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James B. Legg

University of South Carolina - Columbia, leggj@mailbox.sc.edu

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Research

Artillery Ammunition from the 1781 Siege of Star Fort

By James B. Legg

Regular readers of *Legacy*, will recall that in 2018 and 2019, SCIAA Director Steve Smith conducted USC “Maymester” archaeological field schools in and around Star Fort, a component of the 1781 British defenses of Ninety Six, South Carolina, at Ninety Six National Historic Site (Figures 1 and 2). The work included formal excavation units, and an array of metal detector sample areas. Among our findings was a significant assemblage related to the field artillery that was heavily employed by both the American attackers and the British (Loyalist) defenders.



Figure 1: An American 6-pounder solid shot emerges from the north ditch of Star Fort in 2019. (In the background is a replicated 6-pounder in one of the American siege battery positions.) (Photo by James B. Legg)

In the Spring and Summer of 1781, American Southern commander Nathanael Greene and his subordinates pursued a very successful campaign to eject the British and their Loyalist American allies from their many posts in the interior of South Carolina. Nearly all of the British posts were either captured or evacuated during that campaign, including the three most important interior fortified towns of Camden, Ninety-Six, and Augusta, Georgia. On May 22, 1781, Greene’s army lay siege to the post of Ninety Six, in present Greenwood County, South Carolina. The strongest component in the defenses of Ninety Six was an eight-sided earthwork called Star Fort. The major American effort during the 29-day effort to capture Ninety Six was a formal, systematic siege approach against Star Fort from the north. Artillery fire was a

daily feature of the siege. By June 18th, the Americans were entrenched immediately north of the ditch of Star Fort, but a large relief force of British regular troops was on its way to break the siege. Greene decided to risk a direct assault on Star Fort before giving up the siege, but the attack met with a bloody repulse. Greene broke off the siege and withdrew the following day, but the British then decided that the post of Ninety Six was too exposed to be maintained, and they evacuated the site.

In 1976, the site of Ninety Six became a National Historic Site. The National Park Service soon conducted extensive excavations to trace and restore the American siege approaches to Star Fort, but the fort itself has received relatively little attention beyond limited testing by South Carolina’s first State Archaeologist William Edwards in the early 1960s, and mapping by SCIAA’s Stanley South in 1970. The fabric of the earthwork fort is almost completely original and unrestored, and our modest excavations did little to impact that condition. Nevertheless, we were able to document meaningful architectural information, and recovered an extensive sample of 1781 siege material.

The artillery-related assemblage includes a total of nine iron solid shot cannon balls for 6-pounder guns, which are cast iron spheres about 3.5 inches in diameter, weighing about six pounds.

The 6-pounder was the standard field caliber used by both British and American artillery during the Revolution. Historical sources indicate that the Americans used at least four, 6-pounder field guns in the siege of Star Fort, while the British had only two or three 3-pounders, and possibly some very light-caliber swivel guns. Nevertheless, we found both American and British 6-pounder shot in Star Fort. Seven of the nine 6-pounder shot recovered from Star Fort are probably of American manufacture (Figure 3). The seven examples are diverse, with a variety of mold details and considerable variation in the appearance of the cast iron. This suggests multiple sources of manufacture. What these shots do have in common is relatively low quality. Most have excessive mold seams, and the cast iron is typically granular and riddled with flaws, including laminations and voids from air pockets. One example had mold halves that were not only mis-aligned, but also of noticeably different diameters. Of course, smooth bore cannon was inherently inaccurate even with perfect projectiles, so the crude American 6-pounder balls from Star Fort were in fact entirely functional.

The other two 6-pounder shot are of British manufacture. The two differ, and clearly represent separate sources or episodes of manufacture, but each exhibits one of the two salient diagnostic



Figure 2: A view inside Star Fort in 2018, with an excavation block and a metal detector sample underway. (Photo by James B. Legg)



Figure 3: American 6-pounder solid shot from Star Fort. These cannon balls were originally attached to cylindrical wooden sabots, and the sabots were probably attached to cylindrical bags containing the propellant charge for the gun. This would constitute a “fixed round,” or a complete cartridge, for the gun. Finds of unfired shot might well retain the sheet iron strapping that attached the sabot to the ball, but we found none at Star Fort. (Photo by James B. Legg)

attributes of 18th century British shot. One example (Figure 4) displays the “broad arrow” mark of royal ordnance property, which is seen on British ammunition and equipment to this day. The other shot bears a very distinctive round depression around the mold sprue scar that was deliberately molded on the ball. This concave surface insured that any irregularity remaining from the detachment of the sprue would not project beyond the diameter of the ball. This mold feature is very common on 18th century British projectiles and is considered diagnostic of British manufacture. More commonly the broad arrow and the sprue concavity are combined on British shot, but the Star Fort examples are exceptions. Both British 6-pounder balls are of higher quality than the American specimens. Given that the defenders of Star Fort had no 6-pounder guns, the British shot probably represent ammunition captured from the British elsewhere in the Southern Campaign and fired into Star Fort.

Of the nine 6-pounder shot excavated, three (all American made) were embedded in the north parapet facing the American approaches; one was in the ditch below the north parapet, and the other five were found on the old ground surface inside the fort, and at the south entrance. Three of those five were deliberately gathered together at some point. The British 3-pounder guns in Star Fort fired shot about 2.8 inches in diameter. We have found no examples of 3-pounder shot inside or outside of the fort, but this is probably because we do not have substantial metal detector sampling in the

area where most shot fired from Star Fort would have come to rest.

We recovered a small assemblage of iron projectiles from canister rounds, or case shot rounds as they were called in the 18th century. We found 14 balls, and a fragment of another, that are about 1.2 inches in diameter (Figure 5). These are almost certainly American 6-pounder case shot/canister balls. The British ordnance regulations in 1780 called for a much smaller 6-pounder canister ball of about .87 inches in diameter, with 56 balls to the round. The larger balls that we recovered would be compatible with the canister configuration that was the American standard by the 19th century. That round held 27 balls of about 1.2 inches in diameter. From our findings at Star Fort and other Southern Campaign sites, including Fort Motte and Camden, it appears that the “American” canister round configuration was already in use by 1780. Like the 6-pounder solid shot, a number of these larger canister balls were recovered from the outer face of the north parapet of Star Fort, demonstrating that they represent incoming fire from American guns. Several others were found inside the fort in a destruction level context that included charcoal and timber spikes. The latter examples may have been embedded in fortification timbers that were burned when Star Fort was partially destroyed by the British when Ninety Six was evacuated.

Three examples of American iron *langrage* were found on the north side of Star Fort facing the siege approaches. *Langrage* was an expedient form of case

shot or canister that consisted of broken or chopped iron scrap in a can or bag. These examples all show deliberate chisel cuts and breaks, but there may be additional artifacts in the collection such as spike fragments that are less obvious *langrage* projectiles. The use of *langrage* at Star Fort suggests that the American gunners may not have been abundantly supplied with more formally manufactured ammunition.

We also recovered three examples of smaller iron case shot balls that are almost certainly British. These balls are roughly .87 inches in diameter, which, as noted above, makes them the correct size for a British pattern 6-pounder case shot. However, this is also the correct size for a British 3-pounder case shot, and the distribution of these three balls well outside of the fort is consistent with outgoing fire from the British 3-pounders in Star Fort.

Our lead shot sample includes two balls that are actually not small arms projectiles, but rather lead case shot (Figure 6). These balls are heavily scalloped and are typical of lead shot that have been fired from cannon in a case shot round that consisted of musket balls. Lead case shot have been found on other Southern Campaign sites, including Camden and Gray’s Hill near Beaufort. Their use was not standard and appears to have been confined to guns of very light caliber—a lead 6-pounder case shot round would have been extremely heavy. Both that fact and the locations of recovery of the balls suggest that they were fired from Star Fort.

Howitzers were a normal component of field artillery at the time of the American Revolution. The standard British field calibers were 12-pounder, 5.5,” and 8.” Their primary function was to fire



Figure 4: British 6-pounder solid shot from Star Fort bearing the “broad arrow” mark of royal ordnance property. (Photo by James B. Legg)

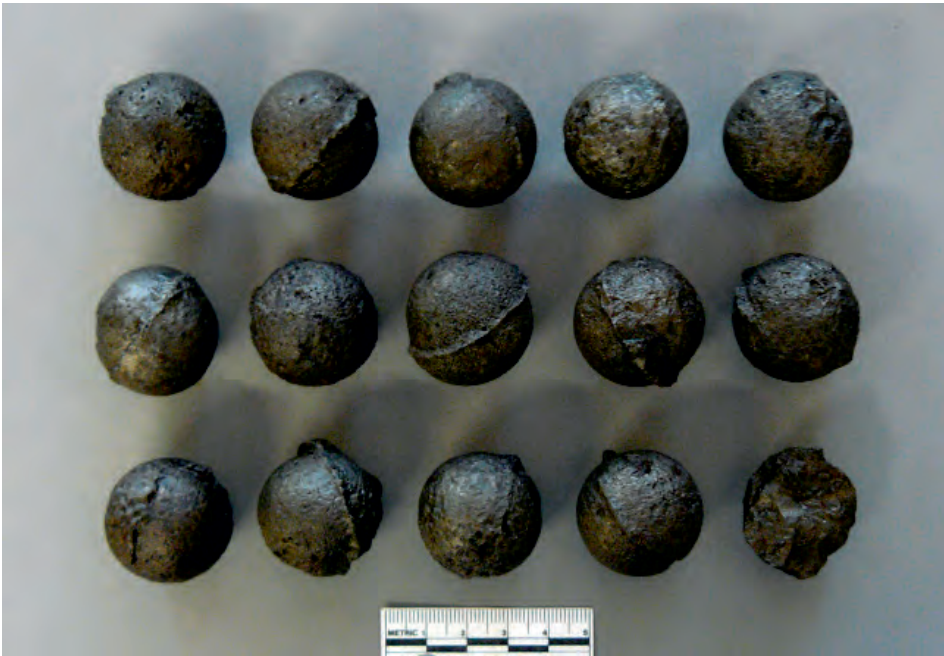


Figure 5: 1.2" iron balls fired in American 6-pounder case shot (canister) rounds, excavated in and around Star Fort. (Photo by James B. Legg)

explosive, time fused shells at relatively close range. There is no mention in the detailed primary sources of howitzers being involved in the siege of Ninety Six, but we found one fragment each from a 12-pounder shell and a 5.5" shell (Figure 7). The 5.5" fragment was found inside Star Fort, while the 12-pounder fragment was found outside the fort to the west. The 12-pounder fragment is perhaps small enough to have been part of a 6-pounder langrage round, but the 5.5" fragment is too large. We speculated originally that this undocumented use of howitzers had to do with the American capture of the British post at Augusta, which fell on June 5, 1781. Troops and supplies from Augusta were then dispatched to join the siege of Ninety Six, and it seemed possible that the three British artillery pieces captured at Augusta included one or more



Figure 6: Lead case shot (canister) ball, probably fired from a British 3-pounder gun in Star Fort at the American siege approaches. (Photo by James B. Legg)

howitzers that were used against Star Fort in the latter stages of the siege. Another possibility, for the 5.5" howitzer, at least, has to do with the American capture of Fort Granby, near present Cayce. That fort

fell to the Americans in May, as Nathanael Greene was in the area preparing to march on Ninety Six, and Greene supplied his small army from the material captured there. Two 5.5" howitzers were taken at Fort Granby, and it is possible that at least one of those guns was included in the expedition to Ninety Six. It remains unexplained why the primary sources consistently mention only 6-pounder guns in the American artillery contingent at Ninety Six.

Our sample of artillery material from Star Fort is small, but diverse and informative. There is little artillery material in public hands that derives from sites related to the Southern campaign prior to

Yorktown, so any properly documented and conserved additions are significant. On Southern Campaign sites generally, and at Ninety Six, archaeological artillery collections suggest that the artillery arms on both sides were less than ideal manifestations of the British ordnance regulations. Guns and ammunition were often non-standard, and ammunition included expedient types such as langrage and lead case shot. The quality of American-made ammunition was fair at best, and it was supplemented by captured material. As in the case of small arms and small arms ammunition, both sides in the Southern Campaign used miscellaneous arrays of weaponry, and ordnance supplies were not abundant.

The excavations and metal detecting conducted on the Star Fort battlefield in 2018 and 2019 recovered a very small sample of the siege material present on the site, certainly less than 1%. Even this very limited data, however, has added to our understanding of the events, and to our understanding of the material assemblages employed by the two belligerents in 1781. A more comprehensive sample of the site



Figure 7: Fragment of an exploded 5.5" howitzer shell from inside Star Fort. (Photo by James B. Legg)

is recommended, as it would certainly improve our understanding dramatically.

Conservation and analysis of the Star Fort artifacts from 2018 and 2019 is complete, and we are working on the final report for both seasons. In the next issue of *Legacy*, we will have a look at the extensive small arms evidence from the Star Fort project, including ammunition, gun parts, and accoutrement hardware from both sides.

We would like to thank the National Park Service, particularly the staff of Ninety Six National Historic Site, for the opportunity to work at Star Fort.