and officers jumped with their individual medical equipment. These men carried not only the basic load of parachute, reserve chute, helmet, canteen cup and cover, equipment belt, entrenching tool or axe, combat suspenders, jump knife, but also were laden with a variety of medical supplies.

Left, two paratrooper medical pouches could be rigged to the suspenders to carry more supplies. Center: the pouch, medical, parachutist. Right, the "Case, Instrument". AMEDD Museum photos.

The infantry medic carried two medical pouches slung by suspenders over his shoulders. These held a variety of field dressings, pills, a tourniquet, and a booklet of patient tags. The unique equipment and mission of airborne however, altered the supplies carried from that of an infantry medic. Airborne medics carried morphine syrettes and the "Case, Instrument," usually reserved for medical officers. The instrument case (sometimes called a surgical case) carried scissors, suture, hemostatic forceps, scalpels, and a set of small operating knives. Enlisted airborne medics frequently carried only one of the standard issue medical pouches in its extended position, rather than the two with the suspender. The one pouch was stuffed with the contents of both issue pouches and then was suspended by a litter carrying strap. A leather string, similar to that used to tie a pistol holster to a thigh, was used to tie the pouch onto the left leg. By 1944, the need to develop specific airborne items had become apparent. Airborne riggers had already been making custom bags for medical personnel so that additional supplies could be carried into combat. These custom bags eventually became standardized and became "Pouch, Medical, Parachutist," apparently first produced in 1944. The one in the AMEDD collection is dated 1949 but is identical to the ones issued during World War II. (See issue #46 for more.)

Personnel assigned to a Battalion Aid Station carried that equipment, and resupply for the platoon med-

ics. This gear included Carlisle dressings (large and small), morphine, sulfanilamide packets, gauze, surgical sponges, codeine sulfate, surgeon's gloves, hydrogen peroxide, sterile Vaseline gauze, hypodermic kits, splints and a "gas" treatment kit.

Litters were also optimized for airborne use. At the beginning of World War II, airborne litters were the standard issue straight pole litter. Made of wood and canvas, these litters weighed approximately 24 pounds. By 1943 the Army had developed a "Litter, Folding, Wood" for airborne and mountain troops. Made of cotton canvas and wooden poles that folded in the center, it compressed into a rectangular bundle secured with web straps. Although only marginally lighter, it was easier to load in the close confines of a glider since the measurements were 9" x 9" x 31". It could also be transported in a ¼ ton trailer which the regular stretcher could not. By 1944, a lighter litter was developed by the Army for airborne and mountain troops. It too folded in the center, and compressed into a rectangular bundle, but aluminum poles saved about 10 pounds so more litters could be carried by a glider.

The "Litter, Folding, Wood." AMEDD Museum photo.

Personnel of the 224th Airborne Medical Company (17th Airborne Division) preparing for Operation "Varsity", the airborne drop across the Rhine River in March 1945. Courtesy WW2 US Medical Research Centre.

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A Century Celebration Recalls a Family Tradition
Scott C. Woodard, ACHH

Before she was "Mom-mom" Mills to her grandchildren, Gertrude Indoe Mills was born 27 November 1920 in New Jersey. In her 100th birthday celebration with friends and family came stories of service to the country. Military service was not foreign to the family. Her grandfather served in the Army and her father, who also served in the Army, commanded the local Patterson NJ American Legion. Gertrude completed her registered nurse training at St. Joseph's Hospital School of Nursing (now St. Joseph's Health) in Patterson NJ in 1942. She continued post graduate work in obstetrics at Margaret Hague Hospital in Jersey City NJ before volunteering for service as a Second Lieutenant Army Nurse Corps officer on 15 August 1943 at Fort Meade MD. Her brother, Edward Indoe, enlisted in the Army the next year.

2LT Gertrude Indoe, 1943. Photo courtesy of the Mills and Switaj families.

2LT Indoe arrived with her unit, the 226th General Hospital, on 16 December 1944 in England. The Allied invasion of Northern France had begun that summer and the European Theater of Operations was spreading throughout France and inching into Germany through the Netherlands, Belgium and Luxembourg. Once the Army began pushing into Germany from the foothold in Normandy, France, the medical services established the communications zone general hospitals directly receiving patients from the combat zone evacuation hospitals. Here patients received definitive care for longer periods of time than available in the combat zone. Doctrinally, the general hospital provided the most difficult and specialized procedures with the most elaborate equipment in the theater of operations. Equipped to operate under tentage, most general hospitals utilized available structures in establishing capabilities supporting 1,000 to 2,000 beds.

The European Theater of Operations, U.S. Army, Office of the Surgeon, Operations Division selected the area where general hospitals were established and the Hospitalization Division determined the exact building or land used. The 226th General Hospital swept through France establishing operations just behind the combat zone. The 226th was one of six general hospitals established in the vicinity of an airfield near a former French cavalry post a mile southwest of Mourmelon-le-Grand, southeast of Reims, France in March 1945. The surrounding area was devastated from German occupation (and Allied bombing) and had served as the headquarters of the 101st Airborne Division recovering from their invasion of Holland in December 1944 just before their famous fight in Bastogne, Belgium. Hospital staff countered busted water pipes, inoperative bathroom facilities, stripped electric wires, and no heat with Lyster bags for drinking water, outdoor latrines, light sets, and coal stoves. In a newspaper article, Indoe described the trying conditions where water was difficult to acquire and nurses had to carry the heavy water buckets to each ward. In the former French post, she was responsible for one entire building of the 3-5 buildings occupied by the 226th General Hospital. As dictated by doctrine, her patients arrived from evacuation hospitals and were sent back to the U.S. or England for additional rehabilitation.

Gertrude was promoted to First Lieutenant on 1 June 1945 while outside of Reims, France. The year also saw Indoe reunited with her brother, Technical Sergeant Edward Indoe, who travelled from Deggendorf, Germany from his station with the U.S. Third Army. The war came to an end for the 226th General Hospital when it redeployed to the United States on 10 September 1945. On 4 January 1946, 1LT Indoe finally completed her term of service and demobilized from the U.S. Army at Camp Sibert, Alabama with 28 months of active-duty service. In that time, she served three months in England and six months combat service in France supporting the Army's push into the interior of Germany participating in the Rhineland Campaign. Her decorations include the European, African, and Middle Eastern Theater Campaign Medal with bronze service star,

the American Theater Medal, and the World War II Victory Medal. Upon transition to civilian life, Gertrude married Gerard Mills, a military police noncommissioned officer stationed at Fort Dix NJ. Together they reared 4 daughters.

There were more than 59,000 women who served in the Army Nurse Corps in World War II. Like Gertrude, they were all volunteers. Her recent celebration of a 100th birthday recalls the great life-story of one soldier in World War II. However, 1LT Gertrude Indoe's AMEDD story continues. Her grandson, Timothy Switaj, served in the Medical Corps, rising to the rank of colonel. Always interested in medicine, he recalled receiving her medical textbooks while growing up. Just as Army service began with her grandfather, the family legacy of service continued through the generations.

This was adapted from
www.army.mil/article/241754/a_century_celebration_recalls_a_family_tradition

Gertrude and her brother, Technical Sergeant Indoe, reunite in France, 1945. Photo courtesy of the Mills and Switaj families.

— 27 July 1775 —

The Army Medical School had opened in 1893, in rented space in Washington DC, separate from the hospital at Washington Barracks. Walter Reed General Hospital opened in 1909, with space on the campus for more buildings.

After WWI a new building allowed the AMS to move next to the hospital. With other educational buildings, the Army assembled the first post-graduate medical center in the U.S. From 1923, The Army Medical Center included a hospital, and the research and teaching institutions that brought a critical mass together.

Over time, the organization in Building 40 changed name, ending as the Walter Reed Army Institute of Research, and generations of new equipment were installed (including a nuclear reactor in the basement). By the 1990s, Bldg 40 was outdated for research, and a new WRAIR facility opened.

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 usarmy.jbsa.medical-coe.mbx.office-of-medical-history@army.mil Please contact us about technical specifications.

The opinions expressed in The AMEDD Historian are those of the authors, not the Department of Defense or its constituent elements. The bulletin's contents do not necessarily reflect official Army positions and do not supersede information in other official Army publications or Army regulations.

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