

The battle of Gettysburg: the dawn of the modern military hospital system

The battle of Gettysburg, one of the bloodiest of the American Civil War (1861–5), took place over the first three days of July 1863, 150 years ago. This war was the first in which an efficient military hospital system was developed to deal with mass casualties.

After defeating the Union army at Chancellorsville in Virginia, Robert E Lee, commander of the Confederate forces, decided to invade the north with his army of 75 000 troops. George G Meade, commander of the Union forces, realized the importance of Gettysburg, in southern Pennsylvania, as a strategic road centre and made his stand there. In the ensuing battle the casualties were high: 23 000 of the 88 000 northern forces and 20 000 of the 75 000 southern troops were killed or wounded. Although Meade was later criticized for not pressing on and destroying the remainder of the Confederates by vigorous pursuit, he had stopped the invasion of the north.

The fatalities during the 3 years of the Civil War from battle and sickness amounted to approximately half a million men – about the same as the total losses of American forces in all its other wars, including the First and Second World Wars.

To put these numbers into context, the British casualties a few years previously, in the Crimean War (1854–6), amounted to 2755 killed out of a force of 96 000 troops. It should be noted, however, that a further 16 297 men died of disease, giving a total death rate of 21%.

At the beginning of the Civil War, the small standing US Army had little in the way of medical facilities. The largest hospital was at Fort Leavenworth, Kansas, with 41 beds. The only military hospital in Washington DC was a six-roomed building for smallpox patients. Each army post would have a small infirmary attached to it.

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In the early months of the war, both sides would appropriate hotels, schools, churches and private buildings to accommodate the wounded. However, American ingenuity rapidly developed massive general military hospitals. At first, these were tented accommodations attached to existing civilian hospitals, but within a year or so an innovative construction was used by both sides. This was a pavilion-style hospital built from wood. The pavilions were arranged either in a grid pattern or in an arc fanning out from a central administrative block. This plan continued through both world wars and into the Vietnam era.

The new hospitals appeared at surprising speed. In Philadelphia, a 2500-bedded hospital was built on schedule in 40 days. Individual wards would contain about 60 beds, with many windows to ensure maximal ventilation (this on the advice of Florence Nightingale).

By the end of 1861 a sanitary commission was established to inspect the Union hospitals. Respected senior civilian physicians were appointed to make unscheduled hospital inspections. In December 1862, the volunteers were replaced by 16 inspectors under a medical inspector general.

Specialist hospitals were established on both the Union and Confederate sides, including establishments for ear, nose and throat diseases, eyes and orthopaedics. The most famous of these hospitals was the Turner's Lane Hospital, in Philadelphia, for nerve injuries, headed by Dr Weir Mitchell. Numerous syndromes, which included causalgia and phantom limb pain, were documented for the first time. It was also at this hospital that Jacob da Costa described psychogenic cardiac disorders: 'soldier's heart' or 'the da Costa syndrome'.

In the early days of the war, transport of the wounded was carried out in the few available horse-drawn civilian ambulances, in commandeered wagons or by foot. Both sides went on to develop efficient means of evacuating the sick and

wounded. By the time of Gettysburg, both the armies had developed military ambulances and tented field hospitals, from which transport was provided by ambulances, trains and ships. Both sides, using the extensive railway network, developed specially designed ambulance trains, staffed by doctors and nurses; a system adopted a few years later by the Germans in the Franco-Prussian war of 1870. The Union forces, with their naval supremacy, developed hospital ships along the internal waterways.

Surgeon John McNulty, a Union corps medical director, was able to report after the battle of Gettysburg: 'It is with extreme satisfaction that I can assure you that the ambulance and field hospital system enabled me to remove the wounded from the field, shelter, feed them, and dress their wounds within 6 hours after the battle ended, and to have every capital operation performed within 24 hours after the injury was received.'

These were the days before antiseptic surgery (Lister was not to publish his work until 1867). Suppuration was almost inevitable after wounding, especially from missile injuries, and gas gangrene and tetanus were rampant. One blessing was that general anaesthesia, with ether and chloroform, was now widely available. William Morton, the Boston dentist who had introduced ether as an anaesthetic agent in 1845, came as a civilian volunteer and administered many hundreds of anaesthetics to the wounded.

Some time after the battle, the dead of both sides were exhumed and placed in the first National Soldier's Cemetery at Gettysburg. This was dedicated on 19 November 1863, during which President Abraham Lincoln gave a short speech, now known as the 'Gettysburg Address'. It ends with that well-known phrase: '... the government of the people, by the people, for the people shall not perish from the earth'. **BJHM**

Conflict of interest: none.