Civil War Medicine and Technology
Civil War Field Hospital
Civil War Medicine
US Surgeon General William Hammond  April – 1861

“...it was approaching the end of the medical middle ages...”

January 1861- 90 surgeons in the US Army

➤ No Ambulance Corps

➤ French Surgeon Francois Chopart (1743-1795)

➤ Medical practices based upon British surgical techniques of the Crimean Wars
  ➤ The quickest and most effective way to treat the wounded involved the amputation of the injured body part, versus the reconstruction of it.

➤ Surgeon versus Doctor
“For the most part, wartime operations were not elective; the patient’s body was already opened – by Confederate lead – and the doctor had to become a surgeon, cutting, sawing and messing about in the wound, and wrestling as best he could with the suppuration and “fevers” which followed.”

Unknown Union Surgeon as told to George Worthington Adams, Gettysburg, 1863

_Doctors in Blue_
By the end of 1861:
   The Union had 500 surgeons
   The CSA had 27 surgeons

By the end of the Civil War:
   The Union had 11,000 +/-
   The CSA had 3,000 +/-

Oswego’s Dr. Mary Walker the only known female to do so for either side
Awarded the Medal of Honor
Arrested in Auburn and Rochester for dressing as a man

http://www.homeofheroes.com/photos/1_civilwar/walker_mary_bw1.html
http://www.homeofheroes.com/photos/1_civilwar/walker_mary_afull.html
“The nature of the surgery in any war will be determined in good part by the methods and weapons of combat, and particularly the size, shape and materials of the projectiles.”

George Worthington Adams; Gettysburg 1863

_A Strange and Blighted Land_

Cause of Injuries:

- 5% - cutting weapons and bayonets
- 10% - artillery
- 85% - the musket projectile
  - Ball
  - buck and ball
  - Williams Cleaner
  - Shaler Sectional
  - Gardiner explosive tipped
• Shaler Sectional

• Williams Cleaner

• Gardiner explosive tipped
Minie’ Ball
– Captain Claude Etienne Minnie’ – 1849
– .58 caliber
• 1 ½ oz. lead packaged in 60 grains of salt peter & black powder placed in paper cartridge
• Very slow moving in trajectory
• Would flatten out when hitting victim
• Usually shatter 6 – 10 inches of bone in extremity
  Lt. Col. 8th Virginia stated: “it took 21 inches of flesh to stop a Minie’ ball at 150 yards”
• 17% of all wounds were to extremity; 75% of all extremity wounds resulted in an amputation
• Estimated some 60,000 Union amputations
• No accurate figure for CSA
Conical Soft Lead

Ribbed to expand – would conform to barrel and rifling

Hollow construction to allow gasses to expand ribs to side of barrel
Union Surgeon General Wm Alexander Hammond
  - Allowed surgeons to utilize any style of practice
  - Most European methodology
  - Speed & numbers versus healing & fixing

CSA Surgeon General S. P. Moore
  - Followed same practice
  - Utilized negro corpses to practice on

If wounded – the soldier *might* be transported to a field hospital
  - Ambulance service not perfected for some time
  - Would usually be told to walk to site
  - May lay unattended for days or weeks
    - Gettysburg – Most CSA wounded left behind for care by Union surgeons not cared for until 6 days after battle
  - May fall into opponents care
    - Was told to find a hospital of own corps
    - Identified by a solid red or a Green H on a yellow background
    - Would also have corps badge and numerical identification
  - Concept of triage formed from battle
    - Usually to separate those who might be saved from those who were going to die & those who were expected to die
    - Twipple – the Civil War “medic” from Union Springs, N.Y.
Head wounds and chest wounds were expected to die
- Would be set aside and given laudanum
- CSA would sometimes use “Confederate Chloroform”
- What was a field hospital and an aid station?
  - Any house, barn, cow stall, pig pen, coal bin, church, school, boarding school/house, library, public building, open patch of ground in which a surgeon could do his duties for the wounded.
  - Usually within one mile of the battlefield
- A field station would be within yards of the front lines
  - Cursory dressing of the wounds or to apply a tourniquet
- Primary amputation – 28% mortality rate
- Secondary amputation – 83% mortality rate
- Union reported 60,000 - CSA probably same or more
  - Captain John Cuyler
Once wounded, person had no idea when aid might occur
Delay and weather conditions would aggravate existing wounds of the soldier

Rain would bring gangrene

Heat would bring the flies

The flies would bring maggots

- Maggots [vermin] not always a bad thing
  - Sometimes placed in a wound by surgeon to kill flesh
  - Would cleanse the wound of infection and gangrene
  - Surgeons use of kerosene

The Surgical process

- Prep the table and the tools
- Prep the patient
- Enough chloroform for 20 minute time period*
- Confederate Chloroform
• Tourniquet applied and patient subdued for anesthesia
• 360 degree incision made above wound
• 2” – 3” section of flesh removed exposing bone
  – Skin peeled back
• Cut by one of various sized saws
• Bone filed smooth with surgical file
• Veins and arteries tied off with string
  – When CSA ran out of silk – used string and boiled horse tail hair
• Skin returned and cavity packed with lint or plaster
  – CSA unsuccessfully tried cauterizing ALL wounds
• Moistened and dressed
• Urged “medicinal pus” to form
• Patient awakened and placed on straw
• Given opium, morphine or whiskey
  – 2 million gallons brought to Gettysburg following the battle
• Given coffee and beef broth
  ❖ Importance of military bands
Civil War Technology
Telegraph

http://w1tp.com/perkcol.htm
Telegraph office
Railroads
Rifled musket
Accuracy of Smoothbore Muskets vs. Rifle-muskets

<table>
<thead>
<tr>
<th>Distance from Target</th>
<th>Smoothbore Shots that Hit Target</th>
<th>Rifle Shots that Hit Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 yards</td>
<td>74.5%</td>
<td>94.5%</td>
</tr>
<tr>
<td>200 yards</td>
<td>42.5%</td>
<td>80%</td>
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<tr>
<td>300 yards</td>
<td>16%</td>
<td>55%</td>
</tr>
<tr>
<td>400 yards</td>
<td>4.5%</td>
<td>52.5%</td>
</tr>
</tbody>
</table>

http://www.littlestregular.com/blog/2007_02_01_archive.html
Rifled Cannon

The Whitworth designed cannon could fire a shell over 6 miles.

http://www.andrewspages.dial.pipex.com
Hand grenades/rockets

http://grenadelauncher.com/
Hale rocket and rocket launcher

Submarines

http://news.webshots.com/photo/1195793651015913979KyvkEV
Balloons

http://www.sonofthesouth.net/leefoundation/civil-war/1861/october/civil-war-balloons.htm