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Chief's Corner

Welcome to the latest installment of the *AMEDD Historian*! This issue contains many historical facets of Army Medicine and some great images too. Dr. Paul E. Stepansky provides an overview of medical innovation developing during conflicts of the last few hundred years in his article "An Irony of War." Read about the interesting career of COL Chauncey E. Dovell, MC, who earns the Distinguished Service Cross during World War I and the Silver Star in Korea, 32 years later! Note the pieces on medical historical collection during World War II, and the artists and photographers sent overseas to capture information.

More articles include the early days of the Army Physician's Assistant Program, medical advisement during the Vietnam War, a World War I Field Hospital, medicine during the Spanish-American War, and the development of the stethoscope. Please read through our current issue and 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 and see the new exhibit on Army Medicine during World War I.

Nolan A. (Andy) Watson
Acting Chief, ACHH

An Irony of War
Paul E. Stepansky, Ph.D.

"There are two groups of people in warfare – those organized to inflict and those organized to repair wounds – and there is little doubt but that in all wars, and in this one in particular, the former have been better prepared for their jobs." So observed Harvey Cushing, the founder of modern neurosurgery, in 1916, a year before America's entry into World War I. Cushing's judgment is true enough but still misleading. It overlooks the fact that throughout history "those organized to repair wounds" have lost no time acquiring new knowledge and new treatments to meet the exigencies of the war at hand. In point of fact, warfare has spurred physicians, surgeons, and researchers to major, sometimes spectacular, advances, and their scientific and clinical victories are bequeathed to civilian populations that inherit the peace. Out of human destructiveness emerge potent new strategies of protection, remediation, and self-preservation. Call it an irony of war.

Nor are these medical and surgical gifts limited to the era of modern warfare. The French army surgeon Jean Louis Petit invented the screw tourniquet in 1718; it made possible leg amputation above the knee. The Napoleonic Wars of the early nineteenth century brought us the first field hospitals



Ambulance Volante de Baron Larrey, 1807

Larrey's ambulance.
All images courtesy of the author.

along with battlefield nursing and ambulances. The latter were of course horse-drawn affairs, but they were exceedingly fast and maneuverable and were termed “flying ambulances.” The principle of triage – treating the wounded, regardless of rank, according to severity of injury and urgency of need – is not a product of twentieth-century disasters. It was devised by Dominique Jean Larrey, Napoleon’s surgeon-in-chief from 1797 to 1815. The Crimean War of 1853-1856 saw the first widespread use of general anesthesia (chloroform by the French, ether by the Russians) by military surgeons. It also brought the first use of plaster of Paris splints to immobilize fractured limbs. Before then, surgeons had to make do with bandages stiffened with starch and cardboard.

The American Civil War witnessed the further development of field hospitals and the acceptance, often grudging, especially among southern surgeons, of female nurses tending to savaged male bodies. Hospital-based training programs for nurses were a product of wartime experience. Civil War surgeons themselves broached the idea shortly after the peace, and the first such programs opened in New York, Boston, and New Haven hospitals in 1873. The dawning appreciation of the relationship between sanitation and prevention of infection, which would blossom into the “sanitary science” of the 1870s and 1880s, was another Civil War legacy.



Anesthesia in the Civil War.

The Civil War was begun seven years before Joseph Lister published his first paper on the germ theory of disease and several decades before it received widespread acceptance. Still, Civil War surgeons and nurses understood that diseases (especially as seen in major epidemics) were caused by some kind of transmittable poison. The war standardized the belief that specific poisons, in conjunction with bad air and excessive fatigue, led to specific diseases. It followed that wound infections spread when the poison in infected wounds traveled through the air and landed on another wound. The upside of this plausible pre-Listerian thinking was that by 1864 Civil War surgeons were cleaning out dead tissue wounds (debriding) with caustic disinfectants in order to leave behind a clean wound bed that would heal. The leap to an antiseptic approach that could prevent wound infection in the first place occurred several years later in the Franco-Prussian War of 1870, at the conclusion of which Lister toured Germany as a hero.

The Civil War also witnessed advances, surgical and technological, in amputation. They included the use of the flexible chain saw to spare nerves and muscles and even, in many cases of splintered or “comminuted” fracture, to avoid amputation entirely. The development of more or less modern vascular ligation – developed on the battlefield to tie off major arteries extending from the stumps of severed limbs – is another achievement of Civil War surgeons. Actually, they rediscovered ligation, since the French military surgeon Amboise Paré employed it following battlefield amputation in the mid-sixteenth century, and he in turn was reviving a practice employed in the Alexandrian Era of the fourth century B.C.

Finally, Surgeon General William Hammond’s creation of the Army Medical Museum in 1862 is a Civil War legacy that endures to our day. It provided a repository of specimens, photographs, and written reports to advance medical knowledge and aid in the education of future generations of physicians.

X-rays were not a product of war, but their first application was to visualize fractures during the Abyssinian-Italian War of 1896, when X-rays, or “radiographs,” of two soldiers with fractured forearms were successfully taken. This was only six months after Röntgen’s discovery of the X-ray. In the Greco-Turkish War in the spring of 1897, Britain supported the Greeks with equipment that included a complete X-ray unit. At a British base hospital in Phalerum, radiographs of some 60 patients were taken to visualize fractures and locate retained bullets. The images were subsequently displayed at the first meeting of the Röntgen Society in London, later to become the British Institute of Radiology. Several weeks later, when Britain suppressed an Afridi tribal uprising on the frontier of British India (the Tirah Campaign), surgeon Walter Beavor examined

200 cases with X-rays on the Tirah plateau. Following his presentation to the United Services Institution in May 1898, X-ray units were officially incorporated into the British Army. The portable units shipped to general hospitals during the Boer War (1899-1902) were the first to include dynamos to generate power for the batteries. America's first use of X-rays was in the Spanish-American War of 1898, but the equipment was only available in the larger general hospitals and three hospital ships. The medical high command felt that radiography in the field was unnecessary, as bullet wounds (so they held) rarely required immediate removal, and X-rays would only encourage premature surgery under less than aseptic conditions.

In 1901 Karl Landsteiner, a Viennese pathologist and immunologist, first described the ABO system of blood groups, founding the field of immunohematology. But it was not until American entry into World War I in 1917 that a rudimentary blood bank came into existence. It involved the collection of Type O blood from universal donors, which could be stored and shipped to other hospitals in France where it was needed.

The First World War also pushed medicine further along the path to modern wound management, including the treatment of the deep, inflammatory wound infections that arose when anaerobic bacteria from the richly fertilized fields of Flanders and Northern France entered the open wounds and stumps of soldiers left on the battlefield for several days. The result was the dreaded gas gangrene, the bane of surgeons and nurses alike. Thorough wound debridement, irrigation with antiseptics, and delayed closure were key to treating contaminated war wounds. Another aid was provided by nature. Surgeons and nurses in northern France noticed that among wounded soldiers left on the battlefield for several days, wounds infested with maggots healed faster and better than those that were maggot-free. Their observations led to the orthopedic surgeon William Baer's systematic application of maggots to non-healing soft tissue wounds at Johns Hopkins Hospital in the late 1920s. Baer's published findings attested to the effectiveness of maggots in removing dead tissue and stimulating tissue regeneration, and led to mainstream acceptance of maggot debridement therapy (MDT) in the 1930s.

The prevalence of central nervous system injuries – a tragic byproduct of trench warfare in which soldiers' heads peered anxiously above the parapets – led to "profound insights into central nervous system form and function." The British neurologist Gordon Holmes provided full descriptions of spinal transections (crosswise fractures) for every segment of the spinal cord, whereas Cushing, performing eight neurosurgeries a day, "rose to the challenge of refining the treatment of survivors of penetrating head wounds." His work from 1917, remarked Mt. Sinai's David Simpson in 1994, "lives today." No less momentous was the development of reconstructive surgery by inventive surgeons (led by the New Zealand ENT surgeon Harold Gillies) and dentists (led by the French-American Charles Valadier) unwilling to accept the gross disfigurement of downed pilots who crawled away from smoking wreckages with their lives, but not their faces, intact. A signal achievement of wartime experience with burn and gunshot victims was Gillies's *Plastic Surgery of the Face* of 1920; another was the founding of the American Association of Plastic Surgeons a year later.



Sir Harold Gillies.

After the war, be it noted, the pioneering reconstructive surgeons of WWI refused to place their techniques at the disposal of healthy women (and less frequently healthy men) desirous of facial enhancement; reconstructive facial surgery went into short-lived hibernation. One reason reconstructive surgeons morphed into cosmetic surgeons was the "psychiatrizing" of facial imperfection via Freudian and especially Adlerian notions of the "inferiority complex," with its allegedly life-deforming ramifications. So nose jobs became all the rage in the 1930s, to be joined by facelifts in the postwar '40s.

The advances of World War II are legion. Among the most significant was the development or significant improvement in the treatment of 10 of the 28 vaccine-preventable diseases identified in the twentieth century; new vaccines for influenza, pneumococcal pneumonia, and plague were among them. There were also new treatments for malaria and the mass production of penicillin in time for D-Day. Through 1944, GIs

went off to war with packets of sulfa drug, the first modern antibiotic, in their first-aid kits. It was during WWII that American scientists learned to separate blood plasma into its constituents (albumin, globulins, and clotting factors), an essential advance in the treatment of shock and control of bleeding. The German scientist Paul Ehrlich coined the term “chemotherapy” early in the twentieth century to characterize any chemical treatment of infectious disease. But chemotherapy in its modern, anticancer “cytotoxic” (i.e., cell killing) sense arose from classified wartime research on nitrogen mustards in 1942 by a group of Yale scientists led by Louis Goodman and Alfred Gilman. Likewise, the development and refinement of sonar during the war to detect submarines opened to the diagnostic application of ultrasound to localize lesions (initially, gallstones) in the late 1940s.

No less staggering were the surgical advances that occurred during the war. Hugh Cairns, Cushing’s favorite student, developed techniques for the repair of the skull base and laid the foundation of modern craniofacial surgery by bringing together neurosurgeons, plastic surgeons, and ophthalmic surgeons in mobile units referred to as “the trinity.” There were also major advances in fracture and wound care along with the development of hand surgery as a surgical specialty.

Wartime treatment experience with extreme stress, battlefield trauma, and somatization (then termed, in Freudian parlance, “conversion reactions”) paved the way for the blossoming of psychosomatic medicine in the 1950s and 1960s. Modern psychopharmacology as we know it today grew out of war-related research. In 1945 Frank Berger, a Czechoslovakian bacteriologist working in London, developed a penicillin preservative that, it turned out, also produced deep muscle relaxation that Berger characterized a year later as “tranquillization.” The drug was mephenesin, and a stronger, longer-acting version of it, meproamate, became the world’s first minor tranquilizer.

The drum roll hardly ends with World War II. Korea gave us the first air evacuation service via helicopter, mobile surgical (MASH) units, and routine vascular surgery. Vietnam gave us Huey helicopters that could evacuate 6-9 wounded soldiers at a time (versus 1-2 in the light helicopters of the Korean War). Prior to



A medic at work in Vietnam.

evacuation, wounded soldiers received advanced, often life-saving, care from medical corpsmen who opened surgical airways and performed thoracic needle decompressions and shock resuscitation. Thus was born our modern system of prehospital emergency care by onsite EMTs. When the corpsmen returned to the States, they formed the original candidate pool for Physician Assistant training programs, the first of which opened its doors at Duke University Medical Center in 1965. Vietnam also gave us major advances in vascular surgery, recorded for surgical posterity in the “Vietnam Vascular Registry,” a database with records of over 8000 vascular wound cases contributed by over 600 battlefield surgeons.

The medical and surgical yield of recent and ongoing wars in the Persian Gulf will be recorded in years to come. Already these wars have provided two advances for which all may give thanks: portable intensive care units (“Life Support for Trauma and Transport”) and Hem-Con bandages. The latter, made from extract of shrimp cells, stop severe bleeding instantaneously.

Now, of course, with another century of war under our belt and the ability to play computer-assisted war games, we are, sad to say, better able to envision the medical and surgical contingencies of wars yet to come. In the years leading up to World War I, American surgeons like Cushing had no idea of the kind of

wounds they would encounter in the casualty clearing stations and field hospitals of France and Belgium. Their working knowledge of war wounds relied on the Boer War, a distinctively nineteenth-century affair, militarily speaking, fought in the desert of South Africa, not the bacteria-saturated fields and trenches of France. Now military planners can turn to databases that gather together the medical-surgical lessons of two World Wars, Korea, Vietnam, Iraq, Afghanistan, and any number of regional conflicts.

Cataloging the medical advances that grew out of two centuries of war is a bittersweet business. The bitterness derives from the realization that the advances are “collateral benefit,” ancillary to the main business of war. The emergence of specialty hospitals in neurology and cardiology during and after the Civil War is a good thing, but also a sad reminder of the new kinds of nerve damage that arose from Civil War weaponry and the array of disabling cardiac symptoms (termed “soldier’s heart”) that grew out of war-related stress and overexhaustion. We can laud the emergence of the science of rehabilitation after World War I but still lament the number of veterans who returned home, and were destined to remain, disabled. The rapid advances in prosthetic technology that followed World War II and made life easier for thousands of amputees, military and civilian, should not blot out the fact that roughly 15,000 U.S. Army soldiers lost limbs during the war. The ability of Vietnam-era military psychiatrists to identify and describe Post Traumatic Stress Disorder is small compensation for the 11% of Vietnam veterans who suffer from major PTSD symptoms to this day. So we circle back to where we began. Perhaps the best that can be said of the advances of military medicine is that they further medical science in ways that benefit all of us. If, as the historian John Kinder has recently noted, injury is not an error of warfare but its very purpose, we may take a measure of comfort in the life-sustaining legacy of such injury.

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COL Chauncey Elmo Dovell, MC, U.S. Army, 1890-1968

by G. Alan Knight

Among the more interesting soldiers to be found in the annals of Army medicine is a medical officer, Chauncey Elmo Dovell, who especially distinguished himself in the Korean War. Though now largely forgotten, Dovell played a critical role in the early AMEDD response to that conflict as the 8th US Army Surgeon. His Korean service marked the most noteworthy professional contributions in a distinguished Army career that began in World War I. What do we know about Dovell, an officer who served with distinction in the AMEDD for 36 years?

A native of the village of Uno in Madison County, Virginia, Dovell was born on 26 August 1890 and was initially educated at Jefferson Preparatory & High School in nearby Charlottesville. In 1910 he earned a B.Sc. at the College of William and Mary in Williamsburg, where he pursued pre-med studies, and in 1914 received his M.D. degree from the University of Maryland in Baltimore. Little is known about his medical activities in the three years following his medical school graduation until, on 28 June 1917, he was commissioned as a 1st Lieutenant in the Medical Officers' Reserve Corps, barely two months after America's entry into World War I. He may have undertaken some postgraduate training at Rush Medical College in Chicago, Illinois which was affiliated with that city's Presbyterian Hospital, in the 1914-1917 period.

Ordered to active duty in July 1917, Dovell was a student and then instructor at the Medical Officer Training Camp, Camp Greenleaf, Georgia until October of that year. In October he was reassigned to Camp Jackson (today's Fort Jackson, SC) where, in September 1917, the newly formed 81st Division had been activated. Divisional medical support was provided by the 306th Sanitary Train and Dovell assumed command of the 322d Ambulance Company, an element of the sanitary train.

Judging from Dovell's subsequent career and evidence of an assertive personality, it would appear that he actively sought a more active role than commanding the 322d which ultimately did not deploy to France until August 1918. While at Camp Jackson, he evidently had contact with personnel of the 371st Infantry Regiment activated on 3 August 1917. It was an African-American organization that drew many of its enlisted men from South Carolina and Florida. All the officers were initially white. It was scheduled for deployment to France as an element of the 93d Division (Provisional).

In March 1918, having successfully arranged for a transfer, he assumed the duties of regimental surgeon and deployed with the 371st, arriving in France on 23 April 1918. Ultimately Gen. John J. Pershing, commander of the American Expeditionary Forces, seconded the 371st to the French 157th Infantry Brigade. While the regiment underwent a lengthy period of training, Dovell attended the AEF Gas School at Langres, France for two months. Given the number of chemical agent casualties in France, this was useful training.

In September 1918 the 371st went into action supporting the 157th in the Champagne Offensive of the Meuse-Argonne attack, and Dovell displayed great personal courage and resilience in the face of the enemy. During three days of sustained combat, disregarding a severe neck wound from a shell fragment, he continued to care for the many wounded, serving as an example of fortitude and devotion to duty to all with whom he worked. In recognition of his gallantry, he was awarded the Distinguished Service Cross, one of ten recipients in the regiment. Following the armistice on 11 November 1918, Dovell served as a regimental surgeon with the Army of Occupation in France and Germany, followed by service at Station Hospital 33 at Camp Pon-



COL Dovell as 8th Army Surgeon, apparently 1951.

Courtesy National Library of Medicine.

tanezen in Brest, France.

Finding military service appealing, he sought and was granted a Regular Army appointment after the war. In 1920-21, he also completed training at the Army Medical School and the Medical Field Service School. Subsequently he served as an operative surgeon either as Chief or Assistant Chief of Surgery at hospitals on various posts in the United States and Philippines from 1920 to 1942. The assignment history is a virtual roadmap of long-inactivated Army installations, but he also served for four years as Assistant Chief of the Surgical Service at Walter Reed General Hospital, a less-forgotten institution. From the Philippines he had a short assignment as Surgical Consultant at the station hospital in Tientsin, China. Recognizing the benefits of specialized training at a noted civilian institution, Dovell completed a special course in brain surgery and neurosurgery at the Mayo Clinic in Rochester, Minnesota in 1937.

At war's outbreak on 7 December 1941, Dovell was Chief of the Surgical Service at Fort Benjamin Harrison, Indiana until, in May 1942, he deployed to the Southwest Pacific Theater and assumed command of the 142d General Hospital then located on Fiji Island, subsequently becoming Task Force Surgeon of the Service Command headquartered there. During much of 1943 he was dual-hatted, retaining both the hospital command and serving as Surgeon of Service Command. As task force and base surgeon, he was responsible for the operation of five hospitals which received casualties from the Bismarck Archipelago, Solomon Islands, and Coral Sea campaigns.

In late 1943 he was reassigned as commander of the Station Hospital at Fort Benning, Georgia and, from July 1944 to May 1946, he commanded the Regional Hospital at the post, a 3,700 bed facility that handled more serious conditions than a station hospital. Such was his competence that as commander, he filled a billet that had previously been occupied by a brigadier general and a major general. Commendations from this period all note his devotion to duty, selfless service, his integrity, and his loyalty. Albeit now as a hospital administrator, Dovell displayed the leader presence, communicative ability, and resilience in dealing with stress that had first appeared in his World War I service on the battlefields of France.

In March 1950 Dovell had been recommended for promotion to brigadier general. Dovell was scheduled for retirement in August, volunteered to continue on duty after the Korean War broke out on 25 June, a personnel action Lt. Gen. Walton H. Walker, Commander of 8th Army, strongly endorsed. Col. Dovell, then serving as Surgeon, 8th Army, Far East Command (FECOM), was all too aware of the medical support challenges in Korea and the need for experienced leadership in a time when the force structure of the post-war years had been drastically downsized after World War II.

Dovell, whose tenure as Surgeon, 8th Army extended from May 1949 to July 1951, flew to Korea with an advance section of the 8th Army headquarters, arriving on 12 July. They set up operations in Taegu, north of Pusan. He immediately recognized the critical shortage of medical personnel and equipment and established hospitals where they could most effectively support front line units. His experience and professional knowledge enabled him to optimize use of personnel, supplies, and equipment at a time when medical capabilities were over-extended and resources austere. His presence and resilience positively impacted subordinates at all levels at a time of high OPTEMPO. In short, he led with confidence in the face of adverse circumstances.

Col. Dovell, in speaking of his experience in Korea, admitted that initially there was a major lack of doctors, nurses, and qualified personnel such as anesthetists. These, along with major shortages of ancillary personnel and medical supplies and equipment helped to define his role, as did the exceptional flexibility he enjoyed in performing his duties as army surgeon due to his close relationship with Lt. Gen. Walton Walker, who had insisted on having Dovell as his surgeon despite efforts to appoint others. When war broke out, his confidence in Dovell would be amply demonstrated.

Enjoying the total and unqualified support of Gen. Walker, Dovell moved units such as the MASH hospitals, newly arrived in theater, on his own initiative to meet urgent operational needs. The hospitals, operating out of tents in locations close to the divisions they supported, provided casualty resuscitation and stabilization.

Dovell also recognized the need to mentor junior officers, many seeing their first war. He constantly

visited front line units to provide encouragement and also, through professional consultations, to fine-tune evacuation efforts. These visits also enabled him to determine what further support was needed from higher headquarters, surface these at headquarters, and ensure that needs were met.

In January 1951, recognizing the efforts Dovell had played for several months, the new 8th Army commander, Lt. Gen. Matthew B. Ridgway (Lt. Gen. Walker had died in a jeep accident), commended him in a letter to The Adjutant General, allocating him much of the credit for the low number of fatalities from battlefield wounds. Dovell's insistence on keeping adequate blood, dressings and other essential medical and surgical supplies moving into forward areas was a critical factor in this outcome.

Col. Dovell was an enthusiastic proponent of a variety of expeditious means of evacuating casualties, by air, ground and rail. On one occasion he was aboard a hospital train that came under hostile North Korean fire on all sides. While weapons mounted on a flatcar attached to the train kept the enemy pinned down, Dovell braved incoming fire, crawled under the last car, and returned fire at the enemy soldiers until a patrol of the 7th Infantry Division arrived.

Despite his age, Col. Dovell was supportive of new technology. In the case of helicopters, first widely used in the Korean War, he recognized their potential for patient evacuation. In the early months of the Korean War, medevac was not only a new mission (or even a formally recognized one) but Detachment F of the USAF 3d Air Rescue Squadron found itself with few downed pilots to rescue and turned to evacuation of the sick and wounded. Dovell became interested in the helicopter, requested the loan of one aircraft for a test, and was subsequently flown from Taegu to the 8054th Evacuation Hospital in Pusan, a distance of 100 kilometers, in an H-5 with 2 litters aboard. He became a strong advocate of this mode of evacuation.

By late fall of 1950, with support received all the way up the chain of command, including Gen. Douglas MacArthur and The Surgeon General, Dovell's efforts to acquire Army helicopters under his control got results. In January 1951, four helicopter detachments arrived in country for assignment to the 8th Army Surgeon with three actually being used for air evacuation. Each helicopter, an H-13 Sioux, was rigged with two exterior pods for litter patients mounted on the skids. Initially Stokes litters were used and modified, including covers locally fabricated to protect patients from the elements. Hearing that transport in such litter pods was claustrophobic, Dovell himself had himself flown in one, again to Pusan. He was quoted as saying, "By the time I got to Pusan, I was wringing wet and I'm not a fearful individual as my record will show." He further commented that the flight experience was probably the most frightening experience of his life. He then directed that medics would sedate all patients evacuated in this manner.



A patient evacuated by helicopter, Korean War.

On 25 September 1950, while inspecting medical support of frontline units above the Chongchon River, Dovell observed an enemy column descending a mountain trail that intersected the road on which his jeep was traveling. Quickly arming himself and positioning the rest of his party to cover the North Korean advance, Dovell exposed himself to enemy fire, both firing at the enemy and directing the fire of the others. His actions resulted in the capture of 13 enemy soldiers and resulted in him being awarded a Silver Star.

Though being sixty years of age, Dovell seemed to thrive, despite pain and embarrassment as when he incurred frostbitten feet at the front. "Despite fatigue and frostbite he was a formidable figure (and also a very large man), ordering people and units about in his soft Virginia drawl, indulging in barbed ridicule of one general whom he criticized for his obsession with acquiring decorations, both foreign and domestic, smoking Webster Fancy-Tail cigars, and drinking his favorite Ballantine Scotch. He kept .50 caliber machine guns on his jeep, and a carbine firing tracer bullets ready at hand, and when close enough to the line would stand up

and blaze away in plain sight of everyone, including the enemy.”

Finally, in 1951 a severe case of frostbite and lack of timely treatment due to the tactical situation resulted in Dovell's relief and return to CONUS for treatment and reassignment to his final tour of duty as Special Assistant to the Surgeon, Army Field Forces, at Fort Monroe, VA from where he retired on 31 Aug. 1953. In almost 40 years of active duty as both a surgeon and combat soldier, he had served in three wars and been awarded the Distinguished Service Cross, Distinguished Service Medal, Purple Heart, Silver Star, Distinguished Flying Cross, Bronze Star, and Legion of Merit. His crowning achievement was his Korean War service. An outspoken and larger than life figure, Col. Dovell set the stage for AMEDD success in Korea with his inspired and effective leadership. Though he never complained about it, his failure to be promoted to brigadier general, despite several recommendations, was likely the result of antagonism he may have created with some of his superiors through the aggressive and persistent efforts he made to optimize medical support for the care of the wounded and the sick. He became one of the most widely-known officers in Korea, especially among the medics. As then-CPT Harry L. Gans, a Medical Service Corps officer said, he could hardly have avoided knowing Col. Dovell: “Almost every time we turned around, Dovell was there.”

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Ambulance Company No.13, 1st Division, on the move, 3 October 1918. In WWI, each division had four organic ambulance companies and four field hospitals.

Ralph Creer and the Museum and Medical Arts Service during WWII

Carlos Alvarado, ACHH

Although Ralph Creer's service to the U.S. Army was brief (1942-1946), his contributions to U.S. AMEDD medical illustration during World War II had a lasting effect. On August 11, 1936, he wrote to Major General Charles R. Reynolds, the U.S. Army Surgeon General, highlighting the importance of creating a dedicated, self-sufficient medical illustration unit capable of documenting clinical and technical aspects of U.S. Army Medical Department activity during war time. Creer was then the Principle Photographer at the Veterans Administration in Hines, Illinois but he had already played a pivotal role in the establishment of the Biological Photographic Association in 1931, an organization that believed scientific discovery and medical innovation could be brought forth through the lens of a camera.

While the Surgeon General's Office continued to mull over Creer's suggestion for several more years, the decision to establish the Museum and Medical Arts Service finally came to fruition in 1942. The unit's mission according to Creer, "was to provide an adequate and efficient illustration service for the Medical Corps." Medical photographers and illustrators trained in the medical arts were selected and organized into detachments and deployed throughout the various theaters of operations to document medical activities. The teams were tasked with taking photographs, motion pictures, and drawings of injuries, equipment, and AMEDD personnel in order to be brought back to the Army Medical Museum for instructional and historical purposes.

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CPT Ralph P. Creer.

Courtesy DeGolyer Library, Southern Methodist University.



All captions are the original.

INTERIOR OF THE STATION:

Technicians set up medical supplies and dress operating table in this clean and roomy station. A walking wounded soldier waits to be evacuated. 22 April 1945. Calderara, Italy.

BATTALION AID STATION DURING PUSH:

Stone structures like this Italian farmhouse are chosen when available to provide protection for station personnel and casualties. Terrain beyond the rim of the elevation in background is under enemy observation. Location on road permits vehicle evacuation to the rear and from some distance forward, but at times the axis of movement of the battalion does not allow this convenience. A captured Red Cross flag at the top of the building suggests the enemy made a similar use of it. Battalion CP is, as usual, situated nearby. 19 April 1945. Pianoro, Italy.



PATIENT MADE TRANSPORTABLE:

At the overcrowded aid station only wooden splints were placed on the fractured leg of this patient for the trip to collecting, in this instance relatively short and over good roads. Traction is applied here to prevent damage to the limb until such time as the casualty may receive definitive treatment at a field or evacuation hospital. No MET was previously made out on the patient, a German Prisoner, and a clerk initiates one at this point. 26 April 1945. Legnano, Italy.

MEDICALWARD:

Section of a typical evacuation hospital medical ward in summertime is shown as ward nurse makes a periodic check of pulse and temperature of patients. At left, not visible, is a row of cots running the length of the tent, an arrangement which affords added room in the aisle, feasible when the ward is not operating at capacity. Numbers designating beds are fixed to the canvas. 5 May 1945. Buttapietra, Italy.



The Army's First Physician Assistant Program

Adriane Askins Wise, former historian, AMEDDC&S, HRCoE

This February, the US Army Medical Department Center and School, Health Readiness Center of Excellence (AMEDDC&S, HRCoE) and the Army Physician Assistant (PA) community celebrated 45 years of training Army Physician Assistants. While the beginning of the civilian PA profession have been well-documented, very little has been written regarding the start of the Army Physician Assistant Program (PAP) which graduated its first PAs only five years after the profession commenced in 1967. The following, a brief history of the Army's first PAP, seeks to fill that gap.

In the closing months of 1970, LTG Hal B. Jennings, Surgeon General of the United States, tasked Brooke Army Medical Center (BAMC) and the US Army Medical Field Service School (MFSS) to develop and implement a program for the training of PAs. The substitution of non-physician medical personnel for physicians in certain roles had been in development at MFSS since the graduation of the first civilian class of Physician Assistants from Duke in 1967. The Health Care Research Directorate of Doctrine and Evaluation of the MFSS spent most of 1970 actively developing a proposal called the Troops Clinics Project whose prime objective paralleled that of a PA. The Directorate worked on the Troop Clinic Project extensively, developing and modifying the proposal four times at the request of the Surgeon General before it was overridden by the new task. While creators of the Troop Clinic Project expressed palpable disappointment their concept was not used, the considerable work and thought introduced in the proposal helped speed the startup of the US Army Physician Assistant Program (PAP).

Shortly thereafter, MG Kenneth D. Orr, dual-hatted commanding officer of BAMC and MFSS, and LTC Robinson, Jr., the newly assigned Physician Assistant Program project officer, visited Duke University for assistance with establishing an Army course. During their visit, a university official made them aware of Private Ray Reed, a recently drafted Duke PA student who was in training at the US Medical Training Center (MTC).

Upon their return, LTC Robinson, Jr. requested Private Reed be assigned to the program. From approximately December of 1970 to March 1971, Robinson and Reed were the program's only official staff. Reed's recent Duke PA program experience became an indispensable resource to the Army PAP program and served as the foundation of the Program of Instruction (POI), creation of training aids, selection of text books, as well as formulation of the prerequisites.

By the end of the first quarter of calendar year (CY) 1971, a Physician Assistant Branch was officially authorized and added to the structure of the Medicine and Surgery Division, Directorate of Instruction. Its primary mission, as described in the 1971 MFSS Annual Historical Report, was to "conduct the newly designed Physicians' Assistant Course to provide warrant officers with a working knowledge of health care delivery techniques necessary to assist a medical officer."

Within weeks of the PAP's official establishment, MFSS and Medical Corps leadership were vigorously promoting not only the new profession but the upcoming program. Initial presentations drew attention to issues plaguing all of the military medical services. The foremost being the end of the draft and subsequent crisis in recruitment of physicians to fill the needs of a peacetime Army. Recruitment and retention of physicians had always been difficult due to disparity of pay with the civilian world and overwhelming workloads, but now even more difficult as the number of family practice doctors had declined due to a combination of the rising cost of medical school and the increase in medical specialization.

PAP proponents believed the new Army PA would be the panacea for many of these issues. They described the PA as a new intermediary medical professional who would be trained by physicians to think like physicians, be supervised by physicians, and capable of performing tasks that would free physicians to treat more serious cases.

In appealing to PAP recruits, they billed the new Army medical professional as more than just a handmaiden to doctor position. It was a career growth opportunity for E-6 or E-7 Enlisted Soldiers, a prestigious

career for those wanting to continue to practice their medical skills and with the additional advantage of being viable medical profession in the civilian world upon retirement. They also reasoned it was an overall win-win situation for not only the delivery of health care, the Army physician, the individual Army Physician Assistant but most of all the Army Medical Department's bottom line – the cost of training and paying PAs was significantly less than recruiting and paying physicians.

On 12 July 1971, the AMEDD received approval to implement the Physician Assistant Training Program. An announcement was sent to the field the same day via the Department of Army Circular which included a list of basic requirements for application. These included a primary medical MOS, a minimum of three years clinical experience in a military environment, a high school diploma or equivalent with a general technical score of 110 or higher, physical qualifications for an appointment as a warrant officer, and that the candidate be of impeccable character and exhibit strong leadership qualities.

The response was overwhelming; 706 qualified soldiers applied by the cutoff date. Caught off guard by the number of applicants, the selection board implemented a pretest in October of 1972 to winnow possible candidates to a manageable number. By mid-October initial selection for the second phase of screening was underway. Out of the over 700 hundred applicants, 200 were selected for the final testing and interviewing process held at a San Antonio hotel from 6-13 December. Candidates were administered a battery of written tests followed by a panel interview. It was later revealed the screening process was the most rigorous ever conducted for admission into an Army Medical Department training program at that time.

Sometime in late January, the selection board finalized their selection to 120 candidates. The first 60, declared "the best-of-the-best," received appointment letters shortly thereafter and began reporting for duty at Fort Sam Houston in February 1972.

The opening ceremony of the Physician Assistant Program was held on 28 Feb 1972. Opening remarks delivered by Surgeon General LTG Hal B. Jennings, Jr made clear the first PAP class was charged with an awesome responsibility of being standard bearers of a new Army profession. The first class was not only being tested on their individual performance but on their ability to achieve acceptance by patients and fellow health workers. The bar had been set and for those who would reach it or surpass it, there waited a golden ticket. Upon successful graduation, the newly minted Physician Assistant would receive a warrant officer's commission as well as an Associates in Science from Baylor University.

The first class would be attending a 72-week program divided into three phases. Phase I, six weeks in length, was primarily a didactic introduction to the overall course and basic warrant officer orientation. Phase II was 42 weeks long and consisted of a combination of didactic instruction and clinical application of material presented within a hospital and/or health or troop clinic environment. The third phase, 24 weeks in length, was temporary duty in a selected Class I military hospital where students were to gain hands-on experience. Upon conclusion of Phase III, students returned to the Academy of Health Sciences for final examinations, graduation, and an appointment.

While the Army, Navy and Air Force's nascent PA Programs were received by the military community with open arms, their civilian counterparts were running into a maze of legal problems. Resistance to the PA in the civilian world was coming from physicians and nurses who saw the new medical profession as a challenge to their long established hierarchy and openly questioned the PA right to practice medicine. They had substantive grounds for concern; as of May of 1972, the American Medical Association (AMA) still had yet to clarify its position on the PA or establish recommended guidelines for the new medical specialists. Even basic liability issues such as whether or not a civilian PA would carry their own malpractice insurance or be the legal responsibility of the primary physician had yet to be worked out.

A month after the commencement of the first class, the Health Care Research Division of the MFSS completed a survey of Army Physicians' opinions concerning the use of Army PAs in March of 1972. The results showed resounding support of the new MOS by Army Physicians. Ninety-one percent of those surveyed felt there was a definite need for PAs and 85.2% said they would request PAs be assigned to them as soon as they were available.

As of January of 1972, the staff and faculty of the Physician Assistant Branch consisted of only COL

Robinson, Jr. and now SP5 Reed. A rapid buildup of instructors and staff took place and, as of April 1972, the program reported it had 14 Medical Corps officers (including COL Robinson, Jr.) as instructors, four senior noncommissioned officers, and a couple of secretaries. The program, however, was in the processes of losing SP5 Reed. His commitment to the Army ended in June and he planned to return to graduate school to complete his PA degree. Ironically, SP5 Reed was ineligible to attend the PA Program at the MFSS under the prerequisites that he had played a major role in establishing.

The first class of 60 students began Phase I on 28 Feb 1972. While attending the course, all received the pay and allowances of their regular grades but wore Warrant Officer Candidate (WOC) insignia instead of the stripes and chevrons of their grade. Their arrival at the Academy Health Science (AHS) was accompanied by a media blitz; the program and candidates appearing in numerous articles in both Post and local newspapers throughout the year.

One of note involved front page coverage of WOC Donald L. Spidell. A week after receiving instruction on emergency childbirth as part of the Phase II coursework, WOC Spidell found himself delivering his own child when his wife went into labor in the middle of the night. The newspaper's glorification of the PA candidates abilities were not well received by all the paper's readers. A letter to the editor of the San Antonio Express from a local physician revealed that Army Physician Assistant trainees were not immune from some of the back lash their civilian counterparts were receiving from medical professionals. In the physician's opinion, WOC Spidell had possibly put his family in danger by not only delivering the child himself but by delivering in a nonhospital setting. He additionally suggested that WOC Spidell's actions were the result of poor or inadequate training.

In May 1973, program leadership decided to extend the 72-weeks curriculum to two years (68 to 92 credit hours). The following PAP classes would spend a year of study at the AHS followed by a permanent change of station to an Army hospital for a year of practical experience under the supervision of assigned physicians.

On 5 February 1973, the first class concluded its Phase II training and prepared to deploy for Phase III to Army Hospitals throughout the Continental US. Less than two hours after bidding the first class bon voyage on their Phase III training, MFSS leadership and PAP cadre were welcoming the third class of PA candidates to Phase I training.

Accreditation was finally received at the end of June with less than five weeks before the first class was scheduled to graduate. The US Army PAP became the 32nd accredited PA course by the American Medical Association's Council on Medical Education.

On 10 August 1973, the first class of 52 students of the Physicians' Assistant Course graduated to become the Army's first Physician Assistants. Earlier in the week they had been appointed Warrant Officer Commissions during a separate ceremony. Graduation exercises were held in Blesse Auditorium and the commence address was delivered by now retired MG (R) Kenneth D. Orr, who had helped spearhead the program. The graduates then posed for their class picture on the steps between Aabel and Willis Halls on the new AHS campus making them possibly the first class to use this now iconic class picture location.

By April of 1975, the Army determined enough PAs were on active duty and a decision was made to terminate the successful Physician Assistant Program. By that time, 180 PAP graduates were working side by side Army doctors and 160 students were in the process of being trained. Sixty more candidates were scheduled to enter the Academy later that summer. After that point, the AHS planned only to train replacements for those retiring upon completion of their obligation and/or recruit from the civilian ranks.

The close of calendar year 1976 saw the graduation of the 8th class of Army PAs to attend course 6H-911A; their graduation coinciding with the termination of the Army's first Physician Assistant Program.

Less than three years later, a shortage of PAs ensued and the Army Surgeon General order the program restarted. Unable to get an appropriation bill for new training program approved by Congress on such short notice, the Army contracted with the Air Force and began sending students to Sheppard Air Force Base for training. Three Air Force PA classes in 1979 had Army candidates. In September of 1979, the Army PAP reopened at the AHS at Fort Sam Houston to continue with its tradition of producing the military's finest

PAs.

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Hospital Corps men training to evacuate a casualty on an extemporized litter made of rifles and slings, at the School of Instruction on Angel Island, San Francisco, 1902.

Courtesy National Museum of Health and Medicine.

Army Nurse Artwork of Manuel Tolegian

Reprinted from *On Point!* courtesy of the Army Historical Foundation

World War II marked an important era in the history of the Army Nurse Corps. During the conflict over 59,000 women served as Army nurses. They could be found in every theater of war, often serving in field and evacuation hospitals just behind the front lines and subjected to enemy fire. Their skill and dedication in taking care of wounded and sick soldiers resulted in record-low mortality rates – less than four percent of American soldiers who received treated men in the field and were evacuated died. Over the course of the war, 201 nurses died from enemy action, disease, or accidents. Dozens more became prisoners of the enemy, including sixty-seven captured by the Japanese when the Philippines fell in 1942.

The pieces here showing Army nurses at Camp White, Oregon, are the work of Manuel Tolegian. Born in California in 1911 to Armenian parents who had emigrated from Turkey, Tolegian graduated from Manual Arts High School in Los Angeles in 1930. He later graduated from the University of California before studying at the Art Students League in New York City. President Franklin D. Roosevelt personally selected one of Tolegian's pieces for permanent display at the White House, and several additional works can be found in the collections of the Museum of Modern Art, the Smithsonian Institution, and other museums. In addition to painting, Tolegian served as a book illustrator and wrote music. He died in Sherman Oaks, California, in 1983.

After Congress withdrew funding for the Army's art program in May 1943, Abbott Laboratories, a pharmaceutical company based near Chicago, Illinois, and *Life* magazine established programs to create a visual record of the American military experience in World War II. Abbott, in coordination with the Army's Office of the Surgeon General, commissioned twelve artists, including Tolegian, to record the work of the Army's medical activities. Tolegian was sent to Camp White to observe Army nurses training for service overseas. He later produced ten pieces from his observations. The Department of Defense acquired the Abbott Collection after World War II and distributed the artwork to each service. The 194 Army-related pieces are now part of the Army Art Collection housed at the Museum Support Center at Fort Belvoir, Virginia.





Book Review

Van Straten, James G. *A Different Face of War: Memories of a Medical Service Corps Officer in Vietnam*. University of North Texas Press, Denton, Texas, November 2015, 497 pages, endnotes, pictures.

Scott C. Woodard, Historian, ACHH

Major James G. Van Straten, Medical Service Corps, served as the senior medical advisor to I Corps of the Army of the Republic of Vietnam from July 1966 to June 1967. This memoir is rich from details gathered from 352 letters written to his wife, Patricia, back home raising their six young children in San Antonio, Texas.

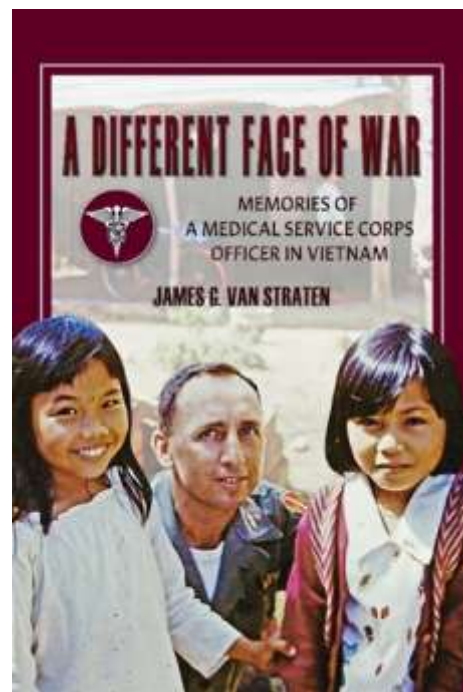
This book is gold.

The reader is privileged to peer inside the personal thoughts and experiences of war from a different perspective. Van Straten's story is unique because it uncovers an aspect of the Vietnam War rarely told, that of the "softer" side of war. As an advisor to the Army of the Republic of Vietnam, his job entailed mentoring and facilitating the improvement of military and civilian hospitalization, evacuation, and treatment. The I Corps Tactical Zone, along the demilitarized zone separating the two Vietnams, experienced the highest number of casualties during his year-long tour of duty. It also captures the often unbelievable journey of a newly-promoted field grade officer influencing at levels far beyond his rank.

Ever so humble, Van Straten always laments the privations suffered by his fellow soldiers and those Marines living in the jungles and swamps of frontline combat. The US Military Assistance Command, Vietnam Advisory Team 1 placed the Major at the intersection of civilian and military casualties. South Vietnamese civilian casualties suggested the South Vietnamese Army could not protect its people. This challenge to legitimacy required immediate intervention and change to give the young Government of Vietnam a chance to succeed.

He saw flames of war reflected in the eyes of devastated mothers and suffering children. The innocent casualties of war were a subject missing from the curriculum of the Medical Field Services School and Major Van Straten took on the challenge to fill that knowledge gap with all his might. His mission to help save the lives of Vietnamese soldiers and civilians was complicated and a seemingly impossible task. His descriptive language and raw emotion fires the present senses to experience his unforgettable memories of the past.

Jim Van Straten's grasp and understanding of Vietnamese culture allowed him access and influence. Many hard-learned lessons related to stability operations and counter-insurgency are noted throughout the book. The reader can easily apply the observations from 50 years ago to very similar circumstances today. Colonel (US Army, Retired) James G. Van Straten, PhD, provides a critical first-person narrative that is easy to read. As readers, we pass through the ebb and flow of emotions experienced working with indigenous forces and living separated from your loved ones. *A Different Face of War: Memories of a Medical Service Corps Officer in Vietnam* is a must read not only for today's Medical Service Corps officer, but all members of the AMEDD who value bringing in vicarious knowledge gained from successful professional soldiers. Several former Republic of Vietnam Armed Forces senior leaders remarked in the Indochina Monographs what constituted a good advisor: "The success of giving advice or receiving it is an art that depends a great deal on personal virtues and the individual's approach to human relationships... The key to success depended on flexibility, restraint and understanding." This book tells you how he did it, and it is incumbent on us to learn from it.



History of the 318th Field Hospital in WWI

Thomas Page Nelson, Jr. *History of 318 Field Hospital*. New York: Page Publishing, Inc., 2017.

A century ago the 318th Field Hospital was organized as part of the 80th Division. A new book traces their history. Individual training began at Camp Oglethorpe, GA (a major medical training camp), then the unit was assembled what was then the brand-new Camp Lee, VA. They deployed across the Atlantic Ocean and into the northeastern corner of France where men heard, saw, and smelled the rigors of war from their field hospital. At times they used humor to help cope with the horrors of war.

This book, based on stories written by the soldiers, will help you see their journey to and back from war.



The 318th in France. Author's collection.

The author's grandfather, Major (Dr) Hugh Thomas Nelson, Jr., was the commanding officer. He wrote home from the Chateau at Chauvirey-le-Vieil, France, around June 20, 1918:

"Dear Wife:

Well, here I am in France and I wonder if there is any other commander in the A.E.F. with a zoo like I have. I will give you a fairly accurate account of one day's routine and I have the same routine six days a week and Sunday a little worse. We get up at six A.M. and Captain Reinhart) gives the Army exercises. About four in the front rank are going through the movements. The other 75 are making arrangements to get some cognac and a pass to Vitrey, where are some mademoiselles. Then comes a trip to Ouge with four of the men for medical treatment and at five P.M. word comes in of a battle royal going on among the four patients, that three are hors de combat and the survivor threatening to assassinate anybody who comes his way. About ten P.M. all is quiet and I think for once they are all in their bunks, when I see about twenty men coming from the direction of the madam's wine cellar. How they are able to scent the wine is beyond me. Then about midnight, as I am looking out my window in the château, contemplating the stars, and thanking the Lord that the zoological animals are all in their bunks for once, I see about half the company running in the big barn with 317's sergeant of the guard in pursuit. Hughie"

One soldier wrote about their employment up at the front: "Our hospital, which was designated a triage hospital, was only a stopping place for the wounded. No surgical work of a major kind was done here, except in very rare instances where it was a question of life and death for a man to receive instant attention – amputation, etc. Ordinarily, a wounded man would be in the hands of the medical officers only about ten or fifteen minutes..."

The field hospital was disbanded on June 9, 1919 at Camp Dix, NJ, and most soldiers were discharged at the same time.

AMEDD: The Spanish American War

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The Spanish-American War represented the culmination of a period of deteriorating relations between the United States and Spain. Although this war has not been heralded as one of the most influential in American history, it saw significant medical advances. The short war had a huge impact on both military and civilian medicine, as it represented the first war to be fought after the bacteriological revolution. This medical revolution had brought germ theory to the science of medicine and with it sweeping changes in medical knowledge, insight, and thought. For the first time, physicians had what the world saw as undeniable scientific legitimacy on their side. The power and expertise that this legitimacy brought with it meant significant reforms in military hygiene and medicine.

During the earlier Revolutionary and Civil War periods, the status of the medical profession was fairly low. With few viable therapeutics and great equipoise in the field, physicians had little to offer their patients. Hygiene and preventive medicine were the one exception, but doctors' lack of credibility with line officers meant their advice often went unheeded. This ignorance of the importance of hygiene meant tragedy and unnecessary suffering for soldiers in crowded camps.

During the Spanish-American War, physicians had greater legitimacy than ever before. Germ theory allowed them to both identify disease and understand contagion. Unfortunately, this new knowledge was not, at first, fully implemented. The military would have to relearn many lessons related to battlefield medicine and hygiene, costing the health and lives of American soldiers. Military doctors still lacked substantial rank and so recommendations based on the practical application of germ theory often went unheeded. This failure was obvious both in theater and at home. At the start of the war, training camps of 108,000 volunteers from across the US were gathered in a handful of national encampments located along the Eastern seaboard. Since commanding officers had very little knowledge about hygiene in preventing disease, sanitary facilities were rapidly overwhelmed. The result was epidemics, suffering soldiers, and public outcry.

In response to this public outrage, the AMEDD investigated infectious diseases such as typhoid and yellow fever. These boards used the knowledge gained in the bacteriological revolution to shed new light on epidemic disease control and provide greater legitimacy to physicians calling for preventive hygienic measures. Although the most boards had little impact until after the war had ended, it was the exigencies of war, coupled with the rapidly advancing medical knowledge that precipitated their creation. The most famous was the Yellow Fever Board led by Major Walter Reed along with James Carroll, Jesse W. Lazear, and Aristides Agramonte. Motivated by the high incidence of yellow fever among troops in occupied Cuba, this board successfully investigated the disease, its etiology, and mode of transmission. In discovering the disease vector to be mosquitoes, Walter Reed and his team disproved the conventional wisdom that this disease was conveyed by fomites (infected non-living objects such as clothing and bedding). Major William Gorgas (chief sanitary officer of Havana) then took immediate action and carried out a mosquito eradication program that would later be recreated and reused throughout the southern United States as well as internationally—most famously in the Panama Canal.



Yellow fever patient in a field hospital in Cuba.
Courtesy National Library of Medicine.

Aside from these advancements in hygiene and public health, the Spanish-American War also saw advancement in clinical medicine. Perhaps most important was the advent of antiseptic and aseptic surgery, which saved many lives during the war. Aseptic surgery helped usher in a new era of surgical medicine that was especially important given the development in weapons (such as metal jacket bullets) that tore through soldiers' bodies, leaving them in need of surgical intervention. The recently invented X-ray was also readily employed by the military and used to locate projectiles for removal. However, these were cumbersome and could not be brought into the field.

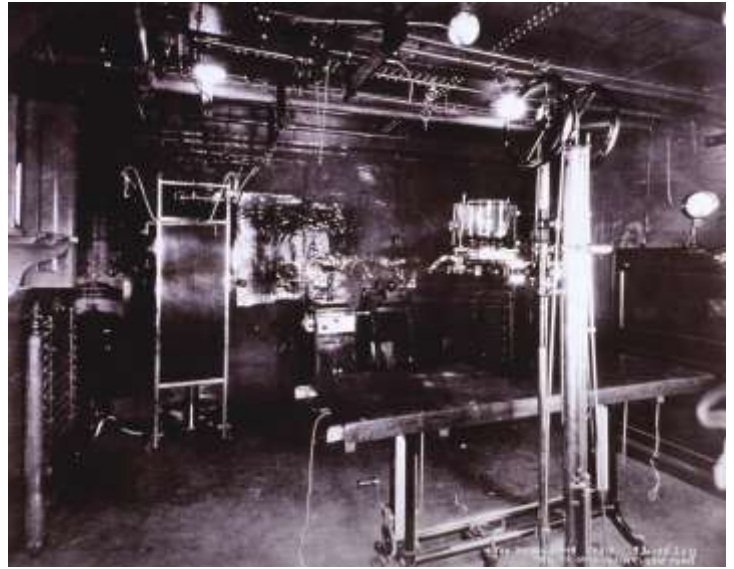
The Spanish American War also led to education reform for military medical personnel. During this time Surgeon General Sternberg, appointed in 1893, successfully created an Army medical school that focused on hygiene and had complete access to the Surgeon General's Library. The medical education of line officers was accomplished by way of the US Infantry and Cavalry School (at Ft Leavenworth)

and West Point—both taught military hygiene. Unfortunately, this had little impact on the war itself, as the few recent graduates were low in rank. Regardless of the educational reform's lack of impact on the Spanish-American War, it signaled an important recognition of hygiene that drew on the ideas of germ theory and the bacteriological revolution. Advancing medical knowledge inspired books such as Woodhull's *Notes on Military Hygiene for Officers of the Line*, as well as commissions (mentioned earlier) that would have great impact on the future of both military and civilian medicine.

The combination of the exigencies of war with the enthusiasm surrounding this medical revolution brought with it groundbreaking medical knowledge that would permeate civilian medical practice. Physicians had gained invaluable experience in war that would inform civilian medicine for years to come. In this way, we can see a clear example of the continuous relationship between civilian and military medicine. The bacteriological revolution that took place in the civilian sector provided knowledge that, when combined with military experience, prompted new understandings of disease and ways to fight them. Although there have been marked differences in the scale and scope of disease and disability encountered, military and civilian medicine have been necessarily and intimately linked. The military has long acted as an exceptional learning opportunity both for individual medical professionals and the overall state of medical knowledge. The Spanish-American war helped to highlight the importance of hygiene while the exigencies of the battlefield prompted or rather propelled medical innovation.

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The X-ray machine on the hospital ship Relief.
Courtesy National Library of Medicine.

The Physician's Ear

Charles Franson, AMEDD Museum

Since antiquity, physicians knew they could get important diagnostic information by listening to patient's chests. At first, most emphasis was on breath sounds, but later clinicians began paying attention to heart sounds. The technique employed was "immediate auscultation", or listening to the chest with the ear placed in direct contact with the patient. While this allowed the physician to hear some sounds, they remained muffled and indistinct.

In 1816, French physician Rene Laennec was working at the Hospital Necker, a charitable institution in Paris. He was to examine a young woman, and (tradition has it) he was embarrassed at the prospect of performing immediate auscultation on her. Remembering that sounds can be conducted by certain materials, he requested a sheaf of papers, which he rolled into a cone. The wide end was placed on the woman's chest and, to his delight, the sounds came through much clearer than if he had merely placed his ear against her chest wall. It was also easier to localize the sounds. Laennec experimented further and designed a hollow tube turned from boxwood, and continued his research. The stethoscope, as he named the device (from the Greek for "chest" and "observe"), did not catch on immediately, even though he provided a free stethoscope with the purchase of his monograph on the subject. Over time, "mediate auscultation" did become an accepted practice in diagnosing chest diseases.

As practitioners became aware of the procedure, a wide range of improved designs replaced Laennec-style stethoscopes in an effort to get better and clearer sounds from the chest. For instance, Pierre Adolphe Piorry developed one in the 1830s with an improved bell design and a more ergonomic earpiece. Early stethoscopes were monaural, that is having a single earpiece. The monaural stethoscope revolutionized diagnosis of cardio-pulmonary disease, and became a standard item of Army medical equipment by the 1860s. It remained popular throughout the 19th and into the 20th Century.

Meanwhile, other researchers were developing a binaural stethoscope for better resolution of chest sounds. Early attempts proved unwieldy and rather fragile. By 1852, George Camman designed a binaural stethoscope with a hinged crosspiece to help fit the earpieces to individual head sizes, which developed over the years into various forms including the recognizable spring steel spreader seen today.



Early Piorry stethoscope from the 1830s made of turned wood with bone or ivory fittings.



Dennison pattern stethoscope featuring binaural earpieces and flexible tubes attached to a gutta-percha bell, circa 1885.

By the 20th Century, further developments led to instruments with diaphragms to hear more minute heart sounds, often coupled with a bell to hear lung sounds. Improvements in rubber tubing provided better transmission of sounds.

The stethoscope has gone from being a physician's novelty to being an indispensable and common piece of basic equipment, used at all levels of healthcare; it is even standard issue to our soldier-medics.

The AMEDD Museum has a broad range of stethoscopes ranging from early monaurals, such as the Piorry model from the 1830s, and gutta percha stethoscopes from the Civil War, to binaurals such as a Denison model from about 1885, up through modern Rappaport-Sprague and Littmann models.



This modern Rappaport-Sprague stethoscope has the ability to select either a bell or a diaphragm to optimize sound reception. Used by MG Steven Jones. While serving in Iraq, Dr. Jones served a cardiologist for Saddam Hussein following Hussein's capture.



Demonstration of first aid methods at the Medical Field Service School, Carlisle Barracks, PA, February 1943. Courtesy Library of Congress.

New to the ACHH Archival Repository

The family of William L. McGowan donated a collection of maps, publications, and photographs from the 31st General Hospital's time at Espiritu Santo, New Hebrides during World War II. The majority of the items correspond to McGowan's service as the Executive Officer of the 31st General Hospital in the South Pacific.

Mr. Robert Martin donated a DVD containing digital scans of Lieutenant Edith Shacklette's World War II Prisoner of War diaries.

The AMEDD Museum transferred a small collection of papers documenting the service of Lieutenant Colonel Paul A. Bloomquist, and a mixed collection from John R. Simmons.

New to the AMEDD Museum

Retired Sergeant Major Kasha M. Zilka has offered her Army green uniform from the last few years of her thirty years of service with the AMEDD. Kasha enlisted in the Women's Army Corps in February 1967. After Basic Training, she came to Ft. Sam Houston and was trained as a Social Work/Psychology Specialist. Ms. Zilka was the first female SGM of Education and Training, Health Professional Support Agency, OTSG and also the first female SGM of Health Services Branch, Total Army Personnel Command. Her last assignment was as SGM Readiness and Training Division, Operations Directorate, MEDCOM.

Dr. Gilmore Sanes Jr. has offered to the AMEDD Museum a group of documents and a hand painted life ring from the US Army Hospital Ship *Frances Slanger*. The *Frances Slanger* was named for Army nurse Frances Y. Slanger, who was the first American nurse to die in Northwest Europe after the 6 June 1944 D-Day landings. She was killed on 21 OCT 1944 in Elsenborn, Belgium by German artillery fire. The *Frances Slanger* was one of 24 Army hospital ships that served during WWII evacuating patients from the combat theaters.

Fellow museum professional Alan Hawk who is the Collections Manager at the National Museum of Health and Medicine has offered to the AMEDD Museum a deck of playing cards, named "Freedom Cards" from his deployment to Afghanistan in 2009. The deck was created by the United States Army Center for Health Promotion and Preventive Medicine and each has a health tip printed on it.

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

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.

AMEDD Center of History and Heritage

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