

# "Rolling Thunder"

*In his 50<sup>th</sup> article for The Standard, James H. Hillestad, Member No. 6, takes a look at the guns of Gettysburg.*

*"Stand firmly by your cannon  
Let your balls and grapeshot fly  
Trust in God and (Jeff) Davis  
But keep your powder dry"*

--Popular Confederate ballad

**G**ettysburg marked not only "the high tide of the Confederacy" and the turning point of the war, but also the greatest cannonade ever seen in this hemisphere. In no battle of the Civil War did artillery play a more decisive role than it did here -- and no factor contributed more to the Union victory than the superior numbers and handling of the Federal guns.

Lee possessed 270 artillery pieces against Meade's 370. This imbalance is understated, as the Union forces greatly benefited by interior lines. The Army of the Potomac was able to bring into action 100 guns per mile of front, while the Army of Northern Virginia opposed them, proportionately, with only 40. The Confederate guns are best described as being positioned along the rim of a wheel, the Union's at its hub.

Moreover, the Union guns were better placed and better equipped with ammunition.

Rebel artillery had weaknesses in the areas of faulty ammunition

(an average of 50 percent of shells used were duds), and a tendency to overshoot their targets. The latter was due to defective fuses that burned too long. The thin line of Federal infantry allowed only a narrow margin of error for rebel gunners as they aimed straight toward it across the smoke-shrouded valley.

## How artillery was organized at Gettysburg

The basic unit of the artillery branch was the battery. At Gettysburg, a Northern battery consisted of six pieces. A Confederate battery usually consisted of four guns, as the scarcity of both horses and ordnance made it difficult to maintain a six-gun battery.

Union batteries were equipped with guns of uniform caliber, whereas two-thirds of Confederate batteries often contained a mixture of pieces, each with a different caliber requiring its own ammunition.

Non-uniformity of weapons, though seemingly a minor in-

convenience, would prove to be an important impediment which created a supply nightmare. Trying to replenish an assortment of ammunition for a battery of mixed guns required searching for the right wagon with the right type of ammunition while under fire, in the heat of battle.

In addition, mixed gun batteries

10-pounder Parrott rifle (note reinforced banding at the breech)



possessed an intrinsic, fundamental flaw: Some guns, such as the Napoleon, had a short-range, whereas the rifled pieces were long-range. Thus, mixed batteries were either under-utilizing their short-range guns to take advantage of their long-range pieces, or vice versa.

## A contrast in leadership

In command of Confederate artillery was Gen. William Pendleton. The Union artillery was commanded by Gen. Henry Hunt. Hunt was one of the great gunner generals, cast in the mold of Henry Knox of the American Revolution. It was said that while William Pendleton was an indecisive fiddler, his Union counterpart was the master of a prodigious orchestra.

As a leader, Pendleton was also

10-pounder Parrott rifles firing solid shot long range No. 17669 in the rear, No. 31032 in the foreground





Union Artillery Set No.2, "Loading Canister" 12 Pound Napoleon Gun and 4 Man Crew No.31056

hampered by his lack of authority. Whereas Hunt personally directed 30 percent of the Army of the Potomac's guns (the artillery reserve), Pendleton himself controlled not one gun of the Army of Virginia. He appears in the campaign more as a consultant than as a commander -- and this was to have dire consequences.

**The men**

Artillerymen regarded themselves as a corps d'élite, and proudly wore the insignia of the crossed brass cannon and the artillery's scarlet trim.

For close defense, artillerymen had been issued sabers, soon discarded as being cumbersome, useless weapons dangling from their belts and impeding movement. The revolver was the ideal artillery small-arm, but few were supplied to the rank and file. In default of anything better, artillerymen wielded handspikes and rammer staffs, threw stones or used their fists when they struggled with the enemy in their gun positions.

**The guns**

The proportion of guns in both armies was 50 percent smoothbores and 50 percent rifles. Smoothbores, named for the smooth inside surface of the gun barrel, were referred to either by the weight of solid shot they fired, or the gun's inventor. Rifled guns had spiral grooves inside their barrels, which imparted a spin to the projectile and stabilized its flight path.

Smoothbores had a shorter range, and were devastatingly effective at delivering "shot gun" charges (canister) at attacking infantry -- whereas rifles, with their longer ranges, did fearful destruction with solid shot against enemy artillery batteries.

The 12-pounder Napoleon smoothbore was the foremost

field piece of the Civil War. The gun was developed during the reign of the French emperor Napoleon III and was named for him. It could throw a projectile 1,610 yards. Confederate-made Napoleons were readily identified by the absence of the characteristic muzzle swell of pieces made in the North.

The 12-pounder smoothbore howitzer was the favorite artillery piece of the Confederate cavalry. The Army of Northern Virginia had 24 at Gettysburg, though few of these saw action. They were lighter than Napoleons, and as such were more mobile and easier on the horse teams that pulled them. Designed to fire high into the air in an arcing trajectory, they were ideal for hitting targets indirectly, behind a ridge or in protected areas. The howitzers' primary disadvantage was its limited range of 1,072 yards.

Of the rifled cannon, the three-inch Ordnance rifle dominated the battlefield by a two-to-one margin



ABOVE  
12-pounder Union Napoleon

12-pounder Napoleons in close action with canister  
No. 17779 in the rear, No. 31056 in the foreground



over the 10-pounder Parrott. Both guns had a range of approximately 1,800 yards at five degrees of elevation.

All but two of all the guns employed at Gettysburg were muzzle loaders (barrels loaded from the front). The two exceptions were Confederate Whitworths, made in England. They had a phenomenal range of 2,800 yards at five degrees of elevation. They were exceptionally accurate and were especially useful in “sharp-shooting” enemy cannon. The Whitworth’s innovative design revolutionized artillery far into the future.

On the other hand, the effectiveness of the Whitworth was reduced by the very factor that made it desirable -- its long range. During the Civil War, a gunner had to see his target in order to



shoot with any accuracy -- which explains why the shorter-range Napoleons were highly sought-after to defend against attacking troops. The use of “forward observers” and communications equipment to relay the fall of shot was still decades away.

There was, however, a new instrument introduced by the Union Army at the battles of Cemetery Hill and Culp’s Hill. It was the French-made “ordnance glass.” Akin to a range-finder, it measured ranges to prominent targets and enabled the guns to fire with precision accuracy.

Gun barrels were made of bronze (Napoleons and howitzers) and iron (three-inch Ordnance and Parrotts). Bronze smoothbores were subject to less stress

than iron rifles. The latter, if and when it burst, shattered like glass, inflicting injury or death on the gunners. To overcome this weakness, the back end or breech of the brittle, cast-iron Parrott was overlaid with a wrought-iron reinforcing band to contain the force. The three-inch Ordnance rifle was made entirely of durable wrought iron.

Gun shields and aprons were far into the future at Gettysburg. The artillerymen were thus exposed to enemy fire, their only protection afforded by the rims and spokes of the wheels of the guns.

### Ammunition

Four types of ammunition were used at Gettysburg: shot, shell, case and canister.

The first, shot, was a solid projectile. Shot was the most accurate at longer distances, because its solid weight resisted deflection on its flight path. At the other end of the spectrum, canister consisted of a thin metal container loaded with lead or iron balls, making it devastatingly effective against both infantry and cavalry at close range. Canister was available for both smoothbores and rifled guns. When close-up fighting occurred, double and sometimes triple canister was fired into the advancing ranks.

In a climactic moment at Cemetery Ridge, Andrew Cowan’s 1st New York Independent battery of five three-inch Ordnance rifles were attacked by some 40 Confederates, led by an officer waving his sword and shouting to his men to take the guns. Cowan gave the command to fire. Five guns fired double rounds of double canister in one concentrated roar. When the smoke cleared, the entire rebel line and the officer had simply disappeared.

### Casualties

More than 600 artillery pieces were in action at Gettysburg. This awesome array of power fired over 55,000 rounds of ammunition. Given this, it is interesting



ABOVE  
12-pounder Confederate howitzer

to note that, of deaths on the battlefield, only six percent was attributable to cannon fire. In fact, on average, crews had to fire 87 times to score one casualty.


Nevertheless, cannons were perceived as exceedingly lethal -- and much of this fear stemmed from the terrible effects of the ammunition.

FAR LEFT  
Three-inch Ordnance rifle

RIGHT  
12-pounder Confederate Napoleon (note muzzle has no swell)



### Shots Heard Round the World

The artillery employed at the battle of Gettysburg marked a midpoint between the crude cannon of the past and the complex mechanisms of the twentieth century. Both sides served their guns with equal bravery -- but it was the fearsome toll exacted by Union cannon that enabled the infantry to blunt and beat back Pickett’s Charge. 

### SUGGESTED READING

Fairfax Downey, *The Guns at Gettysburg*  
Philip M. Cole, *Civil War Artillery at Gettysburg*

Jim Hillestad operates under the name The Toy Soldier Museum. His museum, containing more than 35,000 figures and a large collection of militaria, is located in the Pocono Mountains of northeastern Pennsylvania. For directions and hours, call him at 570/629-7227, or visit his Web site [www.the-toy-soldier.com](http://www.the-toy-soldier.com)

### Did you know?

*Ammunition for the guns was carried in caissons, which were pulled by limbers. Artillerymen risked their lives pulling ammunition chests packed with explosives over bumpy, rutted roads at full gallop. To protect the ammunition, any empty space in the chests was packed with filler material called “tow” to prevent projectiles from bouncing around and accidentally detonating. Tow is the term for chopped-up hemp rope or the fibers left over from preparing linen yarn from flax. So a “tow-headed” child is one with fair hair the light color of hemp*