

Biting the Bullet: Did Revolutionary War Soldiers Really Bite Bullets to Ease Pain?

by Dan Sivilich

The internet is an amazing place to do research and find much information on most every topic imaginable. However, it is also an excellent place for misinformation. Along the same lines, metal detectors have become valuable tools for battlefield archaeology for locating military artifacts spread over large areas. This area was pioneered in 1983 by Dr. Douglas Scott at the Little Bighorn National Monument. Unfortunately the use of metal detectors by amateurs and relic hunters (legally and illegally) remove the same types of artifacts in uncontrolled conditions. To make matters worse, reality television shows about metal detecting fail to instruct the public about responsible archaeological procedures, documentation and artifact identification. The result is an increase in internet misinformation about artifacts. There are many internet photographs of musket balls that are so deformed from teeth impressions that they have been described as having been from "a field hospital where the patient was in so much pain he was given a musket ball to chew on". They usually further describe the balls as being mashed so severely that it must have been an amputation. There is an example of "biting the bullet" on a dentistry products website referring to a musket ball that was on display at the National Museum of Dentistry (Levine, 2012). Nearly all of these identifications are wrong.

I am a Battlefield Archaeologist and have been excavating conflict sites for over 25 years with a great deal of work being done at Monmouth Battlefield State Park in New Jersey, the site of the June 28, 1778 Revolutionary War battle. I have examined thousands of lead bullets from many different eras and from many different countries. I have written many articles and given many

papers on this topic and I currently have a book being readied for publication titled *A Guide to Musket Ball and Small Shot Identification*.

Humans cannot bite into a pure lead musket ball hard enough to make very deep impressions. Now we will separate fact from fiction. Who or what made these impressions? The culprit of many misidentified chewed musket balls:



Wilde Boar, woodcut by Edward Topsell, 1658 (Topsell, 1658) (Image courtesy of the University of Houston Digital Library).

Meet *Sergeant Swine*. Swine have very powerful mandibles and very strong teeth. They are one of the few carnivore species that can crush, eat and digest bone. So why are pigs chewing on musket balls? Pigs use their snout to root for food such as acorns, nuts, tubers and other edibles that fall on or are buried in the ground. Hogs have been used for centuries to find exotic truffles. It could be days to decades after a military event occurred that either domestic swine or wild

boar came through the area looking for food and picking up and chewing a bullet unintentionally. Many conflict areas were farms that continued to be farmed long after a battle took place. Camp sites or engagements in remote areas were also subject to wild boars roaming for food. The southern United States today has a severe problem with wild boars being a threat to rural populated areas.

Figure 1 shows the types of musket balls being represented as human chewed.

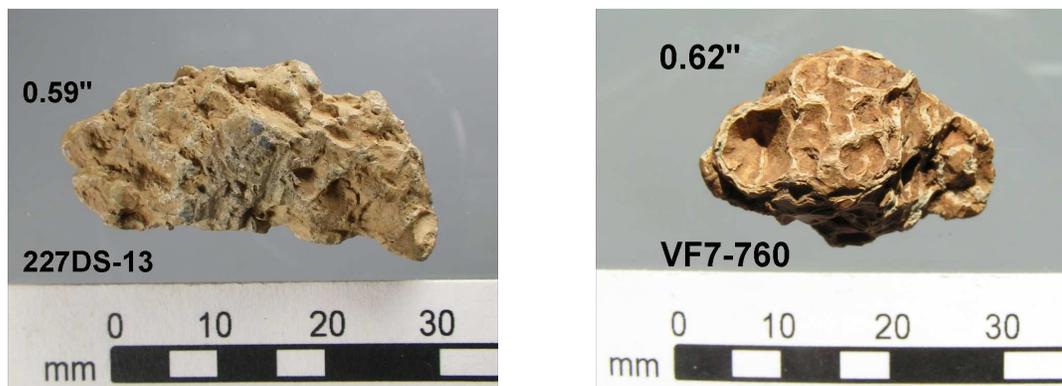


Figure 1: Severely mashed, swine-chewed musket balls. The left photograph is a musket ball found at the Point of Woods at Monmouth Battlefield. The right photograph is a musket ball excavated at the Washington Memorial Chapel, an at Valley Forge, Pennsylvania. Note: the calculated original diameters are shown in the photographs are based on the artifact weights, but do not account for the possibility of lead loss.

Zoo-archaeologist Dr. Henry Miller, Historic St. Mary's City, Maryland, has studied and identified dentition marks in many different musket balls made by a variety of animals, including humans. All of the severely deformed musket balls were chewed by pigs. He and I have personally chewed on 99.9% pure lead musket balls in an attempt to flatten them. We were able

to make indentations on the surfaces, but we were not able to duplicate the flattened effect so often shown as biting bullets. This is fact based on a controlled scientific study, not opinion! Swine molars leave impressions similar to human molars making it easy to see why people think a bullet might be human chewed. The difference is in the force required to flatten the bullet. I sent a copy of the projectiles shown in the August article to Dr. Miller and received the following response:

As for the article on minie balls, there is no way a human jaw could create such massive deformity, especially that seen on the lower one. The pointed end of a minie ball could probably be deformed by a human due to its size, but not the thick center of the bullet, as seen in these specimens. A human mouth could also probably bend the open end of the base of a minie ball, since it is hollow, but the entire specimens in this photo has been heavily misshaped by chewing action.

I also refer to *CIVIL WAR PROJECTILES II: Small Arms & Field Artillery*, by W. Reid McKee & M.E. Mason, Jr., p 71, Item #8, which they describe as: "Bitten by HUMAN teeth, from a field hospital site. Many supposedly bitten (are) just chewed by rodents or pigs." They also recognize this very common mistake in identification.

Finally, I refer you to a very good article online at:

<http://www.jefpat.org/CuratorsChoiceArchive/2013CuratorsChoice/Feb2013-WhoBitTheBullet-LetSlipThePigsOfWar.html>. It shows heavily chewed musket balls that were excavated at the Smith's St. Leonard site, an early 18th-century plantation at Jefferson Patterson Park and

Museum in Maryland. The markings were identified as being from a swine. Here is our smoking gun ... or musket! A half of a pig tooth was also recovered. Embedded deeply into the crown of the tooth is a fragment of lead.

I suggest that before anyone who thinks that a human can crush a lead ball: "*Put your musket or Minié ball where your mouth is*". I did and could not duplicate the severe deformation as a swine chewed ball. I would also like to point out that if a pig did chew and swallow a bullet, it may have been "deposited" far from the artifact's original location.

Archaeology examines more than just individual artifacts. The spatial relationships of all of the artifacts associated with a site are examined along with historical document research to properly interpret what activities took place there. Simply finding one or two bullets does not necessarily make the site a military site. Farmers carried guns and fired at game, rodents, pests and poachers.

Pigs are not the only animals that chew on lead bullets, we have excavated musket balls chewed by large and small rodents and even deer. However, these are not as dramatically altered as are the pig chewed ordnance and are reasonably distinguishable as not being human chewed.

Did soldiers, or anyone else, ever "bite the bullet" or is this just a myth? Many people immediately think of field surgery and amputations when they think of that phrase. There are actually numerous references to people chewing on and biting musket balls and for various reasons. A few examples are:

Jeptha Root Simms recorded accounts from Revolutionary War soldiers in his research published as *The Frontiersmen of New York*. This is an excellent primary source account of biting on a musket ball to endure pain.

*Near West Point he saw a sergeant, a corporal, and two privates stripped and flogged one cold morning, each receiving one hundred lashes upon his bare back. ... Much sympathy was felt among their fellow soldiers for these sufferers, particularly for the boys. The latter did not utter one word of complaint; **but each taking a leaden bullet in his mouth, bit upon it as the punishment was inflicted** (Simms, 1882:590).*

Lt. John Waller of the British Marines wrote his brother soon after the Battle of Bunker Hill:

We killed a number of the rebels, but the cover they fought under made their loss less considerable than it would otherwise have been. The army is in great spirits, and full of rage and ferocity at the rebellious rascals, who both poisoned and chewed the musket balls, in order to make them the more fatal (Bell, 2013).

Thomas Mellen, a soldier at the August 16, 1777 Battle of Walloomsac, New York also wrote:

... I soon started for a brook I saw a few rods behind, for I had drank nothing all day, and should have died of thirst if I had not chewed a bullet all that time (Stark and Stark, 1860:67).

The quote from Thomas Mellen indicates that chewing on a musket ball helps promote salivation. Typically, the back molars were used to bite down on a musket ball to help bear pain, however, front incisors are more likely to be used to help promote salivation. Incisors cannot withstand as much bearing force as the more robust molars. Incisors are sharp and designed for cutting and tearing; molars are designed for crushing.

To date, 1301 musket balls have been excavated at the site of the June 28, 1778 Battle of Monmouth. 83 have been identified as being chewed:

3.2% - Pig

1.5% - Human

1.3% - Undetermined

0.4% - Rodent

I would also like to point out that the August, 2013 article also shows a picture of "Confederate" buttons. I have seen these style buttons excavated at numerous farm sites that were never involved in any type of military activity. During the mid-1800's most buttons were two and three piece construction and almost always backmarked or stamped with the makers name and often a reference to the quality of the button. Backmarking began in this country around 1796. The top two in the photograph in the article are pewter Tombac style buttons, the remainder

appear to be standard plain late 18th - early 19th century buttons since no backmarks are obvious in the photos. They were most likely lost or discarded by the farm occupants. I refer to a webpage on button ID: <http://bravodigs.org/artifact.html>. The only way to positively identify buttons as "Confederate" is if they are actually marked CSA or if they are found in direct context with related artifacts indisputably identified as being Confederate.

Bibliography:

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