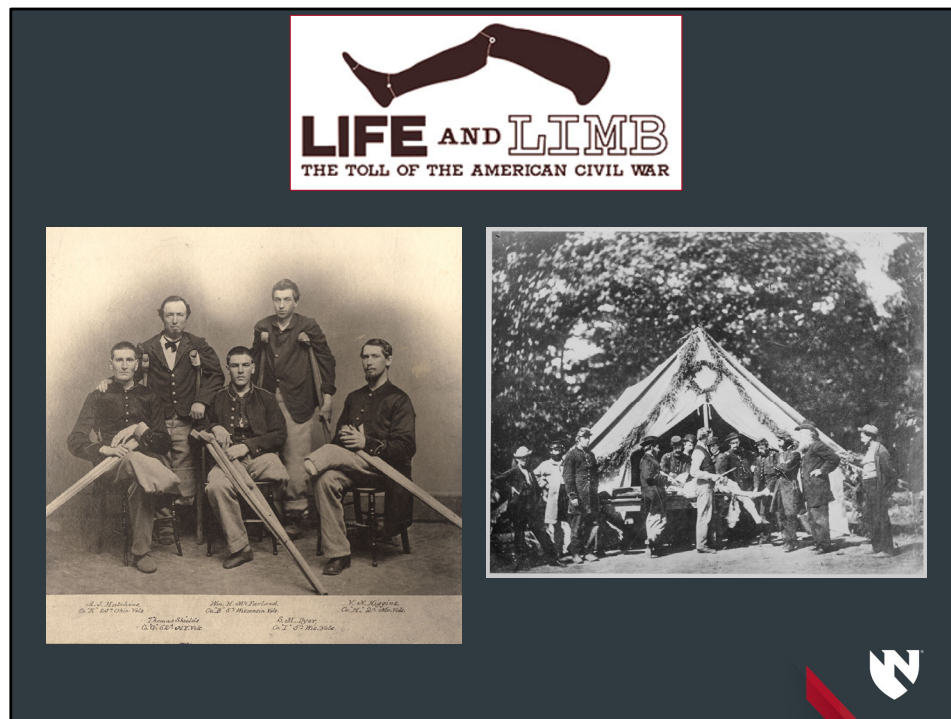


Good afternoon and thank you for joining me. My name is Darby Kurtz, I am the Archivist and Public Historian at McGoogan Health Sciences Library. I am accompanied by my colleague, Teri Hartman who will be recording today's session and monitoring our chat for comments and questions. Today I will be discussing archival materials and artifacts housed in the Robert S. Wigton Department of Special Collections and Archives here at McGoogan Library and individuals in UNMC's legacy related to the history of medicine during the American Civil War.

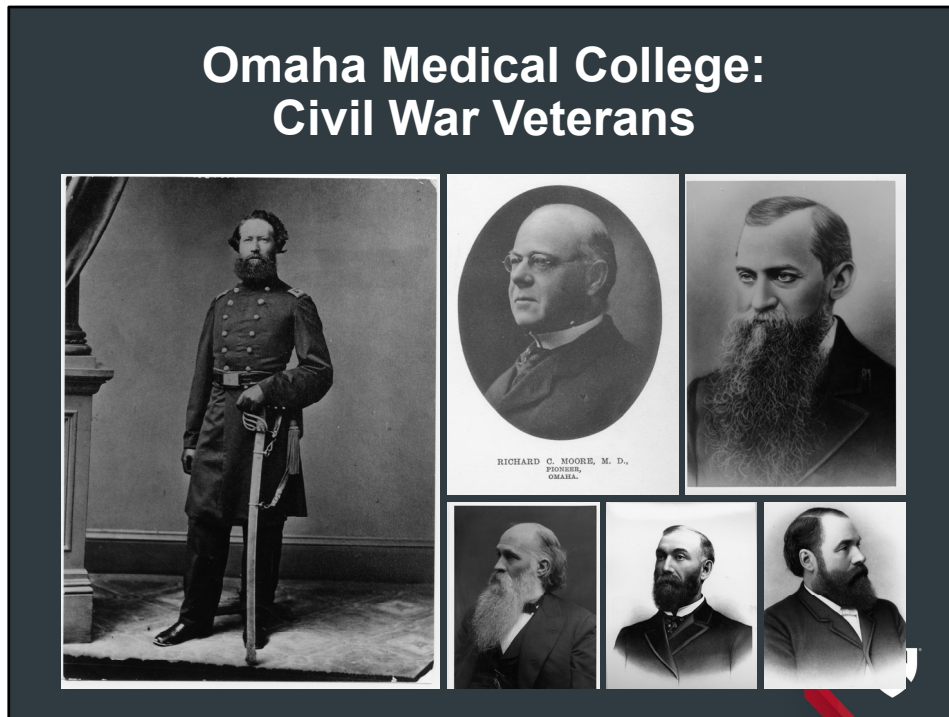


This talk is being presented as a part of programming to highlight the National Library of Medicine's traveling exhibit, Life & Limb, the toll of the American Civil War which is featured on Level 8 of McGoogan Library and is currently open to visitors. This exhibit delves into the experiences of soldiers during the war who were faced with life-threatening injuries and infections that required amputation to survive. While I will be focusing on the broader history of medicine at this time, I highly recommend visiting this exhibit to learn more about the patient experience during and after the war. The display provides a lot of fascinating history and information about disabled veterans and their experiences in the late 1800s.

The images on this slide are featured in the exhibit and depict:

- (left) Soldiers at Armory Square Hospital, Washington, D.C., 1860s
- (right) An Amputation being performed in a hospital tent, Gettysburg, July 1863

Omaha Medical College: Civil War Veterans



To lead into the history of Civil War medicine and materials in our collections, I would like to highlight physicians from UNMC's past that served during the war. All of the individuals presented here were involved in founding or were initial faculty at Omaha Medical College, UNMC's predecessor. They are:

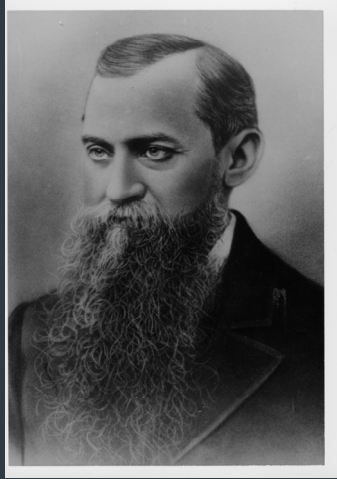
Top left, middle, right:

- Dr. Robert Livingston
- Dr. Richard Moore
- Dr. Jacob Denise

Bottom left, middle, right:

- Dr. Harley Mathewson
- Dr. Victor Coffman
- Dr. Samuel Mercer

Jacob Denise, MD (1828-1899)



- Assistant surgeon in the 27th Ohio Volunteers
- Rose to the position of surgeon in 1863
- Specialized in eye and ear diseases
- Founded Nebraska State Medical Society



Jacob Denise, MD (1828-1899), was born in Ohio in 1828 and graduated from the Jefferson Medical College in Philadelphia. Dr. Denise served as an assistant surgeon in the 27th Ohio Volunteers, who were attached to numerous units during the war, such as the Department of the Missouri, which for a short time included the Nebraska Territory. Dr. Denise rose to the position of surgeon in 1863. He moved to Omaha in 1868 and specialized in eye and ear diseases. In addition to founding Omaha Medical College, he helped establish the Nebraska State Medical Society.

Robert Livingston, MD (1827-1888)


- Organized Company A, First Nebraska Volunteer Infantry in 1861
- Fort Donelson and the Battle of Shiloh
- Rose to rank of colonel
- Professor of principles and practice of surgery
- Archives: MS-082



Robert Livingston, MD (1827-1888), was born in Montreal in 1827. He attended McGill University and the College of Physicians and Surgeons in New York. Dr. Livingston moved to Plattsmouth, Nebraska in 1859. In April 1861, he received news of the attack on Fort Sumter and issued a call for volunteers for the union army. He organized an infantry company, which became Company A, First Nebraska Volunteer Infantry, the first soldiers from Nebraska to serve. The unit saw action in Tennessee at Fort Donelson and the Battle of Shiloh. The army eventually promoted Dr. Livingston to the rank of colonel. As one of the founders of the medical college, Dr. Livingston was professor of the principles and practice of surgery and faculty president, the title we would consider dean of the college today. We house materials in our archive related to and created by Dr. Livingston that include articles, news clippings, census records, photographs, and research correspondence.

Samuel Mercer, MD (1842-1907)

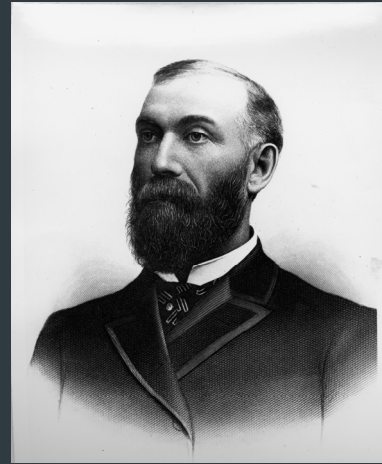


- Assistant surgeon, 14th Regiment of Illinois Volunteers
- Battle of Shiloh and siege of Vicksburg, Mississippi
- Chief surgeon for Union Pacific Railroad
- Omaha real estate and business developer
- Collection: 2023-04 

Samuel Mercer, MD (1842-1907), was born in Illinois in 1842. Dr. Mercer attended the University of Michigan, Chicago Medical College (today Northwestern University School of Medicine) and Berkshire Medical College in Massachusetts. He served as an assistant surgeon for the 14th Regiment of the Illinois Volunteers, which was involved in the Battle of Shiloh and the siege of Vicksburg, Mississippi. After arriving in Omaha in 1866, Dr. Mercer helped found Omaha Medical College and was chief surgeon for Union Pacific Railroad. Dr. Mercer also was a real estate developer and businessman in the community. We recently received a donation from Dr. Mercer's great-grandson of materials used while he was in practice in Omaha.

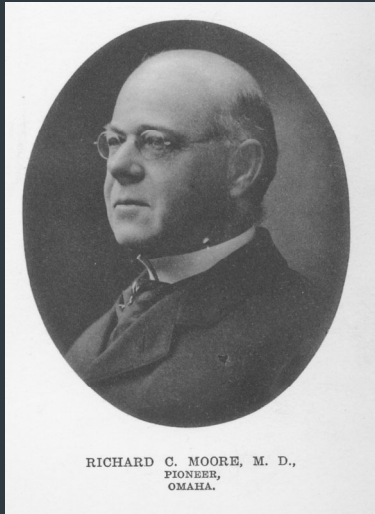
Victor Coffman, MD (1839-1908)

- Chief medical officer, 13th Army Corps
- Served under Ulysses S. Grant
- Siege of Vicksburg
- Professor of theory and practice of medicine



Victor Coffman, MD (1839-1908), was born in Ohio in 1839 and attended Jefferson Medical College. Dr. Coffman was the chief medical officer of the 13th Army Corps, serving as a commissioned brevet-lieutenant colonel under Ulysses S. Grant. The corps saw action at Vicksburg. After the war, Dr. Coffman moved to Omaha in 1867, partnered in founding the medical college and taught the theory and practice of medicine.

Richard C. Moore, MD (1841-1916)

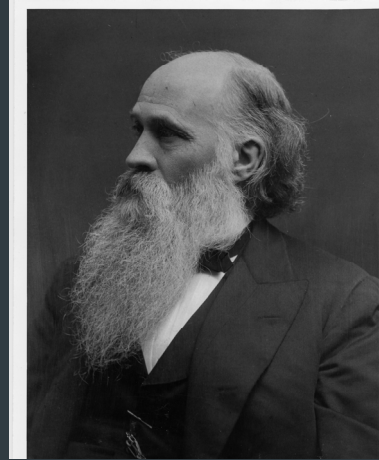


- Acting assistant surgeon while in school
- Served on a hospital steamship on the Mississippi River
- Professor of diseases of the mind

Richard C. Moore, MD (1841-1916), was born in Illinois in 1841 and attended Chicago Medical College. From 1863 to 1864, Dr. Moore served as an acting assistant surgeon between terms in medical school. He spent most of his service on a hospital steamship on the Mississippi River. Dr. Moore moved to Omaha in 1865 and helped establish the Omaha medical college. He was a professor of diseases of the mind.

Harley P. Mathewson, MD (1829-1901)

- Assistant surgeon, U.S. Volunteer Service
- Rose to lieutenant colonel in 1865
- Professor of diseases of the mind
- Superintendent of Nebraska State Hospital for the Insane



Harley P. Mathewson, M.D. was born in Vermont in 1829. He graduated from Dartmouth College and joined the war as an assistant surgeon in the U.S. Volunteer Service in 1862. He was promoted to surgeon and major in 1863 and reached the rank of lieutenant colonel upon discharge in 1865. He moved to Omaha in 1867 and joined the faculty of Omaha Medical College in 1882 as a professor of Diseases of the Mind. He was also superintendent of the Nebraska State Hospital for the Insane.

Omaha Medical College: Civil War Veterans



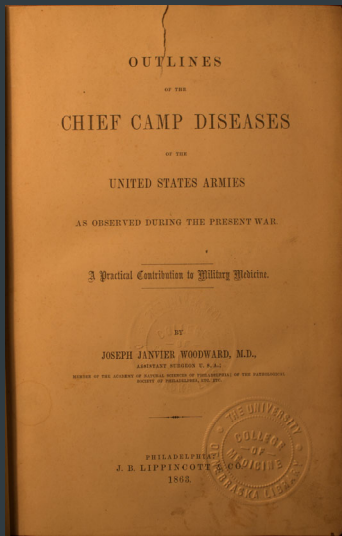
These men made up a portion of the 10,000 physicians and surgeons that served the Union during the Civil War. It is estimated that the Confederacy had 4,000 surgeons in their military as well. Even with these numbers, military hospitals were severely understaffed and those on duty suffered the consequences, working long hours overseeing hundreds of patients. They were often forced into making quick decisions on treatments in the hopes of maximizing survival rates of their patients. These conditions paired with medical knowledge at the time posed a lot of difficulties for healthcare providers and led to significant loss during the war.

Medicine in the 1860s



Often referred to as the “medical middle ages,” the Civil War was a difficult time in American medicine. Of the approximate 3 million soldiers that participated in the war, 618,000 lost their lives. Of those deaths, roughly 400,000 died of disease and 200,000 died in battle or from battle-sustained injuries. This number represents a loss of 2% of the American population in the 1860s. The mortality statistics do not reflect the Union’s half million injuries, 6 million cases of illness, or half million permanently disabled veterans. Nor does it fully reflect the losses of the Confederate military as most soldier medical records were lost during the burning of Richmond, Virginia in 1865. Historians today can only estimate the Confederate loss as similar to that of the Union. The following texts and artifacts depict what physicians had access to at the time while working to save patients during the war.

Outlines of the Chief Camp Diseases by Joseph Woodward, 1863

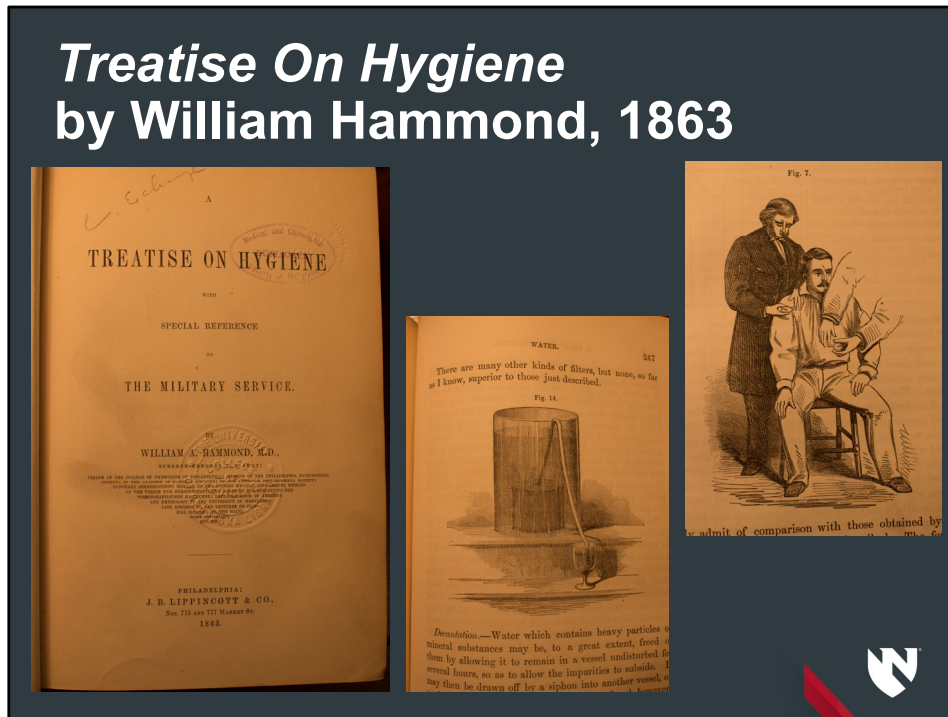


- Describe diseases and causes
 - Germ Theory not yet a concept
 - Disease were caused by “miasma”
- Common disease fatalities:
 - Dysentery
 - Diarrhea

Outlines of the Chief Camp Diseases (1863) by Dr. Joseph Woodward, described diseases with their causes as believed by the physicians of the Civil War era. Civil War physicians had no concept of bacteria and viruses. It was unimaginable that microscopic germs, entering the body through dirty wounds, infected food and water, would be the cause of disease. Physicians believed that **Miasma**, poisonous air from swamps and putrid matter, caused disease.

Diarrhea and dysentery were the most common diseases, resulting in the most fatalities of the Civil War. Physicians believed purgatives, which stimulated the intestines and flushed out “poisons,” could remedy the internal inflammation. Oral purgatives included **rhubarb** and **jalap**, but physicians could administer enemas as well. These treatments were the opposite of what the patients needed, causing them to become dehydrated and further struggle to battle their conditions.

Treatise On Hygiene by William Hammond, 1863



While germ theory was not yet a concept, general rules of cleanliness were already being embraced to combat disease. Dr. William Hammond was the 11th Surgeon General of the U.S. Army and served in the role from 1862 to 1864. During this time, he made a study of hygiene on the war front and published the *Treatise on Hygiene* in 1863 providing recommendations as well as treatments for various diseases physicians were confronted with at the time.

The book includes tools for removing impurities in water as well as expectations for effective recruit examinations. Even with this text, many soldiers were admitted to serve who were ill or pre-disposed to illness due to other health conditions which led to further disease spread in camps. This was due to the fact that early in the war Governors needed to fill quotas, and examining physicians were paid per recruit. If you could walk, carry a gun, and had front teeth and a trigger finger, you could enlist. Front teeth were needed in order to tear open the cartridge containing gunpowder and the bullet. Dental care at the time was poor and the most often reason for rejection of a recruit. The examination system was so poor that it is estimated about 250 women served as soldiers during the war. The quality of physical exams improved a bit with the Civil War Military Draft Act of 1863, when fines and prison sentences were put in place for physicians who were not following protocols, resulting in many more recruits being rejected from service.

Infectious Diseases & Treatments



As mentioned earlier, dysentery and diarrhea claimed many soldiers' lives, even more than battlefield wounds. On top of these conditions, the Civil War soldier also faced outbreaks of measles, smallpox, malaria, pneumonia, and camp itch. Soldiers were exposed to malaria when camping in damp areas which were conducive to breeding mosquitos, while camp itch was caused by insects or a skin disease. These diseases were further compounded by poor diet with little access to fresh food stuffs. By the time a soldier made their way to the hospital, they were already suffering on many fronts which were often further exacerbated by the treatments available from the doctor.

Featured in the top right and bottom left are objects related to one such treatment, wet cupping. Similar to the cupping used by physical therapists today to relieve muscle tension and headaches, cupping during the Civil War was used in an attempt to treat internal inflammation. The thought was that the cupping would act as a counter-irritant to the internal issues. Wet cupping also included the use of the scarificator, feature left, which was used to make lacerations on the skin. The cup would then be applied to remove 1 to 2 ounces of blood in the hopes of counteracting the inflammation. However, this technique often led to skin infections and did nothing to treat internal inflammation.

On the far left is an item we refer to as a pap boat or invalid feeding cup. These boats were used to feed ill patients an oatmeal-like food often made from bread soaked in water or

milk. Given the meager meals on the front line, pap did little to supplement an ailing soldier's diet. This boat comes from our infant feeder collection donated by Dr. Marion Alberts.

Purgatives and diaphoretics, or medications to induce vomiting and profuse sweating, were considered viable treatments for many diseases. Dover's Powder, in the lower center vial, consisted of one part each of ipecac and opium mixed with eight parts potassium sulfate. The medication was used to treat fever, however it often led to dehydration which worsened the patient's condition.

An even more terrifying remedy was Calomel or mercurous chloride. It was a purgative and counter-irritant that was often prescribed for gastrointestinal disorders. However, given the mercury in the medication, it was highly toxic and caused painful bleeding gums, tooth loss, and mouth ulcers. In some cases it even caused necrosis and loss of facial tissue resulting in disfigurement. While an awful treatment, it did result in the first successful plastic surgery procedure in the United States. Private Carleton Burgan was given calomel to treat pneumonia and suffered a severe ulcer in his mouth that caused loss of much of his cheek and nose tissue. He underwent a series of operations performed by Dr. Gurdon Buck, the father of American plastic surgery and by June 1864, Burgan had regained his health and served as an assistant nurse in a ward of New York's City Hospital.

Surgery & Amputation

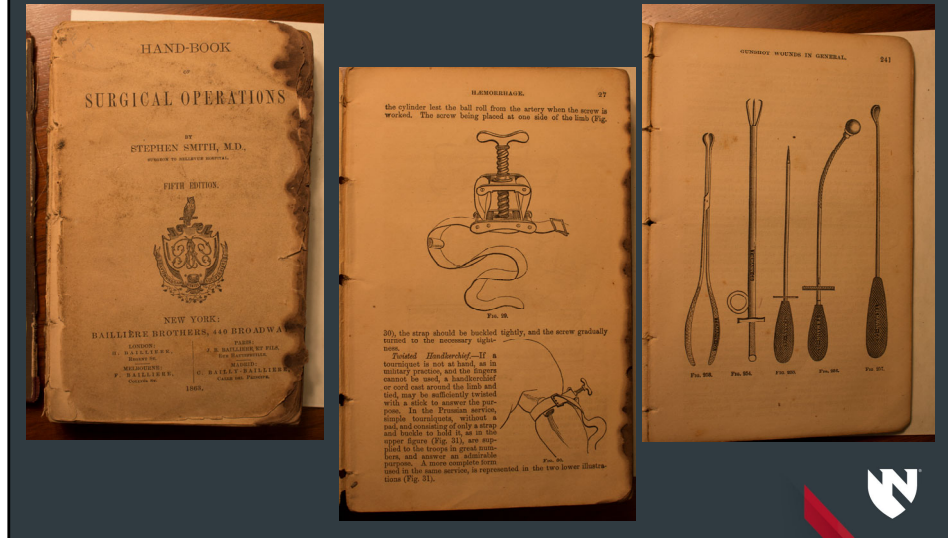


Now to the subject closest tied to the travelling exhibit on display, civil war surgery. Historians estimate that Civil War surgeons performed 50,000 amputations. Surgeons thought it best to perform amputations within the first 24 hours and records did show that success rate dwindled if patients went past the 72-hour point after amputation was evaluated as necessary. Amputations were deemed necessary when there was a long bone fracture, bullet wound to joints, fractures that entered a joint, uncontrolled hemorrhage, irreparable laceration of a major blood vessel or nerve, crushed tissue, or foreign bodies too deep or difficult to remove.

Fortunately, for injured soldiers in the Civil War, two forms of anesthesia, ether and chloroform were available to surgeons. **Chloroform** was preferable because it is nonflammable. Surgeons administered chloroform by soaking a cloth cone or sponge in the anesthesia and holding it over the patient's nose and mouth.

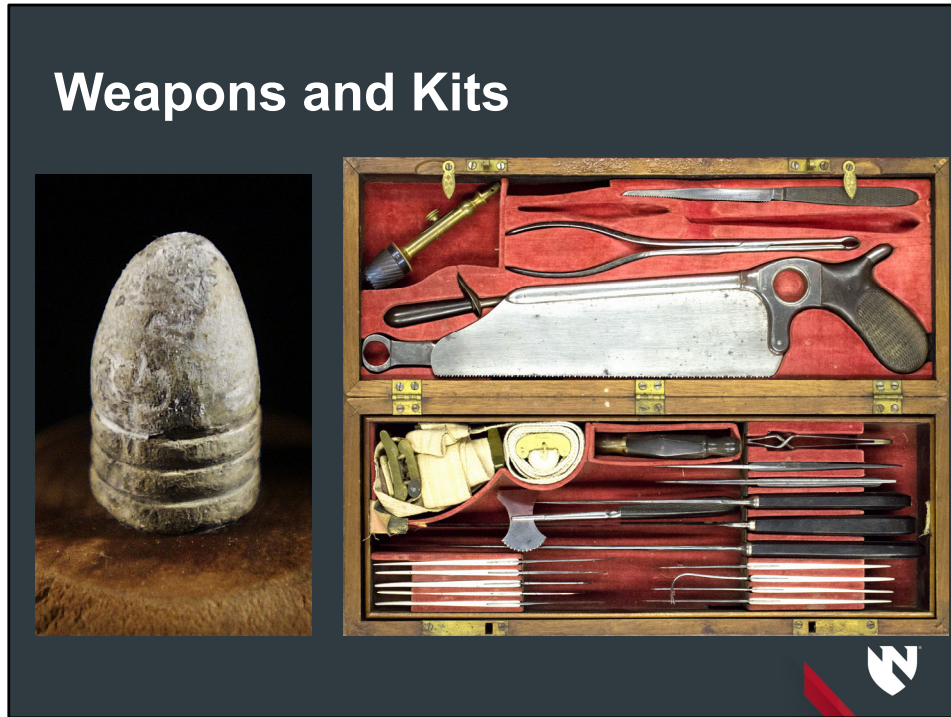
The image on the left is of four veterans in the 1860s. This photo is featured in the National Library of Medicine exhibit. The tools on the right that we will discuss a bit further are the bone saw in the top right and a bullet extractor at the bottom, both in McGooan Library's artifact collection.

The Hand-Book of Surgical Operations by Stephen Smith, 1863



Related to surgery, *The Hand-Book of Surgical Operations* (1863) by Stephen Smith provided surgeons with instructions on circular, single flap, and double flap amputation methods. This book was critical material for Civil War physicians who were often inexperienced in surgical procedures. Many physicians had enlisted straight out of medical school where they did not have extensive access to cadavers or were often country doctors who had never experienced the horrors of battlefield wounds. This resource provided outlines for effective amputations of various limbs. This book is a part of our rare book collections along with the other texts that have been highlight so far.

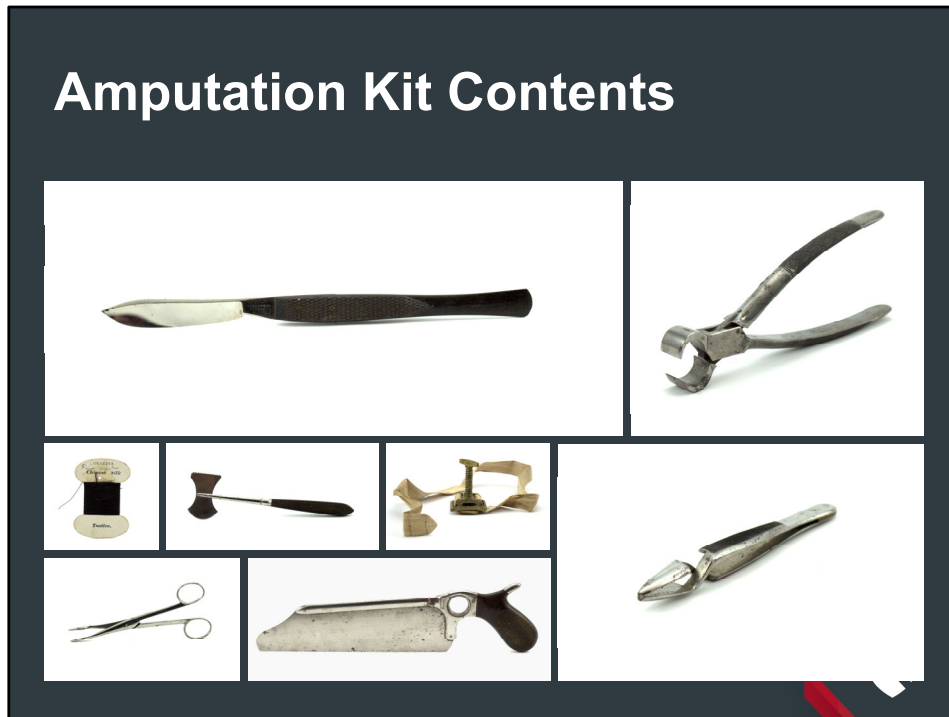
Weapons and Kits



Over the course of the civil war, an estimated 476,000 soldiers were wounded by bullets, artillery shrapnel, or sabers and bayonets. The most common wounds suffered by Civil War soldiers were from the bullets fired by muskets. The typical bullet fired was called a Minnie ball, a conical bullet with hollowed grooves (featured on the left). Weighing 1 ½ ounces the large .58 caliber bullets were propelled relatively slowly by the black powder charge. When it struck a human, the ball caused considerable damage, oftentimes flattening upon impact. Minnie balls splintered bones, damaged muscle, and drove dirt, clothing, and other debris into the wounds. As a result of the immense damage inflicted by Minnie balls, amputations were common during the Civil War. The bullet featured here was lent to the library for a Civil war exhibit in 2017 by Denis and Lois Hammer and is not a part of the library's collection.

During the war, three out of four surgeries (or close to 60,000 operations) were amputations, often in response to trauma caused by weapons like the Minnie bullet. This earned surgeons a reputation of being “butchers” as soldiers who suffered limb loss felt that decisions to amputate were often very hasty in nature. In fact, amputations were one of the quickest, most effective ways for surgeons to treat as many patients as possible in a short amount of time and ensure higher survival rates.

Amputation Kit Contents



Amputation kits included a lot of tools to conduct various types of limb removal as well as associated battlefield procedures. Featured here are items from our amputation kit in the collection, including:

Surgical Scalpels: Used for incising and dissecting delicate tissue.

Curved Gnawing Forceps or Rongeur: Used for contouring stumps of bone and removing rough edges.

Silk Suture Thread: Used to tie off major blood vessels and to close major defects in muscle tissue.

Hey's Saw: used in trephine operation on skull fractures.

Brass Screw Tourniquet: Used to reduce the amount of hemorrhage during surgery, by placing pressure on the artery.

Bone Forceps: Used for removing loose pieces of bone.

Capital or Bone Saw: used to cut through the larger bones of the legs and arms.

Artery Forceps: Used for grasping arteries.

Amputation Kit Contents Continued



Amputation kits also included:

Trephine-Conical Crown: Used in operations of the skull to reduce fractures and to relieve intercranial pressure from a hemorrhage.

Bullet Extractor: Used for removing bullets and shrapnel.

Amputation Knives: used for circular and sometimes flap amputations to cut first through the skin, then through muscle tissue.

Tenaculum: Used to pull out arteries from the stump to tie them off.

Trocar: Used to drain various kinds of fluids, such as serum or pus.

Catlin Blade: double-edged blade used for flap amputations.

Belt Buckle Tourniquet: like the screw tourniquet, the belt buckle tourniquet was used to reduce the amount of hemorrhage during surgery, by placing pressure on the artery.

Metacarpal Saw: Cut through the smaller bones such as ribs, fingers, toes, ankles, or wrists.

All of these tools make up the amputation kit that was donated by the estate of Dr. Leland Olson in 2013. While we don't know the specific origin of our kit, we do

know that it was a federally issued US Hospital kit due to the engravings on the exterior of the amputation box. These tools were likely used by a Union physician.

Successes from the Civil War



While what we have in the collection may depict mainly the horrors of battlefield medicine during the Civil War, there were a lot of breakthroughs and successes at this time. Medical advancements included:

- Use of quinine for prevention of malaria
- Use of quarantine to prevent spread and effectively eliminate yellow fever
- Successful treatment of hospital gangrene with bromine and isolation
- Development of an ambulance system for evacuation of wounded
- Use of trains and boats for patient transport
- Establishment of large general hospitals as well as nursing schools and the American Red Cross
- And Creation of specialty hospitals

As for surgical improvements we saw:

- Great success in the safe use of anesthetics
- Performance of rudimentary neurosurgery
- Development of techniques for arterial ligation
- And as mentioned, the first successful plastic surgery

Featured on the left is Clara Barton who served as a nurse during the Civil War and

eventually led the foundation of the American Red Cross in the 1880s. On the right is an example of the ambulances used during the Civil War. Both images are courtesy of the National Archives.



Open for Questions!

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 University of Nebraska
Medical Center

With that, I would like to thank you all for your time today and welcome any questions you may have!

*Correction during Q&A: Fort Sumter is located in South Carolina. There were no Civil War battles fought within the boundaries of the Nebraska territory. For more information on Nebraska and the Civil War, please visit History Nebraska's publication on the subject at: https://history.nebraska.gov/publications_section/the-civil-war-and-nebraska-1861/