WILLIAM ALEXANDER HAMMOND'S TRANSFORMATION OF THE ARMY MEDICAL DEPATMENT DURING THE AMERICAN CIVIL WAR

A Thesis

Presented to

The Faculty of the Department of History

Sam Houston State University

In Partial Fulfillment

of the Requirements for the Degree of

Master of Arts

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by

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December, 2018

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ABSTRACT

Shiepko, Jessica M., *William Alexander Hammond's transformation of the Army Medical Depatment during the American Civil War*. Master of Arts (History), December, 2018, Sam Houston State University, Huntsville, Texas.

The American Civil War represents the second real test of the United States Army Medical Department (AMEDD). Despite the necessity of medical providers in both the American Revolution and the War of 1812, a permanent medical department was not established until 1818. The first test of the department came during the US-Mexican War of 1846-1848. However, most experiences gained during the conflict did not translate into lessons learned in preparation for the Civil War. Historically, the department was woefully understaffed, and the manpower challenges were compounded when many surgeons left the army when their state seceded. These factors combined to result in a department that went through tremendous growing pains during the Civil War. Ultimately, the processes and procedures established during the Civil War laid the foundation for current operations. The Civil War also represents the AMEDD's transition, under William Alexander Hammond's leadership, from a pre-professional to professional, learning organization.

KEY WORDS: Thomas Lawson, Clement Finley, William Alexander Hammond, Charles Tripler, Jonathan Letterman, Edwin Stanton, American Civil War, US-Mexican War, United States Army, Medical department, Medical logistics

ACKNOWLEDGEMENTS

First and foremost, I must thank my family. My husband, Anthony, for his support on this endeavor; my parents, Janet and Anthony, for watching the boys during numerous multi-day trips to Washington, D.C.; and Grace for the peace of mind and assistance she provided. To Dr. Brian Jordan—thank you for all your feedback, guidance, and patience as the chair of the committee while I worked on this and moved halfway around the world. To Dr. Thomas Cox—thank you for your guidance and reading recommendations. Last, but not least, to Dr. Jerimiah Dancy—thank you for opening this door. Without your assistance, I would have graduated without realizing my goal of completing a thesis.

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CHAPTER I

Introduction

On 12 April 1861, the bombardment of Fort Sumter in South Carolina heralded the American Civil War. Over the next four years, Union and Confederate forces collided on a massive scale that challenged the operational and logistical capabilities of both armies. At the onset of the conflict, the Army Medical Department (AMEDD) was less than 50 years old. During the American Revolution and the War of 1812, surgeons, physicians, and apothecaries actively cared for the Army's population; however, there was no permanent medical department--nor medical member of the general staff--until an act of Congress established the AMEDD on 14 April 1818. Prior to 1818, medical personnel were called upon to serve during times of conflict and then dismissed during peacetime. As such, there was no formal mechanism or institutional infrastructure through which to convey knowledge gained in previous experiences. The US-Mexican War provided first real test of the AMEDD in combat. Unfortunately, the organization did not learn from the challenges it faced. At the end of the US-Mexican War, the department was largely the same as it was before the war--leaving it woefully unprepared for the impending Civil War. This thesis seeks to explore the AMEDD's organizational structure prior to, during, and after the Civil War; its place within the larger army; and operational challenges in the fields of supply, evacuation, and personnel. It was not until Dr. William A. Hammond was appointed as Surgeon General of the Army in 1862 that the AMEDD moved from a pre-professional organization to a professional, learning organization. The processes and procedures enacted during the war under Hammond reverberate into current structure and procedures.

The cause, conduct, and consequences of the American Civil War have provided fodder for writers since the early days of the war; there are tens of thousands of books written about the battles, individual actors, units, causes, influences, and outcomes. Added to this number are the numerous journals and memoirs written by people who lived through the war; official reports and publications; journal articles, poetry, and works of historical fiction. One estimate is over 60,000 works published since 1865, with that equating to a book a day since Robert E. Lee's surrender at Appomattox.[1]

Concerning Civil War medicine, there are the official histories published as part of the multi-volume *Medical and Surgical History of the War of Rebellion* and the numerous pamphlets that evaluated everything from the Army's use of pack animals to evacuate casualties to its application of antiseptics to wounds. Adding to the government accounts are the official writings of the United States Sanitary Commission (USSC), the official and unofficial writings of USSC officers, and the unofficial writings of AMEDD officers, volunteer physicians, and nurses. Since the end of the war, scholarly works concerning doctors and medical practice have included Frank R. Freemon's *Gangrene and Glory*; George Worthington Adams' *Doctors in Blue*; Alfred Jay Bollett's *Civil War Medicine: Challenges and Triumphs*; and Ira M. Rutkow's *Bleeding Blue and Gray: Civil War Surgery and the Evolution of American Medicine*. Most medical histories focus on the enormous growing pains experienced by the American medical community because of the war, focus almost exclusively on medical practice, and are written by individuals who are medical doctors. Meanwhile, William Quentin Maxwell's *Lincoln's*

[1] Coleman Hutchinson, ed., *A History of American Civil War Literature* (New York: Cambridge University Press, 2016), location 257-263, Kindle edition.

Fifth Wheel provides a comprehensive examination of the USSC and how it worked within the larger wartime political landscape.[2]

Biographies of generals, unit commanders, and common soldiers abound, as do biographies of military department chiefs and government secretaries. President Abraham Lincoln is the subject of countless biographies and Secretary of War Edwin Stanton has also received his fair share of attention through monographs and articles. Recently, Stanton was the subject of two contradictory works: Walter Marvel's *Lincoln's Autocrat: The Life of Edwin Stanton* and Walter Stahr's *Stanton: Lincoln's War Secretary*. As will be discussed, Marvel paints a dark picture of the war secretary that aligns with the writings of his contemporaries, while Stahr overwhelming focuses on the positive outcomes of his tenure while almost ignoring his methods.[3]

The men who led the AMEDD through the transformative Civil War, however, have received far less attention. Besides the occasional journal article providing a biographical sketch, Thomas Lawson, Clement A. Finley, and Joseph K. Barnes are largely ignored. There is a brief biographical sketch of Finley appearing in a 1940 publication of the *Army Medical Bulletin*, but not much more. Hammond has received more attention, but even that is mostly focused on how he impacted medical care, not the long-reaching impact of his policies. For example, Freemon wrote an article outlining how the wound mortality rate dropped under Hammond. Additionally, Hammond was

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[2] Frank R. Freemon, *Gangrene and Glory: Medical Care during the American Civil War,* (Madison, New Jersey: Fairleigh Dickinson University Press, 1998). Alfred J. Bollet, *Civil War Medicine: Challenges and Triumphs,* (Tucson: Galen Press, 2002). James M. Schmidt and Guy R. Hasegawa, ed, *Years of Change and Suffering: Modern perspectives on Civil War medicine* (Roseville: Edinborough Press, 2009).

[3] Walter Stahr, *Stanton: Lincoln's War Secretary,* (New York: Simon & Schuster, 2017). William Marvel, *Lincoln's Autocrat: The Life of Edwin Stanton,* (Chapel Hill: University of North Carolina Press, 2015).

the subject of a short biography by physician Jack D. Key in 1979 and more extensive biography by Bonnie Ellen Blustein in 1991. Her work contains thirteen chapters--one of which covers his military time prior to the Civil War, and two that cover his service during it. Bluestein's work focuses heavily on Hammond as a scientist and medical practitioner. There is scarce attention paid to the long-term effect Hammond had upon the department; nor does Bluestein develop the stark differences between Hammond's leadership and that of his predecessors and successors.[4]

As the man who engineered modern battlefield evacuation and treatment, Jonathan Letterman is the subject of far more interest than the surgeons general. He was the subject of a 2013 biography, *Surgeon in Blue: Jonathan Letterman the Civil War Doctor Who Pioneered Battlefield Care,* numerous journal articles. His memoirs, originally published in 1866, were reprinted in 2008. However, as will be discussed later, a subordinate cannot successfully operate without the support of his/her superiors. Thomas Lawson thwarted advancement during the U.S.-Mexican War, as did Finley during the Civil War. As will be discussed, Charles Tripler, a career army surgeon, presented many ideas to both Lawson and Finely for the improvement of operations and medical care that were routinely dismissed. To the contrary, Letterman was given great latitude by and support from Hammond, which greatly increased Letterman's ability to

[4] Jack D. Key, *William Alexander Hammond, M.D.,* (Rochester: Davis Printing, 1979). Bonnie Ellen Bluestein, *Preserve Your Love for Science: Life of William A. Hammond, American Neurologist,* (Cambridge: Cambridge University Press, 1991). James M. Phalen, "Clement A. Finley," *Army Medical Bulletin,* 52 (April, 1940), 38-41. Frank R. Freemon, "Lincoln Finds a Surgeon General: William A. Hammond and the Transformation of the Union Army Medical Bureau," *Civil War History, 33,* 1, (March 1987), Project Muse, https://doi.org/10.1353/cwh.1987.0023.

implement his various plans. This key component of Letterman's success, while acknowledged by Letterman himself, is frequently overlooked by historians.[5]

How the war is viewed--and the avenues pursued to evaluate it--has changed almost constantly since the close of the war. These changes largely reflect current conflicts or social events and alter the lenses through which the war is viewed. For example, revisionist history after the close of World War I painted the Civil War as an unnecessary bloodbath—an avoidable result of politicians annexed by emotions. The loss of life and physical destruction caused by the Great War led American historians to reevaluate its necessity. With the rise of Nazi Germany and Imperial Japan, the tack changed, and the Civil War was again a just war because it led to the end of slavery, just as World War II was just in its destruction of the Nazi regime. As the Civil Rights Movement of the 1960s swept the nation, slavery and emancipation became central to the study of the Civil War. Through this lens, the war was necessary to free millions of slaves from bondage, while the reality, according to Glenn David Brasher in *The Peninsula Campaign and the Necessity of Emancipation,* is more likely that emancipation was necessary to deliver a crippling blow to the Confederacy. These changes in opinion about the Civil War mirror popular sentiment and the times of which historians were products of.[6]

In *America Aflame*, David Goldfield ponders whether anyone can say anything new about the Civil War. Indeed, as the current political and social landscape continues

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[5] Scott McGaugh, *Surgeon in Blue: Jonathan Letterman, the Civil War Doctor Who Pioneered Battlefield Care* (New York: Arcade, 2013). Jonathan Letterman, *Medical Recollections of the Army of the Potomac* (New York: D. Appleton & Co., 1866), 17.

[6] Glenn David Brasher, *The Peninsula Campaign and the Necessity of Emancipation: African Americans and the Fight for Freedom,* (Chapel Hill: University of North Carolina Press, 2012).

to evolve and change, there will always be new avenues to explore and lenses through which to view the conflict. For a considerable amount of time, and continuing today, battles, generals, tactics, and munitions held the bulk of public interest that the shift from top-down to bottom-up history has yet to quell. While there is still considerable interest in military tactics, there is a greater focus on individual experiences within these larger events and personal connections that transcend time. For example, at the sesquicentennial events held at Appomattox Court House National Historical Park, participants bore badges of blue or grey with the names of ancestors who fought in the war and were encouraged to share stories passed down in their families. The shift to focusing on the individual experiences by the public also closely mirrors the rise of the internet, the digitization of information, and the widespread availability and accessibility of genealogical information and historic documents. Websites such as Ancestry.com, Fold3.com, and Archive.org place a wealth of information at the fingertips of anyone with an internet connection.[7]

Similarly, the lenses used to evaluate different factors of the war mirror current sentiments and public attention. Initial explorations into environmental history of the Civil War, such as Kathryn Shively Meier's *Nature's Civil War: Common Soldiers and the Environment in 1862 Virginia*, reflect the current interest in environmental history and the mutual impacts humans and the environment have upon one another. Post-war veteran experiences are also receiving renewed attention. Amid ongoing conflicts in the Middle East, the increasing number of returning veterans with physical and mental wounds, and the beleaguered Veteran's Administration, historians have reevaluated Civil

[7] David Goldfield, *America Aflame: How the Civil War Created a Nation*, (New York: Bloomsbury Press, 2011).

War veterans' experiences, contradicting the popular picture of a seamless reintegration into civilian life and veterans pushing for reconciliation at any cost.[8]

At first glance, this study appears to be a top-down look focusing on the bureaucracy of the Army Medical Department and the consequences of the actions of the men at its head. However, while the surgeons general are not considered common soldiers, and were certainly in leadership positions, the precarious position of the AMEDD within the larger army prevented them from being considered top brass in the way commanding generals and other bureau chiefs were. While other bureau chiefs experienced interference from Stanton's War Department, the operations of the AMEDD were profoundly dependent upon and subordinate to the Quartermaster Department, the Commissary Department, the Sustenance Department, state governors, and field commanders. This dependency and subordination was a detriment to the ability of the AMEDD to operate and the health of the army. At the beginning of the war, AMEDD leadership did not dictate army-wide policy any more than the most junior private did. In many respects, their role was advisory, and as will be discussed, whether the recommendations of medical personnel were followed or ignored was contingent upon individual commanders. Meier maintains that "prevention was not considered the domain of nineteenth-century physicians," but it was the domain of the nineteenth century military surgeon and, unfortunately, his advice often went unheeded. Hammond, Letterman, and some line officers recognized the strategic importance of disease prevention. Hammond seemingly understood the AMEDD's position within the army more than the two men who proceeded him did and often acted a buffer between his

[8] Kathryn Shively Meier, *Nature's Civil War: Common Soldiers and the Environment in 1862 Virginia,* (Chapel Hill: University of North Carolina Press, 2013)

subordinates in the field attempting positive change and his superiors. He frequently utilized nonconventional methods to exact the greatest gains for the department. The AMEDD was at the middle of the Union's war machine and from this position, Hammond permitted change beneath him while providing enough interference to allow the benefits of these changes to rise to the surface.[9]

Pre-1818: Frequent Structural Change

Since the beginning of the United States Army, there was a need for medical care. Surgeons and physicians have served field units on short expeditions, units in garrison, and the soldiers fighting in the Revolutionary War and War of 1812. Prior to 1818, there was no consistent leadership position or formal army medical department. There was no centralized leadership that could coordinate the different regions. There was also no formal system of recording experiences. Moreover, the War Department frequently altered the structure of and personnel allowances for medical service. During the revolutionary period, there was a Director General and Chief Physician of Hospitals who oversaw all surgeons, apothecaries, surgeon's mates, storekeepers, clerks, and nurses in Army hospitals.[10] There were also two additional Director Generals and Chief Physicians with similar responsibilities for the garrisons and camps in the north region and south region. Director Generals in the north and south did not report to the Director General of Hospitals. No one office held supreme authority, and they worked parallel to one another, often duplicating efforts.[11]

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[9] Ibid, 3.

[10] An apothecary is similar to today's pharmacist. A surgeon's mate, depending on level of training, is similar to a modern nurse practitioner, physician's assistant, or registered nurse while a 'nurse' is similar to a licensed practical nurse.

[11] Harvey E. Brown, *The Medical Department of the United States Army from 1775-1873* (Washington, D.C.: Surgeon General's Office, 1873), 125. Mary C. Gillett, *The Army Medical Department, 1775-1818,* (Washington, D.C.: Center of Military History, 1983), 23.. United States Army

During this period, physicians worked either in general hospitals or attached to a regiment. Regimental hospitals could be established as needed, but the administration of these hospitals fell to the regimental surgeons and not surgeons of general hospitals. Early Director Generals, such as physician John Morgan, who served as Director General of Hospitals from August 1775 to January 1777, favored training physicians for equal proficiency in field or hospital duty. This was met with much resistance from physicians in the hospitals. Adding to the difficulty of administration and the hostilities between personnel attached to regiments and those in general hospitals was Congress's silence about providing supplies. Congress only published guidance for the provisioning of general hospitals. Physicians attached to regiments sought resupply from regimental quartermasters or the director of the closest general hospital. Without guidance from Congress, the hospital directors were loath to relinquish their supplies to the regiments.[12]

After Morgan vacated his position, the office of Director General and Chief Physician of Hospitals remained vacant until 11 April 1777, when Congress restructured army medicine. The three separate director general positions were eliminated in favor of one Director General and Chief Physician. Under him were Deputy Directors of districts who oversaw the surgeons, apothecaries, surgeon's mates, storekeepers and purveyors, nurses, and clerks. The most beneficial aspects of the restructuring were the consolidation of power to one director general and the creation of the purveyor position. The purveyor would be a surgeon whose primary responsibility was sourcing medical supplies and medicine. The first Director General under this new system, William

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Medical Department Office of Medical History, "AMEDD/NCO Enlisted Soldier History," accessed 15 September 2017, http://history.amedd.army.mil/corps/nco/historynco.html

[12] Brown, 156-161.

Shippen, was embroiled in controversy and spent most of his almost four years in the position fighting supply challenges and a court martial. His successor, John Cochran did not fare any better.[13]

During the revolutionary period, besides instituting several changes to organizational structure and leadership, Congress did little to address the problems facing medical personnel—understaffing, want of basic supplies, and pay. Many qualified physicians were forced to resign due to lack of pay and the inability to support their families. At the end of the American Revolution, the medical department was disbanded. Medical personnel were still listed on army rolls to care for invalids, but there was no centralized organization from 1783 to 1792. They reported to regimental commanders and were supplied through the quartermasters or personal procurement. From 1783 until 1812, positions would be routinely created and abolished in response to an impending crisis or amped up military action. Much of the impermanence of army structures was due to the young republic's uneasiness with a standing army.[14]

In the period immediately preceding the outbreak of the War of 1812, the army had six surgeons and 12 surgeon's mates on its rolls to care for some 3,300 officers and soldiers. The advent of the war saw another restructuring of army medicine, and Dr. James Tilton served as the Physician and Surgeon General of the Army. During inspections of hospitals and camps in the north, he saw how quickly lessons learned during the Revolution and on Indian expeditions were forgotten. Tilton found filthy camps and medical personnel wholly incompetent. In response to his tours he drafted the *Regulations for the Medical Department* in 1814. This was the first written set of

[13] Brown, 160. Gillett, *1775-1818*, 75.
[14] Gillett, *1775-1818*, 130-139.

guidelines and standards for army medical personnel. Further complicating Tilton's job was the division of responsibilities within the department. As the Physician and Surgeon General, Tilton assigned personnel to regimental and general hospitals, but it was the responsibility of deputy directors to assign personnel to garrison. The administration of medical personnel within the various militia units was outside his area of responsibility. During the War of 1812, several people were responsible for the assignment and stationing of personnel. This led to another system with inadequate numbers to care for the army at war, duplicate and conflicting supply systems, and gaps in care provided to soldiers. At the end of the war, the office of Physician and Surgeon General of the Army was eliminated.[15]

During the period including and preceding the War of 1812, the structure of military medicine and the disjointed nature of its leadership led to supply and personnel issues. There were large discrepancies in the quality and quantity of supplies, training of medical personnel, and staffing of medical and non-medical personnel within the department. During this time, physicians and surgeons procured their own nondurable and expendable supplies, were without rank, and received less financial compensation than their line and support counterparts.

The challenges faced by the army in the time leading up to the War of 1812 caused many military leaders and politicians to champion the creation of an expandable army. A core of competent military professionals, including medical professionals, would remain during peacetime and grow and shrink to meet the needs of the nation.

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[15] US Army Medical Department Office of Medical History, "The Surgeons General of the United States Army and Their Predecessors," accessed 14 August 2014, http://history.amedd.mil/surgeons.html. Mary C. Gillett, *The Army Medical Department 1775-1818* (Washington, D.C.: Center of Military History, United States Army, 1983).

This core group would provide the continuity and institutional knowledge the military was lacking. However, the creation of a standing army was contradictory to the principles upon which the nation was founded. In 1787, James Madison cautioned against a standing army because throughout Europe and history, "armies kept up under the pretext of defending, have enslaved the people." The question now became whether the benefits of a standing army outweighed the potential downfalls.[16]

Regarding army medicine, because it was only in place during times of conflict, there was no ability for advanced planning or application of lessons learned. Due to these shortfalls, whenever the department was activated it was inefficient. The lack of established supply chains caused great difficulty in obtaining supplies. In response to those difficulties, surgeons horded supplies, which drove up prices and created shortages. The lack of rank structure within army medicine meant that surgeons, surgeon's mates, and other department personnel were at the whim of line officers. Medical personnel could and were detailed for other duties, leaving sick and injured personnel soldiers with little to no care. Finally, and perhaps most critically, because the department was only active in times of crisis, it could not utilize peacetime to evaluate medical advances or adapt them for military use. Creating a permanent department would reduce or eliminate many of those challenges.

The creation of a permanent medical department would necessitate the adoption of a standardized system of care that relied on information flowing top-down from centralized institutions. "Self-care" was a central tenant of Jacksonian-era thought. As

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[16] Gaillard Hund, ed., *The Writings of James Madison Comprising his Public Papers and his Private Correspondence, Including Numerous Letters and Documents Now for the First Time Printed, Volume III,* (New York: G. P. Putnam's Sons, 1787), 317, Google Books.

such, the responsibility for disease prevention lay with the individual; life in a democratic republic meant that everyone was free to choose which sources of medical information to listen to. Within the centralized bureaucracy that would become the AMEDD, however, the choice was removed from the individual and placed with the physician. The loss of control, combined with the utter unfamiliarity of medical institutions and the variable caliber of physicians, caused many soldiers to reject and become suspicious of the AMEDD.[17]

1818 to 1865

The first Surgeon General of the newly-formed AMEDD was Dr. Joseph Lovell. He served from 1818 to 1836. He focused primarily on revising the Medical Regulations of the department, the procurement and economic use of supplies, and timely reporting. His greatest contribution was the attachment of a surgeon to the Quartermaster's Corps to oversee the purchasing of medical supplies. He also placed priority on preventative measures to decrease illness within the army, such as the smallpox inoculation program.[18]

The second Surgeon General and the man who saw the AMEDD through its first real test was Thomas Lawson. He served as Surgeon General from 1836 to May 1861. Lawson and the US-Mexican War deserve special consideration in relation to the Civil War, as his actions and inactions during the former greatly influenced the direction the AMEDD and its leadership initially took during the latter. Lawson entered the US Navy in 1809 as a surgeon's mate until transferring to the army as a garrison surgeon's mate in 1811. At the time of the AMEDD's inception, he was listed on the army's rolls as a

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[17] Meier, 22-23.

[18] Stephen C. Craig, *"Some System of the Nature Here Proposed": Joseph Lovell's Remarks on the Sick Report, Northern Department, US Army, 1817 and the Rise of the Modern US Army Medical Department* (Fort Sam Houston, TX: Borden Institute, 2013).

"senior officer" with a grade of "surgeon." For a brief time in 1835, he served as a lieutenant colonel with Louisiana volunteers fighting in the Second Seminole War. In early 1836, he was appointed the medical director of Fort Mitchell, Alabama, until his appointment to Surgeon General of the Army in November 1836.[19]

His vast experiences as a physician in the navy, army, and in field and garrison service made him unique to the AMEDD and throughout his time as Surgeon General, he preferred field duty to his office in Washington, D.C. His experiences in Arkansas showed him the low regard the regular army held for physicians—many soldiers self-medicated instead of seeking treatment at the post hospital. During his time at Fort Mitchell, he often lamented about the numerous details that pulled his surgeons and other personnel away from medical duty. Despite his qualifications and vast military experience, his appointment was not without controversy. Civilian members of the War Department and members of Congress favored appointing a civilian physician, while the army leadership preferred appointing a career military surgeon. This is important to note because of his three successors who served during the Civil War, only Hammond possessed experience as a civilian physician.[20]

Lawson was a pugnacious man who had little patience for complaints from his subordinates about poor working conditions, supply shortages, and frequent detailing. Although he often cited those concerns when lobbying Congress to expand the department. His arrogance and stubbornness were both beneficial and harmful for the

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[19]Percy Moreau Ashburn, *History of the Medical Department of the US Army* (Boston: Houghton Mifflin Company, 1929), 120. Edwin C. Bearss and Arrell Morgan Gibson, *Fort Smith: Little Gibraltar on the Arkansas* (Norman: University of Oklahoma Press, 1969), 29, 55-56. Gillett, *1818-1865*, 48, 75. Brown, 159.

[20] Ibid.

AMEDD. Historically, Congress and the War Department did not assign rank or equal pay and billeting to AMEDD officers. Lawson recognized the need for medical personnel, and the AMEDD, to be regarded the same as line or supply officers from other army branches. He believed he was entitled to respect based upon his profession and position within the military and believed strongly that all surgeons should be afforded similar respect. He bristled at the idea of removing visible signs of authority from surgeons' uniforms. He believed that visible signs of authority, such as sashes and epaulettes, would improve the surgeons' image and present them as professional officers, not quacks.[21]

In conjunction with visible signs of authority, Lawson championed granting medical officers a rank equivalent to officers in the rest of the army. Through his lobbying of Congress and alignment with prominent officers, such as General Winfield Scott, rank equivalent to cavalry officers was granted in 1847. As Surgeon General, Lawson held the rank of colonel and would be a brevet brigadier general before the end of the war. While rank was granted, the law that granted it was rather ambiguous. It was unclear whether the rank was granted strictly for pay and billeting purposes, for use within the AMEDD, or for use within the larger army. AMEDD officers began asserting their rank with junior line officers and this led to tension. Lawson's successor as Surgeon General, Clement A. Finley, was court martialed and convicted of failing to obey the orders of Brevet Lieutenant Colonel Braxton Bragg. Finley, a major, felt that because the war was over, Bragg's rank should revert to captain. The confusion that caused the

[21] Gillett, *1818-1865,* 81, 129. United States War Department, *Report of the Secretary of War, which accompanied the annual message of the President of the United States, to both houses of the Congress* (Washington, D.C.: Beverly Tucker, 1855).

Finley/Bragg conflict was addressed in 1855 when the adjutant general decided the old rules about how the rank of AMEDD officers was recognized stood.[22]

The issue of rank was not only of concern when dealing with interpersonal conflict. It became an issue in the field when a higher ranking AMEDD officer required the use of wagons or requested a detail of soldiers, only to be "outranked" by a line officer in a lower grade. Lawson was insistent that AMEDD officers were not attempting to usurp line officers' authority, but only sought to "be recognized as something more than mere civilian employees of the government authorized by courtesy to wear a uniform." The subject of rank and to what degree AMEDD rank was recognized would be a recurring theme during the Civil War.[23]

Lawson was insistent on only accepting the most talented into the ranks of military surgeon. During a time of physician surpluses in the United States, pay was important. Physicians were in such excess that many were unable to support themselves or their families in private practice. In the mid-1800s, states stopped regulating medical training, and the quality of medical education varied greatly from state to state. While

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[22] United States War Department, *General Orders 1851* (Washington, D.C.: np, 1851). Gillett, *1818-1865,* 129.

[23] Gillett, *1818-1865,* 81, 129. United States Army Medical Department, *Regulations for the Medical Department of the Army* (Washington, D.C.: Jacob Gideon, Jr., printer, 1840), 4, U.S. National Library of Medicine, accessed 14 October 2014, http://collections.nlm.nih.gov/pageturner/viewer.htm)l?PID=nlm:nlmuid-025560-bk. United States Congress, *Statues at Large*, 25th Cong, 2nd Sess, (Washington, D.C.), 224, 259, accessed 15 October 2014, http:/memory.loc.gov/cgi-bin/query/D?hlaw:./temp/~ammem_jsPe. United States War Department, *Military Laws of the United States: Including those relating to the Marine Corps, to which is prefixed in the Constitution of the United States,* ed. Truman Cross (New York: G. Templeman, 1838). United States Army Medical Department, *Regulations for the Medical Department of the Army* (Washington, D.C.: 1850), US National Library of Medicine, accessed 15 October 2014, http://collections.nlm.nih.gov/pageturner/viewer.html?PID=nlmuid-0260632-bk. Thomas Neely Love and H. Grady Howell, *A Southern Lacrimosa: The Mexican War Journal of Thomas Neely Love, Surgeon, Second Regiment Mississippi Volunteer Infantry, U.S.A.* (Madison, MS: Chickasaw Bayou Press, 1995), 35-36. Quote: United States War Department, *Report of the Secretary of War, which accompanied the annual message of the President of the United States, to both houses of the Congress.*

physicians were not the most trusted professionals among lay individuals, they were still considered gentleman, and medicine was a respectable profession. As a result, men "too weakly to labor…indolent and averse to bodily exertion; of addicted to study but too stupid for the Bar or too immoral for the Pulpit" chose medical school. Many turned to the military as a source of reliable income or as means to travel the country. Lawson fought, successfully, to ensure pay comparable to officers outside the AMEDD to attract qualified individuals. In 1838, Congress assigned pay equitable to cavalry officers from first lieutenant to major, depending on years of service, and additional rations for every five years of active service.[24]

To weed out thrill seekers and fortune hunters, Lawson continued the practice--established under Lovett--of entrance examinations. Lawson believed in starting with a core of well-trained physicians and providing adequate compensation. The examinations were designed to grant admission only to the most qualified individuals. The exams had strict standards, and one held in 1847 saw a passing rate of only 19 percent. Unfortunately, the rigorous selection process did not apply to the contract and volunteer surgeons who greatly outnumbered the AMEDD officers of the regular army. While some contract surgeons and volunteers were young doctors who passed examinations but were waiting for a position in the AMEDD to become available, most were greedy and poorly trained. Volunteer and contract surgeons were often unfamiliar with military life and ignorant of what little knowledge there was of the connection between sanitation and health. Contract surgeons also cost drastically more than their army counterparts. During the US-Mexican War, contract surgeons cost over $24,000, which would have

[24] Daniel Drake, *Practical Essays on Medical Education, and the Medical Profession in the United States* (Cincinnati: Roff and Young, 1832), 6.

covered the costs of 24 assistant surgeons in the regular army. To put the amount spent on contract surgeons into perspective, in 1847 Congress allotted $22,000 for all operations of AMEDD personnel within the regular army, to include supply and pay. Lawson frequently questioned the logic of employing unknown physicians selected "on the spur of the occasion" rather than "regularly instructed and disciplined medical officers" who were "qualified morally, physically, and professionally."[25]

During his tenure, Lawson made several personnel changes to the department. He was able to elevate the position of the AMEDD within the larger army and increase the size of the department. He was less successful addressing difficulties with medical evacuation, personnel assignments, or medical materiel. He also failed to recognize or order evaluation of a medical breakthrough when presented with it. Lastly, his insistence to remain in the field caused frequent extended absences from Washington, leaving subordinates in control. In his 25 years, he largely failed to move the department forward and left it almost as he found it. Chapter 2 will evaluate his actions during the US-Mexican War, the interwar years, and their impact on operations during the Civil War.

[25] Brown, 183, 189. Gillett, *1818-1865*, 92, 128. United States Army Medical Department, *Regulations for the Medical Department of the Army* (1850), 19-20. United States War Department, *Report of the Secretary of War,* 7.

CHAPTER II

AMEDD During the US-Mexican War and Interwar Years

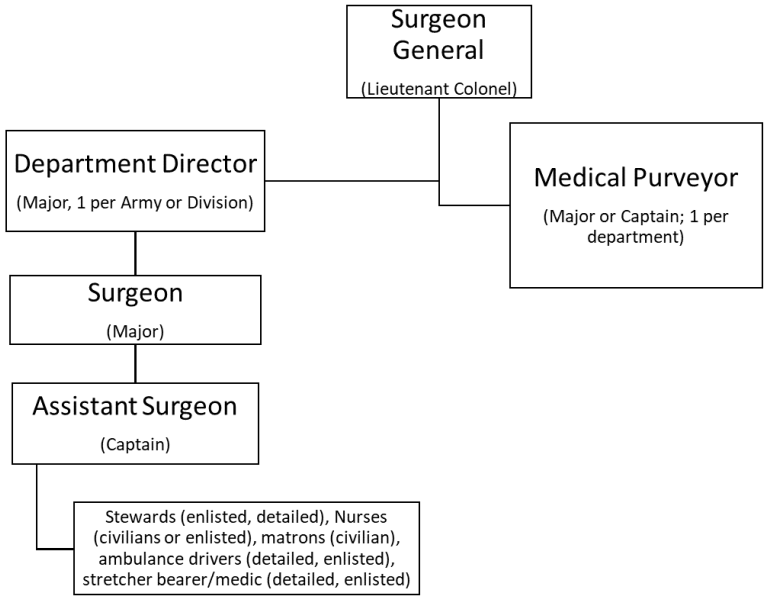

Figure 1. Organizational structure of the AMEDD, 1846.

Operations within the AMEDD prior to the start of the US-Mexican War was geared towards peacetime, garrison operations, and short-term expeditions. The policies and procedures necessary to provide care on the battlefield were yet to be established. James K. Polk's election on a pro-annexation platform in 1844 portended the armed conflict with Mexico. Lawson however, failed to anticipate the conflict or the department's needs. As a result, the AMEDD clumsily transitioned to combat operations. The US-Mexican War was significant for the AMEDD because it marks the first time the department would operate almost entirely in its opponent's territory. Supply and evacuation lines were long and under threat from enemy combatants and local pillagers. Hospitals would need to be hastily erected, directors and subordinates assigned, and its occupants protected and tended to. The department found itself ill-prepared to treat and

care for a staggering number of sick and injured patients, forcing them to rely on often inferior contract and volunteer surgeons. The department also struggled to raise and sustain medical personnel sufficient for the size of the fighting forces. These conditions would all repeat themselves during the Civil War.[26]

Personnel and Supply Challenges

The structure of the department and the roles of its personnel remained consistent throughout the US-Mexican and American Civil Wars. The surgeon general was the final authority on the assignments of regular army personnel within the department. Medical directors provided suggestions for him to act upon and were responsible for assigning surgeons and assistant surgeons, monitoring supply requests for completion, and compiling reports for submission to the surgeon general. Medical Purveyors in the 1840s were responsible for advising quartermasters and other procurement personnel about suitable medicines and medical supplies. They served under the medical directors, but received direct guidance from both their medical director and the Surgeon General. All medical purveyors were not equal. Purveyors responsible for smaller departments requisitioned items from larger departments. For example, Richard S. Satterlee, a surgeon during the US-Mexican War and Medical Purveyor of the Department of New York during the American Civil War, had the largest area of responsibility of any medical purveyor during latter war. He was often called upon by the surgeon general to requisition large stores of supplies or evaluate the suitability of medications or supplies

[26] Berkeley, "Who is James K. Polk," *Martinsburg Gazette,* (Martinsburg, VA: 8 July 1847), accessed 1 December 2014, https://www.history.vt.edu/MxAmWar/Newspapers/MG/MG1847fJulyDec.htm#aMG47v48n19p2c3Gazette. James K. Polk, "Proclamation 47—Announcement That a State of War Exists with the Republic of Mexico," 13 May 1846, published online by Gerhard Peters and John T. Wooley, *The American Presidency Project,* accessed 10 October 2013, http://www.presidency.ucsb.edu/ws/?pid=67909.

for military use, report back directly to the surgeon general and distribute supplies to purveyors of smaller departments.[27]

In the early days of Lawson's tenure, there were 15 surgeons, 60 assistant surgeons, and a clerk. Later, this was expanded to 22 surgeons and then shrunk to 20 surgeons and 50 assistant surgeons. After the Second Seminole War, there were 70 AMEDD officers responsible for 75 military posts throughout the country and US territories. Because of the small staff size, surgeons were rarely granted leave or furlough unless seriously ill and unable to complete their duties. When they were granted leave, it was the surgeon or assistant surgeon's responsibility to find and pay for a suitable replacement. In response to the hostilities in Mexico, Congress increased the size of the army and the AMEDD. In 1847, the AMEDD totaled 115 surgeons and assistant surgeons.[28]

Inadequate numbers plagued the department before and throughout both conflicts. Congress was either slow to act or outright hindered operations within the department. For example, in 1838, Congress passed laws allowing the AMEDD to directly enlist men for use as hospital stewards. In 1842, the law was amended so that men enlisted directly by the AMEDD could be pulled into other duties in other branches. Hospital stewards of

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[27] Letter: L.A. Edwards to Richard Satterlee, 8 January 1862, RG 112, NM 20, Entry 2, Volume 27, Pg. 299, Records of the Office of the Surgeon General (Army) Central Office- Correspondence: 1818—1946, 1818-90 period, National Archives Building, Washington, D.C. Telegram: William Hammond to Richard Satterlee, 3 September 1862, RG 112, NM 20, Entry 7, Volume 1, Records of the Office of the Surgeon General Central Office—Correspondence: Letters and Endorsements Sent to Medical Officers, September 1862-September 1872, National Archives Building, Washington, D.C. Letter: R. C. Wood to Simon Cameron, Washington, D.C., 25 April 1861, RG112, NM 20, Entry 4, Volume 3, Page 71, Records of the Office of the Surgeon General (Army) Central Office- Correspondence, 1818-1946, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1837-May 1866, National Archives Building, Washington, D.C.

[28] United States Congress, *Statutes at Large, 25th Congress, 2nd Session*, 238. Gillett, *1818-1865*, 81-84, 94. United States Congress, *Statutes at Large, 29th Congress, 1st Session*, (Washington, D.C.), 224, 259, accessed 12 December 2015, http://memory.loc.gov/cgi-biRecords/ampage.

the 19th century primarily distributed and administered medicine and disbursed supplies from the storehouses to patients and personnel. Competent stewards were called upon to act as physicians by providing diagnoses and performing simple medical procedures, like suturing.[29]

The steward enlistment dilemma presented numerous challenges to the AMEDD's operations and highlight the interplay of those challenges. First, as late as 1855, an AMEDD officer's rank was only recognized within the department and for pay/billeting purposes. This meant that at the whim of any line or supply officer, an enlisted steward could be detailed to duties that would pull him away from patient care. Second, there was no incentive to enlist as a steward knowing that you could be pulled away for line duty. Further, as was often the case during both conflicts, ill, inept, weak, and drunkards left behind by the army were pressed into service to care for sick and injured soldiers in the absence of trained medical support personnel. Any healthy men pressed into service would depart with their units, as was the case during the US-Mexican War at Puebla, when 1,800 sick and injured men were left in the care of seven medical personnel when the tasked stewards moved out with their respective units.[30]

If personnel shortages were the primary challenge to the AMEDD in Mexico, supply woes were a close second. Medical personnel were never solely responsible for the procurement of medical supplies. In its early years, there was an Apothecary General in the AMEDD. He and his small staff coordinated with the Surgeon General's office to establish supply requirements, package, and invoice items for shipment. From the Apothecary General's office, items were stored with or shipped by military

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[29] United States Congress, *Statutes at Large, 25th Congress, 2nd Session,* 246.
[30] Gillett, *1818-1865,* 98, 118-119. Brown, 194.

quartermasters, teamsters, or military storekeepers. In this system, medical personnel were responsible for deciding on the suitability and procurement of medical supplies. However, since the AMEDD was not authorized any wagons, shipment was always provided by outside entities.[31]

The first reorganization of the department in 1821 eliminated the apothecary positions. The task of procurement now fell to assistant surgeons (and later surgeons), who were given the added duty of medical purveyor. Medical personnel were almost completely removed from the selection, packing, and transport of medical materiel. Immediately upon assumption of his responsibilities, Lawson noted problems with the system. Medical items, many highly specialized, were often the target of thieves or the victims of improper handling at the hands of muleteers, teamsters, or commissary agents ignorant of the fragility of the items. Lawson noted that they, "handle a box containing the choicest medicines as roughly as if they were boxes of camp-kettles and mess pans." For medicines, medical purveyors still coordinated with the quartermasters for selection purposes. When a surgeon in the field required supplies, he sent different requisitions in duplicate to the medical purveyor of his department, the quartermasters, and commissary department, when applicable. Duplicate requisitions and receipts were required for each item. This system, an inconvenience during peacetime, created unnecessary work and delays in the requesting and receipt of supplies. The complex system, already well known to regular army surgeon, was a complete mystery to volunteer and contract surgeons who needed to figure it out when supplies were desperately needed. In addition to the difficulty requesting supplies, hazards inherent to nineteenth century transport--

[31] United States Army Medical Department, *Regulations for the Medical Department of the Army* (Washington, D.C.: United States Army Adjutant and Inspector General's Office, 1818), 8.

including shipwrecks and long supply lines where the goods were subject to damage and theft--hindered delivery. Matters were further complicated in combat. As teamsters and muleteers transported supplies to soldiers in the field, they were subject to guerilla attacks and pillaging. Often supply trains did not move with the main body and news stories during the war abounded about the grim discoveries of killed teamsters.[32]

Further complicating delivery was that the AMEDD had no organic transportation assets. In 1847, Lawson established a medical purveyor's depot in New Orleans. It served as a staging area for supplying and resupplying deployed personnel. Staging supply for deployment is an important first step to ensure timely resupply and close gaps in care. However, the quartermasters were solely responsible for determining when medical supplies moved. As medical supply was the lowest priority, they were moved on a space-available basis resulting in lengthy delays in transport. The low priority of medical materiel and delays in transport would not be adequately addressed until after World War I.[33]

Additional depots were established in Veracruz and other Mexican locales in response to the needs of the army. However, the forward placement of depots failed to prevent supply shortages. Some of this was the result of transportation woes; some was the result of poor planning. For example, upon establishment of the New Orleans depot,

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[32] United States Army Medical Department, *Regulations for the Medical Department of the Army,* (1850), 4. United States War Department, *Regulations for the Medical Department of the Army* (1861; reprint Knoxville, TN: Bohemian Brigade Bookshop, 1989), 5. United States War Department, *Report of the Secretary of War*, 175. Louis C. Duncan, "Medical History of General Scott's Campaign to the City of Mexico in 1847," *The Military Surgeon,*1921, 48, Google Books, 439. MSH, "The Seat of War," *Richmond Whig,* 21 May 1847, accessed 20 February 2015, http://www.history.vt.edu/MxAmWar/Newspapers/RW/RW1847eJanJune.htm#aRW24i41p1c4Seat.

[33] Duncan, "Scott", 437. Phyllis A. Zimmerman, *The Neck of the Bottle: George W. Goethals and the reorganization of the U.S. Supply System, 1917-1918,* (College Station: Texas A&M University Press, 1992), 64.

the purveyor of the Medical Department of New York shipped enough medical supplies for one year. Unfortunately, the number of supplies sent was adequate for the pre-war size of the army of less than 10,000 men. It did not factor in expansion of the regular army to meet combat requirements, the addition of volunteer forces, or the additional strain on supplies that combat operations cause. On Lobos Island south of Tampico in 1847, Surgeon Satterlee reported shortages of quinine. Reports of supply shortages were sporadic, but were most likely more widespread than official reports indicate. Lawson did not tolerate complaints from subordinates, and those with the audacity to complain about supply shortages would have been met with strong rebuke. There are ample records indicating supply shortages at New Orleans that affected operations in Mexico. Supplies, while not entirely scarce, were inadequate for the size of the army and the rates of disease and injury.[34]

An area Lawson positively affected was in the establishment of new procedures for the shipment of supplies between depots and hospitals. He insisted on packaging medicines and supplies in several smaller boxes, instead of one large one. As he saw during his service in Arkansas, the shelf life of medicine drastically decreased once the

[34] Letter: Richard Satterlee to Mary Satterlee, 20 December 1846, Satterlee Family Papers: Box 5, Folder 8, Archives of The Pierpoint Morgan Library, New York. Louis C. Duncan, "Medical History of General Zachary Taylor's Army of Occupation in Texas and Mexico, 1845-1847," *The Military Surgeon,* 48 (1921), Google Books, 424. John B. Porter, "Medical and Surgical Notes of Campaigns in the War With Mexico, during the Years 1845, 1846, 1847, and 1848," *The American Journal of the Medical Sciences (1827-1924), 24,* 47, July 1852, 19. Alexander W. Doniphan, *Colonel Alexander W. Doniphan, at Chihuahua, Mexico to Roger Jones, Adjutant General of the Army, at Washington, D.C.,* Official Report (City of Chihuahua, 1847), accessed 1 December 2016, http://www.dmwv.org/mexwar/documents/sacra.htm. Zachary Taylor, *Brigadier-General Zachary Taylor, at Camp Near Matamoras, to Roger Jones, Adjutant-General of the Army at Washington, D.C.,* Official Report (Matamoros, 1846), accessed 1 December 2016, http://www.dmwv.org/mexwar/documents/paloalto.htm.

package was opened. The packaging of supplies would be one of Lawson's only innovations.[35]

In 1820 and carrying through the 1840s, 1850s, and early 1860s, the prevailing sentiment with AMEDD leadership was "whatever is, is right." If the status quo had worked, it did not need to be changed. Unfortunately, what worked in garrison and on short expeditions did not work during full-scale combat operations. Nowhere was this more evident than in the realm of personnel and supply. Lawson did little more than lament upon the state of supply and personnel. He lobbied Congress for expansions to the department, but did not leverage powerful allies such as General Scott and Jefferson Davis. He did little to ease the burden of requisitioning supplies and insisted on preserving systems that worked during peacetime but created unnecessary delays during combat. For example, he stubbornly insisted acquisition requests from California be sent to St. Louis or New York because they were cheaper to purchase in St. Louis and New York. This attitude set the tone for the department so that bureaucratic compliance trumped common sense and efficiency.[36]

Mid-19th Century Medicine

Medicine in the 19th century was more art than science. Gradually, it was beginning to morph into the hard science that it is today. While the germ theory of disease was first proposed over a century earlier, through both wars the miasma theory was still more widely accepted. The miasma theory held that illness was caused by bad air; eliminate the bad air, and the theory went that disease rates will fall. Eliminating the bad air meant guarding against dampness, temperature extremes, filth, and crowding.

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[35] Gillett, *1818-1865,* 115.
[36] John B. Porter, July 1852, 13-31. Duncan, "Scott," 445-446. Gillett, *1818-1865,* 114.

Once eliminated, disease rates indeed fell; this anecdotal evidence was enough to convince many medical professionals that the miasma theory was correct. It was not until the work of Louis Pasteur in Europe from the 1860s through 1880s that it began to fall out of favor with American physicians in the 1870s.[37]

Dampness was perhaps the largest culprit of creating bad air, and physicians preferred to house soldiers in and maintain dry environments, including bedding and clothes. While some field commanders sought the opinion of surgeons and assistant surgeons concerning suitable camp locations, many did not. This caused conflict in the field and, once more, highlights why rank parity was important. In both the US-Mexican and American Civil Wars, there are numerous reports from surgeons complaining of commanders disregarding location recommendations or lamenting their merely advisory role in matters of camp health.

Military officers expected deferment based upon their rank and knowledge base; however, physicians within the military were not afforced the same deference. Much of this is directly related to the popular notions of self-responsibility and the distrust of large entities. The Jacksonian-era emphasis on self-reliance and support from those within one's personal network created a sharp divide between physicians and commanders and physicians and soldiers. Additionally, amidst the building tensions ahead of the US-Mexican War was a splintering of medical professionals between those who pursued scientific approaches and those who sought to rely solely on anecdotal evidence. The reliance on self and immediate environment created a surge of popularity of naturopathic

[37] Gillett, *1818-1865,* 3-5. Louis Pasteur, "Germ Theory and its Applications to Medicine and Surgery" and "On the Extension of the Germ Theory to the Etiology of Certain Common Diseases" in *Collected Writings*, Conrad Fischer, editor, (New York: Kaplan Publishing, 2008).

medicine, specifically homeopathy.[38] General uneasiness with a strong centralized federal government trickled down into other professions. During the mid-nineteenth century, states began deregulating medical education and practice. The resulting variations in physician quality and the increased interest in homeopathy led to the creation of the American Medical Association (AMA) in 1847. On its face, the AMA sought to standardize the caliber of physicians, and in turn, the care received by patients. However, this monolithic body and its leadership left little room for dissent and actively sought to push homeopathy to the fringe, denouncing it as quackery. To fill the vacuum left when the government removed itself from medical education, the AMA stepped in and dictated what qualified as a proper medical education. Medical institutions that focused on naturopathy were required to focus its curriculum on conventional medicine, leaving little room for homeopathic instruction. Within conventional medical schools, no homeopathy was taught.[39]

Naturopathy was the most oft practiced form of medicine in many rural areas. Folk medicine utilizing plants and tinctures relied heavily on generational knowledge and personal experience and was widely practiced throughout the nation. Concerning military physicians, there is ample evidence during both the US-Mexican and Civil Wars

[38] Naturopathy is an umbrella term for alternative/natural medicine. Homeopathy is a type of naturopathy that focuses on like curing like so an ill person is prescribed a treatment that would cause similar symptoms in a healthy person.

[39] For an interesting critique on the American Medical Association, see Morris A. Bealle, *Medical Mussolini* (New York: Columbia Publishing Company, 1945). Christopher C. Cox, "Report of the Committee on Medical Education," *The Transactions of the American Medical Association, Vol XIV,* (Philadelphia: Collins, 1864), 74-93.

of the desire to utilize naturopathic remedies and of conflict between individual physicians and the AMEDD concerning these treatments.[40]

During this time of conflict between conventional and alternative medicine, advancement was not at a complete standstill. While the germ theory had yet to gain traction in American medicine, advances were made in other areas. During the 1840s, the use of ether and chloroform during surgery increased. Both the drugs and the glass apparatus used for its administration were readily available in New York, Boston, and Washington, D.C. however, after a few uses, and the vocal objection of Surgeon John B. Porter, Lawson deemed it unsuitable for military use in Mexico. The quick dismissal of a medicine that could have undoubtedly eased much suffering, is a shining example of how the AMEDDs leadership chose the status quo over innovation.[41]

Combat Operations in Mexico

The AMEDD transitioned clumsily to combat in Mexico, almost as if no one expected a war. Soldiers were staged in New Orleans, Louisiana, and Corpus Christi, Texas, prior to deployment to Mexico. In both locations, the department proved ill-equipped to handle the influx of regular army personnel, much less the poorly equipped volunteers. Supply and sickness rates were the chief hinderance to surgeons in the staging locations. Once in Mexico, the greatest challenge was the transport and housing of the sick and wounded of both armies.

Staging in Corpus Christi and New Orleans. In both locations, disease took a mighty toll on soldiers. In Corpus Christi, mosquitos were the chief threat, followed by

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[40] Love, 34-35. Letter: Clement Finley to Medical Directors, 11 November 1861, RG 112, NM20, Entry 2, Volume 26, Pg. 95, Records of the Office of the Surgeon General (Army) Central Office-Correspondence: 1818-1946, 1818-90 period, National Archives Building, Washington, D.C.

[41] Duncan, "Scott," 445-446. Porter, July 1852, 27.

the brackish water supply. In New Orleans, crowding and inadequate facilities posed problems. In one regiment of Mississippi volunteers, 65 percent of their fatalities were disease, non-battle related (DNBI) and occurred in New Orleans or upon the transport ships on the Gulf of Mexico. The surgeon of this afflicted regiment was Dr. Thomas Love, who was a thorn in the side of Lawson. Lawson frequently complained about Love's permissiveness in allowing soldiers to seek medical care from local physicians not affiliated with the military. He also complained about Love's desire for off-formulary items. Love's reasoning illustrates the difficulties faced by many soldiers when seeking care; there were simply too few physicians and inadequate facilities to care for the military population. Many soldiers viewed going to a military hospital as a precursor to the morgue. Most soldiers had zero exposure to formalized medical systems, especially those from rural southern or western areas. In civilian life, where the focus was on self-reliance, when a doctor was consulted, it was only to provide diagnoses and medicines; the family unit attended to the needs of spiritual and physical comfort. Only those destitute or without family utilized hospitals.[42]

In Mexico, the illness rate was higher among the enlisted than the officers. Surgeon Porter lamented about the poor quality of supplies and lodging provided to the regular army and volunteers. Volunteers often showed up with little more than the clothing on their backs. The quartermasters provided the regular army with tents, clothing, and bedding--often of poor quality--but "had not a single cent that could legally apply for the purchase of clothing" for volunteers. Soldiers, teetering on the brink of illness, were housed with healthy soldiers, left exposed to the elements, and faced with an

[42] Gillett, *1818-1865*, 113. Love, 258-260. Meier, 24-26.

inadequate number of medical personnel. These conditions caught the attention of General Zachary Taylor, who twice wrote to the Adjutant General of the Army lamenting the scarcity of medical personnel and supplies; he criticized the volunteer surgeons while extolling the surgeons of the regular army.[43]

Taylor also criticized Lawson's practice of leaving regular army surgeons in garrison: "There are many surgeons and assistant surgeons at garrisons on the seaboard, and elsewhere, whose places might be filled at moderate cost, while their valuable services might be secured where most needed in the field during active operations." For all the writing Lawson did concerning his disdain for the use of contract surgeons, he left regular army surgeons and assistant surgeons in garrison instead of sending them to New Orleans, Corpus Christi, or into Mexico. Medical directors evaluating contract surgeons could afford to be more selective if choosing a physician near an established garrison with a nearby major city rather than hastily choosing one when the need in combat presented itself. Lawson was indignant at Taylor's criticism and insisted that regular army surgeons were required in garrison to "meet contingencies nearer at home; such as may arise from the hasty assemblage of recruits for transportation to the theater of war."[44]

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[43] Porter, "Medical and Surgical Notes of Campaigns in The War with Mexico, during the Years 1845, 1846, 1847, and 1848," *The American Journal of the Medical Sciences (1827-1824),* January 1852, 6. Letter Thomas S. Jesup to Secretary of War (18 February 1848), in Charles R. Shrader, *United States Army Logistics 1775-1992: An Anthology, Volume I* (Honolulu: University Press of the Pacific, 2001), 182-183. Zachary Taylor, "Head-quarters, Army of Occupation," Zachary Taylor to Adjunct General of the Army, 2 September 1846, in *Messages of the President of the United States with the Correspondence, Therewith Communicated, between the Secretary of War and Other Officers of the Government on the Subject of the Mexican War* (Washington, D.C.: Wendell and Van Benthuysen, 1848), Google Books, 412. Thomas Lawson, "Surgeon General's Office July 29, 1846*"* in U. S. House of Representatives, *House Documents Volume 33,* (Washington, D.C.: Government Printing Office, 1847), Google Books, 132-133.

[44] Lawson, "Surgeon General's Office July 29, 1846*,"* in *House Documents*, 133.

The dizzying number of soldiers struck down by illness in the early days of Taylor's campaign should have been a red flag for Lawson. Instead, in the year between Taylor's staging in Corpus Christi and Scott's assembling of forces in New Orleans, few changes were made. The conditions in New Orleans were far worse than that of Corpus Christi. Everything about Lawson's tenure was reactionary instead of anticipatory. He gruffly responded that surgeons were left in garrison to meet the needs of an assembling army, yet the AMEDD was wholly unprepared to meet the needs of the army assembling in New Orleans. As Love noted when assessing the difficulties his regiment faced there, the challenges faced by the AMEDD in New Orleans were largely the result of "imprudence."[45]

In addition to the inadequate facilities prepared to receive the assembling army, there were no provisions for transporting or assisting non-ambulatory patients. Transport was instead left to cabs, carriages, and hourly hacks who took sick soldiers to a variety of private hospitals and homes. If a soldier used a private physician or hospital, he was responsible for paying the bill. Financial responsibility aside, military surgeons were still responsible for maintaining accountability of ill soldiers. This spread the sick throughout the city and increased the time and resources wasted by army surgeons travelling between locations to visit and assess sick soldiers. Alternatively, sick soldiers who could not afford to be taken to a private hospital or physician were relegated to sleeping on the wet, muddy ground with scarcely a blanket or wet hay.[46]

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[45] Love, 32

[46] Allan Peskin, ed., *Volunteers: The Mexican War Journals of Private Richard Coulter and Sergeant Thomas Barclay, Company E, Second Pennsylvania Infantry* (Kent: The Kent State University Press, 1991), 18, 29, 40-41.

The conditions in New Orleans, a year after the troubles at Corpus Christi highlight the ineffectiveness of the AMEDD under Lawson. Depravations of a 19th century soldier in combat are understandable. However, there is little plausible reason why soldiers in New Orleans, still within the United States and within easy reach of medical supply depots, were subjected to such adverse conditions. Lawson continues to demonstrate that, under his leadership, the AMEDD was a pre-professional organization.

Palo Alto to Buna Vista—Taylor's Army. Once combat operations began, US medical personnel were not only faced with the illness and injuries to American forces, but to Mexican forces as well. After Palo Alto and Resaca de la Palma, Surgeon Porter notes caring for "a large number" of wounded Mexican soldiers and officers. Monterrey saw 456 Americans wounded, 267 killed, and over 500 DNBI.[47]

The US-Mexican War predates the role of what today would be considered a combat medic. At Palo Alto, surgeons went among the injured on the battlefield to tend to men where they fell. This system worked well in garrison, where all but the most seriously ill or injured were treated in their unit areas, but it wasted precious time during combat. In this system, a surgeon w,as forced to perform triage on all instead of focusing on those in immediate need. This was an incredibly inefficient system but not a surprising one as the AMEDD lacked a trained enlisted corps to conduct battlefield evacuations. Porter's writings beg the question of whether there was an established and well-communicated procedure in place to determine which surgeons moved forward and which remained with the wounded. At this point, the AMEDD lacked a rational and

[47] Porter, January 1852, 9. Duncan, "Taylor," 89, 101.

universally communicated system for forward patient care, as they continued to utilize practices that worked well in garrison but did not meet wartime demands.[48]

Upon the capture of Monterrey and the occupation of Mexican General Arista's palace as a regimental hospital, the American sick and injured in Mexico experienced one of the best fed hospitals established in Mexico. However, much to the dismay of line officers, while food was plentiful, medical supplies and surgeons were not. Captain Henry of Worth's Division commented that "there was a culpable negligence somewhere in not sending more medical officers into the field…one surgeon attended two regiments, four being the usual number in peacetime."[49]

The favorable facilities at Monterrey did not carry over to Saltillo, where conditions were dismal, and many surgeons found themselves ill supplied. The surgeon of the 1st Illinois Volunteer Infantry, W. B. Herrick, noted how the injured, dead, and dying were haphazardly packed together. Those still alive were left among the dead for almost four days until transportation could be secured. Herrick was one of the volunteer surgeons who were able to procure adequate supplies. After following established protocol for ordering supplies, he obtained what he could. Many volunteer and contract surgeons were not as well versed in proper procedure and experienced lengthy delays in securing the simplest of supplies. Also notable at Saltillo, and a situation absent from garrison operations, was the abundance of wounded enemy combatants. Both Taylor and Herrick noted the overwhelming presence of wounded Mexican soldiers and their poor condition.[50]

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[48] Porter, January 1852, 21. Duncan, "Taylor," 95.

[49] William Henry Seaton, *Campaign Sketches of the War with Mexico*, (New York: Harper, 1847), 256.

[50] Duncan, "Taylor," 100-101.

Despite the introduction to foreign pathogens and moderately high rates of illness at Corpus Christi, Taylor's army was relatively healthy and its surgeons, when completing all bureaucratic requirements, were well supplied. Taylor's surgeons were fortunate to have a small medical depot in San Antonio, Texas, upon which they could draw supplies. Additionally, they mostly requested quinine and wound dressings, items not likely to sustain damage during transport.

To Mexico City—Scott's Army. The shortage of medical personnel in Taylor's army caught the attention of the commanding general. The shortage of medical personnel in Scott's caught the attention of the president. In December 1846, Polk scarcely mentioned the increased demands upon the various departments of the War Department; nor did Secretary of War William L. Marcy make mention of the surgeon shortage, despite repeated letters from Taylor. In December 1847, President Polk alluded to the difficulties faced by soldiers in the field in his annual message to Congress, when he twice referred to correspondences between the War Department and the field commanders. Additionally, he specifically referred to the report Marcy's report: "I refer you to the accompanying report of the secretary of war…The duties devolving on this department have been unusually onerous…" Marcy, in turn, reports:

> The surgeons and assistant surgeons, constituting the medical staff of the army, are all required for the troops in the field, and it is ascertained, by experience, that they are scarcely sufficient for the exigencies of the service. The wants of the service have rendered it necessary to employ physicians in civil life to assist in the duties of the medical staff. This deficiency of medical assistance has been owing, in part, to the number of surgeons and assistants who have been detached from the troops to take charge of the several hospitals, which the proper care and treatment of the sick and wounded have rendered indispensable.

Marcy not only petitioned for an increase in the medical staff, but passed judgement on utilizing regular army surgeons in garrison and for hospital duty as opposed to in the

field. Also included in Polk's message are letters from General Scott and Lawson's naval counterpart to the Secretary of War, including mention of the need for more medical officers.[51]

In Lawson's absence, Haskell requested additional surgeons to handle the increase in sick and wounded soldiers; the navy requested more because of the rising number of surgeons contracting diseases after repeated exposure to sick patients. In Scott's army, there was approximately 1 surgeon per 500 soldiers. Additionally, Scott's surgeons found themselves at the end of a lengthy supply line and facing logistical challenges, which meant that throughout the campaign, the AMEDD lacked sufficient staffing, medical materiel, food, furniture, bedding, and clothing.[52]

As previously mentioned, when the depot at New Orleans was established, there were only enough supplies for the pre-war army for one year. The influx of soldiers, increase of the army, and staggering sickness rate nearly exhausted the stores before movement into Mexico. The number of wagons held by the quartermasters meant that space was available on wagons with more frequency than on ship. Since Scott's forces were resupplied via shipping routes and medical supply was the last priority, it was more difficult to move supply into Mexico.

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[51] James K. Polk to Congress, Washington, 7 December 1847 and William L. Marcy to James K. Polk, Washington, D.C., 2 December 1847, "Report of the Secretary of War," both in United States Congress, *Message from the President of the United States, to the Two Houses of Congress, at the Commencement of the First Session of the Thirtieth Congress* (Washington, D.C.: Wendell and Van Benthuysen, 1847), 18, 30, and 68.

[52] Thomas Harris to John Y. Mason, Navy Department, Bureau of Medicine and Surgery, 4 November 1847, "Report of the Bureau of Medicine and Surgery," and Henry L. Heiskell to William L. Marcy, Surgeon General's Office, 23 November 1847, "Report of the Surgeon General," in *Message from the President of the United States, to the Two Houses of Congress, at the Commencement of the First Session of the Thirtieth Congress,* 1268 and 720.

Issues absent in Taylor's army plagued the medical staff of Scott's, however, they were well-received. Scott represented a powerful ally for the AMEDD, one that Lawson did not truly leverage. For example, during the war, Marcy, Polk, Scott, Lawson, and Heiskel commented on the number of soldiers permanently disabled returning to civilian life. Additionally, Marcy, Lawson, and Scott specifically commented on the need for an after-care system. One of the first attempts at systemized after-care for army veterans failed to pass through Congress and the House of Representatives. Throughout his career, Scott championed an asylum for unsupported army veterans.[53] After the war, Scott was instrumental in the establishment of the Old Soldiers' Homes that were championed by Lawson. Chaired by Lawson, the homes, located in Washington, D.C., and Harrodsburg, Kentucky, operated as an "asylum for old and disabled veterans." Scott was receptive to the input of medical personnel during operations and unusually aware of the impact of illness on the army, in Veracruz he planned movements to minimize the effects of yellow fever. Additionally, Lawson and Scott were personal friends; when Scott invited Lawson to accompany him into Mexico, Lawson jumped at the chance. Their friendship, Scott's adherence to the advice of his medical officers, and the shared cause of the asylum, indicate that Scott was a powerful ally of Lawson. Unfortunately, Lawson did not use Scott's influence to make substantial changes within the department.[54]

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[53] The veteran's home established in 1834 at the Philadelphia Navy Yard only provided care to sailors and Marines.

[54] Memorandum, Winfield Scott to Edmund Kirby, 21 January 1848 and Memorandum: Edmund Kirby to N. Towson, 21 January 1848, in United States House of Representatives, *Index to the Executive Document, Thirtieth Congress, First Session,* (Washington, D.C.: Government Printing Office, 1848), 1086-1087. Armed Forces Retirement Home, "History," accessed 1 June 2018, https://www.afrh.gov/afrh/gulf/ghistory.htm. House of Representatives, "Report No. 98," 27 February 1829, 20th Congress, 2d session. Winfield Scott to William Marcy, "Annual Report," 22 November 1841 in United States Congress, *Senate Documents, 2d Session, 27th Congress, No. 1,* (Washington, D.C.:

At Veracruz, the surgeons set up regimental hospitals on the line while the 4th US Infantry musicians were detailed as stretcher bearers and field medics. Musicians detailed to medical duty were still pulled by other field officers to serve in other roles. The tasking and assignment of medical personnel, whether organic to the AMEDD or not, should be left to the ranking surgeon or assistant surgeon but was not. Once established, personnel problems carried over to the general hospital. The general hospital at Veracruz became the major hospital for the entire expedition and was operational until April 1848. Within the hospital the injured from Veracruz were treated, as well as, any soldiers who fell sick before Veracruz or as they marched inland. Additionally, as the result of capitulation articles, the AMEDD cared for sick and wounded Mexican personnel. Now attached to Scott's army, Porter the senior surgeon in control of the general hospital at Veracruz recounts:

> There was not a single steward except invalids and incompetent ones; an invalid wardmaster; no well men left for cooks and nurses, when the army marched away. There was not a single kitchen, table, bench, bunk, privy, chamber utensil…there was nothing but the miserable sick.

He was able to cobble together a staff from the ambulatory sick and wounded who, once recovered, returned to their units.[55]

Government Printing Office, 1841), 80. Winfield Scott to William L. Marcy "Report" 20 November 1845, quoted in R. Jones to William Marcy, Washington, D.C., 30 November 1847, "Report of the Adjutant General," in *Messages from the President of the United States to the Two Houses of Congress, at the Commencement of the First Session of the Thirtieth Congress,* 85. Duncan, "Scott," 437. Scott, Winfield, *Major-General Winfield Scott, at Mexico City, to William L. Marcy, Secretary of War, at Washington, D.C.,* Official Report, Mexico City, 1847, accessed 10 October 2013, http://www.dmwv.org/mexwar/documents/mexcity.htm.

[55] Duncan, "Scott," 444, Porter, "Medical and Surgical notes of the Campaigns in The War with Mexico, during the Years 1845, 1846, 1847, and 1848," *The American Journal of the Medical Sciences (1827-1924)* 52 (October 1853): 312, ProQuest. James Elderkin, *Biographical Sketches and Anecdotes of a Soldier of Three Wars, as Written by Himself: The Florida, the Mexican War and the Great Rebellion, Together with Sketches of Travel, Also of Service in a Militia Company and a Member of the Detroit Light Guard Band for Over Thirty Years* (Detroit: James D. Elderkin, 1899), Google Books, 28, 60. A. D. Paterson, Editor, *The Anglo American. A Journal of Literature, News, Politics, The Drama, Fine Arts, Etc. Volume 9, 1846-7,* (New York: E. L. Garvin and Co., 1847), Google Books, 613-614. Emma Jerome

Considerable planning and considerations went into the establishment of Veracruz as a base for American forces by Scott and his staff. As late as the assemblage of soldiers at Tampico, Scott developed plans to occupy Veracruz and use it to support the forward push to Mexico City. The advanced planning Scott put into operations at Veracruz was not mirrored by Lawson. Accompanying Scott, Lawson was undoubtedly aware of the plans for Veracruz. No advanced requisitions were made for supply of a potential general hospital so that it was after a week of operations that the hospital received its first shipment of supplies, including blankets and food. No advance staffing plans were made by Lawson, either. There was a noticeable lack of guidance concerning placement of surgeons, who was to remain at the hospital, and who would march forward with the army. Initially there were several surgeons at the hospital, but as the army marched forward toward Jalapa, Porter was left with only one surgeon forcing the department to hastily seek out contract surgeons who were wholly incompetent, as noted by Porter and others. It took weeks to secure competent contractors.[56]

Cerro Gordo and the nearby hospital at Plan del Rio highlight the inefficient evacuation system and planning, or lack thereof, of the AMEDD. An observer of the aftermath noted the intermingling of American and Mexican wounded and dead and how the surgeons moved amongst them triaging and amputating. Surgeons, moving among the wounded, directed those who could walk to go to the hospital in the rear while treating some where they fell. Patients requiring treatment but unable to be treated on the

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Blackwood, ed., *To Mexico with Scott: Letters of Captain E. Kirby Smith to His Wife,* (Cambridge: Harvard University Press, 1917), Kindle, 20-21.

[56] H. Judge Moore, *Scott's Campaign in Mexico; from the Rendezvous on the Island of Lobos to the Taking of the City, Including an Account of the Siege of Puebla, with Sketches of the Country, and Manners and Customs of the Inhabitants* (Charleston: J.B. Nixon, Publisher, 1849), Kindle, 66. MSH, "Further Details of the Battle," Richmond Whig, 11 May 1847, Accessed 10 January 2016, http://www.history.vt.edu/MxAmWar/Newspapers/RW/RW1847eJanJune.htm#aRW24i41p1c4Seat.

field were forced to wait for space upon the single supply wagon designated by the quartermasters for patient transport. The hospital was stocked only with what surgeons personally carried. It lacked any furniture, bedding, or hospital clothes so injured soldiers remained in clothes stiffened by blood. Untrained, injured soldiers were tasked with patient care, including restraint during amputation surgery. The attendants left behind were "those least able to march," always ill or injured themselves. One artilleryman noted the dedication of the surgeon in charge, Henry Steiner, but lamented that surgeons passing through did not stay to assist with the multitudes of injured American and Mexican soldiers. Regimental surgeons could not be directed to remain at a hospital by a regular army surgeon, only the surgeon general or regimental commander could give that order. It would be a poor tactical decision to detach a surgeon for hospital duty when he is needed on the march and in the field and Lawson did not put forth any policy or order dictating who would remain on hospital duty and who moved forward.[57]

The scenes at Veracruz and Cerro Gordo would replay themselves along the road to Mexico City. At every field of battle there were too few surgeons, inadequate transportation resources, and a complete absence of trained medical support personnel. Lawson himself treated the ill and injured at the Battles of Contreras and Churubusco and soldiers at the hospital at Tacubaya, gaining firsthand experience with the effect of the AMEDD's shortcomings on the health of the army.

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[57] Duncan, "Scott," 454-456. George Ballentine, *Autobiography of an English Soldier in the United States Army, Comprising Observations and Adventures in the States and Mexico* (New York: Stringer and Townsend, 1853), Google Books, 206-208. Winfield Scott, "General Orders No. 128, Head-quarters of the Army, Jalapa, April 30, 1847," reprinted in *Niles' National Register* (Baltimore), 29 May 1847, page 6, Google Books.

Interwar Years

The actions of the AMEDD during the US-Mexican War illustrates that it was not yet an adaptive, professional organization. There was little to no attempt to apply lessons learned in the early months of the conflict to improve conditions or procedures. In letters with Taylor, Lawson maintained publicly that the size of the department was adequate for the area of operations, but his experiences with Scott would prove otherwise, as would the reports of commanders in the field and Henry Haskell. During the interwar years, Lawson would be faced with the influx of returning veterans and tasked with moving the department forward toward the next conflict.

The Treaty of Guadalupe Hidalgo that ushered in the interwar period expanded the United States west from what is now Texas to California. The addition of nearly 500,000 square miles to the army's area of operations further taxed the AMEDD. The department simply did not have enough personnel to ensure every garrison and detachment had medical personnel. To reduce the size of the AMEDD to pre-war levels, the 1847 Congressional act was amended in 1848 to stipulate that when a surgeon departed, he was not replaced. In 1856 a small concession was made, and the department was expanded by 4 surgeons and 8 assistant surgeons to cover 89 posts. The relatively few surgeons compared to the size of the army caused the AMEDD to continue to rely on expensive and often questionable contract surgeons. On the eve of the Civil War, the department consisted of 30 surgeons and 83 assistant surgeons, but many would remain loyal to their state and join the Confederate Army.[58]

[58] Brown, 207.

A major victory and missed opportunity for the department came in 1856 when the AMEDD was granted the power to recruit, train, and retain a competent corps of hospital stewards. For the first time, Lawson could bring depth to the structure of the organization and drastically reduce the workload of the surgeons by freeing them from more mundane tasks. No guidance was given by Lawson or plans laid to build a hospital steward corps.

Medical evacuation was a critical shortfall in Mexico. Lawson knew the importance of wagons organic to the AMEDD and designed specifically for patient transport and submitted requisitions to the quartermasters in 1847. When the requisition order was lost, he failed to further pursue the matter until after the war. A similar inquiry about securing patient transport ships was likewise dropped. In 1859, Lawson seriously began soliciting design ideas for patient transport wagons. Surgeon Charles Tripler, one of two surgeons responsible for the evacuation of the sick and wounded to Jalapa from Puebla and Mexico City, was keenly aware of the inefficiencies in the current system and the problems that arose when utilizing supply wagons for patient transport. He was a member of the board charged with evaluating ambulance wagon designs and selecting the best designs for construction and field trials. He and Surgeon Clement Finley submitted designs that were ordered to be constructed and tested. After construction, Tripler's model was field tested in the west and received favorably by medical personnel at Fort Leavenworth. Finley's two-wheeled model was not favorably received as it was considered inefficient and prone to breakage. There was some movement towards

developing a horse litter to evacuate and transport patients in areas where four wheeled wagons could not access, but this was dropped.[59]

Freemon contends that before Hammond, "it was unclear if Medical Department responsibility began on the battlefield or after the wounded soldier had been brought to the field hospital." However, the actions and writings of Porter, Tripler, and Lawson, and others combine with the actions taken in the interwar years to address patient transport by ambulance and other methods indicate that the AMEDD knew it immediately assumed responsibility of casualties. Therefore, it is critical to evaluate the actions during the Civil War prior to Hammond in relation to the US-Mexican War. Porter's and Tripler's difficulties with evacuation would repeat during the Civil War; as will be discussed, the insurmountable transportation challenges Tripler faced would lead to his removal from the Army of the Potomac. Hammond's own scathing letter to Stanton in 1862 detailing the horrors men faced as they slowly died due to dehydration and exposure on the field closely mirrors Porter's own lamentations fifteen years earlier.[60]

The final area Lawson had the power to affect that would prove a challenge during the Civil War was supply. The rapidly expanding army became increasingly dispersed throughout an unprecedented geographical area. This was complicated by the lack of telegraph and railroad capabilities in the west. While depots were established in

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[59] George Alexander Otis, *A Report to The Surgeon General on the Transport of Sick and Wounded by Pack Animals* (Washington, D.C.: US Government Printing Office, 1877), 4-5. Charles S. Tripler to R. C. Wood, 22 May 1860, Record Group 112, NM 20, entry 12, Records of the Office of the Surgeon General (Army) Central Office- Correspondence: 1818-1946, 1818-90 period, National Archives Building, Washington, D.C. Letter: Robert C. Wood to John B. Floyd, Washington, D.C., 23 November 1859, Otis Historical Archives 388: US Army Ambulance Materiel, Series 1: Correspondence and Administrative Records, Box 1, Folder 1: Correspondence Relating to the Development of the Army Ambulance Wagon, 1859-1877, National Museum of Health and Medicine, Silver Spring, MD.

[60] Freemon, "Lincoln Finds a Surgeon General," 15. Porter, January 1852, 21. Seaton, 256. Letter: William A. Hammond to Edwin M. Stanton, Washington, D.C., 7 September 1862, in *The Photographic History of the Civil War* (New York: Review of Reviews, 1912), 304-306.

places like Fort Leavenworth, Kansas; San Antonio, Texas; Albuquerque and Santa Fe, New Mexico; and Benecia (Benicia), California, all purchasing was still done in New York. Too often on the journey from New York to receiving depots, items were lost in shipment, irreparably damaged, or liquid contents evaporated. Despite the frequency with which new posts were established and the rapid movement of forces, Lawson maintained that depots order supplies annually from New York. Surgeons faced with a shortage of supplies were forced to become creative; Surgeon De Leon informed Lawson that after his annual supply failed to arrive, he was forced to utilize veterinary medicines.[61]

The desire of the AMEDD's aging leadership to preserve the status quo remained unaltered by the logistical and operational challenges faced in Mexico. Despite the evacuation problems faced in Mexico, senior Army surgeons were still wholly unaccustomed and unprepared to devise complex evacuation procedures. The sheer numbers of soldiers held in camp during the Civil War would dwarf the numbers seen in New Orleans prior to Scott's expedition. George Templeton Strong quipped in his diary that the "fogies of that department manage it in the spirit of a village apothecary," and his assessment is accurate. The reliance by the old guard on what had always been caused chaos in the opening months of the Civil War. Some of this unwillingness or inability to adapt may be attributed to the Jacksonian aversion to centralized, top-down governance. However, many men who sought reform during the Civil War came of age during the Jacksonian

[61] De Leon to Thomas Lawson, 5 July 1856, Record Group 112, NM 20, entry 12, Records of the Office of the Surgeon General (Army) Central Office- Correspondence: 1818-1946, 1818-90 period, National Archive Building, Washington, D.C. The use of veterinary medicine required interdepartmental transfers of medicines and monies between the AMEDD and quartermasters. Veterinarians were part of the quartermaster corps because horses and mules were transportation assets. Veterinarians became part of the AMEDD in 1918 when the use of animals in the military shifted away from transportation.

era. In this instance, it is perhaps the entrenchment within the political system as subordinate members of the War Department that prevented the AMEDD's leadership from adapting to the changing operating environment.[62]

[62] George Templeton Strong, *Diary of the Civil War, 1860-1865,* ed. Allan Nevins and Milton Halsey Thomas (New York: Macmillan Co., 1952), 181.

CHAPTER III

Clement Finley and the War's First Year

The end of an era came about one month after the start of the Civil War. Thomas Lawson, who served as the Army's Surgeon General for almost 25 years, died. His replacement, an "ossified, incompetent blockhead" according to contemporaries, was Clement Alexander Finley. He would continue to handle the department as his predecessor did, often leaving subordinates want of guidance and support in the face of increasing challenges. As part of the old guard, Finley was in Mexico first as the medical director of General Zachary Taylor's forces, and then in the same capacity under General Winfield Scott. On both occasions, after a brief service in the field he returned north because of illness. Finley's brief, tumultuous time as surgeon general was marked by conflict with Congress, the Secretaries of War, the newly-formed United States Sanitary Commission (USSC), his surgeons, and the inheritance of a department wholly unprepared for the scale of the war. [63]

The beginning of the war brought a strength reduction within the AMEDD by almost 25 percent as physicians resigned to follow their states' flags. Those who remained, whether they served in Mexico or not, were unable to foresee the magnitude of the war, much like the North's citizens. It was not just the brutality and depravations that were previously unknown, but the sheer size of the fighting force was something the old guard could not comprehend and, as a result, they were unable to adapt to the changing operational landscape. Unlike Lawson, Robert C. Wood, as acting surgeon general, and

[63] Strong, 181. The USSC was the largest and most formidable NGO that emerged during the war. As the precursor to the modern American Red Cross, it was modeled after the British Sanitary Commission (BSC) of the Crimean War but without plenary control of the AMEDD.

Finley did not choose to leave surgeons in garrison. They instead opted to employ contract physicians selected by garrison commanders. The practice of long postponing furloughs and leave for surgeons in remote areas meant that when surgeons were brought back east for service on the front, they found their medical skills behind that of their peers.[64]

In Lawson's absence, Wood often served as acting surgeon general and upon Lawson's death, many within and without the AMEDD believed he would be installed as the next surgeon general. As interim Surgeon General, Wood was at first hostile toward the formation of the United States Sanitary Commission, but acquiesced on 22 May 1861 by asking Secretary of War Simon Cameron for "an intelligent and scientific commission" to cooperate with the AMEDD in providing the best modern doctrine for the army but emphasized they should not "interfere" with department operations. Unfortunately, as the most senior member of the AMEDD, Finley received the position instead of Wood. Internal and outside forces quickly lead to his removal after less than a year in office.[65]

Outside forces constantly acted upon Finley and the AMEDD. Whether the meddling was helpful or detrimental was inconsequential to Finley. All outside influence and attempts to modify AMEDD operations were viewed as a threat. The esteem of medical personnel and the department Finley experienced under Scott in Mexico was not

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[64] Letter: R. C. Wood to L. Thomas, Washington, D.C., 2 May 1861, RG 112, NM 20, Entry 4, Volume 3, Page 27, Records of the Office of the Surgeon General (Army), Central Office—Correspondence, 1818-1946, 1818-90 Period, Letters and Endorsements sent to the Secretary of War, March 1837-1866, National Archives Building, Washington, D.C.

[65] Strong, 171. Letter: R. C. Wood to Simon Cameron, Washington, D.C., 22 May 1861, RG 112, NM 20, Entry 4, Volume 3, Page 36-37, Records of the Office of the Surgeon General (Army), Central Office—Correspondence, 1818-1946, 1818-90 Period, Letters and Endorsements sent to the Secretary of War, March 1837-1866, National Archives Building, Washington, D.C.

the norm. Too often, when officers outside the department interjected, it was to the detriment of the department and patient care. This had proved true since the early 19th century and the early days of the Civil War would prove that this time would be no different. For example, during one of the first land battles of the war, the Battle of Big Bethel in early June 1861, the surgeon in charge of medical operations in the Fort Monroe/Newport News area of Virginia, Surgeon John M. Cuyler, found himself devoid of ambulances. Big Bethel was conceived by Major General Benjamin Butler to drive back the Confederate forces near Newport News and executed at a time when a measles epidemic was ravaging the troops under his command. The resulting difficulties of evacuating the 53 wounded after Big Bethel caused Butler to lose confidence in Cuyler. Instead of permitting his medical staff to address medical problems, Butler took charge and directed the establishment of a hospital in a hotel and ordered his personal physician, Dr. Gilman Kimball, to lead it. At the time of his appointment by Butler, Kimball was a contract physician at an army hospital in Annapolis, Maryland. Kimball left his post at Butler's behest, ignoring a direct order by Finley to remain, leaving Annapolis without a doctor. In the face of Butler's political might, Kimball's insubordination went unchecked. Not only was he permitted to remain as a contract surgeon, he was eventually appointed as a brigade surgeon and reassigned to join Butler's forces.[66]

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[66] Letter: Clement A. Finley to Benjamin Butler, Washington, D.C., 17 July 1861, Record Group 112, NM 20, Entry 2, Records of the Office of the Surgeon General (Army)-Correspondence: 1818-1946, 1818-90 period, National Archives and Records Administration. Letter: John M. Cuyler to Clement A. Finley, Newport News, VA, 18 August 1861, RG112, NM 20, Entry 2, Records of the Office of the Surgeon General (Army)-Correspondence: 1818-1946, 1818-90 period, National Archives and Records Administrations. Letter: Clement A. Finley to Simon Cameron, Washington, D.C., 7 November 1861, RG 112, NM 20, Entry 4, Volume 3, Page 117, Records of the Office of the Surgeon General (Army), Central Office—Correspondence, 1818-1946, 1818-90 Period, Letters and Endorsements sent to the Secretary of War, March 1837-1866, National Archives Building, Washington, D.C. Strong, 173. "Army Medical Intelligence," in Steven Smith, ed., *The American Medical Times Being a Weekly Series of the New York Journal of Medicine, Volume 3,* (New York: Bailliere Brother, 1861), 31.

The Kimball affair was typical of the types of disruptions that officers outside the department caused. In the face of such worrisome meddling by outside forces, it is no wonder that Finley was obstinate to outside input causing conflict between the department, government officials, and nongovernmental organizations (NGOs) whose primary mission was to support the health and wellbeing of the Union army. Almost immediately upon his assumption of command, Finley butted heads with the USSC's leadership. The leadership, in turn, was not quiet in its critiques of Finley or his administration of the department, nor did they hide their ultimate goal of forcing his removal from office.[67]

Any discussion of the AMEDDs readiness and action in the early days of the Civil War must include discussion of the First Battle of Bull Run on 21 July 1861. The humiliating defeat of the Union forces, under the command of Brigadier General Irvin McDowell, was startling to the military and citizenry. As the commanding general of the entirety of the Union's forces, Scott brought a wealth of experience to the army allowing him to create effective plans. There is some debate if he was careless in his pushing forward or did so out of political necessity as the citizens and politicians were not yet prepared to embrace his time-consuming Anaconda Plan. However, a key difference between Scott's forces in Mexico and McDowell's forces prior to Bull Run was discipline. Even volunteer troops staged in New Orleans were present for several weeks prior to the expedition to Mexico City, giving some opportunity for volunteer officers to instill some form of military discipline into his subordinates. The ratio of volunteer to regular army was also smaller than during the Civil War, allowing volunteer units more

[67] Strong, 181, 182, 184.

exposure to soldiers and officers of the regular army. The stark difference between professional soldiers and volunteers led Scott to prefer maintaining a small military force for longer campaigns rather than employing a large volunteer force for heavy combat. These key differences in the composure of the fighting force led McDowell's initiatives in the field to fall apart because of the undisciplined military force led by officers unaccustomed to military operations.[68]

While the defeat at Bull Run was monumental at the time, it served as a wake-up call; the north saw that "the Army of the Union marched on Manassas with the joy as battle-cry of 'On to Richmond,' and…marched back with the wild cry of 'Retreat on Washington.'" Early critiques of the "overwhelming disgrace," painted comparisons between the condition of Taylor's troops and his consideration for their basic needs ahead of Buena Vista and the condition of and consideration for McDowell's. A recurrent theme in the media was the poor discipline of the new soldiers and a renewed call for volunteers so that every area "may have the opportunity to contribute" to the war effort. Additionally, the battle laid bare the lack of discipline among the army and forced military leadership to reconsider the fact that fielding a successful army was more complicated than providing arms and ammunition to willing volunteers. If the troops of the Union Army behaved shabbily, the response of the AMEDD was abominable.[69]

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[68] Strong, 169-170. "Defensive Warfare," *New York Tribune* (New York, NY), Thursday, 2 May 1861, pg. 4, col. 3., https://www.newspapers.com/image/85339236

[69] "The War for the Union: The Battle of Bull Run," *New York Daily Tribune* (New York, NY: 26 July 1861) Page 6, Column 1. http://chroniclingamerica.loc.gov/lccn/sn83030213/1861-07-26/ed-1/seg-6/. "New York to the Rescue: A Call for More Volunteers," *New York Times* (New York, NY: 26 July 1861), page 1, column 6, https://www.nytimes.com/1861/07/26/archives/newyork-to-the-rescue-a-call-for-25000-more-volunteers-proclamation.html. "Notes of the Rebellion; Affairs at the Capital. Sunday Fighting Condemned by the Chaplain of the House—Gen. Zach Taylor vs. Gen. McDowell—The Government Seriously Alarmed---Interesting Stories of the Men in the Fight—Wonderful Escapes—A True Hero—The Last Colonel on the Bloody Field," *New York Times* (New York, NY: 31 July 1861), page

In the aftermath of Bull Run the ineffectual battlefield and administrative organization of the AMEDD was exposed. Surgeon William S. King, the medical director of McDowell's forces, enjoyed the support of the commanding general, but not of the Office of the Surgeon General. Upon arrival before the battle, he found camp sanitation entirely lacking and soldiers ignorant of basic tenets such as using a latrine. Ahead of Bull Run, King established a general hospital in Alexandria and requested twenty additional ambulances. Finley approved the requisition, but one of his subordinates working in the AMEDD's headquarters denied it because it did not bear the signature of the commanding general, McDowell. This denial highlights the confusion within the department about who was the final authority and the struggle of surgeons in the field to obtain necessary medical materiel.[70]

Such confusion was common since there was no established protocol for ambulance attendants, evacuation, or hospitalization. In the absence of guidance from the top ahead of Bull Run, King was left to cobble together a plan. He lacked the time to train men to tend the ambulances and decided to wait to establish plans for hospital and evacuation until necessary on the battlefield. To put this in perspective, King's method of battlefield preparation was akin to the ordinance department not distributing bullets or weaponry until the soldiers took to the field. King, following the department precedence set by Lawson with Scott, decided to remain with McDowell and direct evacuation and

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2, column 1, https://www.nytimes.com/1861/07/31/archives/notes-of-the-rebellion-affairs-at-the-capital-sunday-fighting.html.

[70] William S. King, "Report of the Events connected with the First Bull Run Campaign," in Joseph J. Woodward and George A. Otis, editors, *Appendix to Part I of the Medical and Surgical History of the Rebellion Containing Reports of Medical Directors and Other Documents,* (Washington, D.C.: Government Printing Office, 1870), 1-5. Gillett, *1818-1865,* 164. "Sanitary Commission No. 17: Report of a Preliminary Survey of the Camps of a Portion of the Volunteer Forces near Washington," in United States Sanitary Commission, *Documents of the U.S. Sanitary Commission, Volume I,* (New York: np, 1866), 3-6

treatment on the battlefield. From his position, King was unable to communicate with his surgeons or coordinate efforts. Additionally, he alone was responsible for supervising the volunteer surgeons, many of whom possessed zero military experience and some who refused to care for soldiers from outside his unit. Kings actions and the actions of the whole department indicate the reactionary, not anticipatory nature of medical care in the army and the reliance on antiquated methods of battlefield medical operations.[71]

Internal Organization

The modes of internal organization within the AMEDD during Finley's time in office varied little from the organization during Lawson's tenure. Advanced planning, hospital organization, transportation, personnel, and supply obstacles were addressed much as they were in the past. There were changes orchestrated by Congress, the War Department, and civilian organizations as a result of the setbacks faced early in the war. Change did not emanate from the top, subordinates were not encouraged to innovate, nor was there a climate where positive change in one area of the army was multiplied across all areas.

Planning. Advanced planning and forecasting in the nineteenth century United States military was still a relatively new concept, however not completely foreign. As will be discussed later, Lawson understood the influx of troops into Washington would require some pre-positioning of personnel and materials to support needed hospitals. Unfortunately, his successor was not adept at advanced planning. Additionally, as a "lover of routine," Finley "recoiled from the radical changes required." Outside observers lamented the inaction of Finley and the medical department in September 1861

[71] King, in Woodward, 5-6. C. C. Grey, "Report of Services at the First Battle of Bull Run" and W.W. Keen, "Report," in Woodward, 7 and 9.

to plan for the forecasted influx of 5,000 to 20,000 new cases to be received from the surrounding areas as skirmishes intensified. On another occasion, Finley insisted that he would call for supplies from the New York depot when the supplies were needed. This left Surgeon Charles Laub, Medical Director of the Army of the Potomac, so wanting for supplies after the Battle of Lewinsville that he impressed the USSC for simple bandages. The Confederate victory at Lewinsville was a small skirmish, seeing fewer than 1,000 soldiers in action for both armies and 16 Union soldiers killed.[72]

When McDowell was replaced by Major General George B. McClellan, another Mexican War veteran, Surgeon Charles Tripler, was appointed as medical director. Tripler was a keen administrator who did draw upon his past experiences, but the department needed an innovator. With directives concerning planning absent from the top echelon of the AMEDD, it fell to the medical directors to instill some form of discipline with his subordinates; Tripler was equal to the task, despite Finley's leadership.

Of Finley, Tripler, King, and McClellan, McClellan had the most exposure to military medical planning in battle. Despite being one of the most controversial individuals of the Union Army who continues to spur debate and analysis about his actions and inactions in 1861 and 1862, McClellan was an adept planner. An oft overlooked influence upon his actions as the commander of the Army of the Potomac were his experiences and observations as part of the official party sent to Europe in 1855 to evaluate the state of the armies of several countries and serve as observers during the Crimean War. The subsequent *Report on the Art of War in Europe in 1854, 1855, and 1856* penned by the lead of the commission, Colonel Richard Delafield, upon their return

[72] Strong, 173, 185-186.

repeatedly extols the state of the British army medical branch, its advanced planning and training, the attention to the branch paid by the British military's leaders, and the favorable effect on the army. In McClellan, the AMEDD found a leader willing to act upon the advice of the medical staff and support the staff in their endeavors. For example, when Tripler began drilling medics in evacuation techniques, McClellan provided support by ordering all ambulance attendants to take part in training provided by regimental surgeons for one hour per day, six days per week.[73]

Hospitals. The hospital organization system that emerged by the end of the Civil War is the basis for all army hospital organization today. Each of the various roles of army medical care traces its roots back to the echelons of care in the Civil War. The arrival of artillerymen and engineers into Washington, D.C., in February 1861 led to the re-instatement of general hospitals in the Army. Before his death and showing improvement from his inactions preceding the assemblage in New Orleans, Lawson instructed the establishment of a general hospital to care for the assembling forces. Throughout the war, the more permanent general hospitals were established by medical directors to handle overflow from the regimental hospitals or soldiers too ill/injured to move forward with their unit. Regimental hospitals remained temporary entities, set up and broken down based upon the location of the army and able to move forward as needed. Field hospitals, set up in the heat of battle, were established by the medical director and staffed with regimental surgeons and assistant surgeons. Occasionally, during or immediately after a battle, when the regimental hospital was overwhelmed, a

[73] Richard Delafield, *Report of the Art of War in Europe, 1854, 1855, and 1856,* (Washington, D.C.: George W. Howman, Printer, 1861), Google Books. Charles S. Tripler, "Report of the Operations of the Medical Department of the Army of the Potomac, from its Organization in July, 1861, until the Change of Base to the James River in July, 1862," in Woodward, 45.

medical director could authorize a brigade hospital, operated by the brigade surgeon. Brigade hospitals were more permanent than regimental hospitals but not as permanent as general hospitals.

Despite the delineation between field, regimental, and general hospitals, there was little guidance as to when or how soldiers should be transferred from regimental to general hospitals. Once filled beyond capacity, a regimental surgeon would attempt to transfer soldiers requiring more care or extended convalescence to the general hospital. Upon arrival at the general hospital, the ill or injured soldier could be turned away until more space or more medical personnel became available. Reports abound of transferred soldiers being left on the street or returned when the general hospital was full, when they lacked transfer papers, or when the attending surgeon at the general hospital felt he did not have the resources to care for another patient. Tripler, in his report on the medical operations of the Army of the Potomac from 1861-1862, admitted that there was no system in place for the admittance or discharge of patients from the 7 or 8 general hospitals in the Washington, D.C., area. The uncertainty of whether the general hospital would accept a patient led regimental doctors to keep seriously ill or injured patients until they were close to death. By the time many men were transferred to general hospitals, their death was a foregone conclusion. This just furthered the idea that hospitals were harbingers of death.[74]

[74] Tripler, in Woodward, 44-45. Letters: L. A. Edwards to Charles Tripler and L. A. Edwards to Dr. McNeill, Washington, D.C., 28 March 1862, RG 112, NM 20, Entry 4, Pages 103 and 113, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1964, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1857-May 1966, National Archives Building, Washington, D.C.

During this period, the conditions within the general hospitals were usually poor. This was not due to the dim comprehension of the connection between sanitation and health, as one modern historian put it. The common acceptance of the miasma theory and not the germ theory does not explain the dismal conditions, either. If a nineteenth century surgeon believed bad air caused illness and bad air was caused by filth, dampness, and poor ventilation, eliminating those three conditions would improve health. The cause and effect—improve living conditions and health improves—was accurate. In camps where sanitation standards were enforced, like not collocating the latrine and water supply, health was better. That it was pathogens and not bad air that caused illness is virtually irrelevant when considered in relation to wounded patients. Disease, non-battle injury (DNBI) claimed more lives than battle, so improved sanitation despite ignorance of the germ theory would save more lives than the sterilization of surgical tools in between surgeries for injuries sustained in battle. The desire of medical professionals, and repeated in countless reports in 1861 and beyond, was to stress upon military officers and providers new to the AMEDD the "paramount importance of hygienic morality."[75]

The prevailing wisdom of the time dictated that to minimize the development of bad air, ill, injured or convalescent men required 1,200 cubic feet of space. In early 1862, just one day after a hospital was established near Cumberland, Maryland, it was at over 300 percent capacity. Few buildings at this time were constructed for use as general hospitals. Most were preexisting buildings—houses, barns, carriage houses, machinery

[75] Meier, 1-5. Tripler, in Woodward, 46. United States Sanitary Commission, "Sanitary Commission No. 24[2]: General Instructions for Sanitary Inspectors," in United States Sanitary Commission, *Documents of the U. S. Sanitary Commission, Volume I,* 24-28. Letter: R. C. Wood to Edwin Stanton, Washington, D.C., 27 April 1861, RG 112, NM 20, Entry 4, Volume 3, Page 10, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1966, 1818-90 Period, Letters and Endorsements sent to the Secretary of War, March 1837-1866, National Archives Building, Washington, D.C.

shops—that were rented as-is for hospital purposes. Most general hospitals were grossly overcrowded, dirty, and/or flooded and reeked with "gaseous emanations from the men." This owns more to Finley's inability to envision such large-scale operations and unwillingness to accept interference from outside sources than sanitation ignorance on the part of regular army medical providers. At the behest of the USSC and in an attempt to more closely monitor conditions in hospital facilities, in early 1862 Assistant Surgeon William A. Hammond was tasked with the inspection of general hospitals at Grafton, Virginia, and in and near Cumberland.[76]

The hospital inspected at Grafton was inhabited only 24 hours before the inspection, yet it housed less than half of the sick soldiers with the rest scattered at private residences. Basic bedding and medical supplies were woefully insufficient. The general hospital, consisting of 15 pre-existing structures was deplorable. Twenty-seven times Hammond classified the police[77] of the wards and floors contained therein as bad or very bad; in eight police was tolerable; good police in only one instance. Hammond concluded that "the men look badly and the establishment is altogether a disgrace to humanity and the country."[78]

In closing his report, Hammond lays out his recommendations for improvement: provide the hospitals and surgeons with supplies, employ qualified physicians who can not just provide medical care but *manage* medical care as to maintain accountability of patients, and develop clear guidance about the delineation of responsibilities among

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[76] William A. Hammond, "Report on Hospitals at Cumberland, &c." in United States Sanitary Commission, *Sanitary Commission No. 41: Two Reports on the Condition of Military Hospitals at Grafton, VA & Cumberland, MD,* (New York: WM C. Bryand & Co., 1862), 3-4.

[77] "police" refers to the orderliness and cleanliness of the facility.

[78] Hammond, "Report on Hospitals," in United States Sanitary Commission, *Sanitary Commission No. 41,* 31-33.

hospital staff. The report, published by the USSC with the support of Dr. Jonathan Letterman and General William Rosecrans highlighted the conditions found at two specific hospitals, but these conditions repeated themselves across the army. In the prelude to the report, the USSC maintained that the deplorable conditions described in the report were attributable only to the ineffectiveness of the AMEDD and its leadership. [79]

Figure 2. Mower Army General Hospital, Philadelphia, Pennsylvania, circa 1864. From the National Library of Medicine

The lack of advanced planning meant that many times hospitals--even general hospitals--were set up wherever the ranking medical officer could find space. In some instances, medical providers ceded complete control of selection to the quartermaster corps. Much like in Mexico, the quality of the structures designated to house hospitals varied greatly and directly impacted the health of the soldiers and the care they received. Simple measures like installing floor boards on joists instead of on bare ground was routinely ignored. There were few rules that governed the establishment of the hospitals which gave rise to the conditions in Hammond's report. In 1861, the USSC presented an idea to the War Department and the AMEDD concerning the erection of hospitals in the

[79] Ibid, 37-39.

pavilion style. The pavilion hospitals were designed to minimize the effects of bad air and boasted smaller structures with wide hallways and adequate ventilation. They were modeled after the hospitals championed by Florence Nightingale during the Crimean War. The hospital pictured above, Mower in Pennsylvania, is an example of this style. Cameron, Tripler, Quartermaster General Meigs, and McClellan supported these hospitals, Finley less so. At the end of the first fiscal year after he took office, he proudly proclaimed that his greatest achievement was not spending all his budgeted funds. As such, he was most concerned with the financial obligation inherent to erecting a new structure. The USSC countered that the cost of construction would pay for itself with the monies saved from renting and renovating existing structures. Tripler's greatest concern was the AMEDD's ability to staff and supply such a facility, a more reasonable concern than Finley's. On two separate occasions, he reduced the number of beds to be included in a hospital because of staffing shortages and admitted to the USSC that he would wholly rely on them to provide hospital clothes.[80]

Personnel. The structure of the organization did not change significantly in the first year of the war. Finley as surgeon general was still the final authority with regards to the regular army; there was considerable variability into the appointment of volunteer personnel. There was still substantial reliance on contractors and surgeons and assistant surgeons acted as purveyors, medical inspectors and/or medical directors in addition to their regular duties. Men enlisted specifically as ambulance drivers and attendants did not yet exist, and while steps were taken by some medical directors to train men for

[80] Strong 187. Letter: Clement A. Finley to Montgomery Meigs, Washington, D. C., 19 March 1862, RG 112, NM 20, Entry 4, page 55, Records of the Office of the Surgeon General (Army) Central Office—Correspondences, 1818-1964, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1857-May 1866, National Archives Building, Washington, D.C.

ambulance duty, no guidance on this topic came out of the surgeon general's office. Despite army regulations dictating that medical directors controlled detailed hospital attendants, department directors often overruled them, leaving hospitals understaffed. Hospital stewards enlisted in the AMEDD were still detailed for other duties, requiring Finley to write to the Adjunct General's Office to have personnel returned to the department for medical duty. Still others came into the ranks of surgeons after previously enlisting as privates within other branches.[81]

As previously discussed, surgeons of the regular army stood before a medical examination board, and this practice continued during the Civil War. Volunteer personnel were appointed by a variety of confusing means that caused chaos within the department. General Orders No. 25 from the War Department in 1861 directed that volunteer medical forces be examined by a board assembled at the state level with the state governor possessing final appointment authority. In an unwise move, the Surgeon General's Office supported the gubernatorial appointments with state-established boards; some states complied, while others did not. Even states that employed the board did not find the approved surgeon in his assigned role. Tripler complained in 1861 that regimental colonels sometimes forcibly removed approved surgeons from their camps and installed their own appointee. Contrarily, volunteers employed as Brigade Surgeons were examined by the AMEDD and, in a wise move, Finley wrote that they should be

[81] Letter: Clement A. Finley to L. Thomas, Washington, D.C., 9 November 1861, Letters Received by the Adjutant General's Office, 1860-70, during and after the Civil War Period, RG 94, Roll 59, National Archives and Records Building, https://www.fold3.com/image/299678515. Benita K. Moore, ed., *A Civil War Diary: Written by Dr. James A. Black, First Assistant Surgeon, 49th Illinois Infantry,* (Bloomington: AuthorHouse, 2008), 5-6. Letter: Clement A. Finley to Simon Cameron, Washington, D. C., 19 July 1861, RG 112, NM 20, Entry 4, Volume 3, Page 95-96, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1966, 1818-90 Period, Letters and Endorsements sent to the Secretary of War, March 1837-1866, National Archives Building, Washington, D.C.

assigned to units not from their home state, unlike regimental surgeons, who served almost exclusively with a unit from their home state. Compounding this was the absence of laws governing the appointment of medical officers for artillery batteries and cavalry detachments. Tripler contends that "these irregularities created great embarrassment and confusion" during the initial organization of the medical departments leaving some regiments devoid of medical personnel and others with an incompetent medical staff. Tripler aptly summed up the disconnect between the civilian world and military medicine: "…so far as the public notion of what was required for a medical officer was concerned, almost any one was considered competent to perform the duties." This was certainly the case in the haphazard appointment and suppling of physicians within the volunteer forces. Given the great variety of qualification, it is no wonder the medical department suffered such a poor reputation.[82]

Volunteer medical personnel also experienced large variations in the quality and quantity of supplies. Officials in some states like Massachusetts and New York wrote to the AMEDD requesting copies of current regulations to supply to their volunteer forces; other states did not. Some volunteer surgeons, after writing to the OTSG to request supplies, were told they needed to petition their state for medical supplies and hospital

[82] Letters: R. C. Wood to Simon Cameron, Washington, D.C., 25 April 1861, 18 May 1861, and 21 May 1861 all in RG112, NM20, Entry 4, Volume 3, Pages 71, 75-76, and 79, Records of the Office of the Surgeon General (Army) Central Office- Correspondence, 1818-1946, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1837-May 1866, National Archives Building, Washington, D.C. Tripler, in Woodward, 45, 58. Letter: L. A. Edwards to Jonathan Letterman, Washington, D.C., 18 March 1862, RG 112, NM 20, Entry 7, Volume 2, page 50, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters and Endorsements Sent to Medical Officers, September 1862-September 1872, National Archives Building, Washington, D.C. Letters: Clement A. Finley to Simon Cameron, Washington, D.C., 5 August 1861 and 11 December 1861, RG 112, NM 20, Entry 4, Volume 3, Page 97 and 122-123, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1966, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1837-1866, National Archives Building, Washington, D.C. "New Corps of Brigade Surgeons," in Smith, ed., *The American Medical Times, Volume 3,* 39-40.

stores. Still others were instructed to call upon Satterlee in New York for initial supply. The variety of supply methods led to issues with accountability prompting the OTSG to write to medical directors and purveyors to ascertain exactly what supply was issued to volunteer regiments. The variety of the caliber of volunteer surgeons and levels of initial supply caused great difficulty as the AMEDD transitioned to full-scale combat operations.[83]

A new position to emerge during the war was the medical cadet. In the summer of 1861, a position was created to allow young medical students to join the medical department and serve as dressers or ambulance attendants. The department could carry 50 medical cadets on its rolls and they were paid a sum equal to that of a US Military Academy cadet. Quickly it was discovered that in many instances, although the medical cadets' training was incomplete, they possessed more skill than the hastily hired contract surgeons or political appointees of the volunteer forces. In one instance, Brigade Surgeon John H. Brinton replaced a politically-appointed assistant surgeon with a medical cadet because the cadet was more knowledgeable and educated than the purported doctor.[84]

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[83] Letters: C. Laub to Richard Satterlee, Washington, D.C., 27 April 1861, W. White to S. W. Gross, Washington, D.C., 30 April 1861, and L. A. Edwards to Joseph Sargent, Washington, D. C., 3 May 1861 in RG 112, NM 20, Entry 2, Volume 27, Pages 5-6, 22, and 31, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Sent April 1818-October 1889, National Archives Building, Washington, D.C.

[84] John H. Brinton, *Personal Memoirs of John H. Brinton, Major and Surgeon U. S. V., 1861-1865,* (New York: Neale Publishing Company, 1914), 66-68. George A. Otis and D. L. Huntington, *Medical and Surgical History of the War of the Rebellion, Part III, Volume II, Surgical History,* (Washington, D.C.: Government Printing Office, 1883), 890-899. Office of the Surgeon General, No Title (Transcription of congressional act concerning female nurses and medical cadets), RG 112, NM 20, Entry 4, Volume 3, Page 91-92, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1966, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1837-1866, National Archives Building, Washington, D.C.

The staffing of hospitals and which physicians went where under whose orders remained ambiguous and caused chaos and critical gaps in care on the battlefield and, as noted in Hammond's report, discord in the hospitals. Compounding the confusion about where surgeons and physicians were stationed was the critical shortage of medical support personnel. After Bull Run, civilian volunteers began to express their desire to help the cause by tending to the injured and ill soldiers. Tripler once lamented the "crude suggestions" offered by religious zealots, lay doctors, and women. Hammond mentioned several times the inexperience and ineffectiveness of nurses present. While Tripler was in favor of nurses, there were too few nurses for the military, increasing the burden on the surgeons and assistant surgeons. Tripler experienced shortages in the east, where there were numerous regiments and personnel. The medical support personnel shortage was more pronounced in the west. Brinton, while serving in Mound City, maintained that it was nearly impossible to obtain the men necessary to establish and run a hospital given the few regiments in the area.[85]

Back at home, when a man fell ill, he was tended to by the female members of his family within the female sphere of the home. Within the AMEDD, female nurses were somewhat controversial. Finley was against their use except in rare cases in established general hospitals. The employment of females in hospitals received mixed reviews from the surgeons in the field. Some, like Brinton, were not opposed to female nurses but opposed to the great demands they sometimes made a condition of their assistance. For example, Brinton writes of an instance in Mound City where the females who

[85] Brinton, 42-43. Bernard John Dowling Irwin, "Notes on the Introduction of Tent Field Hospitals in War," *Proceeding the Fourth Annual Meeting of the Association of Military Surgeons* (1894), 121. Gillett, *1818-1865,* 207-209.

volunteered each wanted their own room with a bed and small mirror. Once accommodations were made and they began work he found "nothing but complaints, fault-finding…, and backbiting" and declared that female nurses were "a great trial." Brinton's displeasure arose not from the fact that they were women, but on the unreasonable demands, frivolous arguments and infighting. Given the overcrowded nature of the hospitals and the scarcity of furniture and hospital supplies, demanding a furnished private room was unreasonable. Brinton was successful in ridding the hospital of the civilian female nurses and once they were replaced with nuns from the sisters of Notre Dame, he became quite satisfied with the assistance of the nursing staff. Prominent medical journals of the time offered conflicting opinions about the employment of female nurses. In one instance, the *American Medical Times* asserted that females were unsuitable for nursing while also claiming that they improved sanitation.[86]

In Crimea, Florence Nightingale made a large impact in her efforts to improve military nursing and hospitals. Dorothea Dix, a nurse herself who travelled to Crimean hospitals and met Nightingale, pressed the government to formalize the role of female nurses within the army. The government acquiesced and created the Women's Nursing Bureau and installed Dix as the superintendent. Instead of vesting all power to appoint nurses into the newly-formed Nursing Bureau, Congress still allowed medical directors to go around Dix and directly appoint nurses when necessary. An 1863 order allowed the surgeon general to appoint nurses, limited the total number of female nurses, and reduced

[86] Brinton, 44-45. L. "Sanitary Condition of the Army of the Potomac" in Stephen Smith, ed, *The American Medical Times Being a Weekly Series of the New York Journal of Medicine Vol 4,* (New York: Bailliere Brothers, 1862) Google books, 45. Letter: Clement A. Finley to Henry Nelson, Washington, D.C., 5 July 1861, RG 112, NM 20, Entry 4, Vol 3, page 90-91, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1966, 1818-90 Period, Letters and Endorsements Send to the Secretary of War, march 1837-1866, National Archives Building, Washington, D.C.

the pay of female nurses. Instead of creating a single system for the admission and administration of nurses, another decentralized system was created so that efforts were duplicated across the army. Additionally, the orders limiting the number of female nurses increased the costs of personnel; male nurses received a higher rate of pay than female nurses. The first year of the war saw doctors and female nurses trying to negotiate the new terrain created when the male sphere (hospitals) clashed with the female sphere (tending the sick). Virtually all regulations emanating from Congress regarding the Women's Nursing Bureau either severely limited its capabilities or was too open ended to be of value. For example, even though Congress vested the authority in Finely to permit the Nursing Bureau the use of army hospital stores, no universal guidance emerged from the surgeon general's office concerning this.[87]

Transportation. Before the Civil War, officers outside the AMEDD began to acknowledge the AMEDD's need for organic transportation assets:

> The details and requirements of this branch of the service should not constitute a part of the general transport service of the army, as heretofore has been the case in our service. No person can so well preserve the efficiency of the surgical and medical apparatus as he who best knows its uses.[88]

That the Delafield Report, written by an engineer and in conjunction with other non-AMEDD personnel, was not seized upon and leveraged to make substantial changes within the department again illustrates the folly of maintaining the status quo in the face of a changing operational landscape. Transportation, and its control by the quartermasters, had long been the bane of the AMEDD. Whether it was the lack of organic assets for materiel movement or the lack of suitable evacuation methods and

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[87] Gillett, *1818-1865,* 206-209.
[88] Delafield, Location 2957.

personnel, the AMEDDs inability to move people and supplies negatively affected operations and the health of the army. Letters in between the Office of the Surgeon General and Satterlee, the medical purveyor of New York, indicates that supplies were not entirely scarce. Medicines like quinine and whiskey and basic supplies such as lint and dressings were obtained with relative ease. Reports generated at the general hospital level and lower indicate that these supplies were not reaching the hands of the surgeons who needed them indicate that the distribution network was the crux of the problem. For example, a series of telegrams at the start of the Peninsula Campaign sent by Tripler reveal increasing panic at the delay in obtaining supplies. His trepidations were well founded as these shortages came not only during a bloody campaign when malarial illness was at a high point, but during a leadership change in the AMEDD.[89]

[89]Letter: Alder to D. Nelson, 6 September 1862, RG 112, NM 20, Entry 7, Records of the Office of the Surgeon General (Army) Central Office- Correspondence: 1818-1946, 1818-90 period, National Archives Building, Washington, D. C. Brinton, 53. Letter: L. A. Edwards to W.S. King, Washington, D.C., 5 April 1862, RG 112, NM 20, Entry 2, Page 145, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Sent, April 1818 to October 1889, National Archives Building, Washington, D.C. Letter: R. C. Wood to Richard Satterlee, Washington, D.C., 16 April 1861, RG112, NM 20, Entry 2, Vol 27, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Sent, April 1818-October 1889, National Archives Building, Washington, D.C. William A. Hammond to Charles S. Tripler, Washington, D.C, 8 May 1862, RG 112, NM 20, Entry 2, Volume 30, Pg., 382, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Sent, April 1818 to October 1889, National Archives Building, Washington, D.C. Tripler, in Woodward, 58. Benita K. Moore, 111-113.

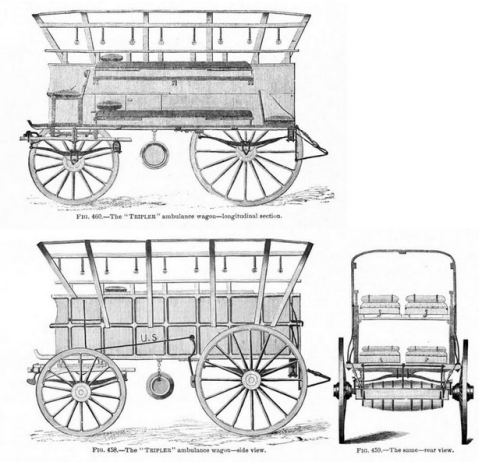

Figure 3. Four-wheeled ambulance designed by Charles Tripler. From *The Medical and Surgical History of the War of Rebellion*

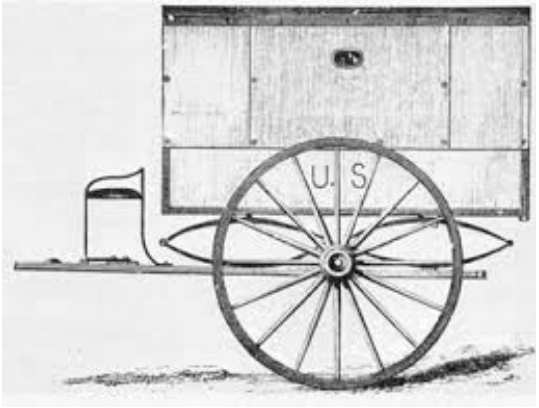

Figure 4. Side view of the two-wheeled ambulance designed by Clement Finley. From *The Medical and Surgical History of the War of Rebellion*

Patient transportation is the one area where the AMEDD attempted to make strides in the interwar period. By the time of the onset of the conflict, there were two ambulance wagon styles in use: Finley's two-wheeled model and a four-wheeled model. Wagons designed and built for patient transport is one thing, but having them readily available is quite another. There was little movement by the AMEDD leadership to convert ambulance wagons to organic assets—the quartermasters still maintained ownership of all transportation assets, and Finley maintained there were enough ambulances and

supply available despite numerous contradictory field reports. As such, ambulances were packed with medical and non-medical supplies and used to transport supplies before battle. Once emptied, they could then be used for their designated purpose. Amid battlefield operations, this system was almost guaranteed to fail, as it depended upon numerous individuals and entities to ensure the wagons were emptied and turned over to the ranking surgeon.[90]

When Tripler assumed the role of medical director of the Army of the Potomac, 110 of the 228 Finley ambulances issued by the quartermasters disappeared between July and October 1861. Tripler believed this the result of the reckless use of ambulances outside their scope of purpose. In addition to using ambulances as supply wagons, when not in battle, ambulances were frequently utilized for personnel transport and acted as taxis. This made it harder to maintain accountability over the whereabouts of ambulance wagons and increased the wear and tear on a vehicle designed for a highly specific purpose. Tripler was successful in obtaining orders to cease using ambulances for taxis.[91]

Tripler also realized that many non-ambulatory patients fell in areas not easily accessible by wheeled ambulance. In a healthy organization, this gap would be sent up the chain of command so that solutions generated could be applied to the rest of the department. The department leadership could leverage the input of more people, both civilian and military medical professionals, because evacuating patients from difficult

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[90] King, in Woodward, 3. Letter: Lewis A. Edwards to illegible, Washington, D.C., 27 April 1861, RG 112, NM 20, Entry 2, Volume 27, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Send 1818-1889, National Archives Building, Washington, D.C.

[91] Tripler, in Woodward, 7-9.

terrain was not a condition unique to the Army of the Potomac. Within the AMEDD under Finley, Tripler took it upon himself to develop alternative methods of evacuation including litters that could be attached to horses. Multiple methods successfully tested in battle by the British Army at Crimea--including evacuation methods for multiple patients, who could and could not sit erect--were presented in the Delafield Report. Members of the AMEDD, volunteer surgeons, and civilian members of the greater medical community noticed the need; however, neither the methods utilized in Crimea nor Tripler's ideas were adapted or tested for use during the Civil War. Additionally, the contents of the report must have been known to members of the AMEDD, as King specifically cited lessons learned from Crimea in his report following Bull Run when commenting about the importance of sanitation.[92]

Supply. Guidance from the surgeon general's office may have been lacking in terms of personnel and delineation of responsibilities, but it was not lacking in terms of supplies. The almost immediate depletion of medical supplies in New Orleans, of which Lawson and his surrogates would have been aware of, did not prompt him or them to begin stockpiling supplies or medicines in 1860 or even after the first shots at Fort Sumter. He continued to insist on supplies being purchased in and distributed from New York. Smaller depots were established at key points, but most of the medical supply was routed through New York City. Lawson, and later Finley, was very specific about how, when, and where to get supply. Additionally, medical instruments were not ordered in great enough quantities to ensure that all surgeons had access to tools of the trade. John

[92] Tripler, in Woodward, 10. Otis, *Pack Animals,* 5-6. Delafield, 68-69. "Mule-Ambulances," *New York Times,* (New York, 23 February 1862), page 4, https://www.nytimes.com/1862/02/23/archives/muleambulances.html.

Shaw Billings recalls several surgeons using his clinical thermometers, hypodermic syringe and Symes staff, with the syringe "in constant requisition."[93]

Regular army surgeons were long accustomed to the standardized formulary and authorized stockage lists of the depots. They were adept at ordering what they could from there then seeking out unauthorized items from other sources; volunteer and contract surgeons were not. When the formulary and supply table was amended in the summer of 1861, very little was added, and Finley issued specific guidance prohibiting surgeons from deviating from those lists without his explicit approval. The delays this created was substantial. Not only were new personnel responsible for actively caring for sick and injured patients, they were required to navigate the complex web that is the military supply system.[94]

Supply was distributed through the medical depots, the quartermaster's department and/or the subsistence department. Surgeons lamented the difficulty in procuring items from the quartermasters, the sub-par food provided by the subsistence department, and the rigid bureaucracy of both. Faced with scarce supplies and scarcer funds, surgeons became creative at the field level by selling unusable items and instead purchasing items that would increase the health and comfort of the patients. Once these

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[93] Fielding H. Garrison, *John Shaw Billings: A Memoir* (New York: G. P. Putnam's Sons: 1915), 21-21. Letter: R. C. Wood to Cameron, Washington, D.C., 18 May 1861, RG112, NM 20, Entry 4, Volume 3, Page 71, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1837-May 1866, National Archives Building, Washington, D.C. Letter: L. A. Edwards to Richard Satterlee, Washington, D. C., 24 March 1862, RG 112, NM 20, Entry 7, Volume 32, page 82, Records of the Office of the Surgeon General (Army) Central Office—Correspondence 1818-1946, Letters and Endorsements Sent, National Archives Building, Washington, D.C.

[94] Benita K. Moore, 86. Alder to D. Nelson, Washington, D.C., 6 September 1862, RG 112, NM 20, Entry 7, Volume 1, Records of the Office of the Surgeon General (Army) Central Office-Correspondence, Letters and Endorsements Sent to Medical Officers "Military Letter" Sept 1862-Sept 1872, National Archives Building, Washington, D.C. Surgeon General's Office, "Circular," 11 November 1861, Otis Historical Archives 323: Surgeon General's Office Records, Series 2, Box 2, Folder 1: Surgeon General Circulars Orders (1861-1867), National Museum of Health and Medicine, Silver Spring, MD.

supply shortfalls became public knowledge, various NGOs formed and stepped in to fill the gap. Additionally, private citizens began donating items to help the cause, some items were not useful at all and only consumed precious space in storehouses. The lack of established supply chains caused department personnel to hastily locate sources of supply. This led to a rise in profiteering, as some seized upon the army's desperation to turn a quick profit. Despite the numerous reports of surgeons (both volunteer and regular army alike) and NGOs concerning supply shortages, there were many within the old guard, including Finely, who believed that the supply shortages were merely the result of overzealous physicians squandering supplies. As a result of these beliefs and the staunch adherence to what had always been, the department maintained its current, inadequate supply system.[95]

Conclusion

The war's first year saw a staggering number of sick soldiers; this was a shocking blow to the North's citizens and proved to AMEDD personnel and outside entities the ineffectiveness of the current methods employed by the AMEDD. 1862 saw great changes within and outside of the AMEDD. Cameron was out as secretary of war, replaced by Edwin M. Stanton. Stanton and Finley almost immediately found themselves at odds, and this came to a head after Stanton confronted Finley about some choices in hospital appointments. Finley was removed as Surgeon General and sent to Boston,

[95] Benita K. Moore, 86, 100, 112, 113. Fielding, 22, 26-27. Strong, 181, 190. United States Sanitary Commission, *Aid for the Sick and Wounded of the Army and Navy,* (Washington, D.C.: np, 1861), http://resource.nlm.nih.gov/101178239. Brinton, 52, 53. Letter: Lewis A. Edwards to Colonel Tyler, Washington, D.C., 27 April 1861, RG 112, NM 20, Entry 4, Volume 3, Records of the Office of the Surgeon General (Army)—Correspondence, 1818-1966, 1818-90 Period, Letters and Endorsements Sent to the Secretary of War, March 1837-July 1866, National Archives Building, Washington, D.C. Thomas T. Ellis, *Leaves from the Diary of an Army Surgeon; or, Incidents of Field Camp, and Hospital Life,* (New York: John Bradburn, 1863), Google Books, 14-15.

prompting him to submit a request for retirement in April. Also in April, Congress passed an act to move form a seniority-based promotion system in the AMEDD to a merit-based one. No longer would the longest serving be guaranteed the top spot. This move opened door for the man who would reshape Army Medicine into what it is today. In the second year of the war, the AMEDD finally had an innovator in command.[96]

[96] United States Congress, *An Act: To reorganize and increase the efficiency of the medical department of the army,* 37th Congress, 2nd session, (Washington, D.C.), April 1862. Strong, 219

CHAPTER IV

Scientist, Administrator, Innovator

Figure 5. Surgeon General William A. Hammond. From the National Library of Medicine

The unceremonious and abrupt departure of Clement Finley, the legacy of his tumultuous time in office, and the shift to merit-based promotions opened the door for the young William Alexander Hammond. Already a prominent, forward-thinking physician, his appointment was met with grumbling from the old guard of the AMEDD. More pugnacious than his predecessor, he differed in his adaptability and innovativeness--not only as a scientist, but as an administrator. The changes he made within the AMEDD and his various initiatives to preserve and spread military medical knowledge left an indelible mark on the department, the army, and the American medical community. Some of his achievements include: the implementation of processes and procedures that are the basis for modern military medical logistics and preventative medicine; the establishment of framework for the current network of military hospitals; the establishment of what is now the National Museum of Health and Medicine; the founding of the American Neurological Association; the formation of what is now the National Library of

Medicine; and the massive *Medical and Surgical History of the War of Rebellion*. Unlike his predecessors, he identified primarily as a scientist and physician and was ill-equipped to handle the political aspect of the surgeon general's office; however, this would prove his undoing. Many of his long-term accomplishments and untimely downfall will be addressed in this chapter,, while specific areas of battlefield medicine, such as evacuation, supply, and patient care, will be addressed in the next.[97]

Despite his volumes of writing and the contributions he made to the army and medicine, Hammond is largely overlooked by historians. Most academic pieces concerning him date from the 1950s or earlier and coincide with the preparations for the commemoration of the centennial. During this period there was a renewed interest in Civil War medicine including George Washington Adam's *Doctor's in Blue* and W. Q. Maxwell's *Lincoln's Fifth Wheel.* In many cases, Hammond is a footnote; he is acknowledged as the surgeon general, but little more. Focus is almost entirely on him as a physician, not his enduring contributions to military medicine. His name has appeared in essays written for the military, but usually in conjunction with Letterman. While the contributions of the two should be evaluated together, Hammond was an innovator in his own right. An adept scientist and researcher in his youth and middle-age, during his sunset years he found his work largely marginalized. As his biographer put it in 1991, "by the end of the century, Hammond's scientific work had already come to be seen not so much as mistaken as beside the point" and his methods were not "found on modern

[97] Gillett, *1818-1865*, 183-184. Silas Weir Mitchell, "Some Personal Recollections of the Civil War," *Transactions of the CollEuropege of Physicians, 3rd Series,* 27, (1905), 89.

maps of scientific discovery." That his scientific work was obsolete before his death is largely irrelevant to his immediate and long-term impact on military medicine.[98]

Born in Maryland, raised in Pennsylvania, and medically educated at New York University, Hammond became a physician at 20 and during the interwar years of 1849-1860, was an assistant surgeon in the army. Always more a scientist than soldier, he stayed abreast of current medical research in Europe, preferred primary to secondary sources, and brought a full laboratory setup to the remote Fort Riley, Kansas in 1854. His gift for observation, research, and innovation emerged early in his military career. At his first assignment in New Mexico, Hammond noticed a higher rate of scurvy outside of Cebolleta than within it. Observing the vegetation scarce in and out of Cebolleta, he set to understand why the incidence was lower while dietary conditions were the same. He concluded that potassium salts present in Cebolleta's water supply was the reason. Independently he conducted a clinical trial into the administration of potash compounds to scorbutic patients and immediately noticed improvement. After three years in New Mexico, he spent parts of 1852-1854 alternating between sick leave and active duty in the east.[99]

In early spring 1854, Hammond was ordered to the newly-established Fort Riley. During his time isolated in the Midwest, he conducted the research that would win an award from the American Medical Association in 1856. The award and preceding research brought him to prominence in the European and American medical communities

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, [98] Bluestein, 233-234. John T. Greenwood, "Hammond and Letterman: A Tale of Two Men Who Changed Army Medicine," presented at the Association of the United States Army Medical Symposium and Exhibition, San Antonio, Texas, 2-6 June 2003.

[99] Blustein, 2-3, 39-47. William A. Hammond, *A Treatise on Hygiene, With Special Reference to the Military Service* (Philadelphia, 1863), Google Books, 55.

and led to his inclusion in the British Medical Association as an honorary member. Beginning in the mid-1850s, Hammond petitioned Lawson for leave. His intent was to travel, study, and conduct research in Europe. His leave requests were repeatedly denied, the bureaucrats routinely citing the lack of surgeons within the department. Even after the expansion of the department, his request was denied. Recognizing the limits of expanding medical knowledge in a remote post, he again petitioned Lawson for leave to refresh his medical knowledge in the east; this request was likewise denied. It was only after being found unfit for duty after sustaining injury on an expedition to the Rocky Mountains in 1857 that Hammond was permitted to return east.[100]

He took an extended leave of absence from the army in 1858 and relocated to Philadelphia. There, he developed relationships with other researchers and formed professional associations to promote and participate in the active exchange of knowledge gained from research and its applicability to medicine. In late spring, he sailed for Europe, where he visited numerous European hospitals, laboratories, medical museums, military posts and studied military medical systems; his observations of the hospital physical and administrative organization directly influenced his later reorganizations of the army's hospital system. In Europe, he witnessed the concentration of similar cases within wards and hospitals and the construction style of those hospitals was reflected in his own building designs. After his leave was over, he was sent to Fort Mackinac,

[100] Bluestein, 4. Letter: William A. Hammond to Thomas Lawson, Fort Riley, Kansas, 5 April 1857, Records Group 94, NM 12, Entry 4, Records of the Adjutant General, Records Relating to Medical Personnel, National Archives Building, Washington, D.C. "Dr. William A. Hammond, Surgeon-General United States Army," *Harper's Weekly,* (New York, NY: 21 November 1863), 743.

Michigan. At this point, Hammond had been in the army for 10 years and was never examined for promotion to surgeon.[101]

In 1860, Hammond resigned from the army to pursue a professorship at the University of Maryland in Baltimore, where he introduced histology into the curriculum and was the chair of anatomy and physiology. Concurrently, he was appointed surgeon at the Baltimore Infirmary; established a private practice; was on the editorial staff of the *Maryland and Virginia Medical Journal*; translated European research from French to English for the *Baltimore Journal of Medicine*; and continued his medical research pursuits. His vast endeavors both in the army and civilian life garnered him international recognition as the "first original Physiologist in the United States."[102]

While Hammond himself never complained of scarcity of supplies, inspectors who were sent around frontier posts often remarked that the hospitals were scantily supplied; Hammond himself could attest to the stagnation of medical education when surgeons were subjected to years at isolated posts. His actions facing the scurvy outbreak in New Mexico illustrate his ability to isolate a specific problem and systematically determine its origin and devise a practical solution. This penchant was on display in every action he took within the AMEDD. For the first time, there was a leader who sought to solve the root cause and to affect immediate, intermediate, and long-term change and who understood that all ideas did not have to flow from the top down.

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[101] Bluestein, 32. Letter: William A. Hammond to Thomas Lawson, Fort Riley, Kansas, 13 September 1857, Records Group 94, NM 12, Entry 4, Records of the Adjutant General, Records Relating to Medical Personnel, National Archives Building, Washington, D.C.

[102] William Hammond, *A Statement of the Causes Which Led to the Dismissal of Surgeon-General William A. Hammond from the Army: With a Review of the Evidence*, (New York: np, 1864), 1. Letter: Charles Edouard Brown-Sequard to Silas Weir Mitchell, 20 July 1861, Silas Weir Mitchell Papers, David M. Rubenstein Rare Book and Manuscript Library, Duke University, quoted in Bluestein, 52.

It was in Hammond's role at the Baltimore Infirmary that he was offered the position of Surgeon with a Confederate militia unit; instead he decided to reapply for service with the US Army. Despite his years in active service, Hammond was required to apply for an age waiver, retake the exams, and again stand before an examination board. Interestingly, among the peers examined with him, the board's leader, Finley, found Hammond the most qualified. Reentering the army at the bottom of the seniority list. Assistant Surgeon--First Lieutenant Hammond reported for duty by the end of May 1861.[103]

Leadership Style

Immediately upon reenlistment, Hammond was charged with establishing hospitals in Hagerstown and Frederick, Maryland, and at Chambersburg, Pennsylvania. It was here that the difference between his style and that of his fellow career-army surgeons became evident. Many surgeons, as Benjamin King did, established the location of a hospital but did not call for supplies until there was imminent need. Conversely, Hammond almost immediately inundated Medical Purveyor Satterlee in New York and the Surgeon General's Office with requisitions for bedding, hospital clothes, stores, and smallpox vaccines. Hammond's biographer characterized him as impatiently bombarding Satterlee. Indeed, he wrote Satterlee no less than eight times in one month seeking supplies, medications, and updates about his requisitions.[104]

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[103] Letter: William A. Hammond to Thomas Lawson, 18 May 1861, Baltimore, MD, RG 94 Records of the Adjutant General's Office, 1762-1984, Personal Papers of Medical Officers and Physicians, ca. 1861-1912, Hammond, W. A., 1849-63, National Archives Building, Washington, D.C. Bluestein, 54.

[104] Bluestein, 55-56. Letter: Richard S. Satterlee to Clement A. Finley, New York, NY, 10 February 1862, RG112, NM 20, Entry 12, Volume 14, Records of the Office of the Surgeon General (Army)-Letters Received from Surgeons, National Archives Building, Washington, D.C. Letter: William A. Hammond to Clement A. Finley, 28 February 1862, RG 94, Records of the Adjutant General's Office, 1762-1984, Personal Papers of Medical Officers and Physicians ca. 1861-1912, Hammond, W. A., 1849-63, National Archives Building, Washington, D. C. Ellis, 212.

His next assignment was to organize the general hospital in Baltimore, where he again relentlessly pursued adequate stores and supplies ahead of an onslaught of patients. Additionally, he broke from the tradition of utilizing invalids by employing civilians to serve as cooks and females to serve as nurses. By early 1862, Hammond was acting as the medical purveyor for the Army of Western Virginia. Finley approved Hammond's requisitions, but the frequency and nature of the supplies requested prompted Satterlee to ask Finley directly if he really needed to fulfill the requests. Amidst the challenges of organizing and inspecting hospitals, the expansion of knowledge remained important to Hammond; Satterlee twice wrote to Finley inquiring about the necessity of the surgical and medical books Hammond was ordering. It was his immediate and boisterous organization of these hospitals, combined with his prominence in the medical field, that brought him to the favorable attention of McClellan and the USSC. By October 1861, the general and the USSC were lobbying senators, the War Department, and the president for his instatement as Surgeon General.[105]

Perhaps it was his skill as a physician--or maybe it was his willingness to receive ideas from subordinates--but when Hammond took office on 28 April 1862, he did not have difficulty securing the loyalty of his former superiors, most notably Tripler and Jonathan Letterman. This is not to say that the transition was seamless—Hammond made his fair share of enemies-- but fewer than one would expect, given his rise to the top from the very bottom. In a grand departure of the leadership styles of both Lawson and Finley, Hammond did not act as the gatekeeper of knowledge and ideas. He did not need to be

[105] Ibid. Strong, 185-186. Hammond, *Statement,* 3.

involved in every minute detail of the medical directors or their surgeons; put simply, he let his leaders lead.[106]

The act of 16 April 1862 that allowed for merit-based promotion also created the position of assistant surgeon general. Hammond was all too willing to allow Surgeon Robert Wood and then Surgeon Joseph R. Smith, in their roles as assistant surgeon general, to handle the daily mundane and administrative tasks of the department. This freed Hammond to focus on the larger problems facing the department—reorganization in accordance with the 16 April act, the conditions in the hospitals, and logistical concerns. This ability to focus on the bigger picture was quickly noticed by members of the USSC. By allowing his subordinates the latitude to invent and by providing support from his office when needed, Hammond fostered the development of innovative ideas within small areas of the department that radiated out to the benefit of the AMEDD and the entire army. He was empathetic towards subordinates who were stymied by the actions of other army bureaus and expressed his understanding at their frustration.[107]

Additionally, he realized that two pre-war practices were impractical in the current operating environment. First, no longer was it possible for the surgeon general to personally oversee hospitals in the capital area. Not only had the number of hospitals and patients had grown exponentially since the opening days of the war, but the surgeon general's focus was, he thought, better placed upon the larger operational picture. Second, Hammond understood that it was also unrealistic to expect one man to

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[106] Letter: Clement A. Finley to Lorenzo Thomas, Washington, D.C., 4 March 1862, RG 112, NM 20, Entry 3, Vol 29, Page 669, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Sent 1818-1889, National Archives Building, Washington, D.C.

[107] Bluestein, 55-56. Strong, 185. Otis, *Medical and Surgical History, Part III, Volume II,* 900.

adequately administer to all the general hospitals, field hospitals, armies, and transportation assets in an army's area of operations. In areas where there was a considerable patient load in the general hospitals, he appointed a medical director for the city who worked with the medical director of the nearest army; he likewise appointed an additional medical director of transportation to oversee an army's transportation assets.

Hammond's push to accomplish tasks that he deemed important is a trait lauded in line officers. As recently as 2017, American military leaders have commented about the importance of leaders to be able to deviate from standard operating procedures to accomplish the mission. However, without the tangible, tactical successes to show that can provide justification for deviations, Hammond encountered resistance when deviating from prescribed procedures. That Hammond was willing to take actions to further the mission and the health of the army, despite putting him at odds with the War Department, is another way he differed from his predecessors.[108]

Stanton and Hammond

Hammond was a consummate professional who took pride in the practice of medicine and his reputation as a scientist. As such, Hammond expected lay individuals, whether in superior or subordinate roles, to defer to him on medical matters, including business decisions that directly impacted the AMEDD's ability to provide medical care.

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[108] Henry C. Friend, "Abraham Lincoln and the Court Martial of Surgeon General William A. Hammond," *Commercial Law Journal,* 62, 1957, p 73, HeinOnline. Hammond, *Statement,* 29-31. Strong, 433. William Quentin Maxwell*, Lincoln's Fifth Wheel: The Political History of the United States Sanitary Commission*, (New York: Longman's Green and Co., 1956), 178, 195. Hammond's methods would today be considered "agile leadership." For examples of where deviation from orders led to tactical success among Hammond's contemporaries see: Thomas Holbrook, "Men of Action: The Unsung Heroes of East Cavalry Field," in Barbara Finfrock, ed, *Unsung Heroes of Gettysburg: Programs of the Fifth Annual Gettysburg Seminar*, (Gettysburg: Gettysburg National Military Park, 1996) and Charles Lee Lewis, *David Glasgow Farragut: Admiral in the Making,* (Annapolis: Naval Institute Press, 2014). Current doctrine: Nathan K. Finney and Jonathan P. Klug, editors, *Mission Command in the 21st Century: Empowering to Win in a Complex World,* (Leavenworth: Army Press, 2016).

Almost immediately upon assumption of command, he locked horns with Secretary of War Stanton. Looking back on his early days in the position, Hammond commented that he was placed in a difficult position, facing the "enmity" of a person who he was supposed to "look for official support and countenance."[109]

Hammond was not the only man installed to correct and move forward an organization under subpar leadership. Stanton, in his own rights, was appointed to correct the financial mishandlings of Cameron, who was accused of wantonly squandering resources. The American political landscape was increasingly rife with corruption, and too many individuals in positions of power saw the war as an opportunity to make money. War profiteering affected all departments of the Union military. As such, Stanton viewed himself as the guardian of the military's finite resources. For all the condemnation levied at Stanton by his contemporaries, graft and financial greed was not a common accusation. Historian William Marvel points out that Stanton's personal wealth diminished during his time in office, the opposite of what would happen if he was actively receiving kickbacks or grafting. Stanton also came from a medical family; however, he did not trust physicians in business matters, once quipping that he did not trust doctors with any business or financial matters. This is probably owning to his father's poor choices that subjected the young Stanton to lace-curtain poverty.[110]

Stanton's contemporaries, who possessed great confidence in his abilities and patriotism, nonetheless held great concern for his inability to look past his strong personal prejudices and found him "irritable, and often very unjust." Stanton's volatile personality would be in direct conflict with Hammond's own assertive personality. The key

[109] Hammond, *Statement,* 4. Friend, 72.
[110] Bluestein, 89. Marvel, xii-xiii.

difference between the two bellicose men was in their handling of subordinates. While Hammond sought to empower them, Stanton sought to execute absolute control while shielding himself from any negative repercussions.[111]

The difficulties with Stanton began almost immediately upon Hammond's assumption of command. Two days after his appointment, Hammond met with Stanton. Stanton proceeded to question Hammond about the workings of the USSC in a tone Hammond found offensive. Hammond believed that the animosity Stanton felt towards him originated from his unwillingness to "quietly submit to the insolence" that Stanton displayed towards his subordinates. During the conversation, Hammond claimed that Stanton told him if he had "the enterprise, the knowledge, and the intelligence, and the brains to run the Medical Department, I will assist you." Hammond responded that he expected to be treated with the same respect he was afforded as an assistant surgeon. The conversation culminated with Stanton telling Hammond to leave.[112]

Stanton's biographers present him in an overwhelmingly favorable light. Perhaps this was because of the role he occupied within the administration that saw the country through the Civil War and the tumultuous time following Lincoln's assassination. Stanton enjoyed the benefit of the doubt and occupied a favorable position within the American psyche. Close examination of Stanton's orders and correspondences of the time paint the picture of a vengeful despot. Marvel's, *Lincoln's Autocrat,* describes the man much as his contemporaries did but Walter Stahr's more recent *Stanton* returns to excusing Stanton's actions. Interestingly, the more favorable *Stanton* glosses over many

[111] Bluestein, 89. Letter: Henry W. Bellows to Senator Wilson, New York, NY, 26 February 1863 in Hammond, *Statement,* 11. Gillett, *1818-1865,* 177-178.

[112] Hammond, *Statement,* 16.

of the interpersonal conflicts between Stanton and the bureau chiefs and assigns him greatness based upon the men he worked with.[113]

Stanton did, indeed, attempt to exercise total control over his department and the bureaus under him. Additionally, Hammond was not the only one subjected to Stanton's leadership style. Quartermaster General Miegs and the Chief of the Signal Corps both found themselves on the wrong side of Stanton. However, the vendetta against Hammond had a more damaging effect on the AMEDD than similar attacks on other branch chiefs. Throughout the 1800s, great advances were made in weaponry, ordinance, and transportation. Medical advances were slower to occur, but there were advances. The key difference was the willingness of the army's leadership to utilize the advances. Infantry commanders did not stubbornly force soldiers to use flintlocks when more advanced rifles were available. Quartermasters did not insist on moving everyone and everything exclusively via wagon train; railways were a key component to moving men and materiel, so much so that the *New York Times* frequently reported about the status of rail and telegraph lines and the impact on military operations. Entering the Civil War, the other bureaus adapted and advanced; they did not enter the conflict reliant on weaponry or transportation tactics from the early 1800s. The AMEDD did not enjoy such adaptive and enlightened leadership until Hammond, making Stanton's drive to remove him even more damaging. By ushering out Hammond, Stanton condemned the AMEDD to revert to resisting forward progress in favor of maintaining the status quo.[114]

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[113] Stahr, Location 53, 9317. Marvel, xii.

[114] For favorable portraits of Stanton see: Benjamin P. Thomas and Harold M. Hyman, *Stanton: The Life and Times of Lincoln's Secretary of War,* (New York: Alfred P. Knopf, 1962) and Elizabeth D. Leonard, *Lincoln's Forgotten Ally: Judge Advocate General Joseph Holt of Kentucky,* (Charlotte, University of North Carolina Press, 2011) and Stahr's *Stanton: Lincoln's Secretary of War.* A search in the archives of the New York Times produces hundreds of articles where the status of a rail line is

Stanton was not supportive of Hammond's appointment for many reasons, including his low position within the AMEDD and the favorable opinion of Hammond by McClellan. Stanton desired Wood to assume command as the most senior member of the department. He was also resentful of what he viewed as the USSC usurping his authority by pushing for Hammond's appointment. However, he did not have an outwardly unfavorable opinion of Hammond himself. That changed with the exchange immediately following Hammond's appointment and Hammond permanently fell out of favor with Stanton. The exchange, and Hammond's subsequent refusal to apologize, was the root of his downfall and placed him permanently in Stanton's crosshairs.[115]

When he first assumed control of the AMEDD, Hammond ignored the advice of his civilian friends and did not object to the assignment of Wood as assistant surgeon general. As as acting surgeon general in the short time between Finley's departure and Hammond's appointment, Wood vehemently fought against Hammond's appointment. Hammond recalls Stanton classifying that decision as "weak." The situation may be viewed through two lenses—either Stanton was testing Hammond, or he was asserting his authority over him. It is the opinion of contemporary observers, such as members of the USSC, that Hammond acquiesced to the appointment to indicate to Stanton that he was willing to work with him. This courtesy did not extend both ways as Stanton blocked over half of the medical inspectors Hammond wished to appoint, including Tripler as the Medical Inspector General. In Tripler's stead, Stanton appointed Thomas Perley, prompting questions from the civilian medical community. The editors of the

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discussed in the wake of or in advance of military operations. "Our Special Washington Dispatches," *New York Times* (New York: NY, 1 September 1862), is one example.

[115] Stahr, 288.

New York Medical Journal "sincerely hoped" Hammond was consulted before the appointment of a man "unknown to public service and the profession." These tiffs are a hallmark of Hammond's time in office and indicate that Stanton objected to Hammond on a personal--not professional--level.[116]

Low regard for medical personnel and the interference of outside entities continued to plague Hammond, with Stanton being the chief interference. At every turn, Stanton actively worked against Hammond, ignored him, or provided contradictory guidance. For example, General Orders 48, published by Stanton and the War Department in 1862 explicitly permit bureau chiefs, of which Hammond was one, to grant passes. When Stanton learned that Hammond had granted passes, Stanton wrote to Hammond inquiring about which authority granted Hammond that right.[117]

In another example of Stanton usurping the autonomy of the AMEDD, Hammond found himself in conflict with the Governor of Wisconsin, Edward Salomon. After a battle near Memphis, Tennessee, Salomon desired to move Wisconsin troops facing long convalescences back to Wisconsin. The medical director of General Ulysses S. Grant's army denied the governor's request, compelling Salomon to petition Stanton in July 1863. Salomon was angry because a similar request was granted to Governor Oliver P. Morton of Indiana. Stanton forwarded Saloman's letter to Hammond, who forwarded it to his medical director. Enclosed in the response was a telegram from Stanton to Morton. In the telegram, Stanton personally gave Morton permission to move the soldiers from Indiana. Stanton unilaterally decided to move ill and injured soldiers without consulting

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[116] Smith, ed, "The Week," and "Sanitary Inspector in the Army," *American Medical Times Being a Weekly Series of the New York Journal of Medicine, Volume 5,* (New York: Bailliere Brothers, 1862), Google Books, 11 and 94-95. Strong, 306. Hammond, *Statement,* 4-5. Bluestein, 57-58.

[117] Hammond, *Statement*, 17-19.

with his bureau chief. This was not a simple matter of Stanton exercising his discretion as the Secretary of War, but rather a gross overstepping of bounds--akin to Stanton directing a battery to bombard a city without consulting the artillery commander.[118]

Stanton also interfered with Hammond's ability to discipline those within the department. When Medical Inspector General Perley, the man Stanton appointed over Tripler, was accused of issuing blank certificates of discharge in direct violation of published orders, Hammond convened a court martial.[119] In conjunction with this investigation, it was discovered that a clerk within the AMEDD, Private Callan, lied about his knowledge and involvement in the Perley affair. Hammond ordered his detainment. Callan was a relative of the Maine Senator, and soon to be Secretary of the Treasury, William P. Fessenden. At Fessenden's behest, Stanton interrogated Hammond about Callan's detainment and forced his reinstatement. Additionally, Stanton went on to dissolve the court martial and allowed Perley to continue in his position. The evidence against Perley continued to mount until even Stanton could no longer ignore it. Instead of prosecution, Perley was permitted to resign and was subsequently appointed a surgeon of volunteers.[120]

Hammond asserts that Stanton routinely cancelled orders he issued, interrogated him concerning medical matters, and prevented Hammond from asserting authority within the department by blocking Hammond from maintaining order and discipline within the AMEDD. Shortly after entering his new position, Hammond evaluated the

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[118] Hammond, *Statement,* 18.

[119] Perley was appointed over the objections of Hammond and civilian medical professionals. See: "The Week" and "Sanitary Inspector in the Army," in Smith, *Volume 5,* 11 and 94-95.

[120] P.H. Watson to William A. Hammond, Washington, D.C., 5 February 1863, William A. Hammond to Edwin M. Stanton, Washington, D.C., 6 February 1863, in Hammond, *Statement,* 20-21.

AMEDD regulations written by Tripler before the war and realized they were obsolete in the current operating environment. Hammond moved to revise the regulation by convening a board of surgeons to codify efficient processes and procedures for the department's administration and care of soldiers. Once the new regulations were drafted, Stanton refused to approve or review them. These types of interference were typical of Stanton, although either overlooked by his biographers or viewed a means to a justifiable end. He was excessively involved in menial tasks, routinely interfered with the workings of the bureaus and quickly chastised or removed any bureau chief who dared oppose him while rewarding his friends. Another chief who lost his position for crossing Stanton was Colonel Albert J. Meyer, the inaugural commander of the Signal Corps. When Meyer was perceived as competing with the US Military Telegraph that operated under Stanton's authority, he was likewise sent on a tour of remote areas before exile to Cairo. Marvel uses Hammond, Meyer, and Meigs to repeatedly illustrate how Stanton routinely interfered with the operations of bureaus and field commanders but installed other people as puppets to do his bidding, thereby insulating himself from criticism.[121]

Despite the animosity between Hammond and Stanton, Hammond's time in office was successful--and recognized as such by members of the AMEDD, army leadership, the USSC, and other outside observers. Under Finley, the wound mortality rate was 25.6 percent. The rate fell by 10 percent and 6 percent in Hammond's first and second years, respectively. Under Barnes, they shot back up 8 percent to 17.9 percent. Unfortunately,

[121] Hammond, *Statement*, 20. "CHANGES IN THE ARMY.; Promotions and Appointments since June 10 More Brigadier Generals of Volunteers Appointed; The Promotions from the Ranks How to Get a Commission, &c.," *New York Times,* (New York, NY: 19 July 1862), 3, https://www.nytimes.com/1862/07/19/archives/changes-in-the-army-promotions-and-appointments-since-june-10-more.html

Hammond's time as Surgeon General was short lived. It concluded with his court martial but was caused by a confluence of unrelated events and clashing personalities tracing back to the army's first Physician General, Benjamin Rush, and a series of unfortunate events in the 1850s at Fort Riley.[122]

Court Martial. While Hammond was assigned to Fort Riley, he became embroiled in a controversy that pitted him and then-Captain Nathanial Lyon against the Kansas Territorial Governor Andrew H. Reeder and Fort Riley's commander, Lieutenant Colonel William Montgomery. Reeder was accused of trying to illegally acquire the Dixon Family homestead, and Montgomery was accused of colluding with Reeder for personal gain. In the words of Lyon, "the project to drive off the Dixons was first instigated by Governor Reeder and executed by Colonel Montgomery." As a result, Reeder was removed from office, and Montgomery was court martialed from the army. Reeder's removal was just, he did, in fact seek to misappropriate lands for personal gain. However, Hammond's and Lyon's pursuit of and subsequent testimony against both men left them with a vindictive enemy in Reeder. Lyon's death at the battle of Wilson's Creek in August 1861 placed him out of Reeder's reach.[123]

Hammond developed his next enemy during his time as surgeon general in 1862. Surgeon George Cooper was one of the four purveyors in Philadelphia and previously exchanged heated words with Hammond concerning a prototype hospital Hammond directed built in West Philadelphia. In another series of exchanges, Cooper had written

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[122] Freemon, "Lincoln," 20.

[123] Hammond, *Statement,* 24. Marvel, 314. Jerry Thompson, *Civil War to the Bloody End: The Life and Times of Major General Samuel P. Heintzelman,* (College Station: Texas A&M University Press, 2006), 66. "KANSAS TROUBLES: Governor Reeder's Alleged Speculations in Indian Lands. Letter from Gov. Reeder to Secretary Marcy," *New York Times,* (New York, NY, 4 August 1855), Page 3, https://www.nytimes.com/1855/08/04/archives/the-kansas-troubles-governor-reeders-alleged-speculations-in-indian.html.

requesting more clerks for the Philadelphia purveyor's office. Hammond denied the request, asserting that a purveyor's office was not entitled to more clerks than the surgeon general's office. Later in the fall, in response to the request of Surgeon J. T. Murray to General Halleck for relief from duty in the west, Hammond selected Cooper to replace Murray as the purveyor with the Army of the Cumberland. Irate at being removed from his post in Philadelphia for service in a more remote, less comfortable area and indignant because, in terms of years of service, he was senior to Hammond, Cooper wrote to Stanton for assistance. Before writing to Stanton, Cooper wrote a personal letter to Hammond inquiring about the reason for the move. Hammond outlined why Cooper was chosen. Cooper then forwarded that letter to Stanton, illustrating that Cooper did not just want to be placed back in Philadelphia; he wanted Hammond punished. Cooper invoked the specter of financial mishandlings--going as far as forging documents concerning blanket and supply purchases, to press Stanton to investigate Hammond.[124]

The last piece Stanton seized upon was rooted in Revolutionary War-era medical practices and the discoveries and practices of army physician Benjamin Rush. Rush pushed "heroic methods" to cure "bilious fevers," such as dysentery, with heavy dosages of the mercury compound calomel. After his time in the army, Rush taught and apprenticed over 3,000 aspiring doctors until 1812, influencing physicians for decades to come. This influence was deeply ingrained within the AMEDD, and the entire American medical community, so that despite the public's resistance to heroic methods, the rise of homeopathy, and the observations of European physicians and some military physicians, calomel was still widely used and often overused. By the mid-nineteenth century, some

[124] Marvel, 314. Letters: William A. Hammond to George E. Cooper, Washington, D.C., 13 October 1862 and 20 October 1862 reprinted in Hammond, *Statement,* 22 and 23.

military physicians began to ponder the negative outcomes associated with calomel usage, but it was still a preferred treatment. As a keen observer of the forces and factors that impact health, Hammond ascertained through field reports that the heroic methods were overused and caused more harm than good. Specifically, he noticed the incidence of increased salivation correlating to the use of calomel. Excessive salivation is a symptom of mercury poisoning. This led him to issue "Circular No. 6" to all medical directors in 1863. Noting the correlation between the use of calomel and the rise of "mercurial gangrene," Hammond struck calomel from the formulary.[125]

The use of tartar emetic was also scrutinized by Hammond. Another heroic cure, tartar emetic is a poisonous drug that was used to induce vomiting in the patient. Through the careful evaluation of submitted reports, Hammond also concluded that diseases treated with tartar emetic were as successfully treated with other, non-lethal medicines. As such, he concluded that leaving tartar emetic on the formulary was "a tacit invitation to its use," so it was struck. Both medications were ultimately struck because frequent overuse rendered them more harmful than beneficial.[126]

His decision, proven medically accurate in the decades following the war, was not embraced by the older physicians of the AMEDD, the AMA, or the pharmaceutical companies who profited off use of the drugs. The AMA went even further to condemn Hammond and accuse him of attempting to besmirch the reputation of the countless

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[125] Harris L. Coulter, *Divided Legacy: A History of the Schism in Medical Thought,* Vol. 3 (Washington, D.C.: Wehawken Book Co., 1975), 100. John M. Scudder, *The Eclectic Practice of Medicine* (Cincinnati: Med Pub Co, 1870), 340. William A. Hammond, "Circular No. 6", Washington, D.C., 4 May 1863, http://resource.nlm.nih.gov/101534567. American Medical Association, "Minutes of the Fourteenth Annual Meeting of the American Medical Association, Held at Chicago, 2 June 1863," *Transactions of the American Medical Association, Vol XIV,* (Philadelphia: Collins, 1864), Google Books, 29-33. Benita K. Moore, 79.

[126] Ibid.

surgeons who acted prudently in their administration of the drugs. In the circular, Hammond maintained that while calomel could be useful, the penchant for misuse made it extremely dangerous. Couple the inherent danger of calomel with the sheer size of the department's area of operation, the staggering number of volunteer surgeons and assistant surgeons, and the varying systems of belief and practices possessed by medical professionals, and Hammond's removal of these medications from the supply table seem reasonable and prudent.[127]

In their rebuttal to the order, the AMA presented the testimony of eight surgeons to attest that the compounds did not cause the side effects Hammond outlined. The eight surgeons represented less than 0.1 percent of serving surgeons, and they testified to what they observed at a single point in time--hardly a representative sample. Hammond's reports, however, encompassed the entire department over a considerable period of time, allowing for the identification and analyzing of emerging trends. Additionally, Circular No. 6 states "it is not the design of the [Medical] Department to confine medical officers absolutely to that table, either in variety or quantity, but only to establish a standard for their guidance…" This passage makes it clear that Hammond's intent was not to completely remove these drugs from use, but rather to force physicians to consider alternative treatments before defaulting to a heroic cure. As per the guidance issued in Circular No. 6, if a medical provider felt he required something not on the formulary, he only needed to send a written request to his medical director stating why the requested item was indispensable. These guidelines "wisely restricts the supplies in ordinary cases" while allowing for their use in extenuating circumstances. The caveat notwithstanding,

[127] American Medical Association, "Minutes," 32.

the AMA still believed the issuance of the orders was "a most grievous offence against the dignity, usefulness, and humanity of our profession."[128]

At various points in late 1862 and early 1863, Hammond petitioned for permission to personally visit areas in the western and southern theaters. Not only did Hammond desire to visit these locations because they were part of the department, but to quiet the criticisms in the media concerning his alleged inattentiveness to the western theater and the conditions there. His requests were always denied by Stanton, who insisted that any business Hammond needed to conduct in the western theater could be completed via letter writing and telegraphs. When Stanton finally approved his tour of the south in September 1863, Hammond knew it was a precursor to his forcible removal from office.[129]

On 2 July 1863, little more than a year after Hammond's appointment and shortly before Hammond's departure south, Stanton convened a Civilian Commission of Inquiry about the conduct of Hammond and the medical department with regards to the purchasing and use of hospital stores and other medical equipment. Placed at the head of that commission was Reeder, the disgraced territorial governor. At the beginning of the investigation, Hammond was given no notice and he was never summoned to testify or given the opportunity to make any statement in his defense. When the inquiry was complete, Hammond was never furnished with a copy of the findings despite several requests to Stanton and President Lincoln.[130]

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[128] Ibid. Hammond, "Circular 6." M Goldsmith, "How to Get Supplies for the Sick or Wounded of Our Army," *The Sanitary Reporter, L,* 5, 15 July 1863, pg 1. https://babel.hathitrust.org/cgi/pt?id=hvd.32044103002572;view=1up;seq=47;size=150

[129] Hammond, *Statement*, 12. Strong, 353.

[130] Hammond, *Statement,* 28.

Due to Hammond's absence from Washington, Stanton removed him from the position of surgeon general and installed his friend, Joseph K. Barnes, as acting surgeon general. Hammond first went south to inspect the medical operations there. He returned to Washington in September when, to outside observers, it looked as though Hammond's position was secure. Hammond was then ordered to examine operations in the west and report back to Stanton. Officially, Stanton maintained through the written orders that this move was temporary pending Hammond's return. However, when Hammond began petitioning for permission to return to Washington, Stanton repeatedly denied or ignored the requests. Unofficially, as several contemporaries speculated, Stanton's permitting of Hammond's travels was a guise for establishing a case against Hammond and ultimately forcing his permanent removal.[131]

While Hammond was in the south, he reported back to Stanton about certain shortages of medicines. Concurrently, he instructed medical purveyors in the north to increase stock of certain medicines and hold them until Hammond could instruct precisely where to send them to. At the time Hammond made those orders, Barnes was the acting surgeon general, but Hammond understood that to mean that Barnes was handling affairs in Washington, D.C., and that Barnes was not in control of the entire department. Stanton strongly rebuked Hammond for ordering the purchase and for issuing instructions while he was on the southern tour, specifically noting the instructions Hammond gave to the Philadelphia purveyor's office. Stanton failed to mention the same instructions that Hammond sent to Satterlee in New York, indicating that Stanton only

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[131] Hammond, *Statement,* 26. Letter: Henry W. Bellows, et. al. to Abraham Lincoln, 29 December 1863, Abraham Lincoln Papers: Series 1, General Correspondence, 1833-1916, Library of Congress, Washington, D.C., http://hdl.loc.gov/loc.mss/ms000001.mss30189a.2896700. Strong, 441.

became involved after a complaint from the Philadelphia office. When Hammond strongly protested and pointed out that he was appointed by the president and approved by Congress, Stanton ordered him to remain in Tennessee until officially ordered to return.[132]

Hammond was not the only one to notice the irregularity of the unilateral decision to remove him. As expected, the members of the USSC also believed the removal to be personally motivated and contended that Stanton was attempting to manipulate the AMEDD. Published under the pseudonym "Republican," but penned by Strong, a letter appeared in the USSC *Bulletin* inquiring the reasons and Stanton's legal basis for removing Hammond. This letter brought the matter to the attention of a wider variety of medical professionals and reformers. However, it was a letter printed in *The New York Herald* by an anonymous assistant surgeon of volunteers that exposed the situation to the greater public. The letter suggests that Stanton was exercising more power over the army than the Queen of England held over hers. The writer chastises Stanton not only for his unfamiliarity with medical matters, but with his non-existent military experience. The author points out the conflict of interest in appointing Reeder to the initial inquiry board and charges Stanton with yielding "despotic power." He presented numerous examples where Stanton used his power to install people as favors and accused Stanton of removing Finley not because he was unfit for the job, but because Finley would not quietly allow Stanton to remove one of his surgeons. The author's defense of Finley makes it unlikely the letter was written by a member of the USSC, as many of their published diaries disparage Finley. Whether or not the letter was penned by a surgeon,

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[132] E. D. Townsend to William A. Hammond, Washington, D.C., 2 December 1863, in Hamond, *Statement,* 26-27.

another member of the military, or an outside observer is unknown. Regardless of who authored the letter, it served to bring the public's attention to the lengths Stanton would go to remove his enemies and presented repeated instances where he removed people he did not like when they refused to acquiesce to his demands.[133] [134]

Unlike Finley, Hammond would not go quietly. He was able to force his return to Washington after sustaining an injury to his back while in Nashville in December 1863 and obstinately insisted on a court martial to settle the charges levied by Stanton. Hammond stubbornly and naively believed that his character and track record would stand up to any accusation made by Stanton. The majority of charges levied against Hammond stemmed from Cooper and the purchase of blankets and other hospital stores. Chiefly, Hammond was accused of ordering who and where to purchase supplies from. These charges do not hold up to scrutiny considering the actions of Hammond's predecessors and Stanton's inactions. Lovett, Lawson, and Finley all routinely directed where to purchase items from, and neither Cameron or Stanton chastised the practice.

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[133] Republican, "The Case of Surgeon-General Hammond," *The Sanitary Commission Bulletin*, no 5, 1864, pgs 146-148, https://babel.hathitrust.org/cgi/pt?id=dp.39015022099421;view=1up;seq=182, 147. "The Stanton-Chase Conspiracy against Mr. Lincoln-Secret History of Surgeon General Hammond's Removal—The Sanitary Commission and Its Objects—Political as Well as Medical Therapeutics—The Medical Inspectors' Bill-Abuse of Patronage, &c., &c, &c.," *New York Herald* (New York, NY: 18 September 1863), page 7, column 2-3, https://chroniclingamerica.loc.gov/lccn/sn83030313/1863-09-18/ed-1/seq-7/#date1=09%2F01%2F1863&index=0&date2=09%2F25%2F1863&searchType=advanced&language=&sequence=0&lccn=sn83030313&lccn=sn83045774&words=Surgeon+surgeon+surgeons&proxdistance=5&state=New+York&rows=20&ortext=surgeon&proxtext=&phrasetext=&andtext=&dateFilterType=range&page=1. Letter: Louis A. Edwards to Jonathan Letterman, Washington, D.C., 19 Mar 1862, RG 112, NM 20, Entry 7, Page 58, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters and Endorsements Sent, National Archives Building, Washington, D.C.

[134] Stahr uses an editorial published in the *New York Times* as evidence of Hammond's guilt. The editorial repudiates the jealous and scandalous actions taken by Hammond. Stahr does not include how Stanton expressly wanted advertisements and dispatches published in the *New York Times.* See: P.H. Watson to Bureaus of the War Department, Washington, D.C., 3 March 1862, RG 94, Letters Received by the Office of the Adjutant General, compiled 1805-1889, https://www.fold3.com/image/300566153. "The Fall of Surgeon-General Hammond," *New York Times,* (New York: 23 August 1864), https://www.nytimes.com/1864/08/23/archives/the-fall-of-surgeongeneral-hammond.html.

Sometimes these orders were issued after the surgeon general had personally inspected the quality of an item. At other times they came after recommendation from reputable, civilian medical professionals. Dozens of times Hammond directed the purchase of a medicine, food item, or hospital supply and reported such to Stanton. At other times he directed the purveyors, often Satterlee, to inspect an item and report upon its suitability for military use. He was never corrected or warned to stop the practice, again indicating that Stanton's contentiousness was entirely personal, not professional.[135]

Cooper's part of Hammond's demise is particularly interesting. Hammond oft accused Cooper of falsifying documents to prejudice the court martial proceedings. Additionally, while Hammond was in Nashville, dozens of letters and memorandums between Cooper and his office disappeared—many of these documents Hammond considered key pieces of evidence in his defense. While sojourning at home in New York, Hammond received a ransom note stipulating $1,500 would secure the documents' release. Hammond paid, and the documents were returned to him. According to Strong, the documents directly contradicted letters provided by Cooper and proved his willful perjury.[136]

The court martial turned into a circus, and despite Hammond's best attempts, he was found guilty and permanently removed from office in 1864. Hammond maintains that the testimony Cooper provided was entirely false and fabricated as retribution for his

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[135] Hammond, *Statement,* 21. "Review of the 'Statement' of the Late Surgeon-General of the United States," *Boston Medical and Surgical Journal 70-71,* 1864, 360-368, Hathi, https://hdl.handle.net/2027/pst.32239002039523, 360-361. Letter: Clement A. Finley to Simon Cameron and Louis A. Edwards to HG Kern, Washington, D.C., 2 August 1861 and 27 April 1861, RG 112, NM 20, Entry 4, Page 97 and 11-12, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1966, 1818-90 period, Letters and Endorsements Sent to the Secretary of War, March 1837-July 1866, National Archives Building, Washington, D.C.

[136] Strong, 418-419.

transfer. Cooper was named in every offense Hammond was convicted of, but was absent from the two that he was acquitted of. Hammond would spend the rest of his life obsessed with clearing his name.

As Bluestein points out, Hammond was able to resurrect his professional career, and would go on to have a successful neurological medical practice in New York City for thirty years and established a sanitorium in Washington, D.C. In 1879 his court-martial conviction was reversed, all charges dismissed, and he was reinstated in the army and placed upon the list of retirees in the rank of brigadier general. After a series of poor business decisions that saw his considerable fortune virtually vanish, he petitioned Congress for his pension. After his death, his widow continued to apply for his pension until the early 1910s. By the time he was reinstated in 1879, his legacy within the military was already fading. Hammond entered office elevated by the hopes of prominent American and European physicians and the full confidence of the USSC. In Hammond was a man who could elevate not only military surgeons, but the entire medical profession. Whether or not the charges against him were just, it cast a pall over his tenure. As will be discussed in the concluding chapter, his name was removed from many of his initiatives as Stanton's friend, Barnes, assumed control of the AMEDD. Coupling the erasure of his name from the military systems he founded is that his scientific methodologies did not stand the test of time. By the time of his reinstatement, the American medical community had largely moved past his scientific ideals and methods.

Preventative Medicine

Hammond's time in office was short lived, but in that short amount of time, he orchestrated monumental changes within the military medical community. Many of his ideas were ahead of his time. One such area that was not yet a recognized discipline was preventative medicine. Hammond, USSC members, and many military physicians noticed that "by enforcing proper sanitary and medicinal treatment, the diseases which have resisted all routine measures will be driven out, or what is infinitely better, entirely prevented." While preventative medicine as we know it today largely did not exist during the Civil War because the bacteriological era was in its infancy, it was far from a foreign concept among Hammond, USSC members, the physicians of the regular army, brigade surgeons and some surgeons of volunteers. Historian Kathryn Shively Meier maintains the ignorance of nineteenth century medical personnel concerning the prevention of diseases, but this is inaccurate. As mentioned previously, the medical community was not yet aware of the root causes of disease and could only suggest preventative measures based upon anecdotal observations of correlation; however there was "growing attention to the subject of sanitary science," and physicians were beginning to recognize that their efforts "should be directed more especially to the prevention of disease than to its cure." Two areas where preventative measures proved successful was with smallpox and yellow fever. Smallpox crusts were often ordered and used to inoculate new soldiers against the disease while quarantine measures against yellow fever reduced the spread and the overall rate of the disease. To communicate preventative measures, Hammond and the USSC were responsible for publishing and distributing

several pamphlets and treatises focusing on hygiene, sanitation, prophylaxes, and organization with the goal of maintaining the fighting strength.[137]

The *Military Medical and Surgical Essays Prepared for the United States Sanitary Commission,* edited by Hammond and published as a single volume in 1864, contained 17 essays covering all matters of camp sanitation, hospital organization, preventative measures for specific diseases, guidelines for preserving soldier health, preventative sanitary and hygienic measures, as well as surgical techniques and wound care. Individual essays and pamphlets addressing prevention and disease were not only distributed to medical personnel, but to all line officers responsible for soldiers. By the turn of the century, sanitation and hygiene would be taught to all military officers. The variety of contributors and the publication and wide disbursement of these pamphlets reflect Hammond's own desire to continuously learn and improve while departing sharply from his predecessors' concentration of knowledge at the top.[138]

These essays, along with Hammond's own *A Treatise on Hygiene with Special Reference to the Military Service,* filled a noticeable void in medical scholarship of the time. There was such a lack of writing concerning the applicability of preventative measures to military service that Hammond, despite the monumental challenges he faced when he assumed command, wrote a comprehensive volume concerning the establishment and maintenance of a healthy army. He discussed the conditions and

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[137] Meier, 3. Letterman, *Recollections,* 98, 101. United States Sanitary Commission, "Report of a committee of the associate medical members of the sanitary commission on the subject of scurvy with special reference to practice in the army and navy." (Washington, D.C.: Government Printing Office, 1862), 14. Hammond, *Treatise*, vii.

[138] William A. Hammond, *Military Medical and Surgical Essays Prepared for the United States Sanitary Commission.* Washington, D.C.: np, 1865. Alfred A. Woodhull, *Notes on Military Hygiene for Officers of the Line,* (New York: John Wiley & Sons, 1898). Woodhull's lectures cover all the topics Hammond originally covered in *Treatise.*

characteristics that could qualify or disqualify a recruit and all the forces and factors that account for soldier health, including age, demographics, personal habits and vices, characteristics of the natural environment, and conditions in the manmade environment.[139]

Hammond's approach to championing sanitation and hygiene differed from both his predecessors' approaches to achieving their aims and from the views of relief organizations. Instead of asserting his position as a medical authority, Hammond spoke in terms relatable to Congress and line officers: fighting strength. Instead of talking of alleviating the suffering of soldiers, as the USSC did, Hammond spoke of the financial implications of maintaining large numbers of soldiers on sick rolls. As surgeon general, Lawson occasionally communicated the financial impact, but he limited it to the financial impact upon the AMEDD. For example, when lobbying for an increase in the department during the US-Mexican War, he cited the exorbitant cost of contract physicians. The point he explicitly made was that contract physicians cost more and therefor,e the AMEDD could get more physicians for less if their ranks were expanded. He did not put into terms of how the expenditure on contract physicians impacted the overall army. To the contrary, Hammond focused on the financial cost of training, housing, equipping, and transporting soldiers. Soldiers who remained on the sick rolls for long periods of time were wasting the government's money because they could not be employed in their designated roll and decreased the army's overall strength.[140]

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[139] Hammond, *Treatise.*

[140] Lawson, "Surgeon General's Office, 29 July 1846," in U.S. House of Representatives, *Index,* 416. Hammond, *Treatise,* viii, 13-14. Gillett, *1818-1865,* 92, 128. United States War Department, *Report of the Secretary of War,* 7. United States Sanitary Commission, "No. 1—An Address to the Secretary of War" in *Documents of the United States Sanitary Commission,* 9.

Finley, for his part, largely lamented a lack of funds within the AMEDD. The USSC and other middle-class reform agencies such as the Christian Commission made sanitation and hygiene a moral imperative. Hammond, as he had in the past, took a more pragmatic approach. While stationed on the frontier and writing to request leave or additional books and materials, he constantly highlighted how his requests benefitted the AMEDD and the army. He possessed a unique ability among his contemporaries to focus on both the immediate and long-term effects. Preventative measures made medical sense, but when appealing to non-medical individuals he made preventative measures about finances and fighting strength, something that Congress and line officers could appreciate.[141]

Building Institutional Knowledge

The compilation of the essays into one volume for posterity is indicative of Hammond's penchant for orchestrating both immediate and long-lasting change and his desire to share knowledge. Even though they were published after his removal, it was he who began the process. Most of his lasting contributions to military medicine fall into this realm. Lovett and Lawson both required regular reporting concerning the health of soldiers and the surrounding environment to be sent back east from frontier posts. This information was collected and languished at the surgeon general's office, never to be analyzed or purposefully shared. Hammond, on the other hand, expanded reporting requirements of surgeons and medical inspectors during the war. Monthly surgeons were required to report about surgical procedures for fractures, gunshot wounds, amputations,

[141] Hammond, *Treatise*, vii-viii, 13, 17. United States Sanitary Commission, "Homage Due From Mars to Hygeia," *The Sanitary Commission Bulletin*, *Volume I, Numbers 1 to 12,* (New York: np, 1866), 120, https://catalog.hathitrust.org/Record/002931697. Strong, 440-441.

and other surgical procedures. They were to include dates, relevant background information concerning the sustainment of the injury, and wound characteristics. Additionally, surgeons were to report about medicines and treatments for fevers, diarrhea, dysentery, scurvy, and respiratory ailments including the specific symptoms and treatments, as well as, environmental factors that may have contributed to the illness.[142] Further, Surgeons were encouraged to send in "all specimens of morbid anatomy," along with "projectiles and foreign bodies removed" from patients and anything else surgeons deemed relevant, including any additional details or notes on each case. Instead of this being busy work, Hammond immediately made his aims known: this information and specimens would be used to establish an Army Medical Museum in Washington, D.C. to further the study of military medicine.[143]

Not only would the information be preserved in the Army Medical Museum (now known as the National Museum of Health and Medicine), but along with official reports, correspondences, and orders, it became the backbone of the expansive, multi-volume *Medical and Surgical History of the War of Rebellion.* The literature Hammond collected became the Surgeon's General Library, now known as the National Library of Medicine. Perhaps this is the greatest testament--not only to his legacy and his impact upon military and American medicine, but to the caliber of physician and administrator that he was. The programs and initiatives that he began almost immediately upon assumption of command were recognized by the European medical community--and continued to be

[142] It was these reports that Hammond used to justify his removal of calomel and tartaric acid from the formulary.

[143] William A. Hammond, *Circular No. 2*, Washington, D.C., 21 May 1862. http://resource.nlm.nih.gov/101534229.

regarded by his successors long after his feud with Stanton forced his removal from office.[144]

Reshaping the Department

Table 1

AMEDD Positions, strength, appointment method, and type in 1861 and 1862

Position	Type	Appointed By	1861	1862
Surgeon General	Regular	Federal	1	1
Assistant Surgeon General	Regular	Federal	-	1
Medical Inspector General	Regular	Federal	-	1
Medical Inspector	Regular	Federal	-	16
Surgeons	Regular	Federal	114	170
Assistant Surgeons	Regular	Federal		
Surgeon of Volunteers	Volunteer	Federal	-	547
Assistant Surgeon of Volunteers	Volunteer	Federal	-	
Regimental Surgeon	Volunteer	State	-	2,109
Regimental Assistant Surgeon	Volunteer	State	-	3,882
Acting Staff Surgeon	Contract	Federal	-	85
Acting Assistant Surgeon	Contract	Federal	-	5,532
Medical Cadet	R/V	Federal	-	Varied
Steward	R/V/C	Federal	-	As needed
Nurses	R/V/C	Federal	-	As needed

Lawson, and to a lesser extent Finley, lamented the caliber of contract physicians and volunteer surgeons. As shown in the table above and throughout the war, regimental surgeons and assistant surgeons and acting staff surgeons and assistant surgeons made up the bulk of the AMEDD. Unfortunately, even after the congressional reorganization of the department, regimental surgeons and assistant surgeons were still only examined by state officials; the caliber of contract personnel, meanwhile, varied greatly. In July 1862, amidst another authorization for the increase of regimental surgeons and assistant

[144] "The Medical Profession in America—Abolition of the Use of Calomel and Tartar Emetic by Authority," in *The Medical Times and Gazette: A Journal of Medical Science, Literature, Criticism, and News. Volume I for 1863,* (London: John Churchill and Sons, 1863), https://hdl.handle.net/2027/mdp.39015030034204, 645-646.

surgeons, Congress also codified that all surgeons and assistant surgeons be examined by a board of medical officers of the regular army. This was a clear step by Congress that acknowledged the importance of the AMEDD possessing the sole discretion for determining which medical professionals could and should serve with the army.[145]

Hammond and Stanton would once again be at odds concerning the examination of potential volunteer surgeons. The rigorous examination process proved too difficult for many applicants, resulting in a high rate of failure. In response, Stanton threatened to abolish the newly-established examination requirement if Hammond did not diminish the difficulty of the exams. Hammond complied with Stanton's demands, but did not stop pushing for high-caliber physicians. In another interference by the Secretary of War, Stanton directed the appointment of a man unexamined by any state or federal entity.[146]

As another indicator of Hammond's ability to develop multiple strategies to solve the challenges facing the department, Hammond stopped focusing on physicians presently prepared to enter the military. Instead, he began focusing on those who would become eligible for military service soon. He wrote a series of letters to various medical schools, urging the inclusion of coursework covering hygiene and military surgery. This move was incredibly progressive, as medical students and recent graduates were oft employed as medical cadets and in other supporting roles before admission as an assistant surgeon. The move to alter and improve the educational foundations of physicians

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[145] Letter: William A. Hammond to George W. Mittenberger, Washington, D.C., 22 December 1862, RG 112, NM 20, Entry 2, Volume 33, Pg. 546, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Sent, National Archives Building, Washington, D.C. Gillett, 181.

carried the potential to improve the medical profession and the caliber of physicians in the military long after the war concluded.[147]

Finley ended Lawson's practice of sending contract physicians into the field and leaving regular army surgeons in garrison; Hammond continued this. Contract surgeons often staffed general hospitals to allow regular surgeons and regimental surgeons to remain close to the field or with their units. However, under Finley, contract surgeons were still employed at the spur of the moment. As such, when an emergency arose, men with a wide range of knowledge, abilities, and motivations flooded a scene. They were not governed by any official entity, performed only the tasks they desired, and left when they wanted. Nowhere was this more evident than after the Second Battle of Bull Run. In the wake of Union General John Pope's disastrous defeat, the AMEDD scrambled to provide for the wounded, putting out a call for volunteers in the newspapers. The volunteers were instructed to provide their own buckets, tin cups, water, and brandy. The army had few transportation assets available to ferry the volunteers. In true reactionary form, hacks and other modes of transportation were only procured after the call for volunteers was placed. The request for volunteers was ill-advised, and in the chaos, it was determined that the onslaught of inexperienced, unorganized volunteers was more harmful than beneficial. Despite this, Stanton still repeatedly directly appointed nurses and physicians after battles and directed requests for medical supplies published in newspapers.[148]

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[147] Bluestein, 72-73.

[148] "Our Special Washington Dispatches: Buildings for Hospitals. The Maine Law to Be Enforced. No Crossing the Potomac. Seizure of Horses. Proprietary Stamps. Tax Appointments for New York. For the State of Pennsylvania. For the State of Ohio. The Export of Medicines to Spain," *New York Times*, (New York, NY: 1 Sept 1862) p 5. "Our Correspondence from the Field: A Detailed Account of the Recent Movements—Jackson's Tactics and How they Were Met—Desperation of the Rebels. Secure Position of the Union Army," *New York Times* (New York, NY: 2 Sept 1862), p 1. Brinton, 294-295.

Hammond sought to correct this lamentable situation and provide a more reliable pool of candidates. He wrote letters in prominent medical journals detailing the ideal qualifications of contract surgeons. Additionally, he corresponded with prominent members of the medical communities in various cities, soliciting their input regarding qualified candidates. Hammond took this information and guided governors in the formation of a small corps of volunteer contract surgeons to be called upon when needed. He established guidelines dictating how they were compensated, how they could be employed, and the duration of their terms. For example, instead of allowing contract physicians to come and go at will, Hammond directed that they remain at a location for 15 days unless dismissed by a member of the AMEDD earlier.[149]

The changes Hammond orchestrated concerning contract physicians facilitated immediate, intermediate, and long-term change. Take, for example, the revised format of reports and method of submission. Immediately it decreased the burden on the surgeons; intermediately, it allowed for an analysis of data from the entire army; and in the long-term, it provided the basis for a comprehensive record of medical operations during the war. The nefarious actions of Stanton stunted the progress that the AMEDD made during the war, but it was a measure of Hammond's innovations that despite his removal, the department would still inch forward.

[149] "Volunteer Surgical Aid," Smith, ed, *Volume 5,* 135. William A. Hammond, Letter to Gentleman," *Boston Medical and Surgical Journal,* 67-68, 1863, https://hdl.handle.net/2027/uc1.a0002587343, 305-306.

CHAPTER V

Immediate Change

While Hammond's tenure as surgeon general was short, he was immensely successful in creating immediate change that would be translated into long-term policy. His successes link directly back to the trait that elevated him to surgeon general in the first place: his ability to observe and synthesize information, thereby creating practical solutions. Throughout his tenure, his greatest obstacle was Stanton; despite the grumblings of surgeons sour over his promotion, he implemented sweeping reforms. There was a notable shift in camp and hospital conditions, a decrease in the numbers on the sick rolls, and a remarkable reduction in wound mortality. The controversy surrounding his court martial and dismissal from the military has served to obscure the impact of the immediate changes he affected within the department. Hammond positively affected the organization of hospitals and the care soldiers received in them; the manufacture and procurement of supplies; and the organization and care of the wounded in the immediate aftermath of a battle. Hammond was also able to mitigate the negative effects of the reliance on outside sources, such as the quartermaster department and civilian laboratories, to improve operations.

Hospitals

Prior to Hammond's arrival, hospitals were often haphazardly established during the moment of need--even the more permanent general hospitals. For example, in the midst of the Peninsula Campaign, Wood wrote to Satterlee notifying him of approximately 700 sick and wounded soldiers currently en route to New York. Wood directed accommodations to be prepared and physicians hired. Satterlee was instructed to

work with the quartermasters in the city to determine suitable buildings to lease for this purpose. At the close of the letter, Wood states that utilizing Fort Hamilton in Brooklyn or Fort Wood in New York Harbor would be preferred to leasing buildings. The contradictory instructions—examine buildings for lease but use pre-existing military forts—is indicative of the types of instructions emanating from the surgeon general's office. Another challenge within the general hospitals was the inability of surgeons to discharge patients who were well enough to no longer require medical care, but nonetheless unable to return to the army. If there was no local commanding officer, these soldiers were left in limbo where they unnecessarily occupied a hospital bed and strained hospital resources. In addition to these, there were significant challenges to the supply of hospitals established. Hammond immediately sought to address these problems and the challenges of supply, sustenance, and personnel within the hospitals through innovative new policies and creative solutions.[150]

One of Hammond's first projects was to create a prototype of a military general hospital in the pavilion style. He personally drafted the plans and supervised the construction of a model hospital in West Philadelphia. The design favored numerous single-story buildings to fewer multi-story buildings to increase ventilation and accessibility. The surgeon's quarters were in the center of the arrangement of hospital buildings. There were fifty beds per ward with the wards dispersed over 20 buildings. The organizational structure of the hospital entrusted 75 beds to one medical officer, similar to the role of an attending physician in a modern hospital setting. Performing as

[150] RC Wood to RS Satterlee, Washington, D.C., 7 April 1862, RG 112, NM 20, Entry 2, Page 152, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters and Endorsements Sent, April 1818-October 1889, National Archives Building, Washington, D.C. Gillett, *1818-1865,* 182.

the modern resident physician would was one medical cadet per fifty beds. Stewards and nurses were subordinate to any physician or medical cadet. This hospital was entirely under the control of the medical department, unlike other general hospitals, which were controlled by medical directors and, sometimes, state authorities. Hammond's labors to improve the physical and materiel condition of general hospitals bore fruit. Observers noted a marked difference in the eastern hospitals built in 1862 to those in 1863. This not only illustrates Hammond's ability to devise and implement improvement, but to evaluate and build upon initial advances. Despite Stanton's grumblings about the cost of the proposed hospitals, in 1864, the War Department issued guidance to the Quartermaster Corps regarding hospital establishment that closely mirrored Hammond's recommendations.[151]

Medical directors almost always supervised the establishment of a general hospital. As such, line commanders could and did exert a certain amount of control over the hospital and its staff. Nurses, stewards, and cooks were often drawn from the ranks of convalescing soldiers, from the ranks of non-regular army physicians, and later from the invalid corps. Before the invalid corps, medical officers were pressed by line officers to release detailed soldiers as soon as possible, sometimes removing men who were quiet adept at their job or leaving a hospital understaffed. Female and male nurses were drawn from the civilian population, but in most general hospitals there was a mix. Many female nurses were either Catholic nuns or appointed through Dorothea Dix. In general hospitals located a distance from the field of battle, such as the ones in New York City, St. Louis, Boston, and Philadelphia, the state authority exercised a certain amount of control.

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[151] Jonathan Letterman, "Extracts from a Report of the Operations of the Medical Department of the Army of the Potomac from July 4th to December 31st, 1862," in Woodward, 94. Adams, 151, 153.

Physicians assigned to these hospitals often fell on the state rolls and some cost of a hospital's establishment and supply came from state funds. In Hammond's prototype, support personnel were drawn exclusively from the civilian population; as such, they were significantly more expensive. Additionally, the hospital--even personnel assigned at the behest of a state government--was under federal control and would receive wages aligned with the terms of federal contracts.[152]

It was not, however, the cost of civilian personnel that undermined Hammond's desired hospital system but the perception their employment created. Male civilians, Catholic nuns, and female nurses all created problems for Hammond. A regular soldier surmised that the male civilian medical personnel employed in northern general hospitals were merely draft dodgers placed in hospital positions by friends to avoid combat. The soldier inferred that it grieved wounded soldiers to see the cowardly friends of doctors in charge of store rooms and facilities while the soldier and his friends were sent off to battle. Additionally, he contended that employing these able-bodied men in lieu of disabled veterans was a disservice to the veteran and an insult to his sacrifice.[153]

Able-bodied women did not cause the controversy among patients that males did; however, they were not spared the condemnation of military personnel, especially those who were politically appointed. Like Brinton had in Mound City, many physicians found fault with the female nurses, deeming them of slight benefit outside of the linen room or kitchen. Most preferred to employ the temporary convalescing soldier to the permanent

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[152] Benita K. Moore, 62, 114. Jane Stuart Woolsey, *Hospital Days: Reminiscence of a Civil War Nurse,* (Roseville: Edinborough Press, 1996), 29-30. "The Hospital at Annapolis: An Interesting Incident Presentation to Hospital Steward Fenton," *New York Times* (New York, NY: 1 September 1862), pg 2.

[153] Letter: Regular to William A. Hammond, 1 August 1863, RG 112, NM 20, pg. 81, Records of the Office of the Surgeon General (Army) Central Office- Correspondence: 1818-1946, 1818-90 period, National Archives Building, Washington, D.C.

female nurse. It was not so much that the female nurses did not perform their job well, but the preconceived limitations of being female placed them at a disadvantage and begs the question: Did female nurses not perform requested tasks, or were tasks not requested because of a foregone conclusion that the nurse was incapable because of her sex? According to one surgeon, the "nature, education, and strength" of women rendered them "totally unfitted" for anything other than medicine distribution or "delicate soothing." Regardless of the general opinion of female nurses, Catholic nuns were well received in the hospitals, but this also created a perception issue for Hammond--one noticed by President Lincoln. In July 1862, Lincoln wrote to Hammond inquiring why he favored Catholic nurses over Protestant ones. As Hammond received personal letters from Protestant women involved in war relief efforts, Lincoln undoubtably received such letters questioning the allegedly preferential treatment bestowed upon Catholics. Lincoln, in turn, inquired with Hammond concerning his apparent preference for Catholics over Protestants. Hammond requested the president remain objective because, in Hammond's experience, the devotion, training, and efficiency of the Catholic nuns were unparalleled by other religious organizations.[154]

[154] Brinton, 43-44, 195, 294. Letter: Benjamin King to William A. Hammond, 28 June 1862, RG 112, NM 20, Entry 4, Page 63, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters Received, 1818-1889, National Archives Building, Washington, D.C. Letters: William A. Hammond to HH Smith, Washington, D.C., 14 June 1862, and William A. Hammond to S. O. Vanderpool, Washington, D.C., 18 June 1862, both in RG112, NM 20, Entry 2, Page 31, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters and Endorsements Sent, April 1818-October 1889. "Female Nurses in Hospitals," and "Circular No. 7" in Smith, *The American Medical Times, Volume 5,*150 and 150-151. William A. Hammond to Abraham Lincoln, 16 July 1862, Abraham Lincoln Papers, Series 1: General Correspondence, 1833-1916, Library of Congress, Washington, D.C., https://www.loc.gov/item/mal1714000/. Letter: SG to Editor of Army Medical Times, "Duties of the Army Surgeon—Females Not Suitable for Nurses," and "Female Nurses in Military Hospitals," both in Smith, ed., *The American Medical Times, Volume 3,* 30-31 and 25. Fielding, 23.

Politically appointed female nurses were a particular nuisance to medical directors. According to Brinton, the nurses appointed directly by Stanton were the worst being "helpless and irritable" and "thinking herself of much importance" because she operated under the orders of the Secretary of War. He found these women never hesitated to remind medical providers who appointed them and consistently threatened to report back to Stanton. Directly appointing nurses by circumventing Hammond and Dix illustrates Stanton's drive for complete power and is another example of the negative impact of outside interference on medical operations. Much like the bandages Stanton called for that were subpar and destined to rot in a warehouse, the women he appointed directly besieged the department and removed the focus away from patient care and hospital administration.[155]

The bickering over personnel in general hospitals created unnecessary obstacles to the creation of an efficient military hospital system at a time when many general hospitals were over capacity and when Hammond's attention was better directed elsewhere, such as supply and hospital diet. The association between diet and healing was already made and well-publicized within the military, appearing in numerous pamphlets distributed by the AMEDD and USSC. In this area, however, theory and practice were not aligned. Unfortunately, the message concerning the importance of fresh vegetables was not well received at all levels of command. As a result, some fresh foodstuffs intended for soldiers was misappropriated at various levels for personal use resulting in shortages. In other instances, the AMEDD was unable to secure transportation so fresh vegetables destined for soldiers rotted in warehouses. Hammond improvised to address the

[155] Brinton, 294-295.

difficulties encountered with obtaining adequate and appropriate food through regular supply chains and deviations from standard operating procedures. First, since inpatients in general hospitals were fed from the hospital stores, they had no use for their army rations. Hammond allowed medical officers to sell the rations on the civilian market to purchase perishable food or other stores for hospital use. Secondarily, he established a partnership with the USSC in which USSC agents used hospital funds to purchase food and supplies for use in the hospitals. While the USSC usually provided material assistance in the form of donations, in this instance the USSC acted as a procurement agent of the AMEDD. Last, he ordered the transfer of funds from general hospitals with surplus funds to those with a deficit. Although highly irregular, these practices are indicative of Hammond's adaptive leadership and willingness to go to great lengths to provide for army's health and work outside the regulatory confines.[156]

Hammond not only affected the organizational and physical structure of hospitals, but also their intended purpose. Hammond saw general hospitals not only as a place to heal soldiers, but as an opportunity for scientific discovery. While most medical professionals in the United States rarely, if ever, entered into a hospital setting before the outbreak of the war, physicians in France had been using hospitals as scientific research centers since the turn of the century. The concentration of patients and physicians provided a wealth of clinical experience and the unprecedented opportunity to systematically study diseases, injuries, treatments, and outcomes; Hammond sought to

[156] Strong, 420-421. Woolsey, 28-30. Letterman, "Extracts" in Woodward, 95. Letterman, *Recollections,* 105-107. Memorandum: William A. Hammond to Surgeons in Charge of Hospitals, 16 August 1863, RG 112, Entry 7, Volume 5, Page 14, Records of the Office of the Surgeon General (Army) Central Office--Correspondence, Letters and Endorsements Sent, 1818-89, National Archives Building, Washington, D.C.

exploit this rare opportunity and irrevocably make the AMEDD a professional, learning organization. Hammond pioneered special wards within military hospitals and specialized military hospitals, one of the first being a special ward for neurological cases in Philadelphia in 1862. The research conducted at Turner's Lane, the 400-bed facility dedicated to soldiers suffering neurological ailments and published by Doctors Silas Weir Mitchell, George Morehouse, and William Keen in 1864, was well received in both the United States and Europe. There were still other hospitals dedicated to eye and ear injury and disease and venereal diseases. This move by Hammond formally transformed the AMEDD into a learning organization well before American civilian medical institutions exploited such research opportunities.[157]

The organizational system for military hospitals envisioned by Hammond was first codified into law in 1864, when Congress passed the bill that placed military general hospitals firmly within the purview of the AMEDD. Again, this was done after his removal and is a testament to the validity of his vision for the AMEDD. The system Hammond established was fully in use through World War II, and traces of this system are still visible today in the staffing model and organizational structure of military medical centers, hospitals, and clinics. For example, the command structure of a hospital on an army installation goes from the hospital commander to the regional medical commander; the local installation commander is in the hospital commander's chain of command, but does not exert the control (s)he would have prior to Hammond. Additionally, there are several military medical centers that contain specialized units where specific cases are concentrated, like the burn unit, part of the US Army Institute of

[157] Silas Weir Mitchell, George R. Morehouse and William W. Keen, *Gunshot Wounds and other Injuries of Nerves,* (Philadelphia: J. B. Lippincott & Co., 1864).

Surgical Research at the San Antonio Military Medical Center or the Intrepid Spirit Center, a joint venture between the Department of Defense and the Intrepid Fallen Heroes Fund that focuses on Traumatic Brain Injury. This center is located at Madigan Army Medical Center on Joint Base Lewis-McChord, WA. These are just two examples of numerous specialized facilities and clinics used to concentrate similar cases and provide broad exposure for treatment and research purposes. Since Hammond, medical research has become a national security issue. Research is now a major component of the AMEDD's mission and has spawned commands and subordinate unites dedicated to medical research, like the Walter Reed Army Institute of Research (WRAIR) that conducts research globally into various matters of clinical and public health interests. This all stems from Hammond; he championed not just the collection and publication of data, but its analysis and application to the broader army. Hammond was a scientist in the medical field before medicine was a hard science.[158]

Supply

Although Stanton latched onto alleged supply mishandlings to force Hammond's removal, Hammond positively influenced military medical supply on a broad scale. Concurrently, and with Hammond's support, Jonathan Letterman improved supply in the field; his contributions will be discussed later. Combined, they provided a sweeping reform of the supply system. In his tireless push to modernize army medicine and put new developments into use, Hammond improved the supplies and literature available to medical providers in general hospitals. The transient nature of regimental and brigade

[158] Kenneth E. Hall, "The Dangerous Decline in the United States Military's Infectious Disease Vaccine Program," Technical Report: Air War College, Maxwell Air Force Base, 17 February 2010, pg 17, http://www.dtic.mil/dtic/tr/fulltext/u2/1018581.pdf

surgeons combined with transportation challenges to limit the amount of supply a medical officer could field. Nevertheless, under Hammond, there were several committees established to evaluate improved medical knapsacks for surgeons' use and medical store boxes. Additionally, Hammond seized upon the permanence of general hospitals and established posts to give his doctors greater access to modern equipment by adding stethoscopes, stomach pumps, and speculums to the supply table. He also authorized a library of two dozen books covering everything from general and specialized medicine to preventative measures.[159]

One of Hammond's earliest ventures to streamline the supply table was the convening of a board to evaluate the medications on the formulary and make recommendations for additions and deletions. The board was composed of Satterlee, Surgeon R.O. Abbott, and Dr. Edward R. Squibb. As previously stated, Satterlee was the medical purveyor of New York who was so esteemed that he was often called upon to train other purveyors. By 1864, Abbott, after the successful administration of several hospitals within the Army of the Potomac, was elevated to the position of Medical Director of Washington. Squibb was a former Navy doctor and US-Mexican War veteran who left the military when he became disenchanted with the quality of medicines used by the military and successfully entered the pharmaceutical business. Hammond filled the board with a man intimately familiar with the army's medical procurement system, an

[159] Letter: J. Smith to Jonathan Letterman, Washington, D.C., 18 February 1863, RG 112, NM 20, Entry 7, Volume 3, Page 18-19, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, Letters and Endorsements Sent to Medical Officers ("Military Letters"), September 1862-September 1872, National Archives Building, Washington, D.C.

able administrator, and a man who was not only familiar with military medicine, but a successful pharmaceutical manufacturer.[160]

Hammond also instituted army-run laboratories to produce common medicines. This initiative was aimed at increasing efficiency and supply availability in the field while decreasing. Prior to Hammond, laboratories, much like ambulance systems, were sporadically created at the unit level to meet the needs of a specific unit at a specific time and place. There was no broad application of these systems, nor the systematic review necessary to increase efficiency. Hammond established laboratories in Astoria, Queens, Philadelphia, and St. Louis. Each laboratory was instructed to coordinate with the local purveying depot to meet the army's needs. The laboratories received praise from Barnes, who, in a rare move, wrote to Stanton detailing his support for this Hammond initiative. Manufacturing medicines allowed the army to increase its stocks. Additionally, the medicines were cheaper to manufacture than purchase; by negating medical shortages, the AMEDD was also able to prevent the supply-demand price fluctuations that accompanied shortages. The laboratories also performed testing upon medicines purchased on the civilian market. No longer was the testing of medicines left to individual purveyors or medical officers in various areas. The responsibility for testing was concentrated among the laboratories, increasing efficiency and quality control

[160] Charles Smart, *Medical and Surgical History of the War of Rebellion, Part III, Volume I, Medical History,* (Washington, D.C.: Government Printing Office, 1888), 964. Letter: William A. Hammond to L. Thomas, Washington, D.C., 3 May 1862, RG94, Records of the Adjutant General, Letters Received by the Adjutant General, 1861-1870, National Archives Building, Washington, D.C., https://www.fold3.com/image/300255554

oversight. The cost savings was substantial—from 1863 through 1865 the army saved over $75,000 through one lab.[161]

Hammond's work to establish these laboratories should not be understated, as the American pharmaceutical industry was just as unprepared for the Civil War as the AMEDD. War profiteers, sensing the need for medications in response to the war, stockpiled medicines and then sold them to the government at a premium. In a *Report on the Drug Market* made to the American Pharmaceutical Association and published in 1863, it was noted that the rise in prices of medications was not proportional to the rise in demand. This specifically points to war profiteering. Adding to the price fluctuations was tariffs on imported medications, the decline in the value of US currency, and rampant speculation. Simultaneously, the committee noted an increase in price was accompanied by a decrease in quality, though there was no change in the method of preparation. These laboratories allowed the military to standardize not only the cost of many medications, but the quality.[162]

In addition to the creation of laboratories to address quality and quantity issues, Hammond directed the purchasing of medicines from a few prominent entities. In Philadelphia, the government routinely called upon John Wyeth and Brother; in New York, Edward R. Squibb and Philip Schieffelin & Co. were frequently used. While procuring from a single source of supply was not universally sanctioned, it was a long-established practice to use a single source for medical supplies and gunpowder where

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[161] Smart, 964-965. George Winston Smith, *Medicines for the Union Army: The United States Army Laboratories during the Civil War,* (Madison: American Institute of the History of Pharmacy, 1962), Kindle Edition, Loc 587, 490.

[162] Edward Squibb, et al., "Report on the Drug Market," *Proceedings of the American Pharmaceutical Association at its Eleventh Annual Meeting* (Philadelphia: Merrihew & Thompson, Printers, 1863), Google Books, pg 176-179, 181.

consistent quality outweighed a low price. As previously discussed, this was one of the practices that Stanton seized upon. Yet, as at least one contemporary noted, Hammond should be commended for his purchasing methods. While his orders to create stockpiles was criticized by Cooper and seen as a misappropriation by Stanton, it was merely an attempt to stem the effect of shortages and guard against price fluctuations. Additionally, Hammond sought to purchase "pure drugs, and other articles of good quality" and pay accordingly for them, rather than procure cheap, impure drugs.[163]

What was lacking in Cooper and Stanton's critique of Hammond's purchasing patterns was scrutiny of where he was making the purchases and the actual outcome. Long before Bristol-Myers Squibb became an international pharmaceutical giant, Squibb built his reputation championing higher purity standards in American medicine. He once gave away an improved method of ether distillation rather than make a profit. There is no evidence Satterlee, as New York purveyor, ever questioned purchasing through Squibb. Wyeth also grew to become an international brand, but it started with pharmacists John and Frank Wyeth in 1860 and their small Philadelphia drugstore. They quickly built a reputation for quality medicines and expanded their operations at the behest of local physicians. They were known for compounding large quantities of medications reducing wait time and prices. The companies Hammond chose to purchase through were well-established entities with a reputation for quality--not one of the innumerable companies that popped up in response to the conflict. These companies also purchased items through other manufacturers for sale to the army. This process allowed the companies to purchase in bulk, rather than each individual purveying depot

[163] Stephen Smith, ed., "This Week," *The American Medical Times Being a Weekly Series of the New York Journal of Medicine, Volume 7*, (New York: Balliere Brothers, 1863), 282-283.

purchasing smaller quantities. The purchasing company also evaluated the quality based upon their own standards, ensuring a pure product. Finally, the establishment of relationships with firms like Wyeth and Squibb allowed for continued purchasing during times of economic instability. Throughout the war, the AMEDD often suffered from insufficient funds; surgeons, contract physicians, and contracts often went unpaid. Purchasing through a select few entities allowed the AMEDD to control the fallout of delayed payments while ensuring consistent quality and quantity.[164]

Army of the Potomac

The discussion thus far has focused on the immediate and long-term impact Hammond had upon the AMEDD. Also discussed was his leadership style, which empowered his subordinates to act and invent. Nowhere was this more evident than in the Army of the Potomac. The difficulties experienced within the AMEDD played out in every army that comprised the Union forces. The Army of the Potomac has received much attention from historians and deservedly so, for it was from this medical department that positive change radiated throughout the army. Operationally, the Army of the Potomac was the primary unit in the Eastern Theater, and the morale of the country mirrored its successes and failures. The Army of the Potomac also allows for a better study of the implementation of surgeon-led doctrine because it controls many outside factors that affected military medical operations. The army's proximity to Washington, D.C., gave it increased visibility at the highest levels of government. The roads for

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[164] Caswell A. Mayo, *American Druggist and Pharmacy Record, Volume 37, July to December 1900,* (New York: American Druggist Publishing Company, 1900). John A. Bingham, *Reply of the Judge Advocate John A. Bingham to the Defence of the Accused before a General Court Martial for the Trial of Brigadier General William A. Hammond, Surgeon General, US Army,* (Washington, D.C.: Government Printing Office, 1864), 3. Samuel L. Abbot and James C. White, ed., "Review of the Statement of the Late Surgeon General of the US Army," *The Boston Medical and Surgical Journal, Vols 70-71*, (Boston, David Clapp, 1864), 365-366. Hammond, *Statement,* 58.

supply and transportation were more modern than in the Western Theater; there was a vast rail network, and almost constant naval support. As commander of the Army of the Potomac from July 1861 to November 1862, Major General George Brinton McClellan often supported his medical directors, both in issuing orders to subordinate units and in sending proposals up the chain of command. The army was also closer to the major purveyor's depots of New York and Philadelphia, facilitating faster resupply. At the time of Hammond's appointment, the army was engaged in the Peninsula Campaign.

Before the Peninsula Campaign, there was evidence of vast improvement within the hospitals, camps, and performance of the medical personnel of the Army of the Potomac. In early 1862, after inspecting various field sites for the Army, the medical inspector wrote of the favorable and improved conditions found therein. Appointed to McClellan's general staff in August 1861 to relieve the beleaguered King, Tripler worked tirelessly to improve conditions within a public and military environment hostile toward medical personnel.[165]

Tripler and the Peninsula Campaign. When Hammond took command and began expressing his support of the subordinate medical directors, he expected them to take the initiative and develop practical solutions to their problems, much as he did during his service in the west. While Tripler was not inept and made strides improving the conditions in his army, he was deeply entrenched in the mentality of the AMEDD's old guard and lacked the ability to develop and implement innovative solutions outside of

[165] "The Public Services of Physicians as Viewed from the Halls of Congress," and D. Hunter, "General Order in Reference to Sanitary Precautions," in Smith, *Volume 4,* 169 and 241-242. "Chartered and Purchased Vessels.; Gen. McClellan's Staff," *New York Times,* (New York, NY: 25 August 1861), pg. 1, column 5, https://www.nytimes.com/1861/08/25/archives/chartered-and-purchased-vessels-gen-mcclellans-staff.html

those constraints. Much of what appeared as ineptitude can be attributed to learned helplessness. For example, in 1861, Tripler had a theory concerning the use of whiskey as a malarial prophylactic. Instead of the leadership supporting his desire to innovate, Finley prevented him from obtaining supplies to test his theories. After he obtained the necessary supplies from the USSC and his preventative treatment showed promise, Finley acquiesced and allowed him to purchase the required supplies. Additionally, his 32 years of wholly relying on the Quartermaster Corps for all transportation needs prevented him from conceiving supply and patient transportation solutions independent of them. Though showing signs of apathy, Tripler did not stand idly by--he frequently wrote to Hammond (who in turn wrote to Stanton), requesting personnel and transportation assets independent of the army's quartermaster department. These pleas were met with staunch refusal from the War Department and Quartermaster General Montgomery C. Meigs. Dependence on outside entities for transportation continued to plague the department into 1863.[166]

Tripler's reports concerning the period encompassing McClellan's Peninsula Campaign take a defeated tone, conveying that he did what he could despite the immense pressure placed upon the department from outside entities. He attempted to remain positive when discussing the actions of individual medical officers, but frequently dwelled on 'if only…' If only he had medical officers available to detail, then the transport ships could be converted quickly and carry more patients. If only he had access to transportation assets, then medical supplies would not be left behind, nor surgeons

[166] United States Sanitary Commission, "Responsibility of the Army Surgeon," *The Sanitary Reporter, Volumes 1-2,* (Louisville: United States Sanitary Commission, 1863), 28, https://catalog.hathitrust.org/Record/011570893.

forced to personally carry them. Undoubtedly, he was defeated at this point. Prior to the campaign, while McClellan was still in Washington, D.C., Tripler's wife, Eunice, claimed to have called upon McClellan to plead her husband's case. She highlighted the rank disparity and that Tripler was "working with his hands tied." Though this encounter is recorded via a conversation she had with her son-in-law years after the war, the construction of these memories--combined with the official record--gives credence to the immense hurdle facing Tripler, and later, Letterman.[167]

Given his admittance to frustration at the lack of transportation assets, it was odd that he wrote of his "surprise" at the influx of requisitions for supplies after the army's movement. The standard operating procedure was to furnish three months of supply per regiment. For supply transportation and transport of the sick, one wagon was detailed to each regiment's medical officer, plus another for hospital tents and baggage. Although the army regulations of 1861 said that medical transport could not be removed from the senior surgeon, this was not often honored. The final authority for control remained the commander, not the medical officer. Tripler frequently found that supplies were left behind while "spirits had very generally disappeared." He charged that the regimental medical purveyors did not take steps to transport their supply. In the face of the resistance Tripler encountered to changing the transportation arrangements, his belief that regimental purveyors could affect serious change is questionable.[168]

To his credit, Tripler did try to improve operations. For example, to reduce the time between requisition and receipt of supplies, he directed that requisitions be approved

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[167] Tripler, "Report," in Woodward, 54. Louis A. Arthur, *Eunice Tripler: Some Notes of Her Personal Recollections,* (New York: Grafton, 1910), Google Books, 135-137. Fielding, 39.

[168] Tripler, "Report," in Woodward, 54.

by medical directors at the corps level, and not his office. He attempted to ensure that regiments were well equipped and that transport ships were available to move ill and injured patients. Unfortunately, his attempts at improvement were often stymied by the lack of support from his superiors. For example, upon finding no suitable buildings for hospitals, Tripler ordered hospital tents pitched at White House Landing around 16 June. It took 150 men detailed from the line four days to pitch 100 hospital tents, illustrating that the least fit for military service were always selected by line commanders for medical detail. This scenario fits with Mrs. Tripler's assertion that when her husband requested additional hospital accommodations, he was met with resistance from those outside the department. It also fits with the description by another surgeon about the lack of accommodations for the wounded and dying.[169]

When furnished with transport ships, Tripler often found that "stragglers" rushed the ship, preventing ambulatory patients from boarding and displacing non-ambulatory patients. Strong echoed Tripler's sentiments concerning undeserving individuals monopolizing space upon the transport ships when he wrote of officers who "bully their way on board the hospital transports under flimsy pretexts of sick leave," asserting that

[169] Arthur, 136. Ellis, 59-60. "NEWS FROM WASHINGTON.; Important Dispatches Received from Our Ministers in Europe. General Sympathy for the National Government. Gradual Approach of the Enemy Toward our Lines. Their Strength Estimated at only One Hundred Thousand. IMPORTANT NEWS FROM NORTH CAROLINA. The Unionnits of that State Acting in Concert with those of Eastern Tennessee. Charges of Treason Preferred Against Col. Kerrigan. THE PROCEEDINGS OF CONGRESS. A Proposition to Divide the Session. OUR SPECIAL WASHINGTON DISPATCHES. IMPORTANT DISPATCHES FROM EUROPE. THE NATIONAL LOAN. THE SUPPOSED STRENGTH OF THE REBELS. THE UNIONISTS OF NORTH CAROLINA. A MEETING OF COMMITTEE CHAIRMEN. A PAMPHLET ON THE WAR. REPORTER OF THE SUPREME COURT. SLAVES IN THE DISTRICT OF COLUMBIA. THE PRIVATEERS. SENATOR POLK; OF MISSOURI. THE REBELS ADVANCING. SHELLING REBELS ON THE LOWER POTOMAC. REBEL ARTILLERY PRACTICE. REVIEW AT BAILEY'S CROSS ROADS. THE TRIAL OF COL. KERRIGAN. TRIAL OF SURGEON-GEN, FINLAY. THE SURRENDERED REGULARS. A FUGITIVE. EXCHANGES. PROMOTED. APPOINTMENTS. PENSIONS," *New York Times* (New York, NY: 11 December 1861), pg. 5, column 1-4, https://www.nytimes.com/1861/12/11/archives/news-from-washington-important-dispatches-received-from-our.html

they were merely trying to get away from combat by any means necessary. Without support from line officers in the form of orders or guard details, there was little Tripler could do to stop this--or ensure space for those who needed evacuation. As a result, the majority of those requiring evacuation remained on the Peninsula. For injured patients, that meant a less comfortable convalescence, but for ill patients, it allowed for disease to spread. It was not until June, nearly at the end of the campaign, that Hammond was able to wrest control of the steamers from the Quartermaster Department, but those transports would not be fully utilized by the AMEDD until after Tripler's departure.[170]

Conditions continued to deteriorate, exacerbated by a string of defeats during the Seven Days Battles and the chaos that ensued as the army retreated to Harrison's Landing. Tripler's correspondence with Hammond became increasingly frenzied, desperate, and, finally, resigned. After years of fighting, Tripler was thoroughly defeated. At various points throughout his career, Tripler presented valid concerns and practical solutions for treatment, transportation, and evacuation difficulties only to be rebuffed. The adoption of the two-wheeled ambulance that proved disastrous in practical use is one example. In another, back in 1859, Tripler championed the issuance of trained pack animals and litters to regiments to facilitate the evacuation of casualties in areas inaccessible to horse-drawn ambulances, a move that mirrored public sentiment. Two years before the outbreak of the war, Tripler sought to alleviate a problem that the

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[170] Frederick Law Olmsted, *The Papers of Frederick Law Olmsted, Volume IV- Defending the Union*, Jane Turner Censer, ed (Baltimore, 1986), 312, 352, 355. Strong, 240. Letters: Charles Tripler to William A. Hammond, 9 May 1862, 20 May 1862 and 6 June 1862, RG 112, NM 20, Entry 12, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters Received, National Archives Building, Washington, D.C. Letters: William A. Hammond to Charles Tripler, Washington, D.C., 19 May 1862, 22 May 1862, and 8 June 1862, RG 112 NM 20, Entry 2, Volume 30, Pages 467, 494 and Volume 31, Page 47, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters and Endorsements Sent, April 1818-October 1889, National Archives Building, Washington, D.C.

AMEDD would be scrambling to rectify once the fighting began. By 1862, as litters for use by pack animals for evacuation became plentiful, Tripler still fought for trained animals to carry the litters. His resignation at the close of the Peninsula Campaign, when all blame for the AMEDD's failures were laid at his feet, came after years of being disregarded by superiors.[171]

Nowhere was Tripler's defeat clearer than with regards to battlefield evacuation. Twice Tripler was presented with ideas for the formation of an ambulance corps. In September 1861, the Pennsylvania Surgeon General, Dr. Henry H. Smith, wrote to Tripler about his desire to establish an ambulance corps for Pennsylvania Volunteers. Not only did he desire to drill men for the specific purpose of ambulance and medic duty, but when not actively engaged in those areas, he suggested these men be used to "attend to the general police of sinks, stables, water, fuel, etc." Tripler forwarded Smith's plan to Cameron with his endorsement, but no action was taken. When a plan was presented by Mr. Charles Pfirsching to Secretary of War in early 1862 and referred to Finley and then Tripler, Tripler's apathy became glaringly apparent. Pfirsching suggested establishing an ambulance corps very similar to the system currently in place: Men detailed from the band or other places by the line officers were drilled in ambulance duty. The greatest difference was the men would be permanently detached for ambulance duty. Tripler responded that it was simply "too late now to raise, drill, and equip so elaborate an establishment…for our service." When Tripler's response was sent to the Secretary of War and routed through Finley's office, Finley wholly endorsed Tripler's defeatist views.[172]

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[171] Strong, 239. Otis, *Medical and Surgical History Part III, Volume II,* 931-932.
[172] Bluestein, 61. Otis, *Medical and Surgical History Part III Volume II,* 931.

A career marked by minimal support by the OTSG and the blatant refusal of the War Department to allow the AMEDD to control medical assets culminated in the removal of the defeated Tripler as medical director. This was met with approval from the USSC. However, realizing that Tripler could not wholly be blamed when it was those outside the department who "turned a deaf ear to [Tripler's] supplications," Hammond was sympathetic; he gave Tripler choice in reassignment. Tripler's departure, however, opened the door for the man who was the "originator of modern methods of medical organization in armies." Indeed, his policies and procedures are the basis for the US Army's current models of evacuation and forward medical support.[173]

"Father of Battlefield Medicine"

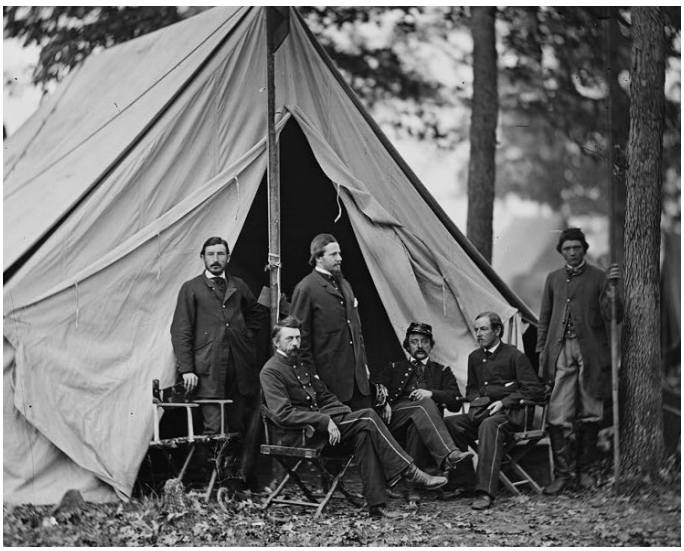

Figure 6. Major Jonathan Letterman, seated left. From the Library of Congress

Like Hammond, Jonathan Letterman was the son of a physician. From a young age, Letterman's father groomed his son to follow in his footsteps until he was old

[173] Strong, 239-240. Letter: William A. Hammond to Charles Tripler, Washington, D.C., 22 May 1862, RG 112 NM 20, Entry 2, Volume 30, Page 494, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters and Endorsements Sent, April 1818-October 1889, National Archives Building, Washington, D.C. Second quote from Letterman's grave at Arlington National Cemetery, Arlington County, Virginia.

enough to attend college and medical school at the prestigious Jefferson College in Pennsylvania. He graduated from Jefferson in 1849 and immediately entered the army as an assistant surgeon, the same year as Hammond. By the onset of the Civil War, Letterman was in the military for 12 uninterrupted years, making him senior to Hammond. During his time, he saw service in Florida, Minnesota, New Mexico, and California before being sent back east at the start of the war. Initially he was assigned to the Army of the Potomac as the medical director of the Department of West Virginia, then as the medical director for the Capitol area, where he supervised the hospitals in the Washington, D.C. As previously stated, one of the most beneficial aspects of Hammond's leadership style was his ability to delegate and accept input from subordinates. Therefore, when Letterman developed his revolutionary evacuation, field hospital, and supply plans, Hammond did not hinder him and threw the full support of the department and his office behind him.[174]

Upon Letterman's appointment, Hammond instructed him to ascertain the caliber, condition, and quantity of medical supplies, and to coordinate with McClellan's staff, the surgeon general's office, the quartermasters, and medical purveyors to ensure that all supply and personnel needs were met and that a transportation plan was devised. Letterman arrived at Harrison's Landing in early July 1862 and found an army in extremely poor health and suffering from malaria, scurvy, and "the inexperience of troops in taking proper care of themselves." The medical department itself was virtually devoid of supplies, hospital tents were almost all abandoned or destroyed, the few ambulances were not serviceable, and the number of medical personnel was wholly inadequate given

[174] Bennett A. Clements, "Memoir of Jonathan Letterman, M.D.," *Journal of the Military Service Institution, 4,* no. 15, 1883.

the condition of the army. Despite the lack of a standardized reporting system between volunteers and regulars, Letterman reckoned that at the time of his arrival, approximately 20 percent of the army was sick. Compounding matters was the influx of wounded who began arriving at Harrison's Landing, the poor weather, and the virtually complete lack of accommodations for the sick and arriving wounded. Despite these conditions, Letterman maintained that securing adequate food for the sick and injured was the greatest challenge.[175]

Letterman, like many other medical officers of his time, knew of the direct correlation between the living conditions of the army and its health, even if they did not understand the underlying cause. As such, Letterman almost immediately began communicating with the assistant adjutant general and General McClellan urging the publication of reforming the army's diet and sanitation. This was always one of the biggest obstacles for the AMEDD—they were limited to advisory roles in health matters outside the hospital. What is notable about this order is the placement of meal preparation at the company level, along with the permanent detail of men as cooks. This would lead to the standardization of meal preparation and the ability for men detailed as cooks to improve processes.[176]

As Letterman was attempting to stem the illness rates at Harrison's Landing, Hammond was again departing from tradition by allowing Letterman to call directly upon medical purveyors at the major depots in Philadelphia, New York City, and Washington,

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[175] Jonathan Letterman, *Medical Recollections of the Army of the Potomac* (New York: D. Appleton and Company, 1866) Reprinted by Applewood Books, Bedford, MA, 7-8. Letter: William A. Hammond to Jonathan Letterman, 19 June 1862, Washington D.C., reprinted in Clements.

[176] Letterman, *Recollections,* 11-15. United States Sanitary Commission, "Responsibility of the Army Surgeon", 30.

D.C.. Historically, medical directors needed to submit requisitions to both the surgeon general's office and the medical purveyors. This duplicate system not only led to delays in the receipt of supplies, but permitted individuals far removed from the situation to make uninformed decisions about what need there truly was. Letterman directly attributes the speed at which the Army of the Potomac was resupplied with Hammond's actions.[177]

Civil War era medical providers are often accused of complete ignorance of psychology because it did not emerge as a distinct field until the decades following the Civil War. However, the correlation between the attitudes of the soldiers and living conditions or the fate of their comrades was evident long before Johns Hopkins University conferred the first American PhD in psychology. Many surgeons were able to draw the link between a soldier's general disposition and his ability to perform his duties. They noticed how soldiers in squalid living conditions lacked the elasticity of those in cleaner environments. Letterman commented about how rising sick numbers undermined the strength of the army, both in terms of manpower and in terms of morale. For Letterman, and many others within the AMEDD, camp conditions and prevention of illnesses not only served to arrest the rising number on the sick lists, but to improve the mental health of all soldiers. Unfortunately, the surgeons and assistant surgeons on the ground with the soldiers had a limited ability to affect change without the unwavering support of a line officer. Medical personnel were forced to operate within confines of the structure dictated by Congress and the War Department; they occupied a precarious position in the middle of military organization.[178]

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[177] Letterman, *Recollections,* 17.
[178] Letterman, *Recollections,* 99-101. Letterman, "Extracts," in Woodward, 93.

In the weeks that followed Letterman's arrival at Harrison's Landing and the subsequent evacuation of the Peninsula, he would begin to dictate the policies that would eventually spread army-wide. In contrast to other innovators who may have tried to improve policies and procedures in the past, Letterman was not stifled by Hammond. Instead, Hammond took an ancillary role to these changes, granting Letterman great latitude to determine the needs of his command and supporting him in the proposed solutions. Letterman also found support from McClellan. Unfortunately, Letterman and Hammond would continue to meet resistance from the War Department and McClellan's successor as general-in-chief, Henry W. Halleck.

Treatment and Evacuation. Letterman's desire for a trained ambulance corps was hardly unique. In May 1861, before the chaos at First Bull Run, General Scott referred a letter from a New York physician pressing for the establishment of an ambulance corps to then-Surgeon General Finley; however, no action was taken. After the dismal handling of the wounded after the Battle of Big Bethel, Surgeon Rufustt Gilbert of Duryee's Zouaves wrote of the need for trained medics to move among the wounded and evacuate those requiring surgical attention. The lack of physical ambulances was also a long-standing challenge for the AMEDD. In March 1862, the Surgeon General's Office wrote a lengthy response to the Medical Director of the Department of Eastern Virginia, Dr. Cuyler, in response to his repeated requests for ambulances. The surgeon general acknowledged receipt of the request but stated that the office's hands were tied, and it was solely up to the quartermasters to determine whether or not to fulfill the ambulance request. In his report in the aftermath of the battle of Wilson's Creek, Assistant Surgeon H. Sprague commented on the lack of medical

director, drilled ambulance corps, and any type of systematic method of casualty evacuation. Additionally, Henry Hewit, a volunteer surgeon who often accompanied Grant into the field as medical director, established a system to bring order to the chaos of evacuating the wounded from battle. It is important to note that like McClellan, Grant was generally supportive of his medical personnel. Under Hewit's system, one surgeon per regiment was fielded to provide immediate care. The wounded were then removed to a depot from where ambulances were dispatched to remove patients to hospitals in the far rear. Each ambulance train was overseen by a NCO.[179]

Letterman commented that far too often, wagons that were designated for use by the medical department or for ambulances were "used as if they had been made for the convenience of commanding officers." The battle for control over transportation assets predated the establishment of the AMEDD. All surgeons general lamented the placement of transportation assets in the control of the quartermasters and not the AMEDD. There are numerous examples of surgeons arriving on the field believing their supplies were forthcoming only to learn, at the moment of need, that the quartermasters or commanders directed medical supplies be left behind. Nevertheless, when Letterman devised his plans for evacuation and an ambulance corps, he deliberately did not place it in control of the medical officers:

> The system I devised was based upon the idea that they should not be under the immediate control of Medical officers, whose duties, especially on the day of battle, would prevent any proper supervision; but that other officers, appointed for that especial purpose, should have direct charge of the horses, harness,

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[179] Clement Finley to M. Cuyler, Washington, D.C., 14 March 1862, RG 112, NM 20, Entry 2, Page 33, Records of the Office of the Surgeon General (Army) Central Office—Correspondence, 1818-1946, Letters and Endorsements Sent, April 1818-October 1889, National Archives Building, Washington, D.C. John H. Brinton, "Account of the Operations of the Medical Department at the Battle of Belmont Missouri," in Woodward, 19-20. "Army Medical Intelligence," in Smith, ed., *American Medical Times, Volume 3,* 31.

> ambulances, etc., and yet under such regulations as would enable Medical officers at all times to procure them with facility when needed for their legitimate purpose.

This concept was so revolutionary that not only did Hammond and McClellan enthusiastically supported it, but it carries through today. In many combat units there is a dedicated medical company containing medical logistics (supply), medical evacuation, preventative medicine, and medical provider assets. The ambulances and medics make up a platoon within the company. The company commander is rarely a medical provider and the company is part of a larger, non-medical battalion. [180] ,

Special Orders No. 147 published 2 August 1862, established the ambulance corps and its organizational structure for the Army of the Potomac. Despite the lobbying of Hammond and the USSC upon Halleck, Stanton and the War Department, the plan was not adopted army-wide by Congress until after Hammond's removal. Stanton contended that the plan was too costly, whereas both Hammond and the USSC maintained that the potential savings in life justified the monetary cost. Stanton may have rejected the plan because of financial costs, but at the time there was already a clamor in the press about the lack of an evacuation system. It is more likely that Stanton was unsupportive of the plan simply because Hammond supported it.[181]

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[180] Letterman, *Recollections,* 23. Letterman, "Extracts" in Woodward*,* 96-97.

[181] Gordon W. Jones, "The Medical History of the Fredericksburg Campaign: Its Courses and Significance," *Journal of the History of Medicine and Allied Sciences, 18,* 3, July 1963, 243-244.

Table 2

Organizational structure of the ambulance corps

Army Level	Rank	Number Per Level	Organic Equipment	Subordinate Personnel	EXAMPLE: Numbers in the Ambulance Corps of I Corps, Army of the Potomac
Corps	CPT	1	2-horse ambulances 4 stretchers	2 drivers (PVT) 4 attendants (PVT)	1 Captain
Division	1LT	1			3 First Lieutenants
Brigade	2LT	1			10 Second Lieutenants
Regiment	SGT	1	1 Transit cart 1 4-horse ambulance 2 2-horse ambulances 6 stretchers	4 drivers (PVT) 6 attendants (PVT) 6 stretchers	42 Sergeants, transit carts, and 4-horse ambulances 84 2-horse ambulances 168 drivers (PVT) 252 attendants (PVT)
Battery	SGT	1	1 2-horse ambulance 2 stretchers	1 driver (PVT) 2 attendants (PVT)	9 Sergeants, 2-horse ambulances, and drivers (PVT) 18 attendants (PVT)

As illustrated in the above table, the new organization called for a permanent detail of at least fourteen officers, 51 noncommissioned officers, and 453 soldiers per corps. Keeping in mind how commanders chafed at the detailing of soldiers for hospital or medical duty, that these orders were published at all is somewhat surprising because they required that over 500 able-bodied personnel be permanently attached to ambulance corps under the command of the corps medical director. It is also important to note that this order placed line officers subordinate to AMEDD personnel for the first time.[182]

The captain was responsible for evaluating the condition of the ambulances, horses, and other hardware and delegating down the daily inspections of these items to the sergeants. Once weekly, the captain personally inspected all items and reviewing any unauthorized uses. Additionally, the captain was responsible for planning and instituting drill for the drivers and attendants, including proper loading/unloading of patients and

[182] S. Williams, "General Order 147, Headquarters, Army of the Potomac," reprinted in Letterman, *Recollections,* 24-30.

how to carry the stretchers. To ensure that the ambulances were ready at a moment's notice, the captain was to ensure that all kegs were rinsed and filled daily. He received his orders from the medical director of the army corps.[183]

Letterman's first opportunity to put his plan into practice was the Battle of Antietam on 17 September 1862. The bloodiest single day of the war resulted in the loss and injury of approximately 12,400 Union soldiers in about 12 intense hours on a variety of terrain. While still in its infancy, Letterman's ambulance corps was organized and drilled to Letterman's satisfaction given the time constraints. However, upon the Army of the Potomac's march into Maryland, General Pope's Army of Virginia combined with McClellan's, and Letterman "could know nothing of the condition of *their* Medical Department." As Letterman recalled, the addition of these forces on the eve of the battle did not leave any time to ascertain how their medical department was organized, nor what preparations were made for the inevitable casualties. If nothing else, this confirmed the need for a universal ambulance corps throughout the army, not one created army by army.[184]

At Fredericksburg in December, Letterman saw his ambulance plan come to fruition. Before the first shots were fired, the medical providers determined where to establish hospitals and which surgeons were to remain in the field hospitals. Because of the battlefield landscape at Fredericksburg, it was not possible to use ambulances in a forward position; drilled stretcher bearers, however, were poised in the rear. The planning was so meticulous that all wounded soldiers were evacuated off the field to

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[183] Ibid.

[184] Letterman, *Recollections,* 75. Letterman, "Extracts," in Woodward, 98. Gordon W. Jones, "The Medical History of the Fredericksburg Campaign: Course and Significance," *Journal of the History of Medicine and Allied Sciences, 18,* 3, July 1963, 245.

waiting field hospitals overnight between the first and second day. From the field hospitals, the casualties were evacuated to the north side of the river via ambulance. Letterman estimates that no less than 5,000 soldiers were evacuated in a short time "without accident and without confusion."[185]

Operations at Fredericksburg were not without controversy. General Ambrose Burnside's order to immediately evacuate all wounded patients forced doctors to move critical patients. This caused unnecessary suffering, and most likely death, as casualties were transported in bare wagons and railcars. Further, Medical Inspector Perley found fault with the operations at Fredericksburg, particularly the supply and sanitary conditions. His findings, however, were inconsistent with other observers. Members of the USSC always called out incompetency when found, yet they were complimentary of the AMEDD's operations after the battle. Additionally, neither Hammond, nor the Congressional committee he toured with after the battle, found fault with the conditions.[186]

In another move showing support for his subordinate's initiatives, Hammond wrote to Grant in March 1863 and by the end of the month, Letterman's ambulance plan was adopted in the Army of the Tennessee. It was not only the successes of the plan that illustrated the need for an army-wide program, but the failures when it was not employed. The improvement between Antietam and Fredericksburg is in direct contrast to the difficulties faced at Gettysburg. Before the battle, General George Meade ordered all

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[185] Letterman, *Recollections,* 75, 90.

[186] Clements, 12. William Potter, "Reminiscences of Field Hospital Service with the Army of the Potomac," *Buffalo Medical and Surgical Journal,* 1889, 15-16. "Army Medical Intelligence," Smith, *Volume 4.* Brinton, 215, 220. Woodward, 228-229, 234-236, 243-246. Edmund Andress, *Complete Record of the Surgery of the Battle Fought Near Vicksburg,* (Chicago: Fergus, 1863), 30.

wagons, except ambulances and ammunition wagons, sent to the rear; ultimately, they were located 25 miles from the battlefield. This resulted in a serious shortage of medical supplies in during and immediately after the battle and prevented the erection of field hospitals. In many corps these orders were heeded, except in Twelfth Corps. Because the Twelfth Corps did not carry out the orders, it's Medical Director, Surgeon McNulty, was able to "remove the wounded from the field, shelter, feed them, and dress their wounds, within six hours after the battle ended."[187]

Despite the supply challenges, the Ambulance Corps functioned as intended, removing approximately 12,000 casualties over two days at Gettysburg and sustaining the loss of one officer, 19 privates, and 12 horses, and 8 ambulances. Letterman's implementation of his plan and subsequent evaluation of its execution prompted Meade to issue General Orders 85 concerning "Ambulance Corps and Ambulance Trains" on 24 August 1863. With little modification and amid growing public outcry about battlefield evacuation, and after Hammond was removed from office, General Orders 85 became "An Act to establish a uniform system of Ambulances in the Armies of the United States" on 11 March 1864.[188]

Battlefield Treatment and Supply. In the aftermath of Antietam, Letterman observed that the supplies of numerous regiments were discarded due to lack of transportation. To circumvent the transportation challenges and decrease waste, Lettermen modified the supply distribution system to issue less supply while ensuring the

[187] Letterman, *Recollections,* 157. Letterman, "Report," in Woodward, 100-102.

[188] S. Williams, "Ambulance Corps and Ambulance Trains. Headquarters, Army of the Potomac, General Orders 85" and United States Congress, "An Act to establish a uniform system of Ambulances in the Armies of the United States" both reprinted in Letterman, *Recollections*, 162-170 and 170-78. Henry I. Bowditch, *A Brief Plea for An Ambulance System for the Army of the United States, Drawn from the Extra Sufferings of the Late Lieut. Bowditch and a Wounded Comrade,* (Boston: Ticknor and Fields, 1863), 6-10.

remaining supplies were located in a nearby position to facilitate swift resupply; he moved to a system that provided supply on a monthly basis. On 4 October 1862, Letterman implemented changes that moved supply from the regimental level to the brigade level. Instead of two wagons for medical supplies, hospital stores, and medical officer baggage per regiment, only one was now necessary. A wagon was added at the brigade level to carry medications and medications were packed in a way that they could be transported via wagon or horseback. Specifically, the new system called for: one filled hospital wagon per brigade, one filled medicine chest per regiment, one filled hospital knapsack per medical officer in a regiment, a prescribed list of additional medicines in placed in an ambulance, and a box of provisions per ambulance. Not only did he dictate what would be issued to whom, he also outlined contingency plans for when the hospital wagons were ordered to remain in the rear and a plan for the eventual forward movement of the supplies.[189]

The institution of the ambulance corps went along way to negate the incompetence and unscrupulous actions of some teamsters employed to drive ambulances. However, Letterman still took the additional step of locking supplies and entrusting the brigade's senior surgeon with the key and responsibility to weekly check the supply levels. An additional duty of the brigade's surgeon-in-chief was to monitor for waste of medical supplies. When supplies are issued monthly, this is easier to do.[190]

Added to Letterman's change in the method of supply distribution were preparations for battle. Ahead of Fredericksburg, Lettermen directed the establishment of a purveyor depot at Aquia Creek (Landing). A large amount of medical supply was

[189] Otis and Huntington, eds., 935-940. Letterman, *Recollections,* 52-57.
[190] Letterman, *Recollections,* 57.

ordered from the depots in Washington, D.C., and New York. While Letterman lamented that there was not enough to adequately provide each brigade with an initial supply of materiel, he did disseminate the location of stores and the procedure for resupply to his medical directors who, in turn, disseminated that information to the medical officers. Additionally, he monitored the preparations for the ambulance corps, ensuring that the ambulances and its animals were sufficiently outfitted. To streamline the resupply process, during and immediately following a battle, surgeons seeking resupply did not need to complete lengthy forms. During these periods of increased activity, Letterman suspended the more formal resupply requests in favor of a simple memorandum to the purveyor. By disseminating the information about the position and quantity of stores and simplifying the resupply process, Letterman could stem supply hoarding while decreasing supply shortages. Additionally, by lessening the initial issue, he avoided the surpluses and shortages seen when one medical officer has an abundance of patients and another does not.

In addition to dictating the roles and responsibilities of members of the ambulance corps, Letterman also devised a plan for the establishment of field hospitals ahead of battle. Prior to this, Letterman claimed he was unaware of any system anywhere in the army. An accurate statement as medical operations on the field were equally as varied as field evacuations. He made plans to dictate which surgeons were responsible for establishing the field hospitals and designated the best of the best to be the only ones performing surgery. While Letterman believed that fewer surgeries were performed than required, he also contended that far too many medical providers saw amputation as their primary role when there was so much more involved in the practice of battlefield

medicine. Another problem with the prior system of battlefield hospitals was the practice of some regimental medical officers of only caring for members of their own regiment. Adhering to this practice meant that injured soldiers were turned away or a medical officer's focus was on finding his soldiers, not treating the patients in front of him. Undoubtedly, this practice helped to foster a mistrust of medical personnel.[191]

Letterman maintained that confusion within the AMEDD was most likely and most damaging on the field of battle and issued a circular on 30 October 1862 dictating battlefield medical procedures. The first aspect of this system was the advanced establishment of a corps hospital for each division, selected by the corps medical director. This was a change because it was not the division surgeons who had final authority, but the corps medical director. Each hospital would have a surgeon in charge and two assistant surgeons—one to administer to the physical needs of the wounded and the other to provide administrative support. Again, this was a crucial change because it specifically delineated who did what to ensure that both medical and administrative tasks were adequately completed. The surgeon-in-chief of the division, with guidance from the corps medical director, would select three medical officers to serve in each hospital as surgeons. These men would be the only ones performing surgery and were "selected…without regard to rank, but *solely* on account of their known prudence, judgment, and skill." Three additional medical officers would serve as their assistants. Remaining medical officers, at the discretion of the surgeon-in-chief, would go to the hospital as a dresser or similar support role or be directed to the field to establish a temporary regimental depot. Medical officers assigned to the temporary depot would

[191] Letterman, *Recollections*, 59, 98-99.

select a safe location and provide any immediate care necessary. The final two parts dictated that medical officers remain in their assigned location until told to relocate and for the medical director to identify medical officers who will remain with the wounded if a retreat is necessary.[192]

Hammond's programs modifying the production and procurement of supply and changes in hospital administration created change that immediately affected the whole army. His support of his subordinate's innovations allowed Letterman to devise, implement, and revise an evacuation plan that would become standard operating procedure for the army before the war's end. Additionally, Letterman's modifications of supply distribution and field hospital procedures reduced waste of materiel and personnel. Additionally, Hammond publicized successful initiatives to the rest of the army, championing wide-spread acceptance and standardization. It left an indelible mark on the AMEDD.

[192] Letterman, *Recollections* 61-63.

CHAPTER VI

Lasting Impact

Figure 7. Surgeon General Joseph K. Barnes. From the Library of Congress

The installation of Joseph Barnes as surgeon general was not able to halt the momentum Hammond created. Despite Strong's characterization of Barnes as a "nonentity," Barnes built upon many of Hammond's initiatives and was in command when many of Hammond's proposals became law. Due to his personal relationship with Stanton, Barnes was able to push through or expand many Hammond initiatives.[193]

Under Hammond's leadership, the foundations for modernizing the supply system, evacuation, and personnel assignments were well established. The department that entered the war as a relic of the early 1800s was now emerging as a professional organization with systems and procedures in place to benefit the health and readiness of the army. Many of the systems Hammond put in place and were etched into the law by

[193] Strong, 503.

the end of the war were drastically altered during Reconstruction, but the field reporting amassed by Hammond meant that no longer would the AMEDD re-create the wheel when faced with large-scale operations. Here lies Hammond's greatest contribution to military medicine: the AMEDD's metamorphosis into a learning organization. This allowed the department to continue to slowly grow and develop into a critical department within the army and saw it gradually move from an advisory to regulatory role. Before Barnes left office, surgeon reports concerning camp conditions would no longer be optional reading for garrison commanders. General Orders 125 instructed reports to be routed through the garrison commander for comment, then to the department commander before reaching the surgeon general's office. Something that was once required only by the office of the surgeon general was now a requirement of the War Department.[194]

Medical operations during the Spanish-American war did not show great improvement from the Civil War, and this is largely attributed to supply and transportation challenges. However, the death rate due to disease dropped drastically, illustrating the AMEDD's newfound ability to synthesize scientific discovery for practical application. When the shift from reliance upon empirical knowledge occurred in the late nineteenth century, Hammond had already poised the AMEDD to emerge at the forefront of medical and scientific inquiry in the United States. When evaluating the actions of the surgeons general from Lovett through Barnes, Hammond was the catalyst to move the department forward and adapt to an ever-changing operational environment.

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[194] John Shaw Billings, *Circular No. 4: A Report on Barracks and Hospitals With Descriptions of Military Posts*, (Washington, D.C.: Government Printing Office, 1870). John Shaw Billings, *Circular No. 8: Report on the Hygiene of the United States Arrmy With Descriptions of Military Posts,* (Washington, D.C.: Government Printing Office, 1875). Bayne-Jones, 111.

Figure 8. Surgeon General George Miller Sternberg. From the Office of Military History

After Hammond's removal, the War Department and president reverted to the practice of appointing senior members of the AMEDD; the department experienced a high turnover rate in the years following the war. Barnes served from 1864 to 1882 and was then followed in quick succession by six other Civil War veterans who averaged two years as surgeon general: Charles Crane, Robert Murray, John Moore, Jedediah Baxter, Charles Sutherland, and George Sternberg. Except for Sternberg, they were all products of the antebellum AMEDD led by Lawson and left office due to reaching the mandatory retirement age or death. Of these men, Sternberg was the first man recognized as a scientist and innovator within the AMEDD; he was also the first without departmental seniority upon selection since Hammond. The similarities in their career paths are remarkable. Like Hammond, he was intimately familiar with the developments in the European medical community and during travel there met both Robert Koch and Louis Pasteur. Lacking resources in the United States and finding himself stationed at a remote western post, he created his own methods for conducting laboratory experiments to generate practical solutions to military problems. As such, he was the first surgeon general to appreciate and embrace the rapid changes brought by the dawn of the bacterial

age; Sternberg is considered the first bacteriologist in the United States. Before his appointment as surgeon general, he contributed scholarly works to the *New Orleans Medical and Surgical Journal* in the 1870s; wrote an award-winning essay that was well-received in the United States and abroad in 1886; and oversaw the successor of the Ambulance Corps, the group of enlisted soldiers commonly referred to now as "medics" in 1887. His appointment in 1893 came on the heels of a period of rapid medical discoveries, including the work of Pasteur, Koch, and Joseph Lister. The surgeons general after Barnes did not wholly ignore these advances, but it was Sternberg who fully embraced them and pushed the AMEDD to adapt in response.[195]

In the post-war environment, Barnes quickly learned that many of his challenges were rooted outside his department. Despite the added responsibilities of Reconstruction, by 1866, the department was essentially at 1860 strength. The AMEDD was responsible for caring for the active army, once again disbursed throughout a vast territory; the care of veterans remaining in general hospitals; and attending to the medical needs of newly-freed slaves. In shrinking the department, Congress removed the position of medical inspector while preserving the position of medical storekeeper, formally granting storekeepers the rank of captain. Barnes experienced shortages within the department and a high turnover rate as qualified surgeons, frustrated with the pay and examinations processes, left the army to establish civilian practices.[196]

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[195] George M. Kober, "George Miller Sternberg, M.D., LL. D," *American Journal of Public Health* 5, no.12 (1 December 1915), p 1233-1237. DOI: 10.2105/AJPH.5.12.1233. Stanhope Bayne-Jones, *The Evolution of Preventative Medicine in the United States Army, 1607-1939,* (Washington, D.C.: Office of the Surgeon General, 1969), 116.

[196] Joseph K. Barnes, "Report of the Surgeon General," in United States House of Representatives, *Message of the President of the United States and Accompanying Documents to the Two Houses of Congress at the Commencement of the Second Session of the Thirty-Ninth Congress,* (Washington, D.C.: Government Printing Office, 1866), 380-381. United States Congress, *An Act: To authorize Medical Store-keepers and Chaplains of Hospitals,* 37th Congress, 2nd session, Washington, D.C.: 20 May 1862.

Under Barnes, there was a drive within the surgeon general's office to increase the speed of data collection and disease mitigation that was simply not seen prior to Hammond. For example, when yellow fever emerged as a threat to the army in 1867, Barnes pushed surgeons in the affected areas for their views on the origin of the epidemic while simultaneously pushing for the acquisition of scholarly literature concerning the disease. These reports were added to the vast medical literature collected by the library. By the early 1890s, the medical and scientific literature collected by the surgeon general's office exceeded the collections of the medical libraries in the two largest civilian institutions in the United States. In 1956, it became the National Library of Medicine.[197]

The medical museum, originally housed in Ford's Theater, also gained worldwide recognition. The museum's laboratory produced the pioneering work of Joseph J. Woodward experimenting with microscopic photography. The museum itself became instrumental in advancing the field of pathology. European medical publications featured illustrations and photographs of items in the museum's collection. Barnes, J. J. Woodward, Otis, John Shaw Billings, and Reed all expanded the collections to include non-military medical items; the museum grew into an institution relevant to all medical providers--not just army physicians—and became of interest to the public. [198]

When the museum needed to relocate from Ford's Theater, a lawmaker opposed funding the museum because he did want "bones or wounds caused by the war at any

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United States Congress, *An Act: To provide or a temporary increase of the pay of Officers in the Army of the United States and for Other purposes.* 39th Congress, 2nd session, Washington, D.C.: 2 March 1867.

[197] George M. Sternberg, "An Inquiry Into the Modus Operandi of the Yellow Fever Poison," *The New Orleans Medical and Surgical Journal,* 1876, vol 3, pg 1-23, 22-23. Mary C. Gillett, *The Army Medical Department, 1865-1917*, (Washington, D.C.: Center of Military History, 1995), 40-41.

[198] Ashburn, 203.

place in our capital"—reminders of the damage inflicted defending the capitol and preserving the nation were unwelcome sights. He was overruled, and the museum remained in Washington, D.C., where even amid World War II, it welcomed over 20,000 visitors per year. Traditionally, medical museums were a place for medical education—a place where physicians and students could view specimens they would not normally encounter. The switch of emphasis to bacteriology and pathology, however, rendered the traditional medical museum obsolete and the Army Medical Museum adapted in response. Even as the museum's public displays diminished it remained one of the only medical museums open to the public. In the mid-1970s, the museum was moved from Washington, D.C., to the Walter Reed Army Medical Center Campus, then in 2011 to Fort Detrick's Forest Glenn Annex in Silver Spring, MD as part of Base Realignment and Closure (BRAC) movements. The movement off the mall, increased security on military installations after the attacks of 11 September 2001, and the increased screening requirements for base access instituted in 2015 have all served to severely decrease the museum's public visibility. While the relevance of the museum's original collections has shifted from the medical to the historical, and work currently conducted there would be unimaginable to Hammond, its existence and endurance is a monument to the cultural shift that occurred under Hammond.[199]

The museum and the lengthy *Medical and Surgical History of the War of the Rebellion* compiled by museum personnel were both products of their time in their collection of statistics. The observation of conditions and trends and use of those

[199] Michael G. Rhode, "The Rise and Fall of the Army Medical Museum and Library," *Washington History* 18, no. ½, (1 January 2006): 78-97, JSTOR, https://www.jstor.org/stable/40073619, 87.

observations to dictate treatment was the standard method of medical research in the 1800s. Relying on empirical knowledge was met with limited success as it still did not address the root cause of illness and disease. The shift at the end of the 1800s rendered Hammond's scientific research largely obsolete and made large statistical caches, like the *Medical and Surgical History,* archaic. It is only now, after the technological booms of the mid and late 1900s and early 2000s, that this data can be systematically analyzed for trends. Today, the volumes provide a wealth of information about the processes and procedures that emerged during the Civil War.[200]

The *Medical and Surgical History* and collections of the Army Medical Museum are also a vehicle for remembrance. The illustrations and photographs contained in the *Medical and Surgical History*—as well as the specimens in the collection of the National Institute of Health and Medicine--serve as preserved evidence of the fragility of and trauma inflicted on soldiers' bodies during the Civil War.

Conclusion

Between 1846 and 1865, the organizational structure of the AMEDD changed drastically to meet the needs of the army, first during the US-Mexican War and then during the American Civil War. The actions the AMEDD took in the former portended actions initially taken in the latter. Additionally, there was a complete failure of Lawson or Finley to draw upon lessons learned in Mexico to improve operations. The roles of individuals within the department varied little between the start of the US-Mexican War in 1846 and through the first year of the American Civil War. Real and substantial change was orchestrated through the relentless lobbying of the USSC with the

[200] See: James H. Cassedy, *American Medicine and Statistical Thinking, 1800-1860,* (Cambridge: Harvard University Press, 1984)

Reorganization Act in 1862. This allowed the USSC to push for the installation of Hammond as it focused its efforts on reforms and fundraising. The act also further delineated the roles and responsibilities of the members of the departments while recognizing the need for administrators to manage its bureaucratic responsibilities. By specifically directing the appointment of medical inspectors, Congress took the first steps to move the AMEDD from an advisory to regulatory role in camp health and sanitation. As preventative medicine became its own discipline, the AMEDD was poised to dictate policy. The addition of support personnel, such as stewards, nurses, and storekeepers, allowed the surgeons to concentrate on what they were trained for while increasing efficiency and reducing the strain on individual surgeons.

In addition to organizational changes were several changes that affected the AMEDD's ability to respond to conflict. At the congressional level, gone were the regulations requiring a set number of medical personnel or transportation assets per regiment; in its place emerged regulations that dictated numbers based upon the number of personnel within the regiment. This allowed for the AMEDD to better disburse its resources to meet the demands of individual regiments. Battlefield hospitals initially set up at the spur of the moment after casualties were sustained were now part of the advanced planning prior to battle. The selection of locations, personnel, and the roles of the various principal and support personnel was now clearly dictated to reduce confusion in battle and increase patient support. During the Spanish-American War, the greatest challenge to the hospitals was difficulty in obtaining basic supplies. General hospitals, once subject to the influence of various external forces from individual states to the War Department, now rested solely within the area of responsibility of the surgeon general's

office. This allowed the surgeon general to appoint a core group of surgeons to oversee general hospitals as medical directors and standardize the processes, procedures, and care received. The ambulance corps, once haphazardly established by various units during times of need, was now a standardized entity with the personnel and transportation assets firmly attached to the AMEDD, cutting out the reliance on the quartermaster corps for transportation and line officers for details of soldiers. Even though it was disbanded during the period of demobilization, it was used as the basis for the enlisted corps that Sternberg established. In 1886, Congress officially created the Hospital Corps. The Hospital Corps was a trained group of non-commissioned officers and privates in the role of hospital stewards and support personnel. These men would receive standardized training and examinations and be available for nurse detail. These changes, while codified by congressional edict, were championed by Hammond who frequently wrote to the War Department, USSC, and prominent civilian physicians to lobby for them.[201]

Actual scientific achievement during the war was limited because scientific knowledge was limited; however, as previously discussed, the culture shift to a learning organization paved the way for future military medical advances and discovery. One of Hammond's pet projects that Stanton disallowed, and that Barnes did not attempt to resurrect, was the establishment of a military medical school. Thirty years after Hammond was sent on the tour that was the precursor to his removal, Sternberg assigned Army Surgeon Major Walter Reed as the inaugural professor of Bacteriology and

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[201] United States House of Representatives, *Messages from the President of the United States to the Two Houses of Congress at the Commencement of the First Session of the Forty-Ninth Congress with the Reports of the Heads of Departments and Selection from Documents,* (Washington, D.C.: Government Printing Office, 1885), 458-461, https://hdl.handle.net/2027/njp.32101078161617. United States War Department, *Annual Report of the Secretary of War for the Year 1886, Volume I,* (Washington, D.C.: Government Printing Office, 1886), 580, https://hdl.handle.net/2027/uc1.b2980280

Clinical Microscopy at the Army Medical School at George Washington University School of Medicine in Washington, D.C. By 1896, Reed was making anecdotal observations concerning the alleged link between drinking from the Potomac River and yellow fever, effectively proving that it was walking through mosquito-infested areas and not the river water that was causing illness. Reed built on Sternberg's work with yellow fever; William Gorgas would build on Reed's work and implemented a comprehensive camp sanitation program aimed at controlling the yellow-fever-carrying mosquito population. Gorgas is directly attributed to the United States' ability to complete work on the Panama Canal and would go on to become the surgeon general during World War I. Reed's and Gorgas' advances, as well as the research currently conducted in military laboratories throughout the world, stem from Hammond's emphasis on the propagation of scientific and medical knowledge and its adaption and application to the military. Today, the AMEDD continues to educate and train enlisted and officer medical personnel.[202]

Due to forces beyond its control, forward progress remained slow within the AMEDD. Supply, for example, still relied too heavily on transportation via outside sources and was still viewed as a low priority by the quartermasters. Despite the completion of the Transcontinental Railroad and the introduction of refrigerated railroad cars, medical providers in the far west still experienced supply shortages due conflict with the quartermaster's department and contracts made by the federal government. Throughout the rest of the 1800s and through the early 1900s, the AMEDD had trouble moving supplies to where it was needed. During the Spanish-American War, Clara

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[202] Zimmerman, 42. United States War Department, *Manual for the Medical Department, U.S. Army, 1916,* (Washington, D.C.: Government Printing Office, 1916), Google Books. Sanford H. Wadhams and Arnold D. Tuttle, "Some of the Early Problems of the Medical Department, A.E.F.," *Military Surgeon* 45 (December 1919), 650-651.

Barton was dismayed by the conditions in field hospitals in Cuba. Sternberg would testify that the lack of supplies was directly related to the lack of organic transportation assets. During World War I, it was determined that disassembling ambulances prior to shipment and reassembling upon arrival in Europe was the best way to preserve the usefulness of the vehicles. A sound plan until the chassis and mechanical components were placed upon different ships and sent to different ports. Real and lasting change in the way medical materiel was transported would come after World War I.[203]

Positive change that did occur was rooted in Hammond's efforts. The establishment of the US Army Medical Storekeepers, made permanent after the war, was another important victory for Hammond with long-reaching impact. Specifically brought into the army for this role and permanently attached to the medical department, Hammond expanded their responsibilities to include purveying, effectively freeing up many surgeons currently assigned as medical purveyors. It was during Hammond's tenure that the AMEDD saw its members becoming more specialized; support personnel were initially put in place to allow physicians to maintain focus on medical matters and not administrative tasks. The medical storekeepers are a direct precursor to today's Medical Service Corps medical logisticians.[204]

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[203] Zimmerman, 49, 59. John M. Gibson, *Physician to the World: The Life of General William C. Gorgas*, (Tuscaloosa: University of Alabama Press, 1989), 185, 239. George G. Scott, *The Medical Department of the United States Navy with the Army and Marine Corps in France in World War I* (Washington, D.C.: GPO, 1947). Grenvile M. Dodge, *Report of the Commission Appointed by the President to Investigate the Conduct of the War Department in the War with Spain*, *Volume 5: Testimony,* (Washington, D.C.: Government Printing Office, 1900), 2267-2269. United States War Department, *Correspondence Relating to the War with Spain*, (Washington D.C.: GPO, 1902), 198. United States War Department, *Report of the Secretary of War; Part of the Message and Documents Communicated to the Two Houses of Congress at the Beginning of the First Session of the Fifty-Fourth Congress, Volume I,* (Washington, D.C.: Government Printing Office, 1895), 514, https://hdl.handle.net/2027/uc1.b2980342.

[204] Henry N. Rittenhouse, "US Army Medical Storekeepers," *American Journl of Pharmacy* 35 (1865) 88-89. Richard V. N. Ginn, *The History of the U.S. Army Medical Service Corps,* (Washington, D.C.: Center of Military History, 2008), 17-19.

By the end of the 19th century, the AMEDD began to embrace the sweeping changes and new discoveries ushered in by the bacterial age. While the department would continue to be negatively affected by insufficient funding and personnel and reliance on outside departments, Hammond positioned the department to look internally for solutions when possible and laid the foundation for the department to become a professional, learning organization. His long-term projects became national institutions that exist today; his immediate changes have morphed into the systems still in place. For example, there is a direct line between the field hospital system of the Civil War, the Mobile Army Surgical Hospital (MASH) of the Korean War, and the modern Combat Support Hospital. The momentum he created was not stymied by his successors, and in many respects, they carried on the department as Hammond left it, without wholly reverting to the patterns of the Lawson/Finley era. Considering that six of his successors served under Lawson and Finely, this is a true testament to Hammond's ability and influence upon the department. In fiscal year 2019, military medical facilities will begin the transfer from their respective branch to the centralized Defense Health Agency (DHA) to reduce duplicate systems. Additionally, army medical research will move from the AMEDD to other army commands, such as US Army Futures Command and US Army Materiel Command. As these transitions occur, it will be interesting to see how many of Hammond's initiatives will continue to endure.[205]

[205] Devon Suits, "Migration to Defense Health Agency to modernize Army medicine, surgeon general says," https://health.mil/News/Articles/2018/05/02/Migration-to-Defense-Health-Agency-to-modernize-Army-medicine-surgeon-general-says.

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