



**Contents**



<i>Forward Surgery, Sulfas, and Penicillin in WWII</i>	6
<i>Spencer Dickinson, the Army's first Black general</i>	10
<i>Vaccine injectors</i>	15

*Chief's Corner*

Welcome to the latest installment of the *AMEDD Historian*! In this issue, read about the harrowing account of COL James C. Rinaman, an Army physician held as a prisoner of war in the Philippines and Japan. World War II “miracle drugs,” penicillin and “sulfa” drugs are explained and explored. They fought off infection remarkably and shaped the doctrine of early Army forward surgery. Discover the intriguing story of BG Spencer C. Dickerson, an early 20th Century physician and the first African-American Army general.

Peruse our latest archival and artifact additions including 16mm/8mm film of the 90th Field Hospital during World War II. The Army Nurse Corps celebrates an anniversary and reviews changing attitudes for females in service during World War II. Did you receive a “shot” from the PED-O-JET injector? Read about its development and usage.

Please let us know your thoughts. We would like to hear your comments and are always seeking new articles for publication. If you are at Fort Sam Houston please stop by the AMEDD Museum.

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.

Nolan A. (Andy) Watson, Acting Chief, ACHH

**Colonel James C. Rinaman, MC: Bataan Survivor**

George E. Cressman Jr., Senior Historian, Camp Blanding Museum

If you get a chance to visit the Camp Blanding Museum you can see a hand-made US flag constructed from various pieces of cloth with painted stars. The flag, made in a Japanese prisoner of war camp, was a gift from the family of Colonel James C. Rinaman, M.D.

Born 9 May 1903, Dr. Rinaman was a June 1932 graduate of the Tulane Medical School. After additional studies in cardiology, Dr. Rinaman entered a joint practice in 1933, and then in 1935 he started a private practice in the Miami, Florida area. In March 1934, he joined the Medical Reserve Corps as a lieutenant. On 28 February 1941, Dr. Rinaman was promoted to captain and ordered to active duty at Camp Wheeler (near Macon, Georgia) to be Chief of Infectious Diseases. In September 1941, CPT Rinaman was ordered to the Philippines Department, departing San Francisco on 1 November 1941 aboard the US Army Transport *Coolidge*, which proved to be the last transport to reach Manila before the war started.

Rinaman was assigned to Sternberg General Hospital as a ward surgeon. War with Japan began with the 7 December 1941 raids on Pearl Harbor, followed by air attacks on the Philippines. The Japanese raids on the Philippines found him barely settled in, just 18 days after arriving. The Japanese followed their air attacks on the Phil-

ippines with invasion of the northern coast of Luzon on 10 December, and a second invasion force landing on the eastern beaches of Lingayen Gulf on 22 December. The Japanese attacked aggressively and on 23 December GEN Douglas MacArthur, commander in the Philippines, withdrew all US and Filipino forces to the Bataan Peninsula. The plan was to dig in and await reinforcements, but most of the food, ammunition and other supplies that were supposed to be moved to Bataan never got there.

Two hospitals were quickly established on the peninsula. While MacArthur moved his headquarters to Corregidor, all medical personnel in Manila moved to Hospital Number One on 24 December. It was set up at Limay, on the west coast of the Bataan peninsula, to receive casualties directly from combat. It consisted of sixteen wooden buildings. Initially it was well supplied, but within a month it was overwhelmed with more than 1,200 patients requiring major surgery.

A second hospital was established further south on the Bataan Peninsula, approximately 1.5 miles west of the town of Cabcaben, on the south bank of the Real River. The river valley was narrow, but there was a mile-long area wide enough for Hospital Number Two. The area was totally undeveloped, covered with tall trees, bushes, creepers and bamboo clumps. The vegetation provided aerial cover, but there no roads serving the area. On 28 December, a location was selected for one mess, one ward, an operating room and a headquarters. There was no transportation available, and the troops had no mess facilities, and no food. Nevertheless, the initial crew set out to acquire tools and transportation, cut a road, and to establish a mess.

Engineers began grading a road on 29 December, and the next day it was adequate for ambulances. The mess opened on 29 December with equipment from the Philippine Medical Depot, and food was also “borrowed” from the Depot. Hospital Number Two functioned in the open with neither tents nor buildings. On 31 December, CPT Rinaman and a group of doctors, nurses and orderlies occupied Hospital Number Two; Rinaman was assigned as the Chief of the Surgical Ward. The first hospital ward opened on 1 January, and the first major surgery was performed on 3 January 1942. Hospital Number Two grew rapidly, from one ward on 1 January to fourteen wards on 25 January 1942 and ultimately 18 wards. On 24 January Hospital Number Two had 43 officers, including two chaplains, 7 dental officers, 4 Medical Administrative Corps officers, one infantry officer, and one Red Cross worker. At that point there were 20 nurses at the hospital, who were not commissioned officers.

As the Japanese pushed south on the Bataan Peninsula, the US and Filipino defenders fell back. On 30 January 1942, Hospital Number One was relocated south to a former motor pool near an ammunition and supply depot, some three miles east of Hospital Number Two. On 29 March, the Japanese bombed Hospital Number One, killing many patients. Patients strong enough for evacuation were sent to Hospital Number Two. Supply at both hospitals dwindled. By the end of March, the hospitals – set up to accommodate 1,000 patients – were treating over 5,000 patients.

By the morning of 9 April 1942, Hospital Number One had been captured and it was obvious the Japanese would shortly capture Hospital Number Two. Most nurses were evacuated to Corregidor. Patient cen-



One of the outdoor ‘wards’ of Hospital No.2.  
Courtesy American Defenders of Bataan and Corregidor.

sus at Hospital Number Two had risen from 3,256 on 4 April to over 7,000 by 9 April, with 67 officers, 83 nurses, 250 enlisted men and 200 civilian employees serving there. There simply was not enough: not enough staff, not enough equipment, and not enough supplies. Malaria and dysentery was rampant. Japanese aerial activity was intense, and patients and hospital personnel spent much time in foxholes and dugouts.

About 1100 hours, word came that all Luzon forces would surrender. About 1700 hours, a small group of Japanese infantry came into the hospital area. At 2000 hours two Japanese officers with twenty enlisted men met the hospital commander, LTC William North, telling him the staff and all patients were now prisoners of war. Japanese guards were placed in the hospital areas. All Filipino civilians were ordered out, and wounded Filipino soldiers also took the opportunity to leave. The commander was notified that until Corregidor fell, no attempt would be made to move staff or patients. The Japanese confiscated all medical supplies, making patient treatment more challenging.

Corregidor fell on 6 May, and a few days later, the commander of Hospital Number Two was directed to move all serious cases to Hospital Number 1. Approximately 600 patients were moved on 11 May; around 700 ambulatory patients remained until 26 May when they were transferred to Manila, then to a POW camp at Cabanatuan.

The Japanese sent the majority of Hospital Number Two personnel to the area of Hospital Number One. After about 10 days, the staff was transported to Bilibid Prison in Manila, and then a few days later they were sent to prison camp Cabanatuan Number 1. Hospital Number Two ceased to exist on 12 May 1942. On 28 May 1942, MAJ Rinaman was sent to Bilibid Prison and then on to Cabanatuan on 1 June. Mrs. Rinaman received notice 20 May 1942 that MAJ Rinaman was missing in action.

To separate the US prisoners from the Filipinos, the Japanese began transferring the Americans to Cabanatuan, approximately 100 miles north of Manila. A former Philippine Army camp, Cabanatuan was designed to hold 15,000 prisoners. The prison consisted of three camps east of Cabanatuan City. Many of the American patients from the field hospitals were brought to Camp Number 3 in late May 1942. Because Camp No. 2 had inadequate water, most of the remaining Americans were taken to Camp Number 1. When Rinaman arrived, the camp was holding over 30,000 prisoners. In late October 1942, Camp Number 3 was closed and the prisoners there transferred to Camp Number 1.

In June 1942, a "hospital" was opened in the southern end of Camp Number 1. Under the command of COL James Gillespie, it consisted of 30 wards. Built to hold 40 patients each, they often held 100. A separate quarantined area of ten wards contained the dysentery section. Within the dysentery section was an unnumbered ward that held the most seriously ill patients. Soldiers called it the "zero" ward, because that was the chance of survival for those entering. Doctors often stayed with the patients, mostly for encouragement, because they lacked the supplies and drugs to effectively treat the patients.

At Cabanatuan, MAJ Rinaman discovered he could occasionally bribe the guards and then walk to nearby villages to obtain fruit, eggs and vegetables. However, it was necessary to return before the guards were changed; a different guard might treat a returning prisoner as an escapee. Conditions improved somewhat in 1943; a garden was started, yielding some vegetables, and Filipinos smuggled some food into the camp. But in 1944, conditions worsened again as the Japanese reduced rations.

The Rinaman family received no word of MAJ Rinaman through early summer 1942; the War Department still listed him as missing in action. But on 4 August 1942, Mrs. Rinaman was notified she could send a package to her husband as he had been reported as a prisoner of war. Dr. Rinaman continued to serve in the Cabanatuan "hospital" through early 1944. On 26 February 1944 a group of 200 medical personnel (including 40 doctors and 10 dentists), including Rinaman, was taken to Bilibid Prison in Manila. On 6 March 1944, they boarded the Japanese freighter *Kenwa Maru*, bound for Japan. The prisoners were crammed into the aft hold of the ship. The ship stopped in Formosa to take on a load of unrefined sugar, which was stowed below the prisoners.

They reached Japan on 25 March 1944, and the prisoners taken to Fukuoka Hospital Camp Number Four for assignment to four different camps in southern Japan. MAJ Rinaman was sent to Fukuoka Camp Number Two at Koyakijima on the northern side of Nagasaki Bay. During the voyage, the prisoners had bro-

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ken into the lower hold where the sugar was stowed, and filled their pockets and pants legs with sugar. Major Rinaman and his enlisted men hid over 100 pounds of sugar under the floorboard of their new barracks, using it to make “candy.” The prisoners cooked rice in large black iron kettles, periodically removing a burned crust. Before removal, the sugar and some water were added and the sugar boiled into the crust, then cut into “candy bars.”

The US medical personnel were to care for the vast number of prisoners the Japanese had taken and moved to Japan: by itself, Fukuoka Camp Number Two housed more than 1,400 British, Dutch, and Australian prisoners. On arrival on 26 March 1944, Rinaman’s medical bag was confiscated but he confronted the camp commander, demanding return of his medical instruments, and the bag was returned.

Rinaman was in charge of the medical care, mess halls, and sanitation for 5,000 Allied prisoners in four camps around Fukuoka. Food was primarily rice and provided inadequate nutrition for men working in heavy industries and mines. Whenever possible, bits of protein were added to the diet. Adequate nutrition continued to be a concern, but in January 1945 the Japanese began distributing International Red Cross packages. The medical staff found it difficult to maintain records as the Japanese provided no paper. Records were kept on the backs of cigarette and tea packages and what other scraps of paper could be obtained.

Communication with his family remained a challenge for MAJ Rinaman. Prisoners could send some messages on Japanese Army postcards, and a few messages were sent through the Red Cross. In addition, late in the war, the Japanese permitted brief short wave radio transmissions. These were picked up by “ham” radio operators in the US and sent on to families. Rinaman sent radio messages in late January and mid-July 1945. In June 1945, MAJ Rinaman and his medical team were moved to Fukuoka Camp No. 21 B. There, 100 British, 175 Australian, 300 Dutch, and 3 American prisoners worked in coalmines of the Tashio Mining Company. By August 1945, the Fukuoka prisoners were accustomed to seeing US bombers flying over the camp, and the ensuing Japanese anti-aircraft fire. Although Fukuoka is some sixty miles southwest of Hiroshima and

some sixty miles northeast of Nagasaki, the prisoners heard the explosions of the atomic bombs dropped on these cities, and thought it was from destroyed ammunition dumps.

A few days after the Nagasaki bombing all the prison guards were changed, and on 15 August 1945, the Japanese camp commander surrendered his sword to the ranking British officer. The prisoners were told the war was over. That night they celebrated in their mess hall and a British flag that had been hidden was displayed. Then hastily drawn Australian and Dutch flags appeared. MAJ Rinaman and his medics made a large US flag. The blue stripes came from Japanese mosquito nets, the white stripes from a bed sheet, and the red was taken from supply parachutes US planes had just dropped. White paint made the stars.

US planes dropped badly needed food, clothing, and medicine into the camp. A few days later, however, the pilot of a US P-51 flew low over the camp and blew cook fires into the barracks. The barracks burned, leaving the 600 former prisoners “homeless.”

The men marched into downtown Fukuoka and commandeered a Japanese troop train. Rinaman placed his handmade US flag on the front of the locomotive and ordered the crew to take the train to Nagasaki. As they traveled, they were intercepted by Russian troops. The Russians detained the men for two weeks and then released them to the US troops who had occupied Nagasaki.

Carrying the handmade US flag, Dr. Rinaman began his journey home. He sailed on a US destroyer to Okinawa, flew from Okinawa to Manila and on to Honolulu. From Honolulu he sailed to San



Rinaman’s home-made US flag.  
Camp Blanding museum, courtesy of the author.

Francisco and was admitted to Letterman General Hospital. MAJ Rinaman was finally reunited with his family in Florida in late November 1945. He resumed his private medical practice, and remained in the US Army Reserves. He was promoted to lieutenant colonel in July 1946 and to colonel in June 1954. He retired from the reserves in May 1963 and died in November 1969. Col. Rinaman's flag is proudly displayed in the Camp Blanding Museum, a symbol of the victory of survivors of a Japanese Prisoner of War Camp

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During World War II, many aircraft crews painted risqué paintings of females on the nose of their aircraft, was known as "nose art." This crew of this C-47, part of the 802d Medical Air Evacuation Transport Squadron that evacuated casualties from North Africa, Sicily, and Italy, painted an Army nurse of the nose of their airplane. She was Katy Swope of Kentucky, one of the 802d's nurses.

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## **Sulfa Drugs, Forward Surgery, and Penicillin: Drs. Edward Churchill and Champ Lyons in World War II**

**By Martin Dalton and Laurence Lyons**

This is the story of how two “miracle drugs” discovered before the Second World War affected the treatment and care of wounded US Army soldiers during that conflict. Sulfa drugs, in the form of sulfanilamide, were first thought to be the answer to preventing infection in wounds, but that initial evaluation proved to be overoptimistic, even counterproductive, because sulfanilamide was used as a substitute for early cleaning and debridement of wounds, the historically proven method for preventing infection. It also delayed the Army’s development of the forward surgical hospital, where soldiers could be treated soon after being wounded. Penicillin, on the other hand, when finally mass produced in the United States, proved to be the best treatment for preventing infection when used in conjunction with early cleaning and debridement performed at forward surgical hospitals with final wound closure at base hospitals in the rear (this technique is usually referred to as “delayed primary closure”). Two American surgeons, Edward Churchill and Champ Lyons, played pivotal roles in these developments.

### Sulfa Drugs

The following excellent account of the discovery of sulfa drugs can be found in the publication “The Pharmaceutical Century”

The anti-infective breakthrough occurred at Germany’s I. G. Farben, which had hired Gerhard Domagk in the late 1920s to direct its experimental pathology laboratory in a drive to become a world leader in the production of new drugs. Domagk performed a series of experiments on mice infected with streptococcus bacteria. He discovered that some previously successful compounds killed the bacteria in mice but were too toxic to give to humans. In 1935, after years of experimentation, Domagk injected an orange-red azo dye called Prontosil into a group of infected mice. The dye, which was primarily used to color animal fibers, killed the bacteria, and, most importantly, all the mice survived. The first successful use of Prontosil on humans occurred weeks later, when Domagk gave the drug to a desperate doctor treating an infant dying of bacterial infection. The baby lived, but this did not completely convince the scientific community of the drug’s efficacy. Only when 26 women similarly afflicted with life-threatening infections were cured during clinical trials in London in late 1935 did Prontosil become widely known and celebrated for its curative powers. The active part of Prontosil was a substance called sulfanilamide, so termed by Daniele Bovet of the Pasteur Institute, who determined that Prontosil broke down in the body and that only a fragment of the drug’s molecule worked against an infection. After the discovery of the active ingredient, more than 5000 different “sulfa” drugs were made and tested, although only about 15 ultimately proved to be of value. In 1939, Domagk received the 1939 Nobel Prize in Physiology or Medicine.

Sulfanilamide was brought to the United States by Drs. Perrin H. Long and Eleanor A. Bliss, who used it in clinical applications at Johns Hopkins University in 1936. It was later discovered that the sulfa drugs, or sulfonamides, did not actually kill bacteria outright, like older antiseptics, but halted the growth and multiplication of the bacteria, while the body’s natural defenses did most of the work.

Emily Crews further discusses the use of sulfa drugs: The 1940s saw the list of sulfonamides expand drastically. Vast numbers of people hailed the compounds as a miracle sent to save them from dreaded infections that no other drug could cure. Patients asked for the drug by name and the doctors readily consented to the prescription. An article in the October 1939 issue of the *British Medical Journal* stated that sulfonamides provided a ‘...certainty of benefit such as no previous remedy for the same conditions could approach.’ Sulfapyridine became among the most acclaimed of the sulfonamides, as scientists stated that ‘...there seemed to be no end to its uses.’ Article after article in scientific journals and various other sources proclaimed that the sulfonamides could cure all manner of disease. The public clamored for the product as the scientific community backed sulfonamide’s powers. Sulfa drugs solidified their place in the American armed forces with their ‘effective’ use at the attack on Pearl Harbor. As will be shown, their “effectiveness” was greatly overrated.

### Penicillin

The publication “The Pharmaceutical Century” has the following account of the development of penicillin:

Certainly the most famous antibacterial discovered in the 1920s and 1930s was penicillin—which was found through almost sheer serendipity. In the years after World War I, Alexander Fleming was seeking better antiseptics, and in 1921 he found a substance in mucus that killed bacteria. After further experimentation, he learned that the substance was a protein, which he called lysozyme. Although Fleming never found a way to purify lysozymes or use them to treat infectious diseases, the discovery had implica-

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tions for his later encounter with penicillin because it demonstrated the existence of substances that are lethal to certain microbes and harmless to human tissue.

Fleming's major discovery came almost seven years later. While cleaning his laboratory one afternoon, he noticed large yellow colonies of mold overgrowing a culture of staphylococcus bacteria on an agar plate. Fleming realized that something was killing the bacteria, and he proceeded to experiment with juice extracted from the mold by spreading it on agar plates covered with more bacteria. He found that even when the juice was highly diluted, it destroyed the bacteria. Calling the new antiseptic penicillin, after the Latin term for brush, Fleming had two assistants purify the mold juice, but he performed no tests on infected animal subjects. He published a paper in 1929 discussing the potential use of penicillin in surgical dressings but went no further. It wasn't until the 1940s that penicillin was taken up by the medical community.

Sir Alexander Fleming later won the Nobel Prize for the discovery. In 1939 Sir Howard Florey showed that penicillin effectively cured bacterial infection. He also won the Nobel Prize.

### The Surgical Consultants

Surgical Consultants in the North African and Mediterranean Theaters of Operations (NATOUSA and MTOUSA) were appointed to provide advice and consultation on the medical care of sick and injured soldiers. The surgical consultants were commissioned by the Army to ensure that their advice would be accepted and acted upon. Among their number were these distinguished surgeons:

Col. Edward D. "Pete" Churchill was the John Homans Professor of Surgery at Harvard and was Chief of the West Surgical Service at the Massachusetts General Hospital (MGH). He served during the war as Chief Surgical Consultant to NATOUSA and MTOUSA. Col. Frank B. Berry was Professor of Clinical Surgery at Columbia University. He served as Consultant in Surgery, Office of the Surgeon, in the Seventh U.S Army. Col. James H. Forsee worked with tuberculosis patients at Fitzsimons General Hospital,

Aurora, Colorado. He earned the Legion of Merit for his service as commander of the Second Auxiliary Surgical Group in Italy. After the war, he returned to Fitzsimons as chief of surgery, and wrote an extensive and widely read report on the front-line surgical treatment of the severely wounded. Lt. Col. Howard E. Snyder graduated from Jefferson Medical College of Philadelphia, and received his surgical training under Dr. John H. Gibbon Sr., the inventor of the heart-lung machine. He served as Surgical Consultant to Fifth U.S. Army, after service in the thoracic surgery section of the 77th Evacuation Hospital. Major Champ Lyons specialized in surgical bacteriology at MGH under Churchill. He was the first physician to administer penicillin in the US and later developed the protocols for administration of the drug at two Army hospitals. He rejoined Churchill in MTOUSA in 1943 and was awarded the Legion of Merit. Lt. Col. Michael E. DeBakey Chief, Surgical Branch, Surgical Consultants Division, Office of the Surgeon General, had served on the Tulane Medical School surgical faculty before volunteering for military service in 1942.

In NATOUSA and MTOUSA Pete Churchill's surgical team revived old and championed new methods of wound treatment that provided new hope for servicemen wounded in action. In March 1943 Churchill became the Chief Surgical Consultant in the theater, with the rank of full Colonel. While touring the theater he observed the excessive use of sulfa drugs, which Army medical personnel often employed in lieu of forward surgery. The Army had adopted these drugs based on an erroneous evaluation of their efficacy in treating the victims of the Pearl Harbor attack.

Robert M. Hardaway, an Army surgeon who was present at the time, described how this happened many years after the war: Although World War experience had been forgotten, one lesson of World War I was preserved and acted upon. In November of 1941, Dr. John J. Moorehead, chief surgeon for the New York Subway System, came to Honolulu at the invitation of the Honolulu Medical Society and gave a series of lectures on the treatment of trauma. Most of the surgical officers at Schofield and Tripler attended. Dr. Moorehead described the techniques of debridement and delayed primary closure for treatment of large soft tissue wounds. Only a week later many of us had the opportunity to apply these lessons of World War I to the first casualties of World War II. As a result the wounds healed well with no infections. The Surgeon General of the Army sent a group of



COL Churchill, COL Berry, COL Forsee, and LTC Snyder.  
US Army photo.

distinguished surgeons to Hawaii soon after the Japanese attack. They were amazed at the uniformly well-healed wounds and asked how we treated them. We explained that we did a careful debridement, irrigated the wounds, sprinkled in a little sulfanilamide powder (which we had in salt shakers), left the wounds open and performed a delayed primary closure after three days. The immediate reaction was 'that sulfanilamide powder is wonderful', missing the point that the debridement and delayed primary closure were the main reason for the clean, uninfected, healed wounds. After receiving this report [published in the Army Medical Bulletin] the Surgeon General recommended that small packets of sulfanilamide powder be included in the first aid packet of every soldier. When the North African campaign began in 1942 the emergency treatment of wounds was to sprinkle sulfa powder in the wound. In fact, it was dumped in as a lump rather than being sprinkled in so that each grain was separate. Debridement was not emphasized. Wounds became infected. The next misinterpretation was that putting on sulfa powder was bad and was prohibited, ignoring the poor method of application of the sulfa and lack of proper debridement.

In North Africa, Churchill recommended that the Army reintroduce the concept of delayed primary wound closure and early adequate debridement to prevent infections in contaminated wounds. His recommendation eventually curbed the misuse of sulfa drugs and placed emphasis on bringing surgery as far forward as possible. Using sulfa drugs in place of forward surgery had also led to the unintended consequence of delaying rapid treatment for wounded soldiers, thereby increasing mortality rates. The Army acted on his recommendations. Forward surgery was emphasized, the use of sulfa drugs was minimized at forward hospitals and the sulfa packet was removed from the first aid kits carried by the soldiers by 1944.

Dr. Champ Lyons joined him in the theater in August 1943. A native Alabamian, he had graduated from Harvard Medical School in 1931 and served in Churchill's West Surgical Service. He brought special qualifications. He had developed a professional interest in surgical infections and microbiology and published extensively on the characteristics of the streptococcus bacterium and streptococcal infection and therapy. In November 1942, the Coconut Grove nightclub fire in Boston killed 492 people and injured many who survived the fire but suffered severe burns and smoke inhalation. Most of the survivors of the fire were treated at MGH and Boston City Hospital. Some of the victims were given the new drug penicillin, which had been purchased by the government because it looked promising for the treatment of wartime wounds. Dr. Chester Keefer, a former Boston University professor, was the senior government official charged with evaluating penicillin. He knew of Lyons's work in surgical bacteriology and saw the Coconut Grove tragedy as an opportunity to test the efficacy of the drug on a large scale. He arranged for all of the drug currently available, less than a liter, to be rushed to MGH, where Lyons gave it to the survivors. Little was known about how much of the drug needed to be administered and how often. (Eventually it was found that large doses were needed.) Charged with saving patients, Lyons decided to use sulfa drugs, as well as penicillin. Because he did, the effectiveness of penicillin alone could not be isolated, but the overall results were promising enough to continue work to enable mass production of the drug.

The experience with the overly optimistic evaluation of sulfa drugs persuaded the Army to carefully evaluate penicillin before administering it to wounded soldiers. Penicillin was so successful for the Coconut Grove victims that the Army chose Lyons to evaluate it further for wartime use. He led pilot studies of the drug at the new Bushnell General Hospital in Brigham City, Utah, and the new Halloran General Hospital, Staten Island, New York. The results he obtained after careful clinical evaluation indicated that penicillin would prevent infection in most if not all cases of battlefield wounds. Lyons' results were the principal reason the Army embarked on a broad and expensive effort to mass-produce the drug. In the course of his evaluation



Dr Lyons receiving his Legion of Merit.  
US Army photo.



he also developed the protocols for its administration.

After performing these evaluations he requested and the Army desired that he be assigned overseas. When he arrived in MTOUSA in August 1943, he was assigned to a theater hospital with an ample supply of penicillin. While treating patients he shared his experience, knowledge and expertise with all medical personnel in MTOUSA and in the subsequent campaign in Northern Europe through the dissemination of Circular Letters, a communication method begun by Churchill when he arrived in North Africa. Champ Lyons later became the Chairman of the Department of Surgery of the Medical College of Alabama, now the University of Alabama in Birmingham School of Medicine.

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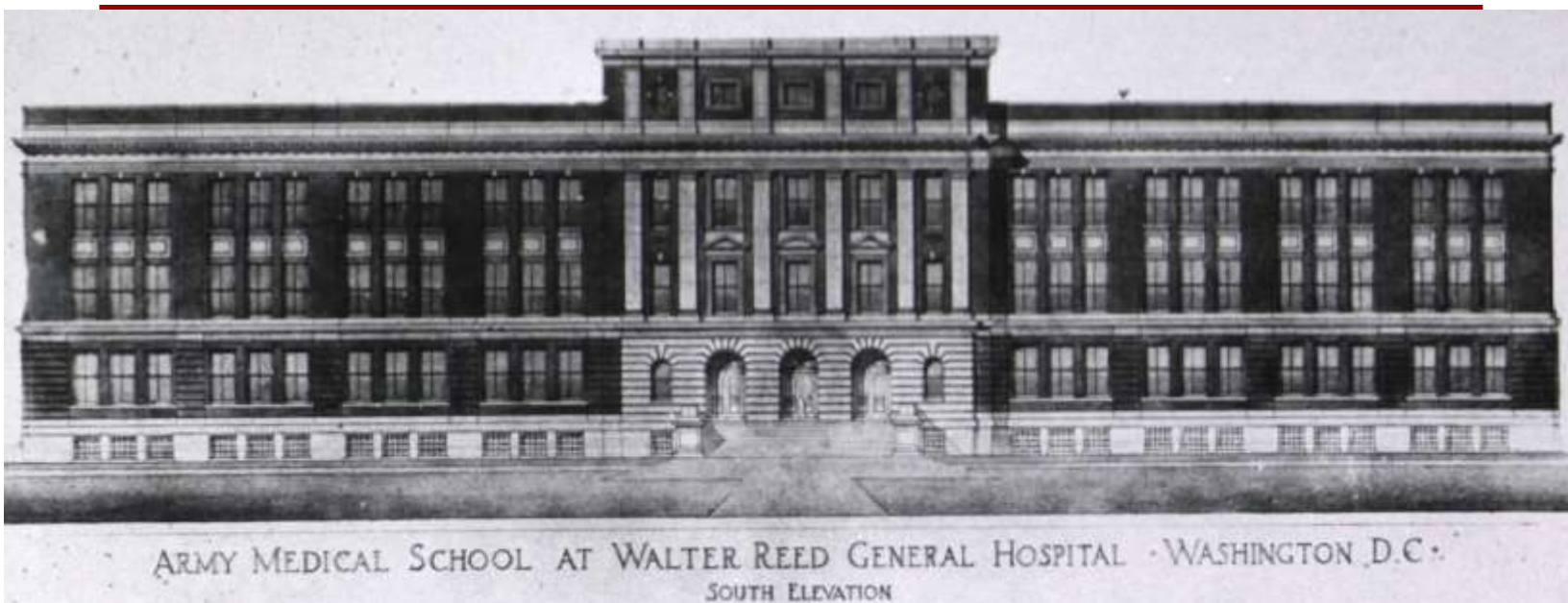
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In 1893 the Army Medical School opened, occupying space in the same building as the Army Medical Museum and Army Medical Library. A long-time goal for the AMEDD was having a medical center, with the school, museum (functioning as a teaching collection for pathology), library, and a general hospital all co-located. Most of that came together at the Army Medical Center in 1922. Walter Reed General Hospital was the hospital, the school opened in a grand new building (that would be extended when more funding was available), and the museum moved there in the 1950s. The library, however, never moved to the Takoma Park campus.

## Spencer C. Dickerson: A Texan Becomes the Nation's First Black General

### G. Alan Knight

Almost anyone would agree that the likelihood of a 44 year-old physician with no prior military service voluntarily enlisting as a private in the National Guard during peacetime is almost unimaginable.

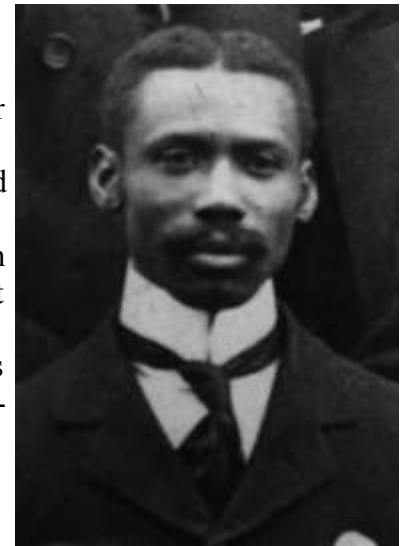
Yet on January 19, 1914, Spencer Cornelius Dickerson, a prominent black Chicago doctor, began a twenty-year military career in which he was activated for federal service in 1916 and again in 1917. Even more improbably, Dr. (Private) Dickerson, who became an officer, would eventually go from being a major commanding a medical detachment to a colonel of infantry, commanding a regiment. Finally, upon retirement for age, he would be advanced to brigadier general. While retirement as a brigadier general would be a state promotion, not one federally recognized, the fact remains that Dickerson appears to have been the first African American to achieve general officer rank, almost six years before Benjamin Davis, a black Regular Army colonel, received his promotion to brigadier general in 1940.

Spencer Dickerson was born on December 1, 1870 in Austin, TX, only five years after the Civil War ended. All that is known about the family is that his mother was born in Austin and his father in Richmond, VA. Whether one or both parents were originally slaves or freedmen is unknown, as is evidence regarding Dickerson's siblings, if any. He attended grammar school in Austin and indicated there was no high school, meaning most likely that high school was not available to African Americans at that time. However, he attended Tillotson College in Austin for four years. Now known as Huston-Tillotson University, it was Tillotson Collegiate & Normal Institute when chartered in 1877, offering instruction to African American students, male and female. During Dickerson's time there, the college provided only a high school education. Clearly the quality of the education must have been noteworthy and Dickerson an excellent student as he was able to gain admission to the University of Chicago two years after leaving Tillotson.

In 1897 Dickerson was graduated with a B.Sc. degree from the University of Chicago, one of only three African-Americans enrolled. In an interview years after, he indicated that he experienced no discrimination at all while there and had resided in a non-segregated university dormitory. He indicated he was well-liked by his fellow students. He then entered Rush Medical College, also in Chicago, graduating in 1901, with an M.D. degree. This was followed by an internship at Freedman's Hospital (now Howard University Hospital) in Washington, D.C. Having become licensed in Illinois in 1901, Dickerson appeared before the state examining board in Boston in 1902 and upon receiving his medical license, practiced in New Bedford, MA for 5 years before returning to Chicago and opening a practice there. Dickerson consistently described himself as an eye, ear, nose and throat specialist. Inasmuch as the EENT specialty did not develop a residency program until 1924, it would appear that much of his specialty training was acquired from mentoring and the acquisition of on-the-job experience, which was normal at the time.

Dickerson rapidly became one of the elite members of black society in Chicago, and was known to be a close friend of one of the most prominent black Chicagoans, Oscar DePriest, a self-made African-American contractor and real estate developer who, as a Republican, became the city's first black alderman and later a congressman. Dickerson was also a life-long Republican.

While there is no known record of what motivated Dickerson to join a unit of the Illinois National Guard, comments recorded in a 1938 interview show him to have been a highly patriotic citizen who wished to set a good example for black Chicagoans. It is also likely that one or two influential medical colleagues who belonged to the Guard may have encouraged him.



Dickerson as a young man.  
ACHH collection.

Undergoing and passing the required physical examination and executing the oath of enlistment on the same day in 1914, Dickerson began military life as a private assigned to the Sanitary Detachment of the 8th Regiment of Infantry, a black organization. The so-called armory where Dickerson initially drilled was a converted stable and housed the regiment until 1915 when the 8th became the first black regiment in the nation to have a new armory built for it. Unlike recent times, a new enlistee did not undergo basic training. Common soldier tasks and military medical skills were acquired in the course of inactive duty training and summer camps. By 1916, it appears that Dickerson, who was enthusiastic about his military service, submitted the required paperwork for appointment as a Medical Corps officer.

Even before his application began winding its way through channels, tensions between the United States and Mexico had risen as a result of incursions by bandits crossing the Rio Grande into U.S. territory. Mexico was in the throes of revolution with rival warlords contending for power. By September 1915, these incursions, ever more numerous, had spread from the Lower Rio Grande Valley of Texas into neighboring New Mexico and Arizona. Under cover of darkness, on March 9, 1916, a band of nearly 500 Mexicans belonging to an insurgent army commanded by Gen. Francisco “Pancho” Villa, crossed the border and raided Columbus, New Mexico, killing 17 American citizens. The U.S. response was the Punitive Expedition, commanded by BG John J. Pershing. Pershing led about 10,000 Regulars into Mexico, seeking to capture Villa. On June 18, 1916, President Woodrow Wilson ordered the Secretary of War to mobilize “the organized Militia and National Guard of the United States” for service on the border where raids continued. The deployment of so many regulars had left Southwestern border states without sufficient protection, a concern rapidly communicated to the president by the governors.

The 8th Illinois Infantry Regiment was mobilized on June 26, 1916. Fortuitously for Dickerson, he received and promptly accepted his appointment as a 1st Lieutenant, Medical Corps, coincidentally on the same day that the 8th entrained for Camp Dunne near Springfield, IL, where personnel were mustered into federal service. Shortly thereafter, the 8th Illinois reached Camp Wilson at Fort Sam Houston, San Antonio, TX. The three day train journey had been arduous with most of the soldiers being transported in box cars. While at Camp Wilson personnel of the 8th trained intensively and underwent physical conditioning. The training included a number of forced marches with the result that numerous personnel were identified as unfit for service and had to be discharged. Dickerson, CPT J.W. White, sanitary detachment commander, and the assigned medics provided routine medical care for the regiment. The two medical officers played a key role in documenting those who failed to meet required physical standards and had to be discharged. The problem of personnel failing to meet physical standards was unfortunately common to almost all mobilized National Guard units. The 8th remained prepared to move to the border, if ordered. However, to the disappointment of the regiment’s members, they remained at Camp Wilson and saw no action. Nonetheless, the intensive period of training and physical conditioning that would prove useful when the 8th was federalized for wartime service in 1917.

The U.S. entered World War I on April 2, 1917 and on August 3, 1917, the 8th Illinois, after a short time back in Illinois, was again activated for federal service. After initial training at Camp Logan TX, the 8th deployed to France as an element of the American Expeditionary Forces. While in country, the 8th was redesignated as the 370th Infantry Regiment and on January 5, 1918, assigned to the 185th Infantry Brigade, 93d Division (Provisional). In the remaining months of the war, the 370th served not with other American units but with the French 34th, 36th, and 59th Infantry Divisions. The 370th was one of three all-black National Guard regiments in the 93d Division.

Dickerson has left virtually no comments about his war service. The 370th participated in the Soissons Offensive. Dickerson was in charge of the regimental aid station. The regiment, with its three battalions and



Distinguished Unit Insignia of the 370th Infantry Regiment.

their companies, would have had approximately 50 medical personnel assigned, mostly hastily-trained enlisted medics. Dickerson treated the sick and wounded. He would have dealt with shock, a variety of penetrating wounds, and mustard gas casualties that impacted eyes and skin. He would supervise application of dressings to those with gunshot wounds and injuries caused by shell fragments. He would apply or supervise the application of splints, and the administration of anti-tetanus serum. He spoke German, undoubtedly useful in communicating with wounded German POWs. When the regiment was not engaged in combat, he would have found himself dealing with disease and sanitation issues. Given that Dickerson did not leave France until 1919, it is almost certain he handled cases of influenza in the pandemic of 1918-1919.

He was promoted captain and continued his affiliation with the Sanitary Detachment of the 8th Illinois, which it became when de-federalized. Re-constituting the National Guard organizations in all the states was a herculean task after the war as personnel were individually discharged. In effect, with the dissolution of the 370th, there was no 8th Illinois and a new 8th Illinois Infantry Regiment organization had to be built from the ground up with a mix of veterans and new recruits. Some units were dissolved for failure to achieve or maintain the federally-mandated personnel strength. Nationally, black units tended not to be adequately resourced and the Regular Army displayed little interest in them beyond documenting their lack of readiness for war during annual inspections. Reports also showed that during the early 1920s, all units did not undergo annual training, nor did personnel attend camps of instruction. The 8th Illinois experienced these problems.

In 1926, Dickerson was promoted to major, now commanding the 8th Illinois' Sanitary Detachment. During the 1920s he, like so many National Guard officers, pursued military education by correspondence courses, the only available method. In 1929, while still commanding the detachment, he was nominated to be a colonel of infantry and commander of the 8th Illinois. Through correspondence courses and after satisfactorily acquitting himself before an examining board convened by Headquarters, 6th Corps Area, he satisfied requirements for promotion to colonel, and assumed command. He was a well-respected and hard-working regimental commander who made effort to build the regiment's strength and conduct meaningful training.

Reaching the mandatory retirement age of 64 on December 1, 1934, Colonel Spencer C. Dickerson was retired per General Orders No. 21, Office of the Adjutant General, State of Illinois, and placed on the retired rolls with the state rank of Brigadier General. Though not federally recognized as a brigadier general, Dickerson became the first black General Officer in either an active or reserve component of the United States Army. Dr. (Brig. Gen.) Dickerson continued practicing medicine until his passing at Billings Hospital, Chicago, on February 25, 1948.

### Sources

"Social Stratification." Interview of Spencer C. Dickerson, MD, by unidentified Chicago journalist, Jan. 20, 1938, courtesy Chicago Historical Society.

Personnel file.

Obituary. Unidentified newspaper. "Gen. Dickerson, 77, Dies; Well Known South Side Doctor."

*The author is indebted to LTC James B. McCabe, Command Historian, IL ARNG, for provision of key documents.*



Dickinson as a brigadier general, wearing infantry brass.

Courtesy University of Texas at San Antonio

## New to the ACHH Archival Repository

### **New Archival Donations: 9**

Four 16mm and one 8mm film reels were purchase by a donor and gifted to the archives for their potential research value about the 90th Field Hospital during World War II.

Richard Rate served as a surgeon during WWII and later contributed to the field of vascular surgery. His collection encompasses a wide range of archival material to include publications, personal papers, photographs, glass slides, and maps.

Louis G. Martin served as Medical Corps Officer during World War I. The following items were donated: special and general orders; Special Regulations, 1917; and Fellowship of Medicine lecture programs.

Logan Jackson served as a physician during World War II. His collection includes books, personal papers, newspaper clippings, and an oversize scrapbook.

Harold J. Fournelle served as a Sanitary Corps Officer during the World War II era. His collection includes personnel rosters and officer directories from Camp Detrick, Maryland and Camp Wolters, Texas.

Robert A. Schachern served as a Technician Fifth Grade during the World War II era. A panoramic photograph of the 1st Convalescent Hospital and a Medical Technician course certificate were donated.

Christine Gebhardt served as an Army Nurse during World War II. Her family donated a history of the 96th Evacuation Hospital as well as a map, photographs, and postcards.

Rosemary Arnold served as an Army Nurse during World War II. Her family donated a collection of war letters, diaries and journals, and personal papers.

COL (Ret.) Joseph Sullivan served with the 50th General Hospital during World War II. His collection includes an assortment of papers, documents, and photographs.

### **New Books: 102**

#### ***Donors:***

Dee Moskowitz, Col., USA (Ret.)

Keith A. Campbell Memorial Library

Brooke Army Medical Center Medical Library

## New to the AMEDD Museum

COL (Ret.) Dr. Michael Benenson offered both artifacts and archival materials from his service and that of his father, COL Abram Benenson, MC. Both father and son spent their careers in epidemiological research. Dr. Michael Benenson offered a SEATO flag from the Southeast Asia Treaty Organization and an Operation PROVIDE COMFORT insignia from his service. He served as the Commanding Officer of the Armed Forces Research Institute of Medical Science in Bangkok, 1980-1984. Other artifacts offered are a cap from Operation WHITECOAT, key punch and key sort cards, hepatitis slide rule, and specimen container from a typhoid vaccine trial from the service of Dr. Abram Benenson. Dr. Abram Benenson served as Director of the Division of Immunology and Communicable Diseases at Walter Reed.

The Museum has received two offers from World War II. The first is a tenite plastic case for a Carlisle Bandage. Tenite was used for one year in an effort to save strategic materials such as copper and brass. CPT Tyler Reid has offered this object to the museum.

The other artifact from World War II is a uniform and medical equipment from Bernard Katz. Katz was a chiropodist and graduated from Temple University in 1938. He served with the 23d General Hospital in Africa, Italy, and France. He was an orthopedic technician who applied casts for the surgeons and supervised the chiropody clinic.

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*30 October 1944, Harlingen Army Air Field, Texas – Is Uncle Sam scraping the bottom of the manpower barrel? Army nurses met the big boss, or a reasonable circus facsimile of the same when the big top played before G.I. personnel of the Harlingen Army Air Field recently. When Uncle Sam saw these nurses, Lt. Laura Ingram, left, of Miami, Fla., and Lt. Margaret Vicroy of Schneider, Ind., right, he grabbed them and then proceeded to change the cutline on his sign. — original caption*

Originally released toward the end of World War II, this news release highlights the emerging realization that not every soldier is male. Established on 2 February 1901, the Nurse Corps (Female) became the Army Nurse Corps (ANC) on 9 July 1918. It was a permanent corps of the Army Medical Department. Nurses were appointed in the Regular Army, although they did not receive Regular Army commissions. During the 17th and 18th Century, Army nurses served as civilian employees or volunteers. During the Spanish-American War, the Army assigned contract nurses without rank designation. The Army worked with the American Red Cross to mobilize for the medical staffing needs required in the Great War. In 1920, nurses were given “relative rank” and addressed as “Miss” or “Nurse.” On 16 April 1947, ANC officers received permanent commissioned officer status. Finally, in 1955 the Army authorized male nurses to be commissioned in the ANC.

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## PED-O-JET Injectors – A Real Shot In The Arm

### Chuck Franson, AMEDD Museum

Since WWI the military has needed to efficiently administer immunizations, especially during the initial intake of service members. Generations of soldiers remember standing in a long line leading to a medic on each side, each armed with a syringe and needle, who administered (often none too gently) the requisite inoculations. As early as 1938, researchers began experimenting with the concept of a needle-free system for administering injections. One principle which showed promise was that of a metered, high-pressure jet stream of liquid which would penetrate the skin and muscle to an appropriate degree.



Soldiers getting their immunizations in WWI.  
Courtesy National Museum of Health and Medicine.

By 1947 an early jet injector, known as the Hypospray, was introduced for clinical evaluation by Dr. Robert Hingson and Dr. James Hughes. By 1951, the Commission on Immunization of the Armed Forces Epidemiological Board requested the Army Medical Service Graduate School (now the Walter Reed Army Institute of Research) to develop “jet injection equipment specifically intended for rapid semiautomatic operation in large-scale immunization programs.” This device would become known as the multi-use nozzle jet injector (MUNJI). In 1955, a prototype multi-dose jet injector, known as the Press-O-Jet, had successfully undergone clinical testing upon 1,685 soldiers within the U.S. Army.



In 1959, LTC Abram Benenson, of the Division of Immunology at WRAIR reported on the development of what became widely known as the Ped-O-Jet. The invention was the collaboration of Dr. Benenson and a civilian scientist, Aaron Ismach, working for the US Army Medical Equipment and Research Development Laboratory. The instrument consisted of: a pistol-gripped body with an attachment point for a multi-use vial; a nozzle which could be changed for different uses (intramuscular or subcutaneous); and a set of lines to a source of air pressure. The device came in two types, one whose pressure was kept up by an electrical pump, and the other, the “Ped-O-Jet” which had the pressure produced by the operator stepping on a pedal, which set the piston for the injection. Both were routinely called “Ped-O-Jet”.

The injection was given by pressing a trigger, which released a piston under air pressure, which forced a metered dose of medicine through the nozzle and into the patient. Great care was required in the operation of the Ped-O-Jet. The skin was wiped with alcohol, and pulled taut. The nozzle had to be held firmly and square against the patient’s arm; the patient had to keep still. Deviation from these requirements could result in a cut to the skin.



The MUNJI, or “multi-use nozzle jet injector” significantly reduced the time for mass immunizations, and in 1961, the Department of the Army made it the standard for administering immunizations; it remained in use for over 35 years, both for military and humanitarian mass immunization programs throughout the world, helping to eradicate smallpox and administer typhoid fever immunizations in the wake of natural disasters.

Above: Ped-O-Jet in carrying case.  
Below: detail of the MUNJI spray head.

Ped-O-Jet seemed a godsend. Then in 1986, an outbreak of hepatitis B occurred in patients who had been

treated with a similar device. Testing revealed contamination issues, due to blood seeping or being sucked back into the nozzle, or spattered on its surface. The result was the potential for cross-contamination, and actual introduction of harmful matter into a healthy patient. A single-use cover for the nozzle was developed, but it proved ineffective. These concerns, coupled with the growing threat of HIV/AIDS, caused the withdrawal of the MUNJI from use by 1997.

The AMEDD Museum has an original prototype Ped-O-Jet from the US Army Medical Research and Development Command, Fort Totten, NY, as well as a variation for veterinary use, modified for use in inoculating cattle.

A video showing the Ped-O-Jet in action, trying to stop an epidemic of swine flu in 1976, is online at

<https://www.youtube.com/watch?v=GmEHC04t0HA>



Cold War recruits receiving Ped-O-Jet injections.

## AMEDD Center of History and Heritage

Capturing, Preserving, and Interpreting US Army Medical History

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AMEDD Regimental History Office:  
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AMEDD Museum:  
<http://ameddmuseum.amedd.army.mil/index.html>





In 1943 there was no Army Civilian Corps or AMEDD Civilian Corps, but the commander of the San Francisco Medical Depot encouraged civilian employees to wear a uniform. It was royal blue with black buttons, a half-inch thick gold braid stripe for every six months of employment. Insignia was handled locally, SFMD with the caduceus in the middle.

Mrs. Esther Jane Wolf was the model.

### 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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