UNION ARTILLERY AT THE BATTLE OF CHICKAMAUGA

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ABSTRACT

UNION ARTILLERY AT THE BATTLE OF CHICKAMAUGA by Major Michael J. Mammay, 110 pages.

This thesis examines the use of artillery by the Union Army of the Cumberland during the Battle of Chickamauga on 19 and 20 September, 1863. The thesis methodology is an analysis of the terrain, technology, tactics, organization for combat, and leadership during the battle. This thesis shows that the Union did not employ artillery effectively due to poor organization for combat and failure of leaders to use the weapons systems in accordance with their strengths. The failure to plan for artillery use on 20 September directly led to weakness on the left flank, which the Confederates exploited. The ensuing havoc led Union leaders to attempt to reorganize their artillery structure while in contact with the enemy, leading to predictable failure. This thesis shows the failure of artillery, a branch that was nearing the end of its relevance during the American Civil War due to technological change. As military thinkers today go through the process of redesigning the force, they can use the lessons of the artillery at Chickamauga as an example of the wrong way to employ a force at the end of its life cycle.

CHAPTER 1

INTRODUCTION

On 19 and 20 September 1863, the Union Army of the Cumberland under Major General William Rosecrans faced the Confederate Army of Tennessee commanded by General Braxton Bragg at the Battle of Chickamauga. Neither side particularly wanted to fight the battle at the location, but the situation escalated until conflict became unavoidable. Conflicts between small subordinate units became a full scale meeting engagement by the middle of the morning on 19 September. Both commanders committed additional forces to the battle as quickly as they arrived, with neither side able to maintain a clear advantage for very long.

The Army of the Cumberland had 98 smoothbore and 102 rifled artillery pieces and the Army of Tennessee had 118 smoothbore and 27 rifled.[1] Given that Rosecrans fielded around 60,000 soldiers and Bragg around 65,000, the ratio of tubes per thousand soldiers was 3.3 for the Army of the Cumberland and 2.2 for the Army of Tennessee. The Army of Tennessee had a smaller ratio because Longstreet reached the field late, and his artillery had not caught up to him yet. Intuitively, the significant Union advantage in artillery should have given the Army of the Cumberland an advantage over the Confederates. This advantage never materialized during the course of the battle.

Most Union commanders failed to use artillery to the best advantage during the battle. The 5th Battery, Indiana Light Artillery fired over 1200 rounds during the two days of the battle.[2] From the same corps, the 8th Battery, Wisconsin Light Artillery did not fire a shot during the battle, despite being on the battlefield for most of the two days.[3]

This is a single example of two batteries taken outside the context of the entire battle, but the situation was not unique. The dichotomy between batteries used effectively and those used ineffectively, or sometimes not at all, is so striking that it indicates that there was no coherent plan for employment of artillery at Chickamauga. On 19 September the two sides fought a meeting engagement, so it is understandable how some units might be left out, but 20 September was a deliberate attack where the Union was in the defense, an ideal situation for the use of artillery.

Based on the apparent lack of effectiveness of artillery in the Army of the Cumberland, the question this thesis intends to answer is why artillery was not more effective. The second chapter is background, focusing on artillery technology of the time, organization for combat, doctrine, the role of the Chief of Artillery, and tactics. The third and fourth chapters will focus on the nineteenth and twentieth of September, 1863, respectively. In the fifth chapter I draw conclusions from the previous chapters, discuss which factors contributed most significantly, and relate any relevance they may have to current events.

When writing on the employment of artillery during the American Civil War, many authors focus on a specific factor that prevented more effective use. The advent of the rifled musket, which increased the effective range of the infantryman, and the lack of suitable terrain are prominent themes in many works. Taking any single factor and claiming it was the reason for lack of adequate artillery support, such as McWhiney and Jamieson do in *Attack and Die*, is simplistic. The implementation of combined arms on the battlefield, especially in the absence of modern communications and command and

control, was a difficult task. There are many factors beyond those mentioned previously that prevented commanders from getting the most from their artillery.

It was not lack of artillery that prevented its effective use. As mentioned previously, the Union had a significant numerical advantage in cannon. It had to be other factors that hindered effective employment. The primary factors that impacted upon effectiveness were terrain and weather; tactics, doctrine and organization for combat; the personalities, roles, and biases of the people involved; and technology.

Terrain at Chickamauga was not favorable to the use of artillery. It was not likely that a battery commander would find himself with wide-open fields of fire that allowed him to sweep the entire field. Reports from artillery commanders following the battle mentioned many times that they could not see advancing infantry due to the vegetation until the two sides were well within the range of the rifled musket—150 yards or even closer in some instances. This did not prevent the artillery from firing, but it put the infantry on a more even footing since they could fire back with devastating effectiveness at that range.

Range limitation was the most obvious effect of the terrain, but the heavy vegetation had more subtle effects as well. Finding a relatively flat and open piece of ground on which to put a battery into action was difficult. Added to that problem was the infantry's moving in all directions, especially on 19 September, and it was difficult for commanders to find effective positions from which they could support the infantry without being masked by the terrain or their own troops. There are very few instances in the Civil War where artillery was effective in the attack or a meeting engagement, and the terrain in North Georgia made that type of role even less desirable.[4]

The last effect that terrain had on artillery employment was the hindrance to movement created by the rough ground. Moving quickly to support defensive positions was difficult. Batteries were put in place and waited for the battle to come to them. For this reason, some batteries never saw action. It is possible that the lack of mobility also had a psychological effect on some commanders and caused them to be more cautious with their artillery since it was difficult to pull out of untenable positions. The number of artillery pieces captured and recaptured leads one to believe that this factor was not that important in employment decisions. Confederate reports from after the battle indicated that they captured fifty-one Union field pieces, and that excluded the guns that the Union took back during the fighting.[5] In his report Major General W.S. Rosecrans claimed the number of artillery pieces lost was thirty-six, but since the Confederate report lists the pieces by serial number it seems to be a more credible source.[6] Adding up lost pieces reported by individual battery commanders actually shows that the number of cannon captured by the Confederates was likely between the two reported figures.

Given the obvious and well-documented difficulties presented by the heavily forested area, it is easy to attribute ineffectiveness, especially on the 19th, to terrain. Though this explanation is possibly accurate for a few individual batteries, there were opportunities to mass artillery on both days of the battle. There are some cases when either through chance or design commanders massed artillery, but with better planning and organization there would have been more.

Tactics and doctrine evolved throughout the Civil War, and the changes did not occur at a uniform pace across the Union army. Progressive commanders adopted changes quickly while others lagged behind. Three months prior to Chickamauga, Major

General George Meade gave command of all of his artillery to Brigadier General Henry Hunt with historic results. That type of massed artillery organization had not reached the Army of the Cumberland. Despite the slow change, by 1863 the Army of the Cumberland had discarded the audacious offensive tactics of the Mexican War. The accurate fire of the rifled musket eliminated the practice of moving a battery forward to place heavy fire on defensive lines.

Despite the change in employment, the organization of artillery within the army did not follow. The Army of the Cumberland detailed each battery to a brigade. The most effective way to use artillery--and perhaps the only effective way--was to mass fires. With the later invention of accurate indirect fire weapons batteries would be able to mass their fires without being located together. The direct fire artillery systems of the American Civil War were not accurate enough and did not have the range to mass fires unless they were close together and working in concert with one another.

Theoretically the artillery of the mid-nineteenth century could mass fires against an individual target if the batteries were placed individually on a long battle-line with unobstructed fields of fire.[7] This theory was of little use to the Army of the Cumberland since there were not any long battle-lines to be found at Chickamauga. Even if there were such lines available, massing fires would require batteries to fire at targets not directly threatening the brigade with which they were placed. It is unlikely that the average brigade commander would see the benefit of such massed fires when contrasted with having “his” guns firing at the enemy most directly threatening his unit. Massed artillery fire during the Civil War, when achieved, was primarily through the use of large formations of artillery under a single chief of artillery who had the authority to move and

emplace pieces to achieve maximum effect. Mostly this occurred in the East, especially prior to September 1863.[8]

The scope of this thesis is not broad enough to examine the role of artillery throughout the entire Civil War. Many authors devote an entire chapter to the subject, and a valid study of the topic would fill an entire book, perhaps more than one volume. The consensus is that artillery during the Civil War was most effective in the defensive. Best employed, defending artillery would fire at advancing infantry, while attacking artillery would attempt to destroy defending artillery to prevent it from firing at the advancing infantry. One could certainly debate the merits of using massed artillery in the attack, but the terrain at Chickamauga makes that a moot point since moving artillery forward into range where it could do any good in the attack would have been nearly impossible given the lack of mobility. For the purposes of this thesis I will accept the much-touted premise that the best employment of artillery would be massed in the defense. This thesis will not be an attempt, except for some organizational issues, to examine implementation of artillery outside of the confines of the Battle of Chickamauga.

Given that broad assumption, this thesis will examine organization and tactics to determine whether the Union could have employed their assets better to achieve massed artillery fires at Chickamauga. The Army of the Cumberland did a poor job organizing artillery in a manner that facilitated massing fires. Given the restricted terrain, one could argue that there were no opportunities to mass artillery and that decentralized organization was the best use of resources. While it was true that maneuvering large artillery formations would have posed a significant challenge, there were opportunities

for more decisive action that were not realized due to the lack of control inherent in a decentralized organization. Had the artillery been organized by battalion, or even in a larger formation, there may have been fewer opportunities to fire, but when employed it would almost certainly have had a greater effect on the outcome of the engagement.

Almost parallel to the organization of the artillery were the command structure and personalities of the leaders involved in its employment. The Army of the Cumberland had Chiefs of Artillery from army level down to division. Calling a man the Chief of Artillery means something significant only if he does something with the position. Several factors combined to make the position ineffective. It would have taken a strong leader with the support of commanders at all levels in order to make a difference, and there were very few cases where the Army of the Cumberland even came close. Beyond that, the organization of the artillery directly affected the role of the Chief of Artillery. Since all the batteries were assigned to infantry brigades, the Chiefs of Artillery had nothing to direct other than the artillery reserve and the trains. In practice most of the Chiefs of Artillery became just ordinary staff officers for the division or corps commander with no direct link to subordinate batteries.

Given that he had the authority and support of the commander, a Chief of Artillery at any level, from army to division, would still have to have some means at his disposal to control batteries and get as many as possible to the critical points on the battlefield. Communications being what they were, unless batteries were moving together on the march it is questionable whether or not even the best leaders could have found all the batteries on the field, let alone employed them appropriately. Inappropriate

organization combined with lack of direction further hindered the effectiveness of artillery during the battle.

Perhaps even more important than the role of the Chief of Artillery was the role of the commander. The commander in an organization has the responsibility for everything that goes right or wrong within that organization. Only the commander could have empowered a subordinate leader to command massed artillery. None of the commanders within the Army of the Cumberland gave any level of tactical responsibility to their Chiefs of Artillery, but instead relegated them to administrative and logistical duties. Commanders were loathe to take batteries away from subordinate brigade commanders. In one instance Brigadier General Willich, commander of the first brigade under Major General Johnson, petitioned his commander to get control of his battery. Johnson ordered the change and Captain Simonson, the Division Chief of Artillery, went back to commanding his own battery.[9]

Senior artillerymen made few significant recommendations to their commanders. Chiefs of Artillery were given little authority at any level to maneuver batteries. In most cases it fell on the senior battery commander in the division to employ artillery, and in most cases he was more concerned with the employment of his own guns than the entire division fight. In many division his primary division level role was to collect reports from the other batteries in the division and forward them to the corps Chief of Artillery after the battle.

The final factor to consider when examining the lack of effectiveness of artillery is the technology that was involved. The Union had the preponderance of the rifled artillery, which was more modern, and the two sides were fairly even in numbers of

smoothbore weapons. The longer range and greater accuracy of the rifled pieces theoretically gave the Army of the Cumberland an advantage, but the smoothbore cannon was more effective in short-range situations requiring canister ammunition.[10] Based on the short range engagements prevalent at Chickamauga, the smoothbore weapons were better suited to the task than the technologically more advanced rifled guns. The caliber of specific batteries and the types and quantities of ammunition available also had an impact on the outcome of small-scale confrontations. The twelve-pound Napoleon, a smoothbore, was especially effective against advancing infantry.[11]

In addition to the technology of the artillery pieces, no study of Civil War technology can ignore the impact of the rifled musket. While examining artillery and not infantry weapons, it is still important to examine the effect that longer-range, more accurate infantry fire had on artillery. Because the infantry could drive cannoneers from their pieces with aimed musket fire, the artillery was certainly less effective. This was the case throughout the war, and persisted during the Battle of Chickamauga.

While much of the technology discussion will be for background purposes, it is also necessary to answer some questions regarding the equipment in use. Rifled artillery, with its greater range and accuracy, could not be used to any sort of advantage given the terrain limitations. Common practice in the defense held that commanders should concentrate a small portion of their artillery against attacking batteries—a task ideally suited in most cases to rifled pieces. There is no indication that the Army of the Cumberland made any effort to exploit that advantage. There are cases when commanders got the appropriate cannon for the job to the place it was needed on the battlefield, but not with any sort of consistency.

This thesis determines which factors mentioned thus far had the most effect, and which had the least. A person who studies the generalities of the Civil War would probably immediately claim that technology was the biggest factor. A person with cursory knowledge of the specific battle in question would almost certainly make a claim for terrain. With a deeper look it is clear that all the factors had a role in the end result, not just one or two. To understand the impact of each aspect, it is necessary to study all. Despite all the limitations of the situation, there are many things that Rosecrans and his subordinate commanders could have done better with their artillery.

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[1] William Glenn Robertson et. al., *Staff Ride Handbook for the Battle of Chickamauga, 18-20 September 1863* (Leavenworth: U.S. Army Command and General Staff College, 1992), 18.

[2] *The War of the Rebellion: Official Records of the Union and Confederate Armies, Volume XXX* (Washington, D.C.: US Government Printing Office, 1880-1901), Volume 1, 577. No series will be indicated unless other than series 1. Hereafter cited as *OR.*

[3] *OR* Vol. 30 part 1, 504-505.

[4] Boyd L. Dastrup, *King of Battle: A Branch History of the U.S. Army's Field Artillery* (Fort Monroe: United States Army Training and Doctrine Command, 1993), 119.

[5] *OR* Vol. 30 part 2, 40.

[6] *OR* Vol. 30 part 1. 62.

[7] Paddy Griffith, *Battle Tactics of the Civil War* (Yale University: Yale University Press, 1989), 166-167.

[8] Dastrup, 92-99.

[9] *OR* Vol. 30 part 1, 537-538.

[10] Griffith, 168-171.

[11] Ibid. 170.

CHAPTER 2

CANNON, AMMUNITION, AND ARTILLERY ORGANIZATION

Before understanding the employment of artillery at Chickamauga, it is first necessary to understand the equipment of the time and the general system of organization. Perhaps it is best to grasp the system as it existed prior to the start of the American Civil War, and then to examine what evolved as a result of the war and was in place by September 1863. It is also important to understand the capabilities and options that artillerymen at Chickamauga had at their disposal, which requires a detailed look at the cannon, ammunition, and fuses in use at the battle as well as the organization of the battery. Finally one must also understand the role of the artillery within the overall architecture of the army, which requires study of the use of batteries as well as the role of the Chief of Artillery.

The Artillery Prior to the American Civil War

In the late eighteenth century, Napoleon Bonaparte revolutionized the use of field artillery when he put into practice new tactics developed at the French Artillery School. Instead of sitting back and engaging the enemy in an artillery duel, he directed batteries to close up within range of canister ammunition and fire into enemy infantry formations, disrupting or blowing holes in the formation for friendly infantry to exploit. Since the cannon could pour effective canister fire into the enemy from four hundred yards and the enemy's musket could only respond effectively from one hundred yards, the infantry had little chance. If the officers could inspire the soldiers to charge the guns, they still had to

cross three hundred yards before they could effectively fire back. If it took them ninety seconds to cross those three hundred yards, the artillery could fire three devastating aimed volleys into the onrushing troops before there was any significant threat. At that point, friendly infantry would take over and counter charge into the disrupted and demoralized enemy formation.

To defend against this tactic, the enemy had limited options. Since the only weapon available with the required range was artillery, the only effective defense was counter-battery fire. When a battery came forward to fire at infantry lines, defending artillery would attempt to place enough fires upon the attacking battery to force it to withdraw. The defending batteries would try to fire explosive shell into the attacking battery to destroy, disable, or reduce the effectiveness of their fires. Since shell has a much greater range than canister, it would seem that the defenders had the advantage, but that was not so. The defenders had the difficult task of responding to enemy initiative, and if a defending battery wasn't in position to engage, it was difficult to get there. Firing shell over friendly troops was a risky proposition (the Bormann fuse hadn't been invented yet) so defending batteries needed a clear line of fire to the attackers. Since the attacker could choose the place and time of the attack, tactical initiative consistently remained on the side that sent batteries into the attack.

Bold, audacious tactics for the employment of artillery were soon adopted by most armies with good results. During the Mexican War (1846-1848) battery commanders like Captain Braxton Bragg employed their artillery in a similar fashion with much success. Fast-moving offensive operations were perfectly suited to the relatively open terrain of Mexico and the Southwest. These aggressive batteries

considered themselves an elite part of the Army and were often determined to prove it in battle. [1] Often referred to as a flying battery, all the soldiers of the battery were mounted so that they could move rapidly across the battlefield, dismount and go into action in the fastest time possible. Farifax Downey gives a good visual image of this type of action describing Captain Braxton Bragg's battery at the Battle of Buena Vista during the Mexican American War. "Across the plateau Braxton Bragg's flying battery whirled at a headlong gallop, drivers whipping and spurring weary teams. Close to the spot where the capture of O'Brien's cannon had opened the way for a Mexican victory, it swung smartly from column into line. Cannoneers leaped from their mounts, turned them over to horse holders, swarmed around the spaced fieldpieces, loaded, aimed, and touched matches to vents at Bragg's command, and poured shot into the Mexican masses."[2]

Cannon

There were many different models of cannon present at the Battle of Chickamauga. These cannon fell into two basic categories: smoothbore and rifled. For purposes of organization this thesis will discuss the cannon from oldest to most modern, starting with the smoothbore and transitioning to rifled.

In the 1840s and early 1850s the artillery system called for a mix of guns and howitzers. The howitzer was also generally a smoothbore cannon, but was designed to fire a large projectile with a relatively smaller charge.[3] The system called for a mix of approximately two-thirds guns to one-third howitzers. Three quarters of the guns were to be six pounders and one quarter would be twelve pounders. Three quarters of the howitzers would be twelve pounders and one quarter would be twenty-four pounders.[4]

It is important to note that the naming convention for Civil War guns is slightly deceptive. The terms six-pounder and twelve-pounder do not actually refer to the weight of the round. The method for naming the weapons came from a time when solid shot was the only ammunition fired, and that shot had a standard weight. By the American Civil War, a six-pounder referred to a piece with a 3.67 inch bore, a twelve-pounder had a 4.62 inch bore, and the twenty-four-pounder howitzer, of which each side had two at Chickamauga, had a 5.82 inch bore. To demonstrate the inaccuracy of the nomenclature, a solid shot round for a twelve-pounder smoothbore gun actually weighed 12.75 pounds.[5]

By the start of the American Civil War, artillery units were beginning to replace six-pounders with twelve-pounders, and by the fall of 1863 the proportion of weapons had reversed; the preponderance of smoothbore artillery was twelve-pounder. This was due in large part to the introduction of the twelve-pounder Napoleon model 1857, which replaced the six-pound gun as the mainstay in the artillery inventory of both sides. Sometimes called a gun-howitzer, the Napoleon was the most prevalent piece on the field at Chickamauga with a total of 110 on both sides. The Napoleon was extremely reliable, with very few recorded instances of failure or bursting and was lethal with canister out to 400 yards.[6] It had a maximum range of 1680 yards, although it is safe to say that there weren't many opportunities to engage at maximum range in the woods of Georgia, and in any event the weapon was much more effective at shorter ranges.

Even with the advent of rifled artillery smoothbore cannon continued to see service throughout the war. This was partially due to the fact that neither side, especially the Confederacy, could keep up with the manufacturing requirements for new cannon. But there were tactical reasons for keeping smoothbores in the inventory as well.

Smoothbores were fast loading, able to fire two aimed rounds a minute, and they were extremely effective when loaded with canister.[7]

Rifled cannon, as the name suggests, had rifled bores. Rifled cannon, like rifled muskets, were newer technology. There were three types of rifled cannon in use at Chickamauga: The James rifle, the ten-pounder Parrott, and the Rodman, also called a three-inch rifle. The three types were present in about equal numbers at Chickamauga, though the Parrott and Rodman were more common overall during the American Civil War. The James rifle, though sometimes originally cast as a rifle, was usually an old smoothbore gun that had been fitted with rifling, which generally wore out pretty quickly since it was bronze.[8] The Rodman was generally considered both sturdier and more accurate than the Parrott, but the Parrotts were cheaper and quicker to manufacture so they came to the field in greater numbers.[9] By 1863 both the ten-pounder Parrott and the Rodman had three-inch bores.

As with the musket, the rifling on cannon allowed longer range, more accurate fire. Rifled cannon also allowed for a heavier bursting charge from the same size bore.[10] Unlike the musket, however, the rifled cannon was not universally better than its smoothbore companion. Extended range and accuracy, in theory, provided an advantage, but only if the opportunity existed to take advantage of that range. At Chickamauga the heavy advantage of the Union in rifled cannon had little significance since there was rarely an opportunity to take advantage of the additional range.

The ten pounder Parrott and the Rodman three-inch rifle both had a theoretical range of approximately 6200 yards at thirty-five degrees elevation. In actual practice, the maximum tended to be less than half that distance.[11] Several factors contributed to the

difficulties of employing rifled cannon at maximum range. Poor communication and difficulty spotting rounds at long distance made adjusting fire, or aiming, more difficult at longer ranges. If someone was in position to observe the enemy at long distance, it was unlikely that he would be able to communicate that information to the battery quickly enough for them to act on the information before the enemy moved. Even if the battery did manage to fire at that distance, a trained artilleryman would have to observe the impact of the rounds in relation to the target and get that information back to the battery before the second volley. Finding the correct range with artillery took competence and training even at 1500 yards. For ranges longer than that it was exponentially more difficult.

At Chickamauga the range advantage of the rifled cannon was even less significant due to terrain. Heavy woods and brush made observation at significant range difficult, if not impossible. There were occasions where lines of troops approached within 150 yards or closer before either side realized the other was there. At these close ranges, the most significant drawback of rifled cannon became significant. Rifles were not as effective as smoothbores when using canister. The small three-inch bores were not ideally designed for canister, and the rifling made them more difficult to load, so they had a slower rate of fire.

Ammunition

Although there were differences in the specifications, both rifles and smoothbores had similar ammunition available at Chickamauga. Each round consisted (and still consists today) of three basic parts: propellant (or cartridge), projectile, and fuse. For smoothbore cannon the projectile and the cartridge were attached to the same formed

piece of wood—or sabot—and the pieces together comprised a fixed round of ammunition.[12] Rifled cannon loaded the cartridge and projectile separately, and the two pieces together formed a round of semi-fixed, or separate loading ammunition. The smoothbore had to be loaded as fixed ammunition since that was the only way to ensure that the fuse of the round projectile would remain facing away from the propellant[13]

There were four types of projectiles available to both sides at Chickamauga: shot, shell, spherical case, and canister. Shot was the most basic of the four, just a solid metal projectile. It provided long-range fires and could be used effectively against masses of troops or cavalry since it would skip or roll through the formation, breaking legs and breaking up formations. Shell was slightly more complicated, but was basically a hollowed out shot filled with a low yield black powder and fused with a time fuse. Early shell tended to break into only a few large pieces due to the low yield of the bursting charge, so the rounds were relatively ineffective. To correct the deficiency, Confederates cast the interior of some shells in segments so there were inherent weak points in the structure that caused the projectile to burst into more pieces.[14] Shell was especially effective against enemy artillery since it had relatively long range, some destructive power upon bursting, and, beyond the physical damage, the sound and concussion of the explosion served to scare enemy horses.[15] The large hot fragments from shell were ideally suited to damaging equipment such as trails or limbers, and to igniting enemy powder.

Spherical case, sometimes referred to as case, or case shot, was a hollowed out shell filled with small lead or iron balls surrounding a bursting charge. This round was invented by a European officer named Shrapnel, and sometimes was referred to by his

name. When the time fuse set the round off, the thin case (half an inch thick for ammunition fired by the Napoleon) of the round exploded and the musket balls continued on approximately the same trajectory. This solved the problem that shell had of bursting into just a few pieces, and was a more effective round against enemy troop formations because more pieces meant it could hit more people. There were seventy-eight musket balls in a standard projectile for a twelve-pounder.[16]

Canister was perhaps the most devastating artillery round of the time, functioning like a giant shotgun load. A number of historians have argued that it was the only artillery ammunition that had any significance. Although limited in range to about 400 yards, inside of that distance canister was lethal. Each canister consisted of a tin cylinder filled with cast-iron shot that varied in size and weight depending on the size of the cannon. The balls inside of a canister for a twelve-pounder Napoleon were approximately an inch and a half in diameter. Canister rounds for smoothbore guns were designed with twenty-seven balls, howitzer rounds with forty-eight. The exception was the mountain howitzer which had 148 much smaller musket balls. Due to the smaller shot, mountain howitzer canister was ineffective beyond 300 yards.[17] At close ranges, when threatened by enemy infantry, gunners could load a double shot of canister with a single charge, effectively firing fifty-four golf ball-sized iron projectiles at a charging enemy.

Fuses

In order to make shell and spherical case explode at the appropriate time and place the projectile had to be detonated by a fuse. All time fuses worked on the same general principle. Since the artillery officer could calculate how far the shell would

travel in a given amount of time, he would direct a soldier to cut the fuse to explode the shell at a time equivalent to a given distance. Depending on the type of fuse, there was a matching tool used to cut the fuse to the right length with reasonable precision. The most reliable time fuse in service was the Bormann fuse (Sometimes spelled Bormaun, or Boarmann). It was graduated in quarter seconds to five and a half seconds, but was generally referred to as a five-second fuse. It had a high safety factor for storage and handling since the powder was encased in thin metal and was also precise because the powder was driven vertically but burned horizontally, giving a relatively even rate of burn. Additionally, the Bormann could turn spherical case into canister by cutting directly into the booster to explode the shell at the muzzle.[18]

The Union had a marked advantage in fuses because Confederate Bormann fuses were not good. Bormann fuses required precision equipment in production to be effective. While this was not a significant problem in the industrialized North, the agrarian South never mastered the technique. Confederate Bormann fuses were so inconsistent that by the start of 1863 they were no longer in production.[19]

Without access to Bormann fuses, the South turned instead to the less efficient paper time fuse. The paper time fuse was a simple device—powder wrapped in paper then inserted into the round by means of a hollowed out wooden plug, or more commonly by 1863 a threaded metal plug that screwed into the projectile. They were less precise then the Bormann fuses since there was some inconsistency to the rate of burn, and they were much more susceptible to malfunctioning due to moisture. Major Thomas Porter, Chief of Artillery, sums up the Confederate fuse problem when he describes action on the twentieth of September: “Major Williams [Commander of the Corps Artillery for

Buckner's Corps] was directed to post two of his batteries there and remain to repel any assault that the enemy's infantry might make. He remained there several hours, part of the time under a heavy artillery fire, which he could not return, as our fuses are so uncertain that he would have run the risk of killing our own men by firing over their heads."[20] Union fuses functioned better than that, but there was still uncertainty which made Federal gunners loathe to fire over the heads of friendly forces as well.

Initial fuses for rifled pieces worked in much the same manner, but by the Battle of Chickamauga most rifled ammunition used percussion fuses that would explode the round upon impact. This was a significant advantage of the rifled cannon—perhaps more significant than the range or accuracy advantages. Since a rifled cannon fired an elongated projectile it would impact on its nose, therefore making the task of exploding the round significantly easier than it was with the round projectile of a smoothbore. The percussion fuse was a relatively simple apparatus, often consisting of a musket cap on a plunger device that fit within the nose of the shell in a sleeve. When the round struck the ground, the plunger and the cap came forward detonating against the nose cap. The greatest weakness of the fuse was that it had to strike with enough force to jar the cap forward. If a projectile came in at too low of an angle and ricocheted, it would rarely detonate.[21]

Organization of the Battery

Each battery was supposed to consist of six cannon and the associated men and equipment needed to operate them. It was common, even expected, for a battery to be comprised of more than one type of weapon system. Each cannon section was made up of the piece itself attached to a limber, and a caisson. The table of organization called for

six additional caissons per battery as well, with the exception of six-pounder batteries which had only the caissons assigned to each gun.[22] In addition to the limbers and caissons, each battery had a travelling forge, with tools and equipment for blacksmiths and armorers, for shoeing horses and general repairs, and a battery wagon for general support, mostly consisting of harness and tack equipment for the horses.[23]

Nine men served each piece, but the total complement of soldiers for the battery was much greater. An 1861 manual stated that the number of soldiers required per gun section varied between twenty and thirty, including officers and non-commissioned officers, and should have no fewer than twenty-five per gun during field service.[24] This figure included the nine men required to operate the cannon as well as personnel required for the caissons and battery trains. By fall of 1863 a fully manned six gun battery consisted of about 150 soldiers and five officers.

Besides the battery commander, a lieutenant commanded each section of two cannon. The fifth officer, also a lieutenant, was in charge of the battery trains and caissons. In many cases there were not enough lieutenants to fill all the officer billets, due either to casualties or shortages in personnel. When a battery was short of officers, a senior non-commissioned officer often took charge of the caissons. When operating as half batteries instead of sections, the two lieutenants with highest rank took charge. Each cannon had a non-commissioned officer (sergeant) in charge, who led a detachment of eight to nine cannoneers, two of whom were corporals. The corporals served as chief of caisson and gunner. In addition to cannoneers, each section had one driver for every pair of horses, for a total of nine drivers in a twelve-pounder section consisting of a cannon and two caissons.[25]

Perhaps more significantly than the requirement in men, each six-gun battery required approximately 146 horses. Ten of those were spares, and sixteen were mounts for officers and non-commissioned officers, but 120 animals were required for moving a twelve-pound battery's equipment. A six-horse team drew each limber, caisson, and wagon—a total of twenty for the section.[26] This large number of horses made the logistical requirements for a battery significant, since horses required large amounts of food and water, and had to be replaced when injured. Many diaries and first hand accounts describe artillery officers going out into the surrounding country trying to find horses they could buy to bring their batteries to the required number. A battery without horses did not move except for very short distances in tactical situations where soldiers moved pieces by hand.

Horse-drawn cannon posed a problem tactically as well. Maneuvering in the face of enemy fire was dangerous enough for men, but with horses it was nearly impossible. The high silhouette of the large draft animals required to move heavy cannon made a target that was nearly impossible to miss with accurate rifled muskets. With the horses dead or incapacitated, a battery wouldn't be able to withdraw from advancing infantry. Since the horses were harnessed in teams, a single wounded horse could cause a section to stall while soldiers cut the dead animal out of the harness. This factor had to be in the mind of battery officers as they put the guns into action, although judging by the number of pieces captured at Chickamauga they didn't necessarily let that be the ruling factor in their decisions. Batteries replaced horses on limber teams that were injured or killed with horses from the caissons, but that was only if the battle was moving forward. When the

enemy was advancing, it was sometimes impossible to get a new team to the gun in time to save it.

When put into action, ideally the guns would go forward with their teams while the caissons stayed somewhat to the rear under the command of a lieutenant. The gunners would fire the ammunition from the chest that went with the gun and as they ran out of rounds from that source the caissons would resupply them. Each limber carried one ammunition chest and each caisson carried two. The chests were detachable so that an empty chest could be removed and a full one put in its place. The chests held a different number of rounds depending on the type of weapon.. Since the chest was a standard size, it could obviously hold more six-pounder rounds than twelve-pounder. A chest of six-pounder ammunition held fifty rounds of varying types while a chest of twelve-pounder ammunition held thirty-two.[27]

Since many of the batteries involved at Chickamauga were volunteer units, and many had seen action before, they were not always at a consistent strength. As a rule, most of the Union batteries had six cannon, while most of the Confederate, at least in the Army of Tennessee, had four. Few, if any batteries were fully manned. On the extremes, Captain Eli Lilly and the 18th Indiana Battery fought at Chickamauga with six three-inch rifles and four mountain howitzers—a total of ten cannon. Lieutenant William Everett, Commander of Company E, Ninth Georgia Artillery took his battery into combat on 19 September with three cannon and eighty-five total soldiers.[28] In the Army of the Cumberland the regular batteries of the 4th U.S. Artillery, three batteries in total, had four cannon each.

Tactics of the Battery During the American Civil War

The year 1861 and the Battle of Bull Run forever altered the concept of artillery employment in the United States. It became painfully obvious that Napoleonic and Mexican American War tactics were obsolete. As was the case with most changes in the nature of warfare, some commanders responded faster than others to the changes. The varying rates of change led to a confused system of artillery employment that was not standard through either army. Some commanders persisted in trying to fight the "old way" with dubious results, while others sought new options that had not necessarily been fully developed, consequently resulting in mixed success as well.

Several factors in the American Civil War necessitated changes in the employment of artillery. The most significant, and certainly the most written about, was the widespread use of the rifled musket. Rifled muskets gave the infantry increased range and accuracy, thus eliminating the advantage in range that allowed attacking artillery to be so effective. Batteries charging to within three hundred or four hundred yards of enemy infantry formations found themselves under heavy fire from enemy musketry, unable to fire with impunity as they had in the past. Rifling, as mentioned before, gave increased range and accuracy to artillery as well, but since canister was the most effective round by far against infantry and rifling did nothing to improve canister—actually making it less effective—rifled weapons helped the infantry much more than the artillery.

A second, less documented feature of the American Civil War that degraded the use of artillery in the attack was the terrain. When fighting across the plains of Europe or in the open terrain of Mexico, the attacker could quickly move forward with horse-drawn

artillery to almost any point on the battlefield. Due to the restricted terrain of the American Civil War, the opportunities for moving forward into an open area were limited, if not altogether nonexistent. Rough terrain made a quick move forward difficult, and also made it more risky since the battery could not retire nearly as quickly if it ran into heavy enemy resistance.

A final factor, perhaps the least explored, was the changing nature of the battlefield. The increased lethality of the rifled musket had caused changes in the landscape that had secondary effects on artillery. By 1863 it was common practice for troops, when stopping for any period of time, to establish defensive breastworks, barricades, and even trenches if given enough time. Since artillery at the time still fired with a relatively flat trajectory, especially with close range canister, defensive breastworks significantly reduced its effectiveness. A dirt mound piled in front of a defender was just as effective at stopping artillery as it was at stopping musket fire.

With the offensive punch of artillery eliminated, or at the least significantly reduced, commanders and artillerymen alike searched for new ways to effectively use their artillery. In the defense the role of artillery became simpler since opposing batteries rarely moved forward. Employed with infantry support, artillery became a very potent defensive weapon against a charging enemy. It was common for a battery and a regiment of infantry to work together in a defense. The infantry regiment provided protection to the artillery and the artillery battery added significantly to the volume of fire from the infantry regiment. Perhaps more importantly, the battery provided moral support to the defending infantry as well as a detriment to the morale of the attackers. The psychological effect of the cannon was significant. There are those who would argue that

the psychological value was the most significant role of artillery on the battlefield, and there is strong evidence to support that argument. Major General Sherman, in order to reduce his logistical requirements during his famous March to the Sea, reduced the preponderance of artillery in his army to one tube per thousand soldiers. His reasoning was that he had seasoned troops that did not require as much moral support from artillery.[29]

In the attack the role of artillery became much more difficult. A battery could no longer move forward unsupported to blast the enemy lines. The ideal use was to place fire on defending enemy artillery to reduce the capability of those batteries to fire upon friendly advancing infantry, but this was not always possible. This idea was exactly the opposite of Napoleon's doctrine, which held that the best use of artillery was always against the enemy's infantry. Since the artillery could not keep up with the infantry in the attack, batteries had to find positions to the rear from which to engage enemy batteries. Firing over the heads of advancing friendly troops was a risky proposition, especially if the battery could not find high ground to the rear from which to fire. Given the relatively short range of artillery, the battlefield would have to set up in almost ideal conditions for that to happen. It rarely did, especially in the dense woods of north Georgia.

To avoid the problem of firing over friendly troops, artillery commanders often tried to emplace batteries on the flanks of friendly units. This provided reasonable results in open terrain, but was virtually impossible in a constricted environment. As the terrain got worse, it became more difficult for horse-drawn artillery to keep up with infantry, so the batteries could not get into effective firing positions. More importantly, in the woods

it was common for enemy lines to be less than two hundred yards apart before they could see one another. For reasons discussed earlier attacking artillery did not want to be that close to enemy infantry.

A final method for employing artillery in the attack, and one that was relatively common in wooded areas was to recognize the cannon as a defensive weapon and not try to use it in the offense at all. A brigade commander attacking with infantry would position an artillery battery behind his lines as they moved forward. The artillery was relatively safe since it had infantry between itself and the enemy, and in dense terrain there was only a minor risk of enemy artillery fire. As the brigade had success in the attack, the battery moved forward. If the brigade had to fall back, the artillery became a rallying point on which to establish a defensive line from which to thwart an enemy counterattack. Retreating attackers would see their artillery as they moved back, which made them more likely to stop and fight, as well as giving an instant increase in firepower of the forming defensive effort. In this manner, the artillery could be used to stop a failed attack, which was a relatively common occurrence, from becoming a rout. The commander of the defeated attack, with a temporary defensive line established, could rally the rest of his troops to either renew the attack or continue the defense until a fresh unit could pass and continue the attack.

Organization for Combat

There was no standard combat organization for artillery. In the eastern theater of operations the trend was toward consolidating artillery in reserve battalions for employment at key places on the battlefield. Leading artillerymen such as Barry and Hunt espoused that artillery, to be effective, had to be massed. Major General Meade

gave control of all artillery at Gettysburg—well over 300 pieces—to Brigadier General Hunt with notable success.[30]

This was in direct contrast to the theory of artillery as a moral support, which was, even if not formally presented, the belief of many brigade and division commanders. What resulted was a mixture of organizations. It is clear that some influence from the east had made its way west, but for the most part the Army of the Cumberland organized artillery batteries with infantry brigades. The Army of the Cumberland employed a Chief of Artillery at every division, as well as at corps and army level. The exact duties of these officers varied greatly, but at a minimum most submitted reports consolidating the actions of the artillery in their division or corps. The Chief of Artillery was responsible to the commander to report artillery losses, personnel status, and ammunition status at a minimum. Since the roles were so significantly different throughout the army, it is worthwhile to examine each of the artillerymen individually.

Colonel James Barnett was the Chief of Artillery for the Army of the Cumberland. Major General Rosecrans sums up Barnett's contributions to the battle succinctly: "Colonel Barnett was in the battle and discharged his duties with ability and entire satisfaction."[31] It was hardly a ringing endorsement. The only other officer of any grade to mention contributions from Barnett during the battle was a battery commander from 20th Corps, Captain Grosskopf, who credited Barnett with ordering his battery off the field late in the day on September twentieth.[32] Barnett's report from the battle mostly consisted of a brief summary taken from reports of subordinate artillerymen followed by a detailed chart listing losses of personnel and equipment.[33] His report makes no mention of his role in planning or directing the employment of batteries. More than anything else

he was simply a focal point to gather artillery information for consolidation and presentation as needed to the commander.

If possible, the Chief of Artillery for 14th Corps had an even smaller role than his counterpart at army level. Major Walker E. Lawrence served on Major General Thomas' staff, but had no role related to artillery. At one point during the battle on the twentieth Thomas sent Lawrence to notify different commanders that a resupply of ammunition was imminent.[34] The ammunition in question was for rifled muskets, not artillery. On the morning of the same day when Thomas needed someone to take charge of the corps' artillery to cover his exposed left flank, he gave the mission to one of his division commanders instead of entrusting the task to his Chief of Artillery. Lawrence did not even compile the reports of his subordinates, nor did he submit any sort of report himself.

The subordinate artillery chiefs within the 14th Corps had limited roles as well. In three of the four divisions within the corps the position of Chief of Artillery did not truly exist. The senior battery commander within the division also served nominally as the Chief of Artillery for the division. As a group, the captains spent almost all of their time leading their individual batteries and almost no time working for the division commander. The sole administrative function of these officers seems to have been to collect and forward the reports of the other batteries within the division. Captain Schultz, Captain Church, and Captain Harris, Chiefs of Artillery for the 2nd, 3rd, and 4th Divisions respectively, actually filed two reports each, one as Chief of Artillery and one for their battery, but the first report in each case is simply a chart summarizing division artillery equipment losses.[35] The Chief of Artillery for 1st Division was unique and better fits with the 20th corps.

The most confusing structure within the Army of the Cumberland belonged to the 20th Corps. In his operational report Major General McCook, the 20th Corps Commander, praised Major G. A. Kensel, Chief of Artillery, for his performance during the battle.[36] For his part, Major Kensel submitted his report not as the Chief of Artillery for 20th corps, but instead as Chief of Artillery for 1st Division, 14th Corps. The Chiefs of Artillery at the divisions within 20th corps submitted their reports directly to Colonel Barnett, the Chief of Artillery for the Army of the Cumberland. This is in direct contrast to the other two corps where the Chiefs of Artillery at division level submitted reports to the Chief of Artillery at corps. One possibility is that Major General McCook, short a Chief of Artillery for some reason, "borrowed" Kensel from Thomas or from the division commander, Major General Baird. McCook could have reached down to one of his divisions instead, but Kensel was senior to the Chiefs of Artillery for all of McCook's subordinate divisions.

The division level Chiefs of Artillery in 20th Corps all had significantly roles within their divisions. Captain William Augustus Hotchkiss, Chief of Artillery for Davis' 1st Division, truly led the artillery for the division. Major General Davis kept his artillery consolidated at division and Hotchkiss was his conduit for commanding the batteries. Hotchkiss placed the units during combat, and he was the only artillery officer in the division that filed a report. The report encompassed the actions of both of his subordinate batteries. The third battery for the division was attached to its brigade which had been on duty at Valley Head and did not take part in the battle.[37] Hotchkiss essentially acted as a battalion commander for all the artillery within the division, receiving guidance from the division commander and translating that into orders to his subordinate batteries.

The situation in 2nd Division was completely different. Captain William Simonson, Chief of Artillery for 2nd Division, had a second role as commander of the 5th Battery, Indiana Light Artillery. He summed up his role in the battle when he replied to an inquiry from Colonel Barnett:

> Colonel: In answer to your order of yesterday, I have the honor to report that I was not in command of the batteries of this division during the battle of the 19th and 20th. General Willich, commanding the First Brigade of this division, some time previous to the fight, desired to have entire control of the battery in his brigade, and it was so ordered by General Johnson. This relieved me, and I took command of my own battery on the 1st of September.[38]

Brigadier General Johnson, commander of the division, paid Captain Simonson special thanks for his role as the Chief of Artillery during the fight, but Captain Simonson's report clearly indicates that he was not serving in that capacity during the battle, but rather was commanding his own battery. The dichotomy between the two statements makes it difficult to determine exactly what the role of the Chief of Artillery was in 2nd Division.

The role of the Chief of Artillery for 3rd Division, Captain Henry Hescock, is difficult to discern since the Confederates captured him during the battle on the 20th.[39] For obvious reasons, he did not file a report. He was not a battery commander, so Chief of Artillery was his only role, and indications from other reports show that he had some authority directing artillery. Colonel N. H. Walworth, who commanded the third brigade of the division after the wounding of Colonel Bradley, reported that Hescock ordered Prescott's Battery, normally associated with Third Brigade, to report to Second Brigade early in the morning on the twentieth of September. Prescott confirmed this in his report where he also indicated that he did not fight with Third Brigade all day.[40] This indicates

that although usually organized with brigades, the artillery of Sheridan's division consolidated when appropriate.

The 21st Corps Chief of Artillery, Major John Mendenhall, was the only corps or higher level Chief of Artillery that took an active role in the management of artillery within his unit. He directed employment of batteries on both days of the battle, and moved around the field on his own in order to position different units. He performed the same administrative functions as other Chiefs of Artillery, but during the fight he had a significant tactical role as well.[41] Numerous battery commanders included mention of orders received from Mendenhall in their reports. Some of the orders were certainly relayed from Major General Crittenden, the corps commander, but some were definitely the decisions of Mendenhall himself. This thesis will more fully discuss the decisions and orders of Mendenhall and Crittenden in later chapters.

The Division Chiefs of Artillery in 21st Corps did not have as much autonomy as Major Mendenhall. Captain William E. Standart in the Second Division was the only division Chief of Artillery in the corps not also serving as a battery commander. Palmer's 2nd Division was the only division in the army that had four batteries, so even with one battery assigned to each brigade the division still had a battery in reserve. Major General Palmer seemed to allow Standart quite a bit of leeway in positioning artillery and the division did not always fight with batteries attached to brigades.[42]

The other two divisions organized almost strictly with batteries attached to brigades. Captain George R. Swallow was the Chief of Artillery for 3rd Division, 21st Corps. On paper the division organized with artillery at division level, but in practice that was not the case. Swallow submitted the following report to his division

headquarters regarding the battle at Chickamauga: "I submit these reports without comment, as the batteries were acting and moving under the orders of yourself and the different brigade commanders, almost as often as they were from [under] mine, and a detailed report from me would be simply a copy of their several reports."[43] Captain Bradley's report from First Division was very similar.[44]

The Twentieth Corps was different from the other two corps in its organization of artillery on paper. Fourteenth and Twenty-first Corps both organized artillery at the division level while Twentieth Corps organized artillery batteries with individual brigades. This was mostly insignificant since the organization of the division on paper had very little to do with how the unit actually fought. Ironically Twentieth Corps, which was the most decentralized on paper, actually fought with more artillery centralized at division level than either of the other two corps.

Of the ten divisions assigned to the three front line corps of the Army of the Cumberland, six of the Division Chiefs of Artillery were also commanding batteries. The organizational table annex of this thesis indicates officers with dual roles with an asterisk next to their names. In practice, even when not commanding a battery of his own, the Chief of Artillery was most often a staff officer with little authority. He would convey orders from the brigade or division commander, who was controlling the fight, to the batteries in position to influence the action. When an officer had both battery commander and division staff jobs, usually he would command his battery during the battle and do administrative related to the staff when the conflict subsided. Some officers appointed a subordinate to command the battery while handling Chief of Artillery responsibilities during combat, but this was rare.

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[1] Fairfax Downey, *Sound of the Guns* (New York: David McKay Company, 1955), 90.

[2] Ibid., 103.

[3] Warren Ripley, *Artillery and Ammunition of the Civil War* (New York: Van Nostrand Reinhold Company, 1970), 45.

[4] U.S. War Department, *Instruction for Field Artillery* (New York: J.B. Lippincott & Company, 1861; reprint, New York: Greenwood Press, 1968), 4 (page citations are to the reprint edition).

[5] Ibid., 15.

[6] Ripley, 27-28.

[7] Ibid. 45.

[8] William Glenn Robertson et. al., *Staff Ride Handbook for the Battle of Chickamauga, 18-20 September, 1863* (Leavenworth: U.S. Army Command and General Staff College, 1992), 18.

[9] Ripley, 110.

[10] Ibid. 280.

[11] L. Van Loan Naisawald, *Grape and Canister* (New York: Oxford University Press, 1960), 537.

[12] U.S. War Dept, *Instruction for Field Artillery*, 11.

[13] Ripley, 258.

[14] Ibid., 261.

[15] Naisawald, 538.

[16] Ibid., 539.

[17] Ripley, 267-268.

[18] Ibid., 276.

[19] Ripley, 270.

[20] *The War of the Rebellion: Official Records of the Union and Confederate Armies, Vol. 30* (Washington, D.C.: US Government Printing Office, 1880-1901): Part 2, 360.

[21] Naisawald, 543.

[22] U.S. War Dept, *Instruction for Field Artillery*, 7.

[23] Ibid., 2.

[24] Ibid., 4.

[25] Ibid., 75.

[26] Ibid., 3-4.

[27] Naisawald, 544-545.

[28] XXX OR 2, 493.

[29] Grady McWhiney and Perry D. Jamieson, *Attack and Die: Civil War Military Tactics and the Southern Heritage* (Tuscaloosa: University of Alabama Press, 1982), 124.

[30] Downey, 148.

[31] *OR* Vol. 30 part 1, 83.

[32] *OR* Vol. 30 part 1, 563.

[33] *OR* Vol. 30 part 1, 233-239.

[34] *OR* Vol. 30 part 1, 253.

[35] *OR* Vol. 30 part 1, 366, 406, 443-444.

[36] *OR* Vol. 30 part 1, 492.

[37] *OR* Vol. 30 part 1, 503-505.

[38] *OR* Vol. 30 part 1, 537-538.

[39] *OR* Vol. 30 part 1, 582, 593.

[40] *OR* Vol. 30 part 1, 596, 600.

[41] *OR* Vol. 30 part 1, 621-625.

[42] *OR* Vol. 30 part 1, 721-722.

[43] *OR* Vol. 30 part 1, 806.

[44] *OR* Vol. 30 part 1, 648-651.

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CHAPTER 3

UNION ACTIONS ON 19 SEPTEMBER

On 18 September Colonel John T. Wilder and Colonel Robert Minty's brigades fought key actions around Alexander's Bridge, delaying the Confederate advance and setting the stage for even more significant action on 19 September. Spearheaded by the XIV Corps under the leadership of Major General George Thomas, Union forces marched all night to meet the Confederate threat. By dawn on 19 September Thomas had arrived and established headquarters at the Kelly House. His orders were to safeguard the Lafayette Road by deploying his corps there facing east to anchor the Union left while the rest of the army moved to link up with his corps.

Receiving a report that a Confederate brigade had crossed Reed's Bridge, Thomas dispatched Brigadier General John Brannan's division to destroy the Confederate force. Brannan advanced with Van Derveer's brigade on the left and Croxton's brigade on the right, with Connell's brigade in reserve. Croxton was the first to make contact, engaging Confederate cavalry forces in the deep woods. Accompanying Croxton's brigade was Battery C, 1st Ohio Light Artillery under the command of Lieutenant M. B. Gary with four James rifles and two Napoleons. The battery moved with the second line of infantry to meet the Confederate advance, which was stronger than first reported. The terrain was difficult and made quick maneuver of artillery impossible. Several times Croxton ordered Gary and his battery forward, but they were never able to get the timing right between the infantry and artillery. Each time the battery moved forward to engage the enemy, the Union infantry was already falling back, pressed by superior enemy forces.

The battery had to withdraw before firing a shot, with the exception of a few ineffective rounds fired high over the heads of friendly forces, merely for effect.[1]

While Croxton's fight approached stalemate, Confederate reinforcements arrived and advanced near the Reed's Bridge Road where they encountered Van Derveer's brigade and the four light twelve-pounders of Battery I, 4th US Artillery under the command of Lieutenant Frank G. Smith. Smith had his battery employed by section, with the first section forward between two infantry regiments and the second section about sixty yards to the rear of the right wing.[2] The brigade repulsed the first Confederate assault with little help from the artillery. The battery, having come into position hastily, was not in good position to support the fight. The section to the front could not employ canister without injuring friendly troops. Realizing this predicament, Lieutenant Smith ordered the section to limber to the right to find a better position on that end of the line, but prior to execution of that order the Confederates attacked again, forcing the section into action on the same ground.[3]

The second section, in the right rear of the brigade position, had more of an effect on the enemy. After the brigade repulsed the second attack by the Confederates, the section moved to a position 150 yards to the rear of the brigade, where it joined with the two Parrotts, two James rifles, and two twelve-pounder howitzers of Battery D, 1st Michigan Light artillery commanded by Captain Josiah W. Church. Church's battery had moved up with a regiment of infantry from Connell's brigade. The regiment had been in reserve, to support Van Derveer's efforts. For the duration of the fight, ten guns acted in support of Van Derveer's efforts. Lieutenant Smith put his second section into action commanding what he reported to be an open field to his front, to the left of Church's

battery. In reality it seems he was some distance from any of the plowed fields of the area and the section probably had a good field of fire in a clearing in the woods. At this point the enemy advanced on the front and to the left, threatening to gain the Union rear. Eight guns of the two batteries, six from Church's and two from the second section of Smith's, fired shell until the enemy was within 200 yards, while the first section of Smith's 4th U.S. Battery changed front to fire obliquely into the advancing Confederates. As the enemy line drew closer and some of the Union infantry support started to give way, both batteries fired several rounds of double-shotted canister, breaking the attack of the already exhausted Confederates.[4] It is important to note that while Captain Church was the division Chief of Artillery, by his own words he was clearly not responsible for positioning Lieutenant Smith's battery nor attempting to coordinate the actions of the two batteries. The synchronous action of the two units was more a result of the two commanders taking advantage of an opportunity than it was a planned action. Regardless of the method of control, the two batteries clearly acted together and in doing so achieved significant success.

As Brannan's division began to run out of ammunition, Thomas committed Brigadier General Absalom Baird's division. Brigadier John King's brigade relieved Croxton while Colonel Benjamin Scribner's brigade extended King's line southward and Colonel John Starkweather's brigade remained in division reserve. There were three batteries with Baird's division: the Fourth Indiana Light Battery with two Napoleons, two James rifles, and two twelve pounder howitzers; Battery A of the First Michigan Light Artillery with six Parrotts; and Battery H, 5th U.S. Artillery with two Parrotts and four twelve-pounders. There is no evidence suggesting that these batteries were under any

sort of central control, as none of the battery commanders mentioned receiving orders from higher headquarters in their reports. The Confederates renewed their attack with fresh troops (from Liddell's Division) and these three batteries were in for a long day.

The enemy struck Scribner's brigade first on the west edge of the Winfrey Field. Battery A, First Michigan Artillery, commanded by Lieutenant George Van Pelt, supported the line. Contrary to normal employment methods, for some reason the infantry supports were in front of the guns, lying down, supposedly out of the field of fire. This unorthodox employment would prove difficult for both the infantry and the artillery. The infantrymen, who still had their packs on, could not roll over to reload. The artillerymen, loathe to fire upon their own infantry supports, ended up sending most of their fire too high. Soon the brigade was in a close fight with a superior force of the Confederates, the terrain being too thick to see very far.

Caught facing in two directions with its flank overlapped, the brigade was quickly routed. Lieutenant Van Pelt kept his battery in position, firing sixty-four rounds of canister and percussion-fused shell.[5] They fired shell because the confusion and positioning of the infantry prevented some of the pieces from using canister.[6] The battery took heavy casualties, including the battery commander, which likely delayed the order to withdraw. When the battery finally attempted to fall back, nearly all the horses were dead or wounded, making the task difficult, if not impossible.[7] One section limbered and began moving to the rear with wounded horses only to have another horse shot dead. The animal fell across the tongue of the limber and there was no way to extricate it under fire. The three remaining men with the gun fled.[8] Only one of the six guns from the battery escaped capture, and only then because the section and horses were shielded from the

majority of the Confederate fire by thick timber.[9] Total casualties for the battery were twenty-five dead, wounded, or captured.[10] Reports indicate that subsequent Union attacks reclaimed one cannon,[11] but the battery would actually receive three guns back after dark.[12]

The next Union brigade struck was the division reserve under Starkweather, which was attacked from the right flank by the same force that routed Scribner's brigade. Not expecting immediate attack, Starkweather's brigade, along with 4th Battery, Indiana Light Artillery, was stunned when Confederates "arose as if by magic and poured in fires that threatened to annihilate us."[13] The brigade disintegrated almost immediately. The battery got unlimbered and fired a few rounds, but was quickly captured by the attacking Confederates. After the Union soldiers regrouped and Govan and Walthall's attack stalled, the Union recaptured the battery in total, less twelve dead horses.[14]

Despite the significant losses of the other two batteries in the division, Battery H, 5th U.S. Artillery, commanded by Lieutenant Howard Burnham and attached to John King's brigade, suffered the worst. The brigade was caught executing an order from Brigadier General Baird to form a new front perpendicular to the old.[15] The infantry quickly gave way under heavy fire, retreating through Van Derveer's brigade, but the battery remained in place with some of its infantry support. There was no order to retreat, likely due to the fact that three officers, including the battery commander, were struck down immediately upon the beginning of the firing, leaving a wounded Second Lieutenant Joshua A. Fessenden in command. To their credit, most of the soldiers of the battery remained with the guns until they were taken from them by the Confederates, but they only fired four rounds of canister.[16] It is likely that had the battery officers survived

longer, they would have ordered a withdrawal of some of the soldiers, even if the guns had to be abandoned. The disintegration of the command structure surely added to the casualty list of the battery. The cannon were subsequently recaptured, but the battery lost forty-four men dead, wounded, or missing, and sixty-five horses dead or wounded.[17] They had to abandon the caissons to use the limbers on the cannon. Since the battery was unfit for further duty, Major General Thomas ordered it north to Rossville the next day without seeing action.[18] Lieutenant Fessenden, writing to the parents of Lieutenant Burnham, blamed the battery's loss on the "…order from the general that placed his [Burnham's] battery in the dense wood where it was taken."[19] It is unclear from the letter whether the author referred to Baird or King, but he clearly blamed one of them for the destruction of the battery and was very bitter about it. The lieutenant was probably too harsh on his seniors in this case, as it is doubtful that Baird or King had any idea where the enemy was coming from until it was too late.

The next Federal unit into action was Brigadier General Richard Johnson's division which met the attack of the next wave of Confederates, Major General Benjamin Cheatham's five-brigade division. The two forces met on a small ridge west of the intersection of Brotherton and Alexander's Bridge roads.[20] Johnson led with the brigades of Colonel Philemon Baldwin and Brigadier General August Willich, keeping Dodge's brigade in reserve. Battery A, First Ohio Light Artillery followed Willich's brigade into action with four James rifles and two Napoleons. There was little ground suitable for bringing a battery into action, and the battery followed for half a mile before finding an opportunity to join the battle.[21] The battery split into three sections, one on the right, one in the center, and one on the left of the brigade,[22] but only the section on the right was

able to put effective fire on the enemy.[23] By giving up the ability of the battery to mass fires, the commander almost insured that his artillery would have little effect on the battle.

At this point the brigade captured what it believed to be an enemy battery as it moved forward, and Captain Goodspeed, the battery commander, turned his attention toward taking the captured artillery off the field. He sent forward his caisson teams and took three Parrotts and two Napoleons off the field.[24] In actuality, the guns were not captured, but recaptured. The guns taken off the field by Goodspeed could not have been Confederate because the only Confederate battery that had abandoned guns by this point was Carnes' Battery, which had neither rifles nor Napoleons. The three Parrotts are likely to have originally belonged to Battery A, First Michigan Light Artillery, and were returned to that battery late that evening.[25] There is little or no evidence showing where the two Napoleons originated. If they were truly Napoleons then they most likely came from Burnham's Battery H, 5th U.S. Artillery since that battery seems to have been the only one that lost two Napoleons prior to Goodspeed's action. It is impossible to determine the truth of the situation since the action on that part of the field was so confused, and none of the reports were written until after the battle ceased. The timing, type of weapons captured, the exact location of the recapture, or some combinations of those elements are all suspect.

The Fifth Battery, Indiana Light Artillery accompanied Baldwin's Third Brigade as part of the same action, though the battery itself saw more action. A Confederate battery was shelling the brigade line as it prepared to attack, and Captain Simonson, the battery commander as well as the division chief of artillery, received orders from the

brigade commander to take a position on a slight ridge and return fire. The battery fired 130 rounds through its four James rifles and two Napoleons, the opposing battery went silent and the Union brigade charged forward.[26] The battery soon followed the brigade forward, but was not able to get back into the fight until much later that night.

About this time several more Federal units joined the battle. Major General John Palmer put his three brigades into the fight in a single line formation, and two brigades of Brigadier General Horatio Van Cleve's division followed quickly behind on the Lafayette Road, coming into action on Palmer's right. The two divisions went into battle with lines almost at right angles to one another, with Palmer's units stretched down the Brotherton Road and Van Cleve moving east from Lafayette Road. Colonel Edward King's brigade of Major General Joseph Reynolds' division was also in the line, positioned on the right of Van Cleve's two brigades. The Union line quickly pushed the exhausted Confederates back. The subsequent Federal actions became the first of two attempts at coordinated use of artillery in the battle.

Palmer's brigades went into action with Hazen on the left (east), Cruft in the center, and Grose on the right. The division had four batteries assigned, and Captain William Standardt, the Chief of Artillery, kept Battery M, 4th U.S. Artillery in reserve while each of the other three batteries accompanied the brigades. Hazen's brigade had Battery F, 1st Ohio Light Artillery with four James rifles and two twelve-pounder howitzers in support, positioned to the left and rear of the brigade. The battery fired "at intervals" for about three hours until the brigade was relieved by Turchin's brigade, at which point it moved west toward the Lafayette Road.[27]

In the division center, Cruft's brigade had Battery B, 1st Ohio Light Artillery in support positioned at the rear and center of the brigade. Lieutenant Norman Baldwin commanded the battery, which consisted of four James Rifles and two six-pounders. The battery went into action by half-battery, with the half-battery to the rear eventually moving to the left of the brigade, where it was able to give some support to Hazen's brigade by firing obliquely into the enemy.[28] The ground was not suited for employment of artillery, so despite the fact that the battery remained in position all afternoon, it was only able to fire 159 rounds.[29]

Palmer's final brigade, the one holding the corner of the angle between his division and Van Cleve's, was Grose's brigade. Grose was supported by H battery, 4th U.S. Artillery, with M battery, the reserve, nearby. Lieutenant Harry Cushing commanded the battery, which consisted of four twelve-pounder howitzers. Cushing employed his battery by section, and the section on the right was able to help repulse an attack by use of short-fused case shot and canister. The Confederate made some progress, but was ultimately repulsed by the arrival of Turchin's brigade of Major General Reynold's division. Cushing's battery refilled the limbers with ammunition from the caissons and reported to Reynolds, joining with other batteries that Reynolds was placing in line. Cushing stayed in line with Reynold's artillery for a time before falling back to the Poe Field where Hazen was forming a new line.[30]

To the right of Palmer and oriented to the east, Brigadier General Horatio Van Cleve brought two of his brigades into action on line. They moved across Lafayette road with Beatty's brigade on the left (north) and Dick's brigade on the right. Two batteries accompanied the attack, but only one saw action due to the nature of the terrain. The

Seventh Indiana Light Battery took position east of the road, but eventually fell back to the ridge to the west without firing.[31] The Twenty-Sixth Pennsylvania Battery, commanded by Captain Alanson Stevens, moved with the infantry of Beatty's brigade on the east side of the road. The battery had a difficult time finding an opportunity to fire since the growth was so thick that it was impossible to tell whose troops were to the front. The battery consisted of four six-pounders and two James rifles. Stevens ordered the four smoothbores forward by hand.

Not understanding completely the disposition of friendly forces, the 26th Pennsylvania Battery found itself on the front line and in canister range of the enemy. The gunners fired as quickly as they could, but they could not check the Confederate advance, and by the time they tried to limber up to withdraw, half the battery had been overrun. They retreated with the rest of the division until they found Brigadier General Beatty, First Brigade commander from Van Cleve's division, who ordered them into position in Brotherton Field with the guns under Reynolds in an attempt to check the rout.

As the brigades of Van Cleve's division moved forward and King's brigade moved with them, Major General Reynolds, with only one brigade in the fight, along with the assistance of Major Mendenhall, Chief of Artillery for the Twenty First Corps,[32] directed batteries into position behind the line of Van Cleve's troops in Brotherton field on a "ridge running parallel to the Chattanooga road, separated therefrom (sic) by a thin growth of timber, and covering all the space intervening."[33] Batteries emplaced in Reynold's line were the Nineteenth Indiana Battery (from King's brigade), four mountain howitzers detached from the Eighteenth Indiana Battery, four of the six guns from the Seventh Indiana Battery (the other two guns having been detached for service with

Barnes' brigade, which was in action elsewhere), and Battery H, 4th U.S. Artillery (which had started the day with Grose's brigade). The three remaining guns from the 26th Pennsylvania joined the action once they retreated back from the east side of the road, bringing the total number of cannon involved in the action to twenty-one. Some contemporary accounts do not include Cushing's battery, but those four guns were clearly part of the action on the left end of the line.[34]

The guns were not able to hold position long, as the Confederates launched a fresh division (Stewart's) which struck near the seam between Palmer's and Van Cleve's forces, driving the infantry back out of the woods and across the road. As Van Cleve's men fell back, the batteries fired spherical case over their heads into the onrushing enemy, and canister once the friendly infantry was clear.[35] As the infantry started to mix with the guns it caused quite a bit of confusion, to include a case of fratricide when an artillery battery fired on troops from Beatty's brigade. There is some confusion about the incident, because Beatty alleged that the battery that fired the shots was the 19th Indiana Battery, but there was little proof. Beatty reported that battery commander Captain Harris, when told that he was firing on friendly soldiers, claimed that he was ordered to do so.[36] Harris made no mention of a friendly fire incident in his report, but that is reasonable as artillerymen have never been likely to report such cases on their own. Harris stated that he fired case over the heads of the friendly infantry, "and when we could do so without endangering the lives of our own men, used canister, I think to good advantage."[37] Given the terrain and the fact that the Confederates and Federals were nearly intermingled in the woods, it is possible that Harris' battery did indeed cause casualties to friendly units. It is difficult to determine exactly who, if anyone, gave the

order to Harris to fire, but General Reynolds was the man giving most of the orders on the line.[38] If Harris' Battery was not the guilty party, the other most like culprit was Battery H, 4th U.S. Artillery, based upon where they were positioned during the alleged incident.

The infantry rallied behind the line of artillery, at least temporarily. As the Confederates renewed the assault, the line gave way and the batteries, having expended nearly all their canister and for the most part disorganized by the retreating infantry, gave way as well. Battery H retreated to the north, where it linked up with Hazen's line forming there and rejoined the battle. The 26th Pennsylvania, which saw action on both sides of the road and got the worse of it both times, ran out of ammunition and withdrew once more, losing a fourth gun in the process.[39] The Seventh Indiana Battery, commanded by Captain Swallow, ran out of canister and withdrew with considerable difficulty to the west. The 19th Indiana remained slightly longer than the other batteries, partially because the commander, Captain Harris, was disabled by what he called a contusion to his right side as half the battery attempted to change front. The battery fell back to the west, leaving behind a Napoleon which did not have enough horses left alive to pull it out.[40] There is not much information available about the four mountain howitzers from the 18th Indiana which were the guns farthest to the right of the line, since they were detached from their parent battery and attached to the 92nd Illinois Infantry Regiment. The report of that regiment's commander tells only that one of the mountain howitzers was lost in the action.[41] Captain Eli Lilly's report stated that the gun was lost because the infantry supports abandoned their positions, but Lilly was not

actually present when the action took place.[42] Of twenty-one cannon that emplaced west of the road, eighteen withdrew to fight again.

As the Confederate attack continued near the seam of Palmer and Van Cleve, pushing both lines back, Brigadier General William Hazen tried to form a new line. He started by gathering artillery from Batteries H under Cushing and Battery M, 4th U.S. Artillery, commanded by Lieutenant Francis Russel, along with the guns of his own Battery F, First Ohio Light Artillery, commanded by Lieutenant Giles Cockeril.[43] In his report Hazen claimed he also had guns from Battery B, 1st Ohio Light Battery, but none of the reports from the commanders of the four batteries in question corroborate his report. Lieutenant Baldwin, commander of Battery B, 1st Ohio states that he was with Cruft all afternoon, and makes no mention of any other action involving his battery. Most accounts, including the cast iron tablet on the battlefield indicate that Hazen had about twenty guns as part of this action. All these accounts stem from Hazen's report, where he specifically reports that he had "in all about twenty pieces."[44] It seems clear from the reports that there were sixteen guns involved—four James rifles and two twelve-pounder howitzers from Cockerill's Battery, four Napoleons and two twenty-four pounders from Russell's battery, and the four twelve-pounder howitzers from Cushing's battery.

The other point that is clear from the records is that Hazen was the only general officer in the area, and the batteries massed based on his orders. Each of the battery commanders mentions reporting to Hazen, except for Russell who simply emplaced next to Cushing.[45] Hazen, by his own account, gathered the artillery in an attempt to rally the infantry. He only had a couple of minutes to cobble a line together and the artillery

provided the needed inspiration to the flagging infantry.[46] All the Union reports, as well as some secondary sources based on those reports, claim that the three batteries opened fire on Stewart's attacking Confederates, checking their advance and driving them back.[47] It is unquestionable that the batteries opened fire with some effect, but it seems likely that Stewart's Division, having created a significant unsupported penetration, would have withdrawn even without encouragement from the Union artillery.

During the time all this was happening, action began to intensify to the south as well. One of Major General Hood's divisions under Bushrod Johnson pushed two brigades of Brigadier General Jefferson Davis' division westward across the Lafayette Road. Davis' First Brigade had been detached, along with its battery, and thus had no part of the Battle of Chickamauga. Brigadier General Davis was one of the few Union commanders who kept control of his artillery centralized at division level. He issued orders to the batteries through his Chief of Artillery, Captain William A. Hotchkiss.

Hotchkiss, following orders from Davis, placed the Eighth Wisconsin Battery with its four three inch rifles and two Napoleons commanded by Lieutenant John D. McLean in position near Widow Glenn's. Hotchkiss then went with the Second Minnesota Battery with its four Napoleons and two Parrotts commanded by Lieutenant Albert Woodbury as it followed the division forward.[48] Hotchkiss could not find good ground to emplace the Second Minnesota, so he found Davis and asked for new instructions. Davis directed him to the right where he should find the first available position. This put the second Minnesota on the right and to the rear of Brigadier General William Carlin's brigade, which was also the right of the division. There were two other artillery units nearby: a section of the Seventh Indiana Light Battery that was attached to

Barnes' brigade had come up beside the Second Minnesota, and Barnes habitual battery, the Third Wisconsin Light Battery was farther to the right, but still in sight. These batteries were at the left of Barnes' brigade, so all three artillery units were near the seam of the two infantry units. The units could not avoid catastrophe for long. Carlin's and Barnes' lines overlapped to some extent, and Carlin did not know it until he saw troops from the other unit moving on his right.[49] Carlin's soldiers were lying down in a depression on orders from Davis. None of the batteries knew Carlin's soldiers were there until Carlin came and talked to Hotchkiss, explaining his position. Hotchkiss passed the word to the officers of the other batteries, but he admits that some rounds fired from that line of artillery likely hit Carlin's soldiers. He ordered the section of the Seventh Indiana to cease firing since they did not know the friendly positions to the front and they were firing close to friendlies, and he passed the location of Carlin's troops to Lieutenant Livingston, commanding the 3rd Wisconsin Battery. Hotchkiss reported that he did not believe the Second Minnesota was responsible for firing into their own troops, but he was not sure enough to rule out the possibility.[50] To add to the already difficult situation, as the Minnesota battery got ready to leave position the section of the Indiana battery lost control of their teams and stampeded through the battery with caissons and limbers, narrowly avoiding catastrophe.[51]

The reason for the fratricide in this instance was relatively clear. No single commander had responsibility for coordinating the actions of Barnes and Carlin, nor was a single commander in charge of the artillery from the two units. Lieutenant Livingston received orders from Major Mendenhall, the Corps Chief of Artillery for the Twenty-first Corps.[52] Lieutenant Woodbury, commanding the 2nd Minnesota, took his orders from

Captain Hotchkiss, who got his orders directly from the division commander. Davis, the division commander, almost certainly did not understand the positional relationship between Carlin's brigade and the 2nd Minnesota Battery. It was not until Carlin himself coordinated with Hotchkiss that the problem became evident. It is questionable if anyone was in charge of the Seventh Indiana Battery section. Mendenhall mentioned the section briefly in his report, but it is clear from his words that he did not realize it was there until later in the battle.[53] Since the section was attached to Barnes' brigade, one might assume that the commander of the 3rd Wisconsin Battery would have also given orders to that section, but Lieutenant Livingston did not even mention the existence of the section in his report. Had the units involved had more time to sort out positions, this grouping of fourteen guns may have been able to have significant effect on the enemy. The Confederates did not allow them that time, as a strong force overlapped the Union line and Barnes' brigade gave way on the right.

Despite the confused command relationship and fratricide, the batteries fired repeatedly, creating difficulty for the Confederates trying to form lines to the right of Carlin's position and turn his flank.[54] The batteries had good fields of fire against that part of the attack, but could not do anything to the far right where Barnes was falling apart. The artillery fire allowed Davis' division to retire in reasonably good order. One has to question Davis' use of artillery. By consolidating his artillery at division level, he gave himself the opportunity to mass artillery fires at the critical point on the field to affect the outcome of the battle. After creating such a relationship, he left one of his two batteries present out of the fight. The Eighth Wisconsin Battery, still in position near Widow Glenn's, did not see significant action on 19 September.

As Davis' brigades were falling back, Brigadier General Thomas Wood joined the battle with two brigades. He posted Colonel George Buell's brigade north of the Viniard House and continued up the Lafayette road. The Eighth Indiana Battery with four six-pounders and two twelve-pounder howitzers moved with Buell's brigade. The battery came into position, but only briefly as the brigade came streaming back as quickly as it had gone forward. Captain George Estep obtained a likely range to the enemy from a battery commander on his right and ordered his battery to fire shell at a range of seven hundred yards. He had little idea what sort of effect those rounds would have on the enemy, but was relatively certain that he would endanger no friendlies. Soon after opening fire, Union infantry began to fall back through the battery, forcing them to cease fire. Estep held his position, planning to fire canister into the Confederates once the Union soldiers cleared, but the enemy was too close behind.[55] As the battery limbered to move out, a Confederate shell struck the horse team of one of the pieces, killing or seriously wounding five horses and damaging the limber. Unable to withdraw, the men ran the gun by hand down a long slope to the rear where it rolled into a ditch, at which point the men left it until they could return for it later with a new limber.[56]

As the Confederates of Robertson's and Benning's brigades pushed back the intermingled Union forces, Wilder's brigade came into action against the advancing force at the western edge of the Viniard farm supported by six three-inch rifles of Captain Eli Lilly's Eighteenth Indiana Battery. Normally a ten-gun battery, the four mountain howitzers were attached to the 92nd Illinois Regiment and were in service with Edward King's brigade of Reynolds' division.[57] The battery took positions with four guns on the left (northwest) of the field, two guns on the right (southwest) corner, all positioned just

inside the wood line.[58] As the Confederates came forward they pushed back Wilder's skirmish line which had been occupying a drainage ditch to the brigade front. As the Confederates pressed the attack, the battery added double-shotted canister to the devastating fire of the Spencer repeating rifles of the brigade's dismounted soldiers, forcing the attackers to take cover in the skirmishers' ditch. Captain Lilly moved the two guns on the left forward and brought them into position to fire down the ditch lengthwise with more than two hundred rounds of double and triple-shotted canister. The soldiers and officers of Lilly's battery credited this action for compelling a rebel retreat.[59] That claim was somewhat suspect based on the geography and the enemy situation. The ditch where it runs east to west was fairly straight, but at a point about two-hundred yards from the woodline the ditch turned at a right angle. No section of artillery, no matter how effective, could have hit soldiers in both parts of the ditch. The section of the ditch that runs north to south was not completely straight, so canister fired against that portion of the ditch would have affected only a limited area.[60] It was likely that Robertson and Benning would have withdrawn anyway, as those two Confederate brigades had no organic artillery support and no additional Confederate units supported their penetration. Wilder would later claim that somewhere near 2000 Confederate attackers fell during this action in an interview with the Chicago Evening Journal.[61] Although they did significant damage to the exposed Southerners, that number was wildly inflated since he only faced Robertson's and Benning's brigades, who did not suffer nearly that many casualties.

After falling back behind Wilder's line for a time and firing in support of that defense, the Eighth Indiana was ordered forward with Buell's brigade again, near their original location. The enemy was lying down in the woods in a hasty defense as the

battery came into action less than a hundred yards away. The battery fired canister with significant effect, but the enemy musket fire was unbearable, forcing withdrawal. The battery limbered to the rear, but before it could complete the action the Confederates attacked, capturing three cannon temporarily.[62] More Federal soldiers joined the battle, and in the shifting lines that resulted, recaptured the guns. Despite having four different cannon captured at different points during the day, the Eighth Indiana finished the day of 19 September with its original six cannon.

After a few abortive federal attacks that attempted to reestablish control of the ground around the Viniard House, Major General Phillip H. Sheridan moved with two of his brigades in what would be the final push for the day in that sector. Colonel Luther Bradley's brigade attacked first and drove the enemy, finally pushing Robertson's and Benning's brigades back into the forest to the east. Battery C, First Illinois Light Artillery and Battery G, First Missouri Light Artillery followed the two brigades into battle, but saw no significant action.[63]

The final action on 19 September would be back where the day started, on the Union left, where Confederate Major General Patrick Cleburne launched his division forward into an assault on the Winfrey field, striking Union forces under Johnson and Baird, who had recovered somewhat from the morning's defeat. Cleburne attacked west with three brigades on line. In the north he struck Colonel Philemon Baldwin's brigade on the left flank, in the center he struck Baldwin's front, and to the south he ran into Brigadier General August Willich and Colonel Joseph Dodge's brigades.[64]

Captain Simonson and the Fifth Indiana Battery, supporting Baldwin's brigade, opened fire on Cleburne's attackers and fired until the brigade was flanked in the north,

causing a general retreat. One of the limbers got caught on a tree as it tried to withdraw in the dark, and as the soldiers worked to free it one of the horses was shot, at which point they abandoned the gun.[65] Prior to leaving the cannon behind, the crew was able to spike it by driving a short piece of rat tail file through the vent, rendering it inoperative until it could be retooled at a depot.[66] Of all the guns left behind by the Union during the battle on 19 September, this final one lost was the only one spiked.

To the south the brigades of Willich and Dodge fared somewhat better in their confusing battle in the dark. The Twentieth Ohio Battery and Battery A, First Ohio Light Artillery engaged the enemy with shell, targeting whatever they could find in the dark, overgrown woods. Captain Grosskopf and the Twentieth Ohio fired about sixty rounds through their four three-inch rifles and two Napoleons before Colonel Dodge ordered the battery to the rear to take a position that the infantry could rally around, should they be forced back (which they were).[67] Battery A, 1st Ohio, commanded by Captain W. F. Goodspeed joined the fire of its four James rifles and two Napoleons with the fire of Simonson's 5th Indiana Battery supporting Baldwin's brigade. The two batteries fired shell at enemy batteries and "well aimed shell and cannister (sic) [at the infantry], causing the foe to waver, to halt and retire."[68] Whether or not the fire of those two batteries caused the enemy to retire, a suspect claim at best, Johnson's division fell back to a stronger defensive position, leaving the Winfrey field to Cleburne.

The Union artillery did not give particularly good service on 19 September. Close to a third of the two hundred cannon in the Army of the Cumberland did not fire even a single round during the day. The number that fired rounds that had an impact on the battle was much lower still. Union commanders had a difficult time getting cannon to a

point on the field in significant enough numbers to achieve results. When there were guns at a good place to provide service, there were not enough cannon to provide the required massed fire. A few officers tried to mass artillery, attempting to apply the lessons of Stone's River to a situation where those lessons probably did not apply. On the few occasions where there were enough cannon massed, they were not in position to influence the events of the day.

The major difficulty with effective positioning of batteries was not an artillery problem, but rather an issue of situational awareness. It is easy to blame the poor employment of artillery on the inherent weakness of the weapon, the organization of the batteries within the army, or the terrain. All these factors played significant roles. But the most significant cause for ineffective artillery on 19 September was that commanders at all levels just did not know what was happening on the battlefield. They did not know where the enemy was, and in many cases did not know where the friendlies were either. Batteries, and even brigades, took orders from whichever senior leader happened to be present at the moment. Since the terrain created poor visibility, units lost contact and officers had a difficult time maintaining command and control.

In addition to the lack of effect of artillery fires, Union commanders put batteries into remarkably exposed positions. Twenty-eight Union cannon were in Confederate hands at one point or another during the day. Nineteen of the twenty-eight ended the day back in Union hands, but losing fourteen percent of the Army of the Cumberland's total artillery, even for a short period of time, indicates a problem. If the army had been defeated and left the field in haste then one might expect such losses. The Army of the

Cumberland had fourteen percent of its artillery captured for some period of time in what amounted to a draw.

Of the twenty-eight lost guns, a few of them were lost due to reasons beyond control of the officers commanding them. The cannon lost from the 18th Indiana, the one lost due to lack of horses from the 19th Indiana, and the one of the four guns lost from the 26th Pennsylvania are perfect examples. The cannon were in a good position with adequate supports and were lost due to the vagaries of battle. The vast majority of guns lost during the day, however, were lost because they were risked unnecessarily. Battery A, 1st Michigan, 4th Indiana Light Battery, and Battery H, 5th U.S. Artillery lost seventeen cannon because commanders ordered them into situations that those commanders did not understand. Ordered forward into thick terrain where the enemy was unknown, the batteries were wagered senselessly and with poor result. The close terrain prevented their effective use while at the same time ensuring that they could not withdraw in a timely manner. When the infantry supports ran away, the bulky cannon could not follow quickly enough to avoid capture. Most of these three batteries were recaptured, but only because many of the horses were dead and because the Confederates had the same difficulty withdrawing the guns from the thick woods.

Some of the lack of understanding of the situation is attributable to the fluid nature of the events of the day. Neither commander expected a battle and 19 September was more of a meeting engagement than a planned event. Since the artillery of the American Civil War required significant coordination with the infantry to be effective, a meeting engagement would almost certainly show artillery at its weakest. The prepared

defense of the next day would be a better situation for the employment of artillery if commanders could take advantage of it.

Union batteries the length of the line would spend the evening refitting equipment, repairing harnesses, restocking ammunition, caring for horses, and in some cases preparing hasty defensive positions for the day to come. Some of the batteries, especially those in Thomas' corps, had been on the move since before three in the morning, and were exhausted. They had little time to rest before going into heavy action again the next morning.

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[1] *The War of the Rebellion: Official Records of the Union and Confederate Armies, Vol. 30* (Washington, D.C.: US Government Printing Office, 1880-1901), Part 1, 426.

[2] *OR* Vol. 30 part 1, 437.

[3] Ibid.

[4] *OR* Vol. 30 part 1, 413 and 438.

[5] *OR* Vol. 30 part 1, 282.

[6] J. C. Vorhes, "Letter to the Editor," *The National Tribune,* 16 June 1892.

[7] John Robertson, *Michigan in the War* (Lansing, Michigan: W.S. George and Company, State Printers, 1882),123

[8] Vorhes.

[9] Robertson, *Michigan in the War,*123.

[10] Cast iron tablet 200 feet Northwest of Baldwin Shell Monument.

[11] *OR* Vol. 30 part 1, 282.

[12] *OR* Vol. 30 part 1, 553. Though the reference does not state this specifically, the three guns coming back to the battery after dark are a matter of inference by the author since the battery ended the day with one gun but began the next day with four.

[13] Joeseph C. Haddock, "Joeseph C. Haddock Papers" (Indiana Historical Society, Indianapolis, IN).

[14] Ibid.

[15] Cast iron tablet west of Jay's mill; William G. Robertson, *The Battle of Chickamauga*, Civil War series. (Eastern National Park and Monument Association, 1995), 26.

[16] *OR* Vol. 30 part 1, 324.

[17] Cast iron tablet west of Jay's mill.

[18] *OR* Vol. 30 part 1, 324.

[19] *Memorial of Lieutenant Howard M. Burnham* (Springfield, IL: Samuel Bowles and Company, 1864).

[20] Robertson, *The Battle of Chickamauga*, 26.

[21] Joeseph McElroy. *Chickamauga: Record of the Ohio Chickamauga and Chattanooga National Military Park Committee* (Cincinnati: Earhart and Richardson, 1896), 116-117.

[22] Letter from W.F. Goodspeed to an unnamed General on a commission to determine positions of the different commands on the battlefield. Written in Columbus, Ohio, 1888.

[23] McElroy, 117.

[24] *OR* Vol. 30 part 1, 553.

[25] The author found no reference specifically linking the recaptured Parrotts to A Battery, 1st Michigan Light Artillery, though there are references in many sources to the three recaptured Parrotts being Union, and Captain Goodspeed states in a letter to a Chickamauga Commission that his soldiers returned the guns to their prior owners. The Parrotts had to belong to A Battery, 1st Michigan, because that was the only battery that had lost three Parrotts by that point in the battle.

[26] *OR* Vol. 30 part 1, 577.

[27] *OR* Vol. 30 part 1, 778; McElroy, 123.

[28] Cast iron tablet west of Brock Field.

[29] *OR* Vol. 30 part 1, 759.

[30] *OR* Vol. 30 part 1, 799.

[31] O.H. Morgan and E.R. Murphy. *History of the 7th Independent Battery Indiana Light Artillery, War of the Rebellion, 1861 to 1865* (Press of the Democrat, 1898), 23.

[32] *OR* Vol. 30 part 1, 851.

[33] *OR* Vol. 30 part 1, 471.

[34] *OR* Vol. 30 part 1, 799.

[35] *OR* Vol. 30 part 1, 836.

[36] *OR* Vol. 30 part 1, 808.

[37] *OR* Vol. 30 part 1, 471.

[38] *OR* Vol. 30 part 1, 440.

[39] *OR* Vol. 30 part 1, 820; Cast iron tablet in Brotherton Field.

[40] *OR* Vol. 30 part 1, 471.

[41] *OR* Vol. 30 part 1, 457.

[42] *OR* Vol. 30 part 1, 467.

[43] *OR* Vol. 30 part 1, 761-762.

[44] *OR* Vol. 30 part 1, 762.

[45] *OR* Vol. 30 part 1, 801.

[46] *OR* Vol. 30 part 1, 762.

[47] *OR* Vol. 30 part 1, 799, 779, 801; McElroy, 123. There is, in addition, a cast iron tablet in Poe Field that indicates "some twenty guns" massed fire from Poe on Stewart's troops as they drove Van Cleve's retreating forces before them. This author finds only eighteen guns were present, the nearest guns available beyond those eighteen being those with Cruft's brigade to the east, which were clearly not part of this action.

[48] *Minnesota in the Civil and Indian Wars, 1861-1865* (St. Paul: Pioneer Press Co, 1890), 662-663; *OR* Vol. 30 part 2, 503.

[49] *OR* Vol. 30 part 1, 515.

[50] *OR* Vol. 30 part 1, 504.

[51] *OR* Vol. 30 part 1, 504. Hotchkiss refers to a generic section of an Indiana battery. The only Indiana artillery nearby were Lilly's Eighteenth Indiana or the section of the 7th Indiana that was attached to Barnes' brigade. Either is possible, but the 7th Indiana is much more likely because Lilly's report, while not expressly stating as much, implies that his position was west of the road at this point. His four mountain howitzers were detached with the 92nd Illinois Regiment and were in action with King's brigade, well to the north. Hotchkiss does not name the Wisconsin battery specifically, but as Barnes was to his right, that battery was the only one positioned near enough for Hotchkiss to see.

[52] *OR* Vol. 30 part 1, 851.

[53] *OR* Vol. 30 part 1, 622.

[54] *OR* Vol. 30 part 1, 503-504.

[55] *OR* Vol. 30 part 1, 677.

[56] P. L. Hubbard, "Letter to the Editor," *The National Tribune,* 6 June 1907.

[57] Cast iron tablet northwest of Viniard's field.

[58] *OR* Vol. 30 part 1, 467.

[59] Cambell Diary; Joseph A. Scott Letter to grandson John Kitchen, 29 September, 1921; Eli Lilly, *Eli Lilly Papers* (Indianapolis, Eli Lilly and Company, 1865).

[60] This analysis is based on the author's study of the terrain west of the Lafayette Road where the action took place.

[61] Lilly.

[62] *OR* Vol. 30 part 1, 677.

[63] *OR* Vol. 30 part 1, 593, 600.

[64] Robertson, *The Battle of Chickamauga*, 34.

[65] *OR* Vol. 30 part 1, 577.

[66] D. D. Holm. *History of the Fifth Indiana Battery* (Compiled From the Field Diary of Lieutenant Daniel H. Chandler), 31.

[67] Letter from J. Grosskopf to Mr. Edward Ruger, Support Topographical Engineer Office, Department of the Cumberland, Louisville, KY, written in Dayton, Ohio, 23 June, 1867.

[68] *History of Battery A, First Regiment of Ohio Volunteer Light Artillery* (Milwaukee: Daily Wisconsin Steam Printing House, 1865).
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CHAPTER 4

UNION ACTIONS ON 20 SEPTEMBER

The night of September 19th was cold and sleep was difficult for the weary artillerymen of the Army of the Cumberland. Major General Rosecrans made the decision to stay and defend, retreat being politically impossible. The army arrayed with Thomas' Corps holding the vital left, protecting the critical road to Chattanooga, McCook's corps to Thomas' south, holding the right of the line, and Crittenden's corps in reserve. Major General Granger's corps, the army's operational reserve, was well to the north near Rossville. It is difficult to progress chronologically through the events of the day since much of the action along the line took place either at the same time or in so rapid a succession as to make for a confusing story. To alleviate this problem this chapter will describe the action on 20 September by phases. It will cover initial disposition of artillery, then progress to the initial attack on the Union left by Breckinridge followed by initial action on the Kelly Field line. From there it will detail action south of the Kelly Field, that section concluding with the Confederate breakthrough. After the breakthrough the chapter will cover further actions on the Kelly Field line, actions on Snodgrass Hill, Major General Negley's withdrawal of artillery, and the final retreat of Union forces.

Initial Disposition of Artillery

Thomas' corps deployed in an arc on the east side of the LaFayette Road, the line mirroring a slight rise to the east of Kelly Field. His lines were compact and placed in depth—he had a lot of forces in a relatively small area. His entire front was perhaps half

a mile in length. To his north the critical road junction controlling traffic to Chattanooga lay relatively unprotected, just a few regiments and a single battery covered the additional half-mile of ground. To the south of Thomas the line swung back to the west of the LaFayette Road. McCook's forces were in position to control the road by fire, positioned on the slight high ground less than a hundred yards away.

Along the line soldiers had spent the night preparing defensive breastworks. When the expected dawn attack by the Confederates failed to materialize, the batteries continued to prepare positions. By 9:00 AM most of the positions were reasonably solid. By 11:00 AM when the majority of the attack came at the front line, the positions were complete.[2] Log and rail breastworks gave the Union batteries a significant advantage in survivability, especially along the front line, where the fortifications were strongest.

The initial disposition of the artillery in Thomas' corps bears examination. Major Lawrence, Thomas' Chief of Artillery, was more of a messenger than an advisor on placing artillery.[3] It is questionable whether or not anyone placed artillery to support the overall corps plan. Thomas had nine batteries available in the Kelly field sector at the start of the day. Bridges' Illinois Light Battery was north, but the other eight batteries were positioned with the main portion of the corps. Four batteries were on the front line, and four with the second. This positioning generally matched the ratio of infantry in each line. What is surprising is the concentration of all the batteries to the southern part of the Kelly Field area. The Fourth Indiana Battery was the farthest north in the corps, and it was very near the middle of the line. Dodge, King, and Scribner's brigades were all left of the northernmost battery. King's habitual artillery support, the 5th U.S. Battery, had been decimated the day before. Dodge's usual battery, the 20th Ohio, was to the rear of

the corps formation. Scribner's artillery, the Fourth Indiana Battery, was to the far right of his brigade line. Batteries in the front line, from north to south were the 4th Indiana, 5th Indiana, and B and F Batteries, First Ohio which were positioned together near the southeast corner of Kelly Field. Batteries positioned behind the second line of infantry near the right center of the Kelly Field Line, all near the center of Kelly Field were H and M batteries, 4th U.S. Artillery, A Battery 1st Ohio Artillery, and the 20th Ohio Battery.

With eight batteries weighting the right side of his formation, seven of those being along the right third of the two lines, Thomas was in position to mass artillery fires against the enemy. The questionable part of the placement of batteries is that Thomas and Rosecrans believed that the left and not the right was the key to the battle. During his morning inspection, almost all of Rosecrans' changes pushed more forces to the north.[4] Although movement of brigades and movement of pieces of Negley's division had the secondary effect of moving artillery to the left, none of the senior commanders seemed to have a plan for use of artillery to cover or reinforce that vulnerable point. Thomas' four batteries in the front line of troops had good fields of fire down a slight hill,[5] but they seemed to be positioned to support individual brigade fights as opposed to the overall corps plan. The four batteries to the rear were in position to act as an artillery reserve, but were not designated for that purpose, nor was there any command and control mechanism in place to help them fight that way. Lack of a command structure for artillery not positioned in the front line would come back to play a significant role before the end of the day.

On the right side of the Union line the positions were not as firm. As the Commanding General shifted troops around and Wood's division assumed position in

line, commanders looked for good positions for batteries with little success. Major Mendenhall, Chief of Artillery for the 21st Corps, would eventually gather a group of batteries together, but this was not the original plan. The batteries of the 20th and 21st Corps moved with their brigades during the changing of positions.[6] Since the sector belonged to McCook and his 20th Corps, it is questionable why Mendenhall was involved in positioning batteries at all. That responsibility should have fallen on Major Kensel, the Chief of Artillery for the 20th Corps. Kensel did not file a report for 20th Corps, nor is he mentioned in the reports of any of his subordinate batteries. Major Kensel filed a report as the Chief of Artillery for Baird's division, part of Thomas' corps. The only clue about his action in his report is that he states that he was not present with the batteries of Baird's division during the fighting.[7] Major General McCook makes no mention of a plan for artillery in his report. Mendenhall, and later Crittenden, took charge of the artillery because nobody from 20th Corps had a plan for its employment.

The two batteries with Davis' division, the 2nd Minnesota and 8th Wisconsin, were given positions covering the LaFayette Road.[8] To the left of Davis, Wood went into line with one of his batteries, the 8th Indiana Battery, forward in line supporting Buell's brigade.[9] To the north of Wood, part of Thomas' corps but not part of the Kelly Field line, Brannan's division held the line in the thick timber. Josiah Church's Battery D, 1st Michigan Artillery was in the front line at the right of his brigade, which was also the right of the division.[10] Lieutenant Marco Gary and his Battery C, First Ohio Light Artillery initially positioned behind their brigade, then quickly sent his two Napoleons to the front by orders of the brigade commander (Croxton), but not until after first contact with the enemy.[11] The third battery of the division, Frank Smith's Battery I, 4th U.S., got

a detail of eight soldiers from the brigade to replace losses from the previous day and partially fill the gun sections. The battery moved with Van Derveer's brigade early in the day as it headed north to help on the left side of the line, but was soon detached to join Major General Negley.[12]

Initial Confederate Attack Against the Union Left

The Confederate attack, although later than anticipated, began in earnest on the left of the Union line with the attack by the three brigades of Breckinridge's division. The brigades of the attacking division had remarkably different fates. Helm's brigade, on the left of Breckinridge's division, stumbled blindly into the strong defenses of the northern part of the Kelly Field line, some regiments of the brigade actually exposing their flank to the strong position of the Federals. Thomas' defenders did not have any artillery along that part of the line, but the defense was strong enough that their lack of cannon did not matter. To the north Stovall's and Adams' brigades had more success, encountering initially only the widely scattered regiments of Beatty's brigade supported by the six guns of Bridges' Battery.

Bridge's Illinois Light Battery initially deployed by half-battery with three guns near McDonald House and three about four hundred yards south and just to the west of LaFayette Road. It was not long before the northern guns withdrew to join the southern section, which commanded the open areas south of McDonald's field.[13] Due to the amount of ground he had to cover, Beatty had no infantry available to support the battery, so the guns were alone as the enemy broke clear of the forest about four hundred yards to the front. The battery opened initially with case shot followed quickly by canister. The enemy units checked for a moment, then continued their inexorable march forward.

Additional Confederate forces came from the right of the battery, making retreat an obvious necessity for the battery. General Beatty gave the order and the battery attempted to limber to the rear only to find that the horses from two guns were all incapacitated. They left the two guns in place and retreated with the four remaining cannon, reporting to Major General Negley.[14]

As the Confederates advanced on the northern flank, Thomas began to dig into his reserves to oppose Stovall and Adams. Additionally, Vanderveer's brigade moved from the south to help contain the attack. While moving north Smith's Battery I, 4th US Artillery received new orders. A staff major from Thomas ordered Smith to take his battery to "a certain hill" [Snodgrass] and report to Negley.[15] The stripping of his organic battery did not leave Van Derveer without artillery support since the batteries in the back line of Kelly Field changed front to support the movement. Lieutenant Cushing and Battery H, 4th U.S. Artillery placed a section along the LaFayette Road and opened on the enemy from 350 yards. Quickly a battery of Confederate twelve-pounders returned his fire, and that in addition to a shortage of ammunition forced the battery back. The battery's caissons were not nearby, so they had no way to quickly resupply, forcing them out of line.[16] Some officer not of the battery had ordered the caissons to the rear. After finding the caissons and rearming, Cushing met Major Mendenhall who put him in position with some other guns that Mendenhall was gathering on a ridge in the south.[17]

As Cushing fell back, he coordinated with Lieutenant Russell so that Battery M could give some support to the north. Russell had his battery change front and it fired over the heads of the infantry, helping to drive the enemy back. Similar to the situation with Cushing, some officer not of the battery had ordered his caissons out of the

woodline 200 yards to the rear and back with the transportation wagons. When the wagons left for Chattanooga, Battery M's caissons left too, leaving it short of ammunition.[18] When the Confederate forces showed up in the Union rear, there was clearly a significant amount of confusion. When faced with enemy infantry, it made sense to evacuate the Union trains, but this would leave many batteries throughout the day unsupplied.

Battery A, First Ohio under Captain Goodspeed got somewhat closer to the enemy. The Twentieth Ohio Battery gave some support, firing about eighty-five rounds at the enemy advancing from the north,[19] but Goodspeed's battery was within fifty yards of the enemy and fired double canister before the attacking Confederates were beaten back.[20] The fight behind the line in the Kelly Field was mainly an infantry fight, but the four batteries there, acting with no congruent plan or forethought, provided reasonable support.

Actions to the Front of the Kelly Field Line

Before the eventual repulse of Confederate forces on the Union far left, Major General Patrick Cleburne's division had begun an assault against the center and right of Thomas' Kelly Field line. As previously noted, all of Thomas' front line artillery batteries were concentrated in the southern half of that line, giving them superb fields of fire into Cleburne's attackers. Polk's and Wood's brigades of the division had some problems getting aligned for their attack, and Union gunners made them pay for the mistake, bringing both brigades under heavy fire.

The 4th Indiana Battery, located at the furthest point east along the Kelly Field line, was in perfect position. Lieutenant Flansburg had his guns in position with two

guns in the brigade center, two on the brigade right, and the other two in reserve. The two kept in reserve were undermanned and short many horses due to the action of the previous day. These guns were not capable of moving forward, but instead used to resupply the guns on the front line, keeping those four guns in action throughout the battle despite some damage.[21] The battery would take further damage in this position, as the axle-trees on both of the James rifles broke during the fighting. The battery abandoned one of the pieces, but recovered the other.[22] Despite the loss of a gun, the battery did far more damage to the enemy than it received.

Moving south down the Kelly Field line, the next battery was Simonson's 5th Battery, Indiana Light Artillery which began the day with five guns, having lost one in action against Cleburne's attack the night prior. The battery was engaged all day, moving out of position on one occasion to resupply ammunition. The resupply was necessary because the battery fired over a thousand rounds of ammunition through the five guns during the day. Since the battery engaged the enemy from approximately ten in the morning until five in the afternoon, each gun fired an average of about thirty rounds an hour, though some hours it is likely they fired more, some less. Late in the day the battery lost another cannon when a solid shot from a Confederate gun disabled it by ruining the axle. They abandoned the gun, but they had no spike for it. To disable the piece they cut the traces of the wheel team as well as taking an ax from the carriage and chopping the vent, putting the gun out of commission.[23] Just as Simonson's battery was the only unit to spike an abandoned gun the previous day, so too would they be the only battery to disable a lost piece on the 20th as well.[24]

To Simonson's right (south), Battery F and Battery B, First Ohio Light Artillery, positioned together between Hazen's and Cruft's brigades, had a similar experience. Both batteries were on the front line in crude but strong breastworks, both had superb fields of fire, and both fired nearly all of their ammunition during the day. Battery B fired 986 rounds during the day, most of them prior to noon,[25] while Battery F eventually retired late in the day with only fifteen rounds left in the entire battery.[26] During the day Battery B had three James rifles disabled, though they received replacements for two of them from Battery M, 4th U.S. battery, which was in division reserve. The battery was able to remove one of the disabled guns, but left the other two to the enemy.[27]

South of Palmer, two brigades of Reynolds' division (Wilder being detached) and their associated batteries were in a similar situation, facing a disorganized attack by the enemy while the friendly forces enjoyed a relatively strong defensive position. The 19th Indiana Battery, now commanded by Lieutenant Robert Lackey due to the injury Captain Harris sustained the previous day, took position on the brigade left and on the right of Turchin's brigade with the battery's five remaining guns. During the rapid firing the stress broke some of the pieces. The battery broke the axle of a Rodman and the axle-straps of a Napoleon. Later in the day as they withdrew, they lost the entire axle of the Rodman and had to leave the piece on the field.[28] The 21st Battery, Indiana Light Artillery performed in almost exactly the same manner, firing most of their rounds early, then making several changes of front late in the day as the Union line to their right disintegrated. The battery report, written by a less than confident Lieutenant William Chess, reported the loss of a cannon and gun limber, but the author finds no mention anywhere of how or when that gun was lost.[29] As the situation deteriorated through the

day, the two Indiana batteries emplaced together to hold the new Union right with Chess' battery positioned to the left of the 19th Indiana, facing somewhat to the south. Neither battery fired many rounds from this new position.[30]

Confederate Breakthrough

Further south along the Union line batteries prepared to meet the enemy in similar fashion to the batteries in the north. In many places it was difficult for commanders to find the same kinds of fields of fire as Thomas' units had in the north. The terrain did not support it as well in the south. As batteries came back from the front line, either pressured by the enemy or unable to find suitable positions, Major Mendenhall, perhaps under orders from the corps commander, gathered batteries from the 21st Corps. Since the divisions in this sector were slow to move into line on the morning of the 20th, most of the movements had an unplanned air about them. The first batteries he gathered were the batteries of VanCleve's division, which formed on a ridge behind the line since the division was to the rear in reserve. General Wood had no place in his line for the batteries, as he could not even find positions for all of his own guns. Wood specifically ordered the 3rd Wisconsin Battery to stay behind when Barnes' brigade was attached to Wood's division, and the other two batteries from VanCleve's division fell in on the same position. At one point Wood sent a message to Major General Crittenden that it was useless to bring batteries into the woods.[31] The initial artillery grouping thus consisted of the six guns of the 7th Indiana Light Battery, four guns of the 26th Pennsylvania Battery which had been resupplied after losing four of six cannon the day before, and six guns of the 3rd Wisconsin Battery. Soon two additional batteries augmented this position—the six guns of the 8th Indiana Battery which came to the rear

after finding no position forward, and four guns of Battery H, 4th U.S. Artillery which had just been ordered out of Kelly Field in search of ammunition.[32] It is interesting to note that Lieutenant Cushing, commanding Battery H, was part of Palmer's division which was working for Thomas' corps. The battery was sent to resupply ammunition, but logically should have returned to Palmer or Thomas for orders. When Cushing ran into Mendenhall, the Chief of Artillery for the corps that Cushing normally worked for, changed Battery H's orders. Mendenhall placed Cushing in position with other 21st Corps batteries, bringing the total number of guns to twenty-six.[33]

The twenty-six guns from Crittenden's corps now formed a reserve. The Corps commander did not begin the day with a plan to establish an artillery reserve, but owing to the lack of positions available at the front and the subsequent arrival of the two additional batteries it made sense. Crittenden neatly summed up his artillery situation in his report: "Looking at the artillery which Major Mendenhall had just put in position, and not knowing exactly what to do with it under my last order, my difficulty was suddenly removed by the enemy."[34] The final battery of artillery was barely in position when the enemy burst through a hole in the line created by confusion in an order to Wood's division. Longstreet's grand column attacked at exactly the opportune moment to exploit the Union lack of continuity.

From an artillery perspective, this action is perhaps the greatest "what if" of the battle. It is essentially a smaller version of the "what if" for the entire Army of the Cumberland. What if Wood had not moved? From an artillery perspective the stage was set. Twenty-six guns on high ground with 400 yards of open ground to the front. Mendenhall, a proven artillery leader, was in charge and capable of directing the fires

effectively. Longstreet's force, vastly outnumbering Wood, probably would have pushed through the front line even if the Union had not vacated the position, but that could have set up the perfect implementation of an artillery reserve. The batteries were in exactly the right position. Had Wood stayed in position and merely been pushed back, the guns would likely have been an effective rallying point for the retreating Union forces. The lines forming around them would have provided support to the batteries, which were instead left without any infantry protection. The artillery, both massed and in the defense, would certainly have inflicted significant losses on Longstreet's force, even if they could not have completely broken the attack.

As it actually happened, there was no opportunity for the massed 21st Corps artillery to affect the battle. The Confederates came through the gap so quickly that the batteries got off only a few shots with negligible result. Small groups of soldiers rallied for a moment to support the guns, but they were disorganized and in any event numbered fewer than a hundred.[35] Of the twenty-six guns, eleven made it off of the field in Union hands: five of six from the 7th Indiana, two of four from the 26th Pennsylvania, one of six from the 3rd Wisconsin, and three of four from Battery H, 4th U.S. Battery.[36] Crittenden gives credit to the two battery commanders who got the majority of their guns off safely and Mendenhall was "agreeably surprised that any got away." Based on Crittenden's report, it is not surprising that Cushing got most of his battery off the field since he seemed to have good situational awareness. Cushing informed Crittenden that the enemy seemed to be in the rear before Crittenden had any realization that something was wrong. Based on the situation, Cushing was already looking for the direction his battery would retreat.[37]

Brannan's division was caught on the shoulder of the breakthrough and the batteries of his division were now close to the main enemy penetration. The division only had two batteries. Third Brigade's battery, Smith's Battery I, 4th U.S. Artillery, as mentioned previously had moved to Snodgrass Hill earlier in the day under orders of Major General Thomas to report to Major General Negley.[38] The two remaining batteries quickly became entangled with more Confederates than they could handle. Lieutenant M. B. Gary, commanding Battery C, 1st Ohio Light Artillery, described the action: "A heavy column of the enemy immediately appeared marching by the flank directly across my front, and at a distance of 600 yards from my pieces. I opened fire upon him with shell and spherical case. Changing direction to the right, he attacked in great force the line on which I was posted, and about 200 yards to my right, and after capturing nearly all of the Fourth Michigan Battery [five out of six guns] and driving away the infantry, he pushed to within 100 yards of my right piece."[39] Gary's battery resisted for a short time with canister but the tide was overwhelming. Within half an hour thirteen men and twenty-five horses were killed or wounded and Gary believed it would soon be impossible to save the battery. He withdrew without orders to the left and rear, leaving one James rifled gun behind. On orders of his division commander, Gary joined the bulk of 14th Corps' artillery then forming to the rear under the command of Negley.[40]

One cannot hold Captain Church and Battery D, 1st Michigan Light Artillery particularly responsible for the loss of five of their six guns. They faced Longstreet at the point of the attack, and the enemy was on them before they even knew what was happening. So quickly was the battery overwhelmed that only seven men were wounded

or killed, with another four missing. The Confederates even captured the battery commander's horse.[41]

Snodgrass Hill

Much has been made about Major General Negley's handling of Union artillery during the battle. In order to understand his actions, it is first necessary to examine why he came into that duty. Why did a division commander, especially one who had his brigades spread across the field in the morning due to complex movements and changing orders, get the mission to assemble artillery? Thomas, now fully understanding the weakness on his left and fearing another attack there, wanted to mass artillery in a position commanding the left by fire. He sent Captain Gaw, his topographical engineer, to give Negley an order to "mass as much artillery on the slopes of Missionary Ridge, west of the State road (LaFayette Road?), as he could conveniently spare from his lines, supported strongly by infantry, so as to sweep the ground to the left and rear of Baird's position."[42] There is much debate about this order which was delivered verbally. Much of the debate came about due to the court of inquiry held for Negley after the battle. Many later testified that Captain Gaw spoke to Negley, but Gaw for some reason did not testify himself and nobody else heard the order. This thesis will not address the question of what Thomas ordered versus what Negley understood. It will instead deal with the indisputable facts, and additionally try to interpret both Thomas' intent and what Negley believed his mission was, regardless of what Thomas actually ordered.

Thomas claimed after the battle that he wanted artillery near Baird's left—on Missionary Ridge.[43] This makes sense because it would give some insurance against a repeat of the earlier Confederate success against the Union left. Negley did not

understand that intent. His report following the battle differed from Thomas' both in the amount of artillery and the specifics of the mission: "Here I received orders, through Captain Gaw, to take charge of and mass all the artillery at hand on a high ridge facing the south."[44] There is obviously significant difference between what Thomas said he ordered and what Negley said he heard. As one might expect, Negley acted in accordance with what he said he heard and began gathering all the artillery he could and massing it. Instead of massing it on Missionary Ridge he formed with what little infantry he had on Snodgrass Hill, 400 to 500 yards distant from where Thomas likely wanted him.

Negley was in a difficult situation. He was trying to command his brigades and at the same time wrestling with a mission to gather artillery. He ordered his adjutant, Major Lowrie, to "collect all the batteries [he] could find near the road and to order them up on the ridge, facing south." Lowrie moved to his task. He later reported, "I delivered this order to Captain Schultz, Captain Marshall, and a lieutenant commanding a regular battery. These batteries were placed on the ridge as directed and changed about from one position to another as the exigencies of the battle required."[45] Schultz and Marshall commanded Battery M and Battery G, 1st Ohio Light Artillery respectively, and habitually supported Negley's second and third brigades. The lieutenant commanding the regular battery was almost certainly Lieutenant Smith with Battery I, 4th U.S. and his four Napoleons. Both the Ohio batteries were at full strength, making sixteen total cannon when added to Smith's battery.

Those three batteries stayed in position for some time, fending off Confederate assaults that threatened to cut off Thomas' force. Schultz and Smith did most of the

firing, Marshall fired fewer than fifty rounds.[46] The four remaining guns from Bridges' battery later joined them in position. Lieutenant Temple was falling back in charge of the guns when he ran into Captain Johnson, of Negley's staff, who informed Temple that Negley was forming a new line on the hill. Temple found Negley and received orders to move into position near Schultz. Two of Temple's four guns were added to the command of Lieutenant Smith near Snodgrass House, while Temple employed the other section. Marshall's battery was in position upon high ground to the right. Bridges later joined the assembly with four additional guns recovered by a detail of infantry.[47] It is difficult to determine exactly what batteries abandoned the guns recovered by Bridges and his infantry detail, but when added with the four guns originally belonging to Bridges they brought the total guns in action on the hill to twenty-four.

Based on Bridges' original position in Kelly Field, there were only a few candidates to have abandoned cannon that he could have recovered. Batteries caught up in the initial Kelly field attack and subsequent confusion included: Battery H, 4th U.S., Battery A, 1st Ohio, 20th Ohio, and Battery M, 4th U.S. Of these, 20th Ohio kept all their guns until they retired later in the day and Battery A, 1st Ohio fought a rear guard action, also retaining all pieces. Battery H, 4th U.S. Artillery lost one piece, but that was not lost on Kelly Field but rather in action with Mendenhall's batteries further to the south.[48] The final battery caught up in the Kelly Field action, Russell's Battery M, 4th U.S. lost no guns either. Since the batteries to the east of the Kelly Field stayed in position and had no abandoned guns early enough for Bridges to recapture them, he must have retrieved cannon abandoned further to the south, which opens up too many

possibilities to contemplate. The most likely answer is that Bridges recovered some of the guns originally lost from Mendenhall's line.

Through the course of the next few hours Negley and his staff continued to collect artillery, but no additional batteries went into position to support the battle. Believing he had all the artillery in place that the ground could support, as he gathered additional guns he placed them to the rear on a ridge with the 78th Pennsylvania Volunteers protecting them.[49]

There is no single source that has a definitive answer about exactly how many guns from what batteries ended the day with Negley. There are many contradictions, even among primary sources, that confuse the issue. In addition to the twenty-four already mentioned, Negley surely controlled what was left of Brannan's artillery. As mentioned before Battery I, 4th U.S. Artillery from that division was in position and firing. Battery C, 1st Ohio with five guns and Battery D, 1st Michigan with one gun were further to the rear but still under Negley's control.[50] These six guns complete the account of the organic 14th Corps' artillery with the exception of Reynolds' division, as Baird had only one battery present on Sunday and it was still on the Kelly Field line. Reynolds' batteries do not seem to have joined with Negleys. Lilly's Battery was clearly at the other end of the battlefield with large numbers of Confederates between it and Negley. The other two batteries from Reynolds stayed with their brigades during the retreat.[51] Johnson, attached to Thomas' corps, had three batteries as well. Battery A, 1st Ohio Light stayed on the field with its brigade.[52] 20th Battery, Ohio Light stayed on the field until about four, but then moved to the crossroad held by Sheridan, taking orders only from 20th Corps officers throughout the afternoon.[53] Johnson's final battery, the 5th

Indiana, fought on the Kelly Field line throughout the day.[54] Thomas' final attached division was Palmer's, which had four batteries at the start of the day. Battery B and Battery F, 1st Ohio went off the field with their brigades,[55] but the two regular batteries took different routes. Battery H, 4th U.S. returned to Mendenhall's control in the action described earlier in this chapter, while Battery M moved to Rossville under orders. Lieutenant Russell did not specify in his report where he got the order from, and the division Chief of Artillery's report did not mention it at all.[56] The time and location from which Russell left the field make it likely that his four guns left under orders from Negley, or at a minimum someone from Negley's staff. In addition to that battery, Palmer's division contributed more ordnance to Negley's stockpile by recovering some abandoned pieces. Captain Standart reported that he found and recovered three Parrotts, one Napoleon, and one twelve-pounder howitzer, bringing the total number of cannon to thirty-nine.[57]

Most estimates put the number of total guns with Negley around fifty. Since there were only thirty-nine from 14th Corps including recoveries and attachments, a significant number were from the other two corps and were likely retreating when they joined the artillery already around Snodgrass Hill. In the 20th Corps, Captain Hotchkiss led the artillery of Davis' division from the field.[58] The artillery of Sheridan's division did not get involved in much of the action for the day with the exception of Battery C, First Illinois Light Artillery, which started the day with Colonel Nathan Walworth's Third Brigade. The battery was later ordered to report to Second Brigade where Captain Hescock, the Division Chief of Artillery, posted it near the rear of the brigade. The battery lost three guns in the engagement.[59] Caught up in the destructive force of the

Confederate breakthrough, most of Sheridan's forces, along with their batteries, retired. They took the same route as the guns under Negley, but seem to have gotten orders from other places.[60] No guns from Twentieth Corps joined Negley's force.

The total of thirty-nine guns under Negley accounts for all the Union artillery on the field, with the exception of two divisions from Crittenden's corps. From Wood's division, Estep's battery was captured in total and Naylor's battery was still stationed at Chattanooga. Captain Bradley and the 6th Ohio joined the growing number of guns with six cannon after getting cut off from his brigade. He attempted to rejoin his division, but finding that fruitless, reported to Negley.[61] From Van Cleve's division, Captain Swallow and the remaining five guns from the 7th Indiana retreated from Mendenhall's line and happened to pass some troops from Negley's division. Swallow learned of the new line forming and added his guns to the mass.[62] The other two batteries from Van Cleve's division were decimated, only two guns from the 26th Pennsylvania and one from the 3rd Wisconsin remained in Federal hands. None of these three pieces joined Negley.[63]

The eleven guns from 21st Corps brought Negley's total to fifty—twenty-four in battery and twenty-six formed further back on the hill. Negley tried to contact Thomas and Rosecrans to obtain orders and assistance. He found himself cut off temporarily from Thomas' position, and Rosecrans told an aide of Negley that there was no help coming. Faced with a deteriorating situation and a lack of infantry support, Negley decided to withdraw his conglomeration of artillery to Rossville.[64] There was considerable question after the battle regarding whether or not Negley should have left the field with all this artillery. Negley successfully faced a court of inquiry, but never again commanded during the war, as doubt continued to surface regarding his

Chickamauga performance. Even today historians disagree on what Negley should have done on Snodgrass Hill.

Any debate today is tainted by hindsight. Many historians forget that today we have the luxury of examining the situation while comfortably sitting at a desk, already knowing the outcome and with reasonable understanding of the big picture. Gone is the uncertainty, the fog of war, and the lack of situational awareness that plagued Negley as he made his decision. It is not fair to judge Negley based on what we know today, but rather only on what he knew at the time.

Negley had fifty guns ostensibly at his disposal. Twenty-four of those guns were in battery for him at some point, so at least that many were functional. Of the other twenty-six, most were remnants of shattered units or recoveries. Almost all were missing caissons, wagons, and other equipment. None had infantry supports. If forced to give battle in a coherent manner, it is likely only the eleven guns of the 6th Ohio and 7th Indiana were ready to continue the fight. Instead of the fifty guns generally ascribed, Negley had perhaps thirty-five effective pieces, some low on ammunition with no ready way to resupply.

One of Negley's considerations was terrain. He did not believe the ground supported the use of artillery, and in this he was backed up by testimony from countless aides and subordinates. When Bridges was pushed back by the enemy he had no suitable positions to move to, so he received orders to move to the Rossville Road.[65] In fact there was terrain that supported the use of artillery in the cluster of four knolls that made up Snodgrass Hill.[66] Given perfect understanding of the situation, Negley could have gotten more artillery into reasonable supporting positions than he did. There was no location to

support a massive artillery formation that could have swept the field, but there were certainly positions for an additional battery or two that could have fortified the Union defense. Even without adequate infantry support, the strong positions available on the hills, which proved difficult for the Confederates throughout the afternoon, would have been even more formidable when swept by canister. The fact of the matter was that like almost all of his counterparts in the Army of the Cumberland, Negely did not have a full picture of what was going on around him. He was cut off from his commander. He saw Confederate units in strength in just about every direction. He had very little infantry support, and the army commander and two corps commanders had left the field already. Negley's decision to withdraw the artillery may not have been completely correct, but it was certainly completely justifiable given the context in which it was made.

With Negley's departure the artillery fight for the Union was essentially ended. Several batteries fired a few rounds in retreat, trying to forestall sporadic Confederate pursuit, but there was no organized artillery action worthy of note. Through the day the Union abandoned thirty-two guns, many without firing a shot. Due to the collapse of the Union line, it is difficult to ascertain whether the Union artillery would have significantly impacted the events of the 20th or not had the battle gone in a more orthodox manner. The hole in the line rendered all artillery action moot. Based on the lack of planning for artillery employment, especially in 14th Corps, it is likely that the results would have been mixed. The front line batteries facing direct assaults created havoc among the enemy, but the failure to plan for fires to cover the Union left resulted in a reactive plan that placed Negley in an impossible position without the proper understanding or

resources to resolve the problem. The Union gave away an opportunity to use artillery effectively in a situation that was reasonably suited to success.

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[2] *The War of the Rebellion: Official Records of the Union and Confederate Armies, Vol. 30* (Washington, D.C.: US Government Printing Office, 1880-1901), Part 1, 577.

[3] *OR* Vol. 30 part 1, 253.

[4] *OR* Vol. 30 part 1, 58-59

[5] Assessment of the fields of fire for the four batteries on the front line is based on the author walking the ground in front of those gun positions.

[6] *OR* Vol. 30 part 1, 622-623.

[7] *OR* Vol. 30 part 1, 282.

[8] *OR* Vol. 30 part 1, 504.

[9] *OR* Vol. 30 part 1, 677-678.

[10] *OR* Vol. 30 part 1, 413.

[11] *OR* Vol. 30 part 1, 426.

[12] *OR* Vol. 30 part 1, 438.

[13] *OR* Vol. 30 part 1, 374.

[14] *OR* Vol. 30 part 1, 374-375.

[15] *OR* Vol. 30 part 1, 438.

[16] XXX OR 1, 800.

[17] Ibid.

[18] *OR* Vol. 30 part 1, 801.

[19] *OR* Vol. 30 part 1, 562.

[20] *OR* Vol. 30 part 1, 553.

[21] *OR* Vol. 30 part 1, 281-282, 287; Cast iron tablet at Kelly Field Glade. In his map on page 330 of *This Terrible Sound,* Peter Cozzens shows the battery emplaced to the right of the brigade. It is clear from the reports of Major Kensel and Brigadier General Scribner, as well as the marker on the battlefield that the battery was not positioned together, but rather in two gun sections.

[22] *OR* Vol. 30 part 1, 282.

[23] *OR* Vol. 30 part 1, 577; D. D. Holm, *History of the Fifth Indiana Battery (Compiled from the field diary of Lieutenant Daniel H. Chandler).* In his report Simonson claims they spiked the gun, but the Holm history is very specific about the fact that they did not have a spike and were forced to take more creative measures. The author finds it likely that Holm was correct and that Simonson reported spiking the gun as a matter of simplicity, since the net result was the same.

[24] The author found no source citing the failure of most Union batteries to disable abandoned pieces, but the 5th Indiana Battery was the only place found that mentioned it. Since disabling an abandoned gun was an intelligent thing to do, it is logical that had they done it other battery commanders would have said as much in their reports. Union crews did not spike most of their lost guns because in most cases the guns were taken from them at very close range, and there was little time to react to the loss.

[25] *OR* Vol. 30 part 1, 759.

[26] *OR* Vol. 30 part 1, 778-779.

[27] *OR* Vol. 30 part 1, 759; Cast Iron Tablet east of Kelly Field

[28] *OR* Vol. 30 part 1, 470, 472.

[29] *OR* Vol. 30 part 1, 484; Lieutenant Chess closes his report with "Hoping the above may prove correct…"

[30] *OR* Vol. 30 part 1, 472, 484.

[31] *OR* Vol. 30 part 1, 610, 623, 634.

[32] *OR* Vol. 30 part 1, 623, 800.

[33] *OR* Vol. 30 part 1, 800; Cushing's report does not mention the change of orders as anything significant, only that he had orders from Thomas, and changed missions

when he ran into Mendenhall. The analysis of the flawed command structure is simply extrapolation by the author. Cushing, who normally worked for Mendenhall—a very "hands on" Chief of Artillery—fell back on that relationship even though by all rights he should not have.

[34] *OR* Vol. 30 part 1, 610.

[35] Ibid.

[35] *OR* Vol. 30 part 1, 623.

[37] *OR* Vol. 30 part 1, 610-611.

[38] *OR* Vol. 30 part 1, 438.

[39] *OR* Vol. 30 part 1, 426.

[40] *OR* Vol. 30 part 1, 427.

[41] *OR* Vol. 30 part 1, 414.

[42] *OR* Vol. 30 part 1, 251.

[43] Ibid.

[44] *OR* Vol. 30 part 1, 330.

[45] *OR* Vol. 30 part 1, 338.

[46] *OR* Vol. 30 part 1, 397.

[47] *OR* Vol. 30 part 1, 353-354.

[48] *OR* Vol. 30 part 1, 800.

[49] *OR* Vol. 30 part 1, 330.

[50] *OR* Vol. 30 part 1, 414; Captain Church does not specifically refer to joining Negley, but mentions moving to position with the reserve artillery. Based on where he was coming from, Church almost surely meant Negley's "reserve". *OR* Vol. 30 part 1, 427; Lieutenant Gary specifically says he got orders from Brannan to join Negley.

[51] *OR* Vol. 30 part 1, 472, 484.

[52] *OR* Vol. 30 part 1, 553.

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[53] *OR* Vol. 30 part 1, 563.

[54] *OR* Vol. 30 part 1, 577.

[55] *OR* Vol. 30 part 1, 759, 778.

[56] *OR* Vol. 30 part 1, 722, 801.

[57] *OR* Vol. 30 part 1, 722.

[58] *OR* Vol. 30 part 1, 504-505.

[59] *OR* Vol. 30 part 1, 595-596.

[60] *OR* Vol. 30 part 1, 588-589, 593-594, 600-601.

[61] *OR* Vol. 30 part 1, 650; It seems that everyone knew that Negley was massing artillery and reported to him as a matter of course. This is the only explanation for a battery commander from a different corps taking this type of action.

[62] *OR* Vol. 30 part 1, 836.

[63] *OR* Vol. 30 part 1, 820-821, 852.

[64] *OR* Vol. 30 part 1, 330-331.

[65] *OR* Vol. 30 part 1, 351-353.

[66] This observation is based upon the author walking the terrain of Snodgrass Hill and finding plenty of opportunity for gun emplacements. The question is not whether there was suitable terrain, but what terrain was left in the narrow hills after the infantry led by Brannan was in place and whether or not there was room to maneuver batteries into position. The author finds it likely that they could have gotten batteries into position had they made an effort.

CHAPTER 5

ANALYSIS AND CONCLUSIONS

At the battle of Chickamauga several factors acted together to make artillery ineffective. Terrain and weather; tactics, doctrine and organization for combat; technology; and the personalities, roles, and biases of the people involved in decision making all contributed to the failure of Union artillery. Terrain and technology certainly had an impact on the effectiveness of the artillery at Chickamauga, but the actual employment based upon the tactics, roles of key personnel, and organization were much more significant.

The Battle on 19 September

In analyzing artillery employment at Chickamauga it is useful to look at the two days of the battle as separate events. The conditions on 19 September, essentially a meeting engagement, were completely different from the challenges of 20 September, a deliberate defense. As one might expect, terrain had more impact on the meeting engagement as commanders ordered batteries into unfamiliar ground.

Terrain affected artillery employment in several ways. It restricted the movement of cannon, which required a six-horse team for propulsion. Local geography made it difficult to find open areas large enough for doctrinal employment of the guns—ideally the guns should have been spaced fourteen yards apart. Most importantly, the terrain prevented leaders from observing the battlefield clearly, hindering their situational awareness. There are several cases, especially early in the day, where batteries were ordered forward with brigades without knowing the terrain or the enemy location.

The most significant example of terrain affecting situational awareness was during the attack of Liddell's Division against Scribner's, Starkweather's, and John King's brigades of Baird's division. In each of these brigades the initial engagement with the enemy began within the effective range of the rifled musket, negating any range advantage of the artillery. The enemy approached undetected in the front and on the flanks. The confusion caused among the Union infantry and the subsequent rout of those forces left the artillery disorganized, unsupported, and in close proximity to the enemy. The same terrain that hindered situational awareness and got batteries into untenable situations also made it difficult for them to withdraw. But even if the terrain had been ideal for movement, it likely would not have mattered since the enemy killed or disabled many horses from the batteries. Once the terrain allowed the enemy to close with the batteries, the direction of travel off the battlefield became a moot issue.

The three batteries of Baird's division paid the price for the lack of Union situational awareness. Of twenty-eight Union cannon captured on 19 September, seventeen of them came from Van Pelt's Battery A, First Michigan; Flansburg's Fourth Battery, Indiana Light Artillery; and Burnham's Battery H, Fifth U.S. Artillery. Union forces subsequently recaptured many of the cannon from Baird's division, but only one of the batteries would fight again on 20 September. The loss of these batteries on 19 September would eventually lead to a flaw in the positioning of artillery on 20 September that would threaten the left side of the Union line.

The piecemeal style of the battle on the first day should have favored the Union artillery organization. If there were any situation that made attaching batteries to individual brigades effective, it would have been on 19 September since the Union

commander committed individual units to the battle as they arrived. This type of implementation hindered situational awareness, causing the loss of several batteries, but it should have allowed for the maximum flexibility for employment of artillery. But the decentralized organization did not produce the expected result. It should have allowed more batteries to get into the fight, but instead it ensured that there would be no coherent plan for artillery fires, no massing of effects, and very little impact on the battle.

One third of the Union artillery did not fire on 19 September. Some of the batteries that did fire, the batteries in Baird's division as an example, fired only a few rounds and had almost no effect. Many of the batteries that did fire did not know what they were shooting at, resulting in both wasted ammunition and incidents of fratricide. The occurrences of fratricide on this day are perhaps the best indicator of the situation. The decentralized implementation of artillery directly resulted in commanders that did not understand the situation. After the battle, many battery commanders reported that they got the range to the enemy from a battery near them, or from a senior officer directly involved in the battle. What that means is that they went into the battle without understanding exactly what was going on. They took orders from whatever senior officer happened to be around at the moment. This led to fires that did not meet any planned intent, but instead attempted to react to whatever was happening at the moment.

An example of what could have happened with better centralization and coordination was the link between the Commander and Chief of Artillery of the First Division of the Twentieth Corps. Major General Davis was one of the few division commanders who kept artillery centralized at division level. He passed his intent to Captain Hotchkiss, his Chief of Artillery, and allowed Hotchkiss to position the artillery

to support that intent. The organization was not completely successful—after all, there was an incident of fratricide within the division—but this relationship between a commander and his artillery chief was perhaps the best in the entire Army of the Cumberland. The fratricide was more a result of units from two separate divisions under two different chains of command not understanding what the other was doing. In Davis' division, Hotchkiss was able to take the commander's intent and make sure that the artillery supported that intent. Had Hotchkiss brought both of the divisional batteries into action instead of leaving the Eighth Wisconsin Battery positioned to the rear, he would have been even more successful. Had the rest of the army modeled their artillery organization on Davis' division, the whole army would have been more successful with artillery.

Division level was the ideal level at which to organize artillery on 19 September. None of the three corps fought together on that day, so any organization higher than division would have been futile. However, leaving organization of artillery at brigade level ensured almost a complete lack of continuity. Brigade commanders did not have enough awareness of the situation to use artillery with any sort of effectiveness. Individual battery commanders were left to try and ferret out whatever information they could about the enemy around them. What they needed was a strong Chief of Artillery at division level directing the artillery effort based on the intent of the division commander. This would have allowed battery commanders to worry more about the details of emplacing their batteries, allowed massing of fires at division level for greater effect on the enemy, and reduced fratricide and wasted effort by increasing situational awareness within the artillery units.

The Battle on 20 September

The key disconnect for artillery during the deliberate defense on 20 September was the failure to include it in the overall plan for the army, or even any of the corps. The difficulties of the terrain, though still present, were masked by the fact that the Union would start the day in static positions along a fortified line. For the most part Union commanders, especially Major General Thomas, chose the ground they wanted to defend, which further mitigated issues with terrain. Unlike the previous day, Union forces had a pretty good idea what direction the enemy was coming from and artillerymen should have been able to engage from longer ranges with their flanks secure. All of the elements that made the situation difficult for artillery on 19 September had gone away, but the Union artillery was still unsuccessful.

The failure of Union artillery on 20 September resulted from problems that began at sundown the previous day. When Major General Rosecrans gathered his commanders and decided to defend, he did not make a plan for the implementation of artillery. The Union commanders mostly understood that the left side of the Union line would be the focus of Confederate effort, and they knew they had to protect the vital road to Chattanooga or risk being cut off. Despite that understanding, Major General Rosecrans did nothing to weight that part of the line with artillery. There was no mechanism at army level to use artillery fires to give substance to the main effort.

With the failure to plan for artillery at army level, the need for corps level planning became more important than ever. George Thomas, who had close to half of the army's assets by the start of the battle on 20 September, started the morning with no plan for his artillery. Thomas agreed with Rosecrans that Thomas' left, which was also the

army left, was the critical point on the field. Thomas positioned all his artillery near his center and on his right. Part of the poor positioning was chance, but mostly it was simple failure to plan. The part that was chance was the fact that Baird held Thomas' left and two of Baird's three batteries were taken out of action on 19 September. On the morning of 20 September, that should not have been a surprise. Two batteries were gone, but everyone knew they were gone and nobody did anything to replace them.

Thomas had the assets available to anchor his left with artillery. He had four batteries positioned in his second line, not committed to the initial defense of the Kelly Field line. The batteries were positioned much like an artillery reserve, but they did not act in that capacity. They were positioned close to one another, but there was no centralized control of these batteries. The battery commanders got their orders from brigade commanders, or at best from a Chief of Artillery at division level. There was no mechanism that allowed reaction to the needs of the corps—a failure demonstrated when early Confederate attacks threatened the Union left. Batteries reacted to the attack, but they reacted as individual units instead of as a formation. A true artillery reserve could have made a much more significant difference.

Allowing each brigade to position an attached battery was the equivalent at the corps level of making no plan at all. Brigade commanders during the American Civil War were not planners. There was very little thinking involved with fighting a brigade. The commander made sure that his line was straight, that he did not have an exposed flank, and that his soldiers had ammunition and were ready to fight. A brigade commander was responsible for a small piece of ground, usually directly to his front. When given an artillery battery, it was not much of a stretch to assume he would use it to

add to the organic firepower of his brigade by positioning it to fire against that frontal threat. If the commander of a brigade even knew the overall plan of the army, which in some cases was certainly questionable, it is doubtful if he would have known how to use his battery in support of that plan, even if he wanted to. His mission was to hold his part of the line and he would almost certainly use artillery to help with that task. While important locally, using batteries in this manner ensured that artillery would have little overall impact.

Thomas recognized his failure to plan for artillery later in the morning, but by that time the Confederates had gotten around his line and were moving in from the north. To rectify his situation he sent orders to Major General Negley to assemble all the artillery that he could on the slope of Missionary Ridge to control the left by fire. For one reason or another Negley did not understand Thomas' intent, but for all practical purposes it was too late anyway. Had Thomas positioned significant artillery in his intended location earlier in the day, there is a possibility that it might have changed the entire battle. Fields of fire at the north end of the Union line were good and massed artillery fire may have been able to deny that flank to the Confederates, preventing them from threatening the Union lines of communications to Chattanooga. With his left flank more secure, it is possible that Thomas would not have needed to call for reinforcements as often as he did, preventing the shifting of the lines further to the south. If Rosecrans participated in such an artillery plan at army level, perhaps he would have had enough confidence in his left side to refuse Thomas' request for additional forces. These are simply hypothetical situations, but if Breckinridge's forces came around the left end of the Union line only to

face massed artillery with open fields of fire, the engagement would certainly have ended differently.

It is understandable that Thomas did not have artillery in position at sunrise. His forces started moving well before dawn on the morning of 19 September and he and his soldiers had little time to recover during the day. When the fighting ceased for the day the corps was exhausted. When Thomas left his meeting with Rosecrans it was after midnight. It is possible that he did not want to wake exhausted to reposition artillery, even if he gave the matter any consideration before going to sleep himself. But Thomas had chosen most of his positions for 20 September earlier in the day before the fighting had even finished. Even if he had not directed artillery into position then, the enemy cooperated and gave him another chance. The expected dawn attack of 20 September failed to materialize until later in the morning, giving the Federals several hours to reposition and fortify the line. Thomas had plenty of time to move batteries into new positions.

The Role of Poor Organization

Thomas' problems with artillery and the problem within the entire Army of the Cumberland stemmed directly from the method of organization. There was no mechanism in the army that allowed for centralized planning or execution of artillery fires. Occasionally an officer during the battle would mass artillery at a point on the field to stem an enemy charge, but there was no structure in place to plan for that type of action. When the generals got together to discuss the plan for the next day, there was nobody planning the use of artillery. Colonel Barnett could have done it, but for the most part he played a subservient role that mostly focused on logistics and administrative

matters. He was not truly an advisor. Part of the failure of the army Chief of Artillery was the structure in which he worked, but another part belonged to the commander. Rosecrans tended to rely on himself more than he did his staff and he did not focus on the details of artillery.

None of the corps had any better of a situation. Twenty-first Corps approached a reasonable relationship between the Chief of Artillery and commander, but that may have been more because Major Mendenhall took charge of situations he found during the battle than anything else. There is no evidence that he and Crittenden made any plan for use of the corps' artillery prior to actual execution on 20 September. Complete blame for this does not rest with Twenty-first Corps since Rosecrans changed its mission significantly during the morning, forcing the corps to react to a different set of circumstances. Prior to the change of mission the corps was in reserve so there was not much planning for the artillery needed. Had the situation been different, it is possible, even likely, that Twenty-first Corps would have developed a plan for the concerted effort of artillery batteries. The tools were in place and based on reports after the battle, battery commanders seemed accustomed to taking orders from Major Mendenhall.[1]

While Crittenden's corps seemed to have some semblance of unity of effort with its artillery, the other two corps had none whatsoever. Thomas' failures have already been clearly stated, those failures came directly from his organization. Since batteries belonged to brigades, there was no need to make any plans for them. Nobody had to issue orders to the artillery at all except for the brigade commander. If the artillery was in battalions, consolidated at division or the corps and organized with a group of batteries as a reserve, some commander would have been asking for orders for the artillery. This

would have forced the corps and division commanders to think about what they wanted to accomplish with their cannon before the battle began instead of after the conflict was underway. A higher level of artillery organization would have forced more of a focus. Organizing by brigade ensured that there was no focus for the employment of the artillery.

Since there was no artillery organization, Thomas had no need to give orders to his Chief of Artillery. Major Lawrence played no significant role implementing artillery in the corps, instead he served as a messenger. Lawrence was not in position to obtain his commander's intent for fires and distribute that to subordinate artillery officers. He was never used that way, and his boss never developed an intent for artillery fires, much less disseminated it.

The same issues that plagued Fourteenth Corps also caused problems in Twentieth Corps. It is difficult to say who the Chief of Artillery actually was during the battle. If one accepts that Major General McCook borrowed Major Kensel to be his Chief of Artillery then hi role in the battle was certainly limited. There is no evidence that Kensel did anything related to the artillery of the corps, nor is he mentioned in the after action report except as a side note by the corps commander.

In a best case scenario, with some portion of the artillery organized at army level, some artillery commander would have been searching for a way to use artillery to support Rosecrans' defense. This almost certainly would have resulted in more batteries on the left of the line, the point of concern for the commander. Would Pickett's Charge still live in infamy today if Henry Hunt's artillery had been parceled out to individual Union brigade commanders at Gettysburg instead of massing their fires against the Confederate

frontal attack? The situation at Chickamauga was certainly not the same as at Gettysburg, but the comparison is still valid to some extent. Higher level organization would have made artillery more effective at Chickamauga.

Applicability to Modern Military Practice

Although the Battle of Chickamauga happened more than 135 years ago, some of the lessons learned from the failure of the Union artillery still have relevance to today's army. Union leaders faced a situation where the weapon that they had available, the cannon, was not ideally suited to the situation in which it was employed. Terrain and the invention of the rifled musket pushed artillery into a role that was secondary to the infantry. Despite the limitations, there were tactics, techniques, and procedures that could have made the use of a less than ideal weapon system more effective.

Today army leaders are often placed in situations where the weapon systems available are not ideal for the given mission. Weapons designed for fighting on the plains of Europe translate well to the desert environment of the Gulf War, but not well at all to stability and support operations. The M1 Abrams and the M109A6 Paladin are certainly not the ideal systems for keeping peace in Bosnia where the road network is designed for much smaller, lighter vehicles. The 120mm main gun and the 155mm Dual Purpose Improved Conventional Munition round, ideal for penetrating the armor of a T-72, are of little use against a group of unarmed protestors.

There are many generalities from Chickamauga that apply to those situations today. The way that leaders dealt with challenges of the weapon systems, or failed to deal with those challenges, provides a framework within which leaders today can address the same sorts of issues. By thinking through the best uses for a system instead of

dismissing it as ineffective, leaders increase the effectiveness of the force. Today's leader can learn from the mistakes of the Army of the Cumberland.

When faced with difficult employment options, the Army of the Cumberland to adjust to the situation. They did not use artillery pieces in accordance with their strengths. Artillery was a significant force on the battlefield under two conditions: when used in a formation massed with other artillery, and when supported by infantry and firing canister at an advancing enemy. Despite the conditions on 20 September that should have allowed for those situations, the leadership of the Army of the Cumberland left their artillery dispersed and only had a few batteries in position to use canister. They did not use the strength of the artillery, but instead highlighted the weakness. Artillery batteries were left unsupported, placed in positions where the enemy could approach undetected, and in some cases forced to fire over friendly units. Today's leader must assess the strengths of his systems, even if those systems are not ideal. There will be cases where a system that seems ineffective, when employed with forethought, can have a positive effect on the situation. Helicopter pilots in Bosnia flew low over gathered crowds so that the rotor wash from the aircraft would induce the crowd to disperse. Clearly, attack helicopters were not designed for crowd dispersal, but given the right circumstances they can be effective.

Even though they knew that artillery had to mass to be effective, leaders of the Army of the Cumberland did not organize in a manner to make such actions practical. When a system has limitations in a given environment, a military force has to have the flexibility to alter its organization in a manner that limits the weakness of the weapon system. The Army of the Cumberland did not have that flexibility. Today's leaders must

be ready to change the organization to meet changing missions with less than ideal systems. Flexibility in organization and willingness to change can create opportunity in the face of challenge.

The difficulty of artillery employment was not unique to the Army of the Cumberland. Other Union officers had figured out how to best employ artillery. Henry Hunt had notable success at Gettysburg. When someone within an army solves a problem with a system, the army has to work to disseminate those procedures to the rest of the force. When required, those changes must be forced from the top.

Finally, when faced with a system that is less than ideal for the situation, leaders must give more consideration to that system during planning. Leaders in the Army of the Cumberland made no plan for the coordinated use of their artillery. Given the difficulties discussed with the cannon of the American Civil War, planning for use of artillery deserved significantly more consideration. Experts must provide real and usable advice to commanders to ensure proper employment. If the men making decisions do not hear from the officer that understands how to get the most from a system, the army has wasted an opportunity.

No army can afford to waste any of its assets. Today's army may face a situation similar to the army of the nineteenth century. An entire branch is at a crossroads. As always, eventually technology will create a new set of solutions as well as a new set of challenges. Until that time, leaders can learn a lesson from the Union Army and its use of artillery during the Battle of Chickamauga.

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[1] The best example of this is when Battery H, 4th U.S. artillery retreated out of Kelly Field looking for ammunition. The battery belonged to Palmer's division, which was working for Thomas' corps. When the battery resupplied with ammunition, it should have rejoined Palmer, but instead joined Mendenhall in a different part of the line.
[2]

APPENDIX

UNION ARTILLERY ORGANIZATION

14th Army Corps
THOMAS

LAWRENCE
(Chief of Artillery, 14th Corps)

1st Division	2nd Division	3rd Division	4th Division
BAIRD	NEGLEY	BRANNAN	REYNOLDS
KENSEL	SCHULTZ*	CHURCH*	HARRIS*
(Chief, Div Arty)	(Chief, Div Arty)	(Chief, Div Arty)	(Chief, Div Arty)
1st BDE	1st BDE	1st BDE	1st BDE
SCRIBNER	BEATTY	CONNEL	WILDER
2nd BDE	2nd BDE	2nd BDE	2nd BDE
STARKWEATHER	STANLEY	CROXTON	KING
3rd BDE	3rd BDE	3rd BDE	3rd BDE
KING	SIRWELL	VAN DERVEER	TURCHIN
Artillery:	Artillery:	Artillery:	Artillery:
Indiana Light, 4th Btry	Illinois Light, Bridges' Btry	1st Mich Light, Btry D	Indiana Light, 18th Btry
FLANSBBURG	BRIDGES	CHURCH	LILLY
(2nd BDE)	(1st BDE)	(1st BDE)	(1st BDE)
2 Napoleons	2 Napoleons	2 Parrotts	6 3-inch rifles
2 James rifles	4 3-inch rifles	2 James rifles	4 Mountain howitzers
2 12lb howitzers		2 12lb howitzers	
1st Mich Light, Btry A	1st Ohio Light, Btry G	1st Ohio Light, Btry C	Indiana Light, 19th Btry
VAN PELT	MARSHALL	GARY	HARRIS, LACKEY
(1st BDE)	(3rd BDE)	(2nd BDE)	(2nd BDE)
6 Parrotts	4 Napoleons	2 Napoleons	4 Napoleons
	2 3-inch rifles	4 James rifles	2 3-inch rifles
5th US, Btry H	1st Ohio Light, Btry M	4th US, Btry I	Indiana Light, 21st Btry
BURNHAM	SCHULTZ	SMITH	ANDREW, CHESS
(3rd BDE)	(2nd BDE)	(3rd BDE)	(3rd BDE)
4 Napoleons	4 James rifles	4 Napoleons	6 Napoleons
2 Parrotts	2 3-inch rifles		

20th Army Corps
MCCOOK

KENSEL
(Chief of Artillery, 20th Corps)

1st Division	2nd Division	3rd Division
DAVIS	JOHNSON	SHERIDAN
HOTCHKISS (Chief/ Div Arty)	SIMONSON* (Chief/ Div Arty)	HESCOCK (Chief/ Div Arty)
1st BDE POST	1st BDE WILLICH	1st BDE LYTLE
Wisconsin Light, 5th Btry GARDNER Not engaged	1st Ohio Light, Btry A GOODSPEED 4 James rifles 2 12lb light guns	Indiana Light, 11th Btry SUTERMEISTER 4 12lb light guns 2 3-inch rifles
2nd BDE CARLIN	2nd BDE DODGE	2nd BDE LAIBOLT
Minnesota Light, 2nd Btry WOODBURY 4 Napoleons 2 Parrotts	Ohio Light, 20th Btry GROSSKOPF 4 3-inch rifles 2 12lb light guns	1st Missouri Light, Btry G SCHUELER 2 Parrotts 4 12lb light guns
3rd BDE HEG	3rd BDE BALDWIN	3rd BDE BRADLEY
Wisconsin Light, 8th Btry MCLEAN 2 Napoleons 4 3-inch rifles	Indiana Light, 5th Btry SIMONSON 4 James rifles 2 12lb light guns	1st Illinois Light, Btry C PRESCOTT 4 3-inch rifles 2 12lb howitzers

21st Army Corps
CRITTENDEN

MENDENHALL
(Chief of Artillery, 21st Corps)

1st Division
WOOD

1st BDE
BUELL

2nd BDE
WAGNER

3rd BDE
HARKER

Artillery:

Indiana Light, 8th Btry
ESTEP
(1st BDE)
4 6-pounders
2 12lb howitzers

Indiana Light, 10th Btry
NAYLOR
(2nd BDE)
Stationed at Chattanooga and
Not engaged

Ohio Light, 6th Btry
BRADLEY
(3rd BDE)
4 Parrotts
2 12lb light guns

2nd Division
PALMER

STANDARDT
(Chief/ Div Arty)

1st BDE
CRUFT

2nd BDE
HAZEN

3rd BDE
GROSE

Artillery:

1st Ohio Light, Btry B
BALDWIN
(1st BDE)
4 James rifles
2 6-pounders

1st Ohio Light, Btry F
COCKERILL
(2nd BDE)
4 James rifles

4th US Artillery, Btry H
CUSHING
(3rd BDE)
4 12lb howitzers

4th US Artillery, Btry M
RUSSEL
(3rd BDE)
4 Napoleons

3rd Division
VANCLEVE

1st BDE
BEATTY

2nd BDE
DICK

3rd BDE
BARNES

Artillery:

Indiana Light, 7th Btry
SWALLOW
2 Napoleons
4 Parrotts

Pennsylvania Light, 26th Btry
STEVENS, MCDOWEL
4 6-pounders
2 James rifles

Wisconsin Light, 3rd Btry
LIVINGSTON
4 Parrotts
2 12lb howitzers

Reserve Corps
GRANGER

1st Division
STEEDMAN

1st BDE
WHITAKER

Ohio Lt. Artillery, 18th Btry
ALESHIRE
6 3-inch rifles

2nd BDE
MITCHELL

1st Illinois Lt. Artillery, Btry M
BURTON
4 Napoleons
2 3-inch rifles

2nd Division
MORGAN

2nd BDE
DANIEL MCCOOK

2nd Illinois Lt Artillery, Btry I
BARNETT
2 Napoleons
2 James rifles
2 Parrotts

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