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Major Jonathan Letterman: Unsung war hero and father of modern battlefield medicine



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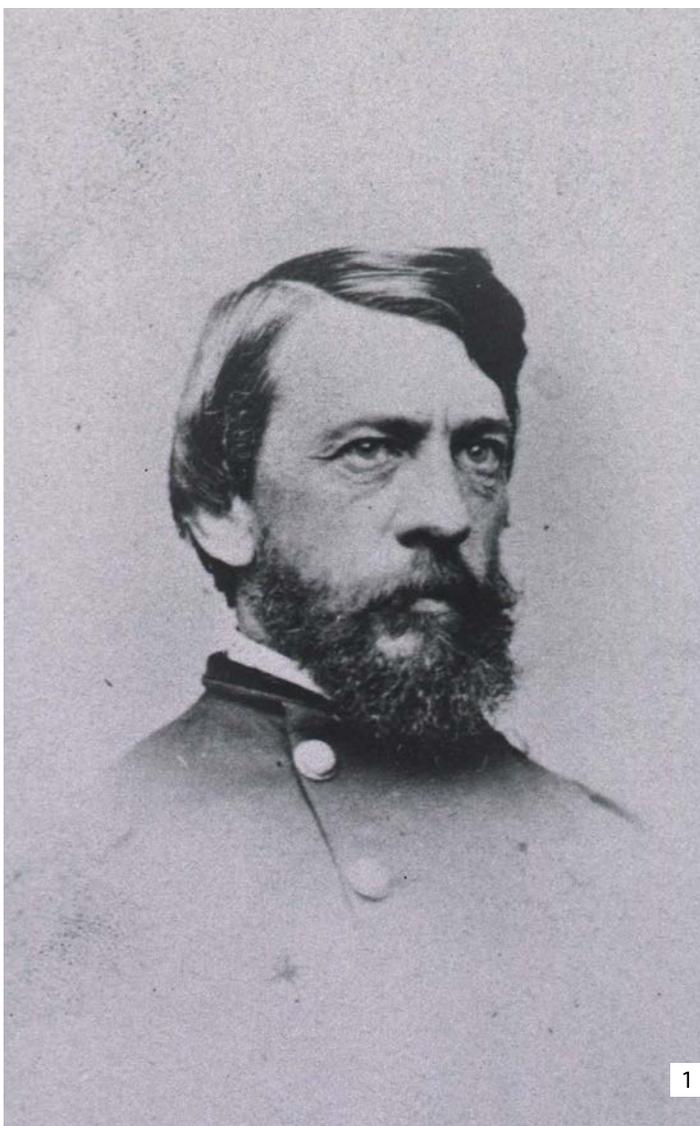
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Hippocrates said, “War is the only proper school for surgeons.” Dr. Jonathan Letterman (1824-1872), as the medical director of the Army of the Potomac, originated the Ambulance Corps that trained men to quickly transfer the wounded to field dressing stations. He later organized a system to triage and transfer to evacuate patients to three levels of care, an innovation that saved thousands of lives in future conflicts. His accomplishments remain an integral part of U.S. military medical operations that affect the lives of countless wounded warriors today. Letterman deserves the title of “the father of modern battlefield medicine.”



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Education and early career

Major Jonathan Letterman (1824-1872) grew up in Canonsburg, PA, the son of a prominent western Pennsylvania surgeon (Figure 1). He graduated from Jefferson College (now Washington and Jefferson College) in 1845, and then attended Jefferson Medical College in Philadelphia. On graduation in 1849, he applied for and received an army commission. For the next 13 years, he was assigned throughout North America where he cared for sick and injured soldiers, challenged by terrain, exposure, malnutrition, and infectious disease in remote locations. In California when the Civil War began, he returned east at the end of 1861.¹

Care of the wounded at the onset of the Civil War

Technological advances in Civil War weaponry had far outpaced battlefield tactics. The newly developed 0.58 caliber Springfield musket was accurate to more than 500 yards, but armies still lined up across fields in traditional formations and charged each other head-on. More than a third of a unit could die in such assaults. Overcrowding and abysmal hygiene in camps caused thousands more to suffer dysentery, scurvy, typhoid fever, pneumonia, smallpox, tuberculosis, measles, and malaria. About 60 percent of the Union soldier deaths during the Civil War were from noninjury diseases.^{1,2}

The first salvo of the war revealed a startling lack of organization, planning, and effectiveness in the care of so many sick and injured. At the Battle of Bull Run (or Manassas), clearing the wounded from the battlefield took a week. The wounded had to make their way to Washington to seek medical care, including one man shot in both thighs and the scrotum. One civilian organization assisting the military after Bull Run reported, “[It] was unable to learn of a single wounded man having reached the capital in an ambulance.” Ambulances devoted to the transport of the wounded were rare. Wagons from the quartermaster corps were devoted for hauling munitions, then appropriated for transporting patients only on the rare occasions when they were free. Injured soldiers had to be carried off the battlefield by friends and other soldiers. Not surprisingly, many chose not to return.²

The army failed to bring medical care to the wounded in any location. Army brass scrimped its appropriations for medical care, a budgetary decision based on limited resources, political challenges and lack of insight. Line officers prioritized troop movements and the delivery of weapons and ammunition at the expense of medical supplies and support.²

There were few military surgeons with adequate training and expertise. In 1860, the US Army had only 100 doctors for 16,000 soldiers, a ratio that became only worse when the

Union Army reached its peak strength of 2 million, at which point it had 10,000 surgeons. Most were civilian physicians with a limited contract with the government. Their training was at best a two-year stint at an unregulated, proprietary medical school. Few had formal training in surgery, and fewer had ever treated a gunshot wound. Without a separate command structure for the medical department, there was no oversight or evaluation of qualifications. Promotions were often based on seniority and political connections instead of clinical performance. Surgeons from one regiment often refused to care for soldiers of another.^{1,2}

Wounded soldiers removed from the battlefield found themselves in a hodgepodge of locations, few that could generously be called a medical facility. Often they were places of opportunity such as homes and barns. Resources were few and of poor quality, without established supply lines, command, and hierarchy of supervision. An established civilian hospital in a city that happened to be close to an action was overwhelmed by massive numbers of casualties. Resources were quickly exhausted making necessary secondary dispersal of the wounded to more distant cities and towns. Without stabilization and initial treatment, patients often succumbed during the long journeys to community facilities or died shortly after their arrival.²

Letterman's solutions

In May 1862 Letterman was appointed first as medical director of the Department of West Virginia where he established a solid reputation and won the admiration of political influential figures in the Army and government. The dismal state of care of wounded became quickly evident, so he was named medical director for the Army of the Potomac, the largest army in the Union.¹ In less than two years he developed many of the ideas and plans that continue to serve as the foundation for battlefield medicine today. Recognizing his leadership and medical skill, General George B. McClellan, commanding general of the Army of the Potomac, gave Letterman authority to make any changes necessary to improve and maintain the health of his fighting force. The latter faced a myriad of challenges with ingenuity, dedication and foresight.²

From his years of service prior to the Civil War he knew his first task was the health and nutrition of the soldiers. If more were fit, there would be more for battle. Camp hygiene practices were improved, especially handling of waste. Soldiers were given bigger and more nutritious rations, prepared with better cooking methods and more hygienic handling of food. Breakfast was ensured. Improved shelter allowed better sleeping conditions. Breaks for rest were mandated. Improved supplies included clean uniforms. Morale improved. After less than a month under Letterman as its chief medical officer, the disease rate in Army of the Potomac decreased by one-third.^{1,2}



Letterman's next undertaking was improved casualty evacuation. At Letterman's request McClellan issued an order that created an ambulance corps with an established structure for its management, regulation, and evaluation. Each ambulance was staffed by a driver and two men, each trained for specific tasks and with no combat duties. Letterman and three others designed the original ambulances, in service for most of the war. Called the "Wheeling Wagons," each was pulled by two horses, carried two to six patients, and had compartments for water, stretchers, and medical supplies. The use of ambulances to shuttle line officers about was expressly prohibited.²

Two major battles in the span of just a few weeks in the summer of 1862 illustrated the consequences of Letterman's ambulance corps. On August 28, 1862, the Battle of Second Manassas left 14,000 northern troops killed or wounded. The wounded lay on the battlefield, desperate for help, for a full week before all of them could be removed from amongst the dead.² Less than a month later on September 17, 1862, the Battle of Antietam had more than 12,000 Union casualties. In stark contrast to the battle less than a month earlier at Manassas, every injured Union soldier was evacuated from the battlefield in just 24 hours. Letterman wrote, "[It] affords me much gratification to state that so few instances of apparently unnecessary suffering were found to exist after that action and that the wounded were removed from that sanguinary field in so careful and expeditious a manner."²

The month following Antietam a hiatus afforded Letterman the opportunity for other improvements. Next on his agenda was an overhaul of the medical supply system. He created a tiered supply chain that decentralized supplies from the brigade headquarters in the rear to forward units on the battlefield. Each brigade was assured one hospital wagon, one medical supply wagon, and one medical chest and knapsack for each medical officer. The system met the needs of a more mobile army. Letterman's reorganization was timely, for within weeks the Army of the Potomac was in pursuit of General Lee.²

Despite being on the move Letterman continued his work. His experience in major battles revealed that field care required integration with definitive treatment in general hospitals in cities distant from the fighting. Another requirement was to assure that the injured needed the best surgeons, chosen on the basis of "known prudence, judgment, and skill." He made sure that regimental surgeons cared for all soldiers, not just the members of their own regiment. He established standards for the number of surgeons and assistant surgeons assigned to each unit, and made sure each division had its own hospital.²

Letterman established a new system of triage and graduated echelons of care. Surgeons at aid stations near the front made the initial assessment and treatment, including tourniquets, morphine, and water or whiskey. They decided which patients

could be saved, and which had fatal injuries. Ambulances at collection points transported the wounded to field hospitals in nearby buildings, and those with more severe injuries to general hospitals. His system provided consistent and better medical care to the wounded. It also kept soldiers with mild injuries closer to the battlefield where they could return to battle once they recovered.²

The Battle of Fredericksburg in December 11-15, 1862, tested Letterman's newly restructured medical corps, just months after his appointment in May (Figure 2). The corps was ready with 1,000 ambulances and 550 medical officers, one in fifteen of whom performed operations. The Union Army suffered nearly 13,000 casualties. Surgeon George Stevens of the Sixth Corps wrote of the experience, "The medical department has become so thoroughly systematized, that wounded and sick men were cared for better than they had ever been in any army before...[This] was perfected...by the efficient and earnest medical director of the army, Dr. Letterman; to whom belongs the honor of bringing about this most desirable change."²

Legacy

Letterman's innovative changes in the delivery of battlefield medical care were widely adopted and established through an Act of Congress in 1864. The foundation of U.S. military medical operations, they remain the framework of the care of soldiers injured in battle. His statements can be heard in a modern statement of his ideas: "A basic characteristic of organizing modern health services support is the distribution of medical resources and capabilities to facilities at various levels of command, diverse locations, and progressive capabilities."⁵

Since the Civil War, almost four million Americans have served their country during times of war; more than 600,000 have died and more than 1.3 million have been injured. Letterman's contributions to the organization and management of battlefield medicine have affected nearly all of them, without which surely more would have lost their lives. Letterman is deserving of the title, "Father of Modern Battlefield Medicine."^{2,5}

References

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Legend

- 1 Joseph Letterman.
- 2 Letterman (seated at left) and his medical staff. Image from National Library of Medicine.