

The Civil War started over 150 years ago, well before cars or light bulbs were invented. However, that doesn't mean that technology didn't play an important role in the war. Historians call the Civil War the first modern war because of the war's technological advancements. New machinery and new fighting methods were both important in the Civil War.



Destroying railroads was a way to hinder the helpful technology of train travel.

Trains in the Civil War

One new use of technology was hauling weapons, supplies, food, and troops on railroads. A trip from New England to the South was a long train ride. Riding across the South on a horse would take considerably longer, however. Some railways in the South were not connected, and because some used tracks of different sizes, one train might not fit on or be able to connect to another railway. This complicated the use of trains in the war by the South.

Railways gave the Union a significant advantage. Trains were relatively fast and reliable transportation to and from battlefields. President Lincoln recognized this and created the United States Military Railroad, a special agency in charge of figuring out how to use captured Southern rail lines to carry Union troops and supplies.

Both sides knew that the rail system was important to the other. Therefore, it was common for one side to destroy the other side's tracks. By destroying tracks, transportation of goods and people was hindered. When Union General William Sherman captured Atlanta, Georgia, one of his first acts was to damage its railway.

Manufacturing Makes a Difference

Advances in manufacturing also had an impact on the war. Before secession, the North was responsible for 90 percent of factory output for the U.S. This means that the North could quickly make and sell the products made. The North made several advances in manufacturing during the Civil War. The process for making and storing evaporated milk was invented in the North. This allowed Union soldiers to carry nutritious milk with them to the battlefields without worry of spoilage. The North also made advancements in sewing machines. Better sewing techniques meant Union soldiers had much better uniforms than Confederate soldiers had.

Unlike the industrial North, the South was mostly producing raw materials, such as cotton. These materials were then sent north for use in manufacturing. The South depended on the North to buy many of its raw materials. After the South seceded, its ability to manufacture the goods it needed for the war was extremely limited.

Not only did the Union create and distribute manufactured goods, but it developed new ways of farming. The North did not have the workforce that the South did in the form of enslaved people, but it did create farming machinery like the threshing machine. Machinery allowed farmers to get more done with fewer workers. Because of slavery, the South never had a shortage of workers, so they did not have as much need for machinery.

Weapons of Wartime

Weapons were an essential manufactured product that the South could not produce as quickly as the North. Southern factories did not have the supplies or the training to build weapons such as repeating rifles. Also known as “repeaters,” their rifles fired more than one bullet at a time and were a new and valuable invention. The most sought-after was the Spencer carbine. It was capable of firing seven shots in 30 seconds. That may not seem impressive compared to today’s fast-firing weapons, but for Civil War soldiers on the front lines, this was an exciting advancement. A repeater could fire much faster than a musket, which had to be reloaded after every shot.

Second in popularity to repeaters were rifles loaded with Minié balls. Minié balls were small bullets that could be loaded much more easily than regular rifle bullets. Easier loading meant faster shooting. Fast weapons could be the difference between life and death. In battle, the goal is to stop the enemy before he stops you. For Civil War soldiers, having a faster, more efficient weapon was a significant advantage.

The fastest of weaponry in the Civil War was the early machine gun. Machine guns were a new invention and played a small role in the war. However, they paved the way for technological advancements in later wars. The Agar machine gun used in the Civil War was capable of firing 120 bullets in a minute. It was rare to see the Coffee Mill, as it was nicknamed, on many battlefields. The machine was heavy, produced smoke, and overheated easily. Fighting with machine guns in wooded areas was also difficult because it was hard to maneuver the clunky machines through endless hills and trees.

Warships and Blockades

Other large machines used in the Civil War were warships. Each side possessed warships, but only the Union was able to produce dozens of additional ships from scratch. The Union navy began the war with just 90 battleships. By the time the war was over, the North had produced 536 more. Of the 626 total ships, 65 were ironclad. Ironclad ships were massive and covered in impenetrable metal. Not only were they strong, but they were propelled by steam instead of wind.

The Confederate navy did not have the resources to create new warships. Instead, they sought out ships from Europe and patched up captured Union vessels. Their efforts were not in vain. In 1862, the North's *Monitor* and the South's *Virginia* were the first ironclad ships ever to wage battle. The ship that captured the most enemy vessels belonged to the South: in two years, the Confederate's *Alabama* captured 69 Union ships and was not stopped until 1864, when it was sunk by the Federal warship *Kearsarge*. Those two years proved that the South was able to put up a strong fight on both land and sea.

The warships of the North did more than just battle. They created a blockade of Southern trade ports. Because of the North's naval blockade, the South quickly lost access to money and food because it could not engage in trade. Thus Confederate engineers began working on one of the first military submarines. It needed to be fast and strong enough to take down a Union warship. A small number of vessels were created, the most famous of which was the *Hunley*. In 1864 the *Hunley* arrived by train to Charleston, South Carolina. It was 40 feet long and 4 feet high. In many ways, it resembled the German U-boat that would not be constructed until World War I.

After sinking during two test runs and killing several people, the *Hunley* was brought up for a third attempt. This time, the watercraft successfully detonated a bomb on the side of the Union ship, the *Housatonic*. The warship was split in two and sank. The submarine, however, then sank to the bottom of the ocean, just like the *Housatonic*.

This incident showed that the Confederates could compete in engineering with the Union. Confederates also advanced techniques in naval warfare. The United States could now explore other options besides warships for conflict on the sea. This naval technical



This darkroom wagon allowed photographers to develop their film.

advancement during the Civil War was revolutionary. Alongside ironclad ships and submarines, steam power and screw propellers, used to push submarines through water, also enhanced warfare. Such achievements illustrate why the Civil War is often called the first modern war. Highly skilled craftsmen advanced made important advancements in technology.

The Civil War Captured on Film

Photography did not help soldiers win battles, but it did have an impact on the war. It affected people far from the lines of fire who did not understand the gravity of warfare. The ability to photograph was not new in the 1860s, but the idea of taking pictures of war created a new kind of journalism called *photojournalism*.

At the time, producing photographs was a long and complicated process. It required chemicals, sheets of glass, and a darkroom—things that were hard to come by on a battlefield. Thus, taking pictures of the fast action of battles was typically not an option. Photographers could, however, take still photographs that made an emotional impact. Dead or injured soldiers, destroyed buildings, and barren landscapes told stories of their own.

One of the best-known photojournalists of the Civil War was Mathew Brady. He sent out groups of photographers to take the pictures, then collected the undeveloped film and displayed the images to the public. His gallery exhibition entitled “The Dead of Antietam” marked the first time that the general public could witness the devastation of the war. Many images were of dead soldiers and destroyed towns. For those living far from battlefields, the reality of war came through the eye of a camera.

Life After Battle

When the war ended, Americans were able to see the horrific effects of war once again. Thousands of men came home with life-changing wounds, including missing arms and legs. It was during this time that the United States Patent Office granted more than 130 patents for prosthetics, or artificial limbs. The federal government made sure that artificial arms and legs were distributed free of charge to any serviceman who required them. The need for new limbs shifted focus on the quality of the prosthetics. Natural woods and leather covers better resembled skin. Strong balls and rubber bands acted as joints and allowed for better mobility. Improved artificial limbs helped amputees to transition back to civilian life. Although prosthetics could never heal the emotional pain and psychological trauma of war, they did help many amputees function once they went home.

New uses for old tools as well as new inventions helped the North win the war. These technologies are also the reason that historians consider the Civil War to be the first modern war. That war may have started over 150 years ago, but many of its technologies laid the groundwork for future warfare.

After reading the passage, answer the following questions:

1. How did destruction of Southern railroad tracks affect the Civil War?
 - A. It blocked the South from trading with the North.
 - B. It helped standardize the size of train tracks in the South.
 - C. It hindered transportation of Southern goods and soldiers.
 - D. It gave the North more materials with which to build its own railroads.
2. Which statement about photography during the Civil War is true?
 - A. It was quickly processed and published.
 - B. It refrained from showing disturbing images.
 - C. It was extensively used by spies from both sides.
 - D. It showed people what the battlefields looked like.
3. Why did the Confederates create the submarine?
 - A. to distract Union ships while Confederate ships snuck by
 - B. to go under the naval blockade created by Southern ships
 - C. to break through the naval blockades created by Union ships
 - D. to inspire Europeans to denounce the Union's naval blockade
4. Which statement best describes how information is presented in this passage?
 - A. The causes of effects are explained.
 - B. A narrative describes one event in detail.
 - C. An argument is made using supporting evidence.
 - D. A problem is identified, and a solution is suggested.
5. The Civil War is often referred to as the first modern war. Great technological advancements and innovations helped the Union win. These advancements also set the groundwork for future warfare. In your opinion, which technology had the greatest impact on the Civil War? How would the Civil War and modern wars be different without that technology? Provide evidence from the text to support your answer.