Civil War Artifacts from the Battle of Pilot Knob, Iron County, Missouri

Richard E. Martens

The Civil War started 150 years ago this year and some of the most significant battles were fought in Missouri. One of these was the 1864 Battle of Pilot Knob. The author collected artifacts from this battle site in the middle 1960s. The artifacts are documented in this article and have been donated to the Fort Davidson Historic Site Museum. It is also the objective of this article to: 1) encourage documentation of other Civil War collections before it is too late; and 2) provide educational material on this important period in Missouri history.

Richard Brownlee stated at the battles’ centennial observance that “in 20 minutes Sterling Price had over 1,000 officers and men killed or wounded! In those short minutes one of the greatest carnages of the Civil War had taken place” (1864:27). He also noted that, when the battle ended around 5:30 p.m. on September 27, 1864, the ground outside the fort was black with the dead and wounded. The evidence of this carnage extended for 500 yards in front of the southeast faces of the fort which were attacked (see Grantham 2009 for maps of Fort Davidson). The artifacts discussed in this report were all collected from this portion of the battlefield.

Today, the Fort Davidson Historic Site is approximately twice the size of the site when the subject artifacts were collected. In the 1960s, the park boundaries measured about 570 feet wide and extended about 450 feet north and south of the fort. This southern part of the park contained the areas of the major attacks on the fort. All metal detecting was done outside of the fort. Although the area north of the fort was searched, artifacts were only found in the area east and south of the fort. Most artifacts had been removed from the site by metal-detecting enthusiasts before the middle 1960s. By that time, only a couple of identifiable artifacts were found during each hour of searching.

Relatively little has been written on the battle and the site in the last 50 years (Bush 2010; Brownlee 1964; Grantham 1983, 2009; Suderow 1986). These articles are very informative, but they did not discuss artifacts from this site. The artifacts described in this article include artillery shell fragments and bullets, as well as other representations of the battle and the earlier Union occupation. A brief summary of the battle, its impact on the Civil War, and the types of weapons used are presented so that the interested reader can better understand the importance of these artifacts.

Overview

The six-sided Fort Davidson, with its nine-foot tall palisade-capped earthen walls and eight-foot deep moat, was built in 1863 to protect the nearby iron mines and fur-

naces. At the time of the battle, General Thomas Ewing commanded a total of 1,450 soldiers and volunteers. The fort was armed with three 24-pounder howitzers, four 32-pounder siege guns, and six 2-inch Woodruff field guns as well as four 3-inch Ordnance rifles (Suderow 1982:60). The attacking force was headed by General Sterling Price with some 9,000 men.

Fort Davidson was to be one of three forts, with the others built to cover the adjacent Pilot Knob and Shepherd’s Mountains. Unfortunately, the other two were not built. Consequently, Fort Davidson was indefensible if an enemy placed artillery on the nearby mountain tops. Price decided on a frontal attack using his numerical superiority instead of an artillery attack—a huge mistake!

The battle began in earnest on the morning of September 27, 1864. Ewing fought a delaying action so that Price could only mount a single attack that day. He planned on evacuating the fort that night. Ewing made Price pay dearly for the folly of a frontal attack. He then successfully destroyed the fort and extra supplies that night and escaped without the loss of a man (Suderow 1986:119–129).

Price’s attack on Fort Davidson was a tactical failure. His blunder meant that he would be denied his objectives of: 1) capturing the arsenal and weapons in St. Louis; and 2) installing a Confederate governor in Jefferson City. Had he succeeded, the Civil War probably would have lengthened by months.

Final Attack on the Fort

These attacks are briefly summarized below, with more detailed discussions available in Brownlee (1964) and Suderow (1986). General Price had planned a three-pronged attack on the fort, starting at 2 P.M. Unfortunately for him, the attacks were not well coordinated. The McCray and Slemons Brigades attacked first from the east. Concentrated cannon and rifle fire from the fort halted the attack, and they were pinned down for the rest of the battle.

General Cabal’s Brigade then initiated its first attack, advancing on the south and east walls of the fort, and Clark’s Brigade advanced on the south and west walls. Ewing’s men now concentrated their cannon and rifle fire on these troops. After a time, the soldiers could no longer withstand this fire and both brigades retreated out of range. Clark’s Brigade did not attack again. Cabal’s Brigade made a second charge, but they faltered 50 yards from the fort and retreated again.

Cabal’s Brigade then made its third and most desperate attack. They rushed up to the fort and the first line jumped into the moat along the south wall, taking heavy losses. The defenders threw small artillery shells fused as grenades over the parapet into the ditch. The explosions blew men above the level of the parapet and cleared the ditches. Cabal’s entire brigade was routed and the battle ended.
Thus ended one of the greatest carnages of the Civil War in the Trans-Mississippi theater. Over a thousand officers and men were killed and wounded in twenty minutes.

Artifact Collection from the Battlefield

The artifacts collected from the battlefield included 8 artillery shell fragments from 2 different sizes of cannons, 15 bullets from rifles and pistols, and miscellaneous military items. Detailed discussions of the two major classes of artifacts are preceded with a background discussion to provide the basics required to understand how these artifacts were used.

Background for Artillery Artifacts

Smooth-bored cannon fired one of four types of rounds: solid shot, shell, case shot, and canister, all constructed of gray cast iron. They were designated by the weight of the solid shot that they fired. Consequently, the bore diameters of the 12-pounder, 24-pounder, and 32-pounder cannons were: 4.52, 5.68, and 6.24 inches, respectively. Shells were hollow cannon balls of the same diameter as the solid shot. They were filled with a bursting charge of powder and incorporated a time-delay fuse. This allowed the gunner to time the explosion so that the resulting shrapnel tore into the target.

Case shot also used a hollow cannon ball, but with somewhat thinner walls than those of the shells. The case shot was filled with .69-caliber lead balls, and then the interstices were filled with a pine resin or a sulphur matrix to hold the balls in place (Carlson-Drexler et al. 2008:36). A bursting charge and a time-delay fuse similar to that of the hollow shell were incorporated. When the case shot exploded, it showered the target with lethal lead balls as well as the iron shell fragments. This extremely lethal weapon was meant for use against massed troops.

Canister rounds were also used against massed troops. Usually lead or iron balls were placed in a tin container that was fired from a cannon. They performed as a large shotgun blast, sending large numbers of balls toward an oncoming enemy. These balls ranged from 1.05 to 1.87 inches in diameter, dependant upon cannon type.

The design thicknesses for 12-pounder and 24-pounder spherical shell and case shot were listed by Carlson-Drexler et al. (2008:36). These design thicknesses and engineering fundamentals were used to project the design thicknesses for 32-pounder shell and case shot. The design thickness ranges for 24-pounder case shot were .525–.575 inches and those for the shell were .85–.90 inches. The projected design thickness ranges for 32-pounder case shot were .575–.625 inches and those for the shell were .94–1.02 inches. This information, in conjunction with diameter measurements, provided the basis for identifying the shell and case shot artifacts.

Spherical Shell and Case Shot Artifacts. Eight badly rusted cannon shell fragments and two case shot .69-caliber lead balls were collected from the battlefield. The rusted artifacts were cleaned using electrolysis. In this process, the artifact was attached to the cathode and a piece of stainless steel attached to the anode. Both were then placed in a brine solution and direct current electrical power applied. When all of the rust had been removed, the artifact was then washed in water and dried. The thicknesses of the shell fragments were measured with calipers and the shell diameter determined using templates (Figures 1–2). These templates represented the cannons used during the Battle of Pilot Knob, i.e., 24-pounder and 32-pounder.

Three shell fragments were from 24-pounder cannon ammunition. Two of these fragments were from spherical shells since their wall thicknesses were .8–.9 inches. They are displayed on a partial outline of a 5.68-inch-diameter...
The fragment on the right measures 3.4-x-3.2 inches. The other fragment is 2.1-x-1.2 inches. These shells only contained explosives and a timing fuse. The third fragment was identified as being from a case shot, because its walls were only .53 inches thick. Case shot contained many lead balls as well as explosives and a fuse. This fragment is 2.1-x-1.9 inches.

Five fragments were attributed to 32-pounder cannon balls. Two of these have wall thicknesses of 1.05 and 1.12 inches, which indicated that they came from explosive shells. They are shown in Figure 2, placed on a partial outline of this 6.24-inch-diameter ball. The length and width of the large fragment is 3.2-x-2.3 inches and that of the other is 1.7-x-.8 inches. The remaining fragments were from case shot with thicknesses ranging from .62 to .7 inches. Their lengths range from 1.3 to 2.6 inches and widths range from 1.2 to 1.8 inches.

Case Shot Lead Balls. When case shot exploded, the .69-caliber lead balls were violently forced against each other, resulting in up to 12 evenly spaced indentations on each ball. Close-up details of two of these balls are shown in Figure 3a–b. Some of the nine individual indentations shown in Figure 3a were enhanced with a pencil to aid identification. The much larger indentations shown in Figure 3b may have resulted from a closer proximity to the bursting charge.

Lead balls of .69 caliber without indentations are identified as having been fired by smooth bore muskets. Three such balls are shown in Figure 4m–o. Two with bursting charge indentations (Figure 4m–n) are also shown in Figure 3a–b. The other ball (Figure 4o) is from a musket. Note: The artifacts shown in Figure 4 are mounted on a display board. The mounting wire is particularly evident on the .69-caliber lead balls (Figure 4m–o).

Rifled Cannon Shell. Five heavily rusted cylindrical fragments were also collected. Two of these were tentatively identified as being from a Hotchkiss cannon shell. They are of the proper diameter and one corresponds to the lower portion of a shell with the beveled edge and a circumferential groove. The other fragment exhibits longitudinal fluting. This type of cannon was not used in the battle, but two of these shells have been found in the area. A Hotchkiss cannon apparently had been fired near the fort at one time.

Background for Rifle and Pistol Artifacts

One would expect to find bullets from a wide range of guns on any Civil War battlefield. This resulted from differences in equipment supplies for the two armies. Union
soldiers, backed by the industrial resources of the north, were well equipped with armory-issued weapons. Their primary weapons were the Springfield rifled muskets, Enfield and Colt revolving rifles, and probably a sprinkling of rifled Model 1816 muskets. Officers and cavalrymen also carried foreign and American-made revolvers.

Confederates, particularly Price’s rag-tag army, were poorly equipped. Thus, they had to make do with old and captured equipment. One would expect to see Model 1816 muskets (both smooth bore and rifled), Union-manufactured Springfield rifles from southern armories, Enfield rifles, and hunting arms. Confederate revolvers would be similar to those in the Union army plus personal purchases.

Rifle and Musket Artifacts. There are 11 bullets and 2 brass Springfield rifle percussion caps in this class of artifacts. Six of the bullets are .69-caliber Minie balls, and were used in rifled Model 1816 muskets by both the Union and Confederate forces. These bullets have a basal cavity which expanded when fired, allowing engagement with the rifling in the rifle barrel. The heaviest (50 g) and longest (1.1 inches) bullet, shown in Figure 4a, had three circumferential grooves. The rest of these artifacts, shown in Figures 4b–e and 5a, had two grooves with lengths and weights ranging from .92 to .98 inches and 30 to 36 g, respectively. Note, the bullet shown in Figure 5a appears homemade and was probably used by Confederate forces.

Rifling of the muskets significantly increased the accuracy of the bullets. Smooth bore Model 1816 muskets, used by many of the Confederates, were notoriously inaccurate. In his memoirs, General Ulysses S. Grant observed that, using such an arm, you might fire at a man all day from a distance of 125 yards without him ever finding it out. The .69-caliber, 30 g lead ball (Figure 4o) could have been fired by one of these muskets.

The remaining rifle bullets represent at least three different gun types. The .56-caliber bullet shown in Figure 4g weighed 30 g and probably came from a Colt revolving rifle. The .54-caliber slug in Figure 4h weighs 35 g and is from an unidentified rifle type.

Springfield rifles, which fired .58-caliber bullets, are the third gun type represented in Figure 4. Union troops used a special bullet to clean the residue out of their rifles. The artifact shown in Figure 4i has been identified as a .58-caliber Williams rifle cleaner bullet. The zinc attachment which completes this bullet is missing. The last rifle bullet, a .58-caliber Minie ball weighing 30 g is shown in Figure 5b. As mentioned earlier, two brass percussion caps for these rifles were also collected.

Revolver Artifacts. Three and possibly four revolver bullets are in the collection. The .354-caliber (9 mm) slug shown in Figure 4f has been identified as being part of a Lefaucheux pin-fire cartridge. The Union purchased a large number of these European pistols for use in the war. Two .44-caliber bullets, shown in Figures 4j and 5c, were fired from a Colt revolver. These artifacts weigh between 12 and 14 g. The last slug, Figure 5d, is badly deformed, but has been attributed to the revolver category based on its weight of 12 g.

Miscellaneous Military Artifacts. Three artifacts in the collection are related to Fort Davidson, but don’t fit into the previously discussed ammunition categories. One is a broken hammer from a Maynard rifle (Figure 4k). This artifact is 2.49 inches long and has a maximum thickness of .39 inches. The second artifact is a .8-x-.6-inch piece of .1-inch-thick flattened lead (Figure 5f). Possibly it is a trinket or gambling token, made from a bullet. The final artifact is a 1.15-x-.25-inch civilian coat button. It probably belonged to one of the ill-equipped Confederate soldiers. The front (Figure 4l) has a thin, non-ferrous cover with no markings; most likely the button originally had a cloth covering. The back of the button is steel with remnants of a silver-like finish and it lacks a maker’s mark (Figure 5e).

Mule/Horse Equipage Artifacts. Two badly rusted shoes were recovered from the battlefield site. Dr. Ronald Martens (Professor Emeritus, Large Animal Clinical Sciences, Texas A & M University) described them as follows:
both shoes are from mules. Mules have smaller feet than horses and the sides are much straighter. Shoe (a) has clips, steel flanges drawn up from the shoe proper and rests against the hoof wall to help hold the shoe on in rough going. Shoe (b) has heel calks, projections that increase traction.

The mule shoes were most likely associated with the Union soldiers’ activities at the fort. We know that mules were being used at that time because there are references to the mule corral being 200 yards south of the fort (Suderow 1986:50). Other artifacts, attributable to either mules or horses, include a bit (the mouthpiece from a bridle) and several harness buckles.

**Summary**

This report provides an overview of the Battle of Pilot Knob, including descriptions of Fort Davidson and its armaments. The major attack is described in some detail, since it occurred over the area that the subject artifacts were collected. The basics of artillery ammunition, of the type used against the charging Confederates, are presented to aid in understanding the artillery artifacts. Eight artifacts were identified as fragments from spherical shells and case shot from both 24-pounder and 32-pounder cannons. Two .69-caliber lead balls were also identified as being from case shot.

The artifact collection included 15 bullets. Eleven of these bullets were attributed to rifles and muskets. Both smooth bore and rifled Model 1816 muskets were represented, as were Springfield and Colt revolving rifles. Four revolver bullets were analyzed. One was from a European Lefaucheux revolver and two were attributed to Colt revolvers. Other military artifacts in the collection included a Maynard rifle hammer, a lead token, and a probable Confederate coat button. The last artifacts in the collection, mule equipage, are consistent with the historic references to the use of mules at the fort.

**Acknowledgments**

The author was fortunate to find several very knowledgeable people to aid him in both artifact identification and understanding of the Pilot Knob battle. Walter Bush, Brick Autry, and Gary Tripp of the Fort Davidson State Historic Site were particularly helpful in identifying artifacts and providing information on battlefield history. Larry Grantham shared his expertise on the battle and manuscript on the 1983 survey of the Pilot Knob Memorial Park.

**References**


Busch, Walter E. 2010 *Fort Davidson and the Battle of Pilot Knob, Missouri’s Alamo.* History Press, Charleston, South Carolina.


Suderow, Bryce A. 1986 *Thunder in Arcadia Valley: Price’s Defeat, September 27, 1864.* Southeast Missouri State University, Cape Girardeau, Missouri.