Queen Anne's Revenge Shipwreck Project

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Lead Studs from Shipwreck 31CR314: *Queen Anne's Revenge* Site

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Cover photo: Queen Anne coin weight for 1 guinea gold coin. Recovered from site Fall 2006

Introduction

Lead artifacts recovered from the site of shipwreck 31CR314 between 1997 and 2004 include sounding weights, cannon aprons, hull patches and thousands of lead shot, most of which have identifiable functions. Also found were twenty-two decorative lead studs, two still in position holding two pieces of leather together (QAR 232.020). Identification of the artifact associated with the leather piece has not been determined so the exact purpose of the lead studs is still unclear. Although research has yet to find historical documentation, these artifacts are not unique; similar examples are associated with other early eighteenth-century shipwrecks. At present, the archaeological record and examination and scientific analysis of the studs from this wreck are the only sources of information available for interpretation. [Figure 1]

Figure 1 Lead studs recovered from the shipwreck (QAR 328.000)

Historical Context

Researchers are still seeking historical documentation on the origins, production, and use of these lead studs. However, very similar objects found on other shipwreck sites attest to their occurrence in the first quarter of the eighteenth century. A few lead studs that are almost identical in size and style to those from 31CR314 were recovered from HMS *Feversham* (1711), Nova Scotia (Reedy 2005; Powell 2005). About forty similar decorative studs were also found on *Whydah* (1717) off Cape Cod, Massachusetts, but are described as pewter rather than lead in this manner: "Interestingly, the single most common type of furnishing are pewter 'studs' which are interpreted

here to have been somewhat decorative fasteners of leather or cloth to chairs or some similar item. Definitive evidence of their function has not yet been located."(Hamilton 1992:396-397). The presence of such studs on these shipwrecks suggests these items may have been common at least in the early eighteenth century.

Description

Composition of one of the studs (QAR 328.000) was determined by microprobe to be lead (Craig 2001:42). The studs are identical in style although they vary slightly in weight, size, and condition [Table 1]. The studs range in overall length from 0.455 to 1.260 inches (1.2 - 3.2 cm), with an average of 0.848 inches (2.2 cm). They range from 0.272 to 2.50 grams with an average weight of 1.142 grams.

QAR #	No. Studs	Length or Range in/cm	Avg. Length in/cm	Head Diameter Range in/cm	Weight or Range grams	Average Weight grams	Condition
232.020	2	.369 - .406 / .9 - 1.0	N/A	.360 - .428	Cannot Obtain	Cannot Obtain	Studs are complete and through leather with shanks turned over like rivets or studs
322.000	3	.983 - 1.019 / 2.5 - 2.6	1.006 / 2.6	.061 - .354	1.097 - 1.535	1.270	2-Complete with heads perpendicular to shank 1-Badly Corroded
326.005	1	.587 / 1.5	N/A	.316 - .371	1.173	N/A	Complete-Head flat against shank and end of shank folded
328.000	11	.458 - 1.198 / 1.2 - 3.0	0.898 / 2.3	.196 - .350	.272 - 1.479	0.930	4-Complete with heads perpendicular to shank and heads bent square on sides 2-Complete-Head flat against shank 5-Shanks without heads
338.000	1	1.030 / 2.6	N/A	.332 - .335	1.332	N/A	Complete with heads perpendicular to shank
341.011	1	.455 / 1.2	N/A	.400 - .405	2.500	N/A	Complete and coiled like rivet or stud
345.007	1	.920 / 2.3	N/A	.330	1.200	N/A	Complete with heads perpendicular to shank -slightly corroded
345.018	1	1.260 / 3.2	N/A	.410	1.100	N/A	Complete-Head flat against shank
345.023	1	.740 / 1.9	N/A	.420	1.500	N/A	Complete-Head flat against shank
Total	22						

Table 1 Summary of Dimensions and Conditions of Studs

The heads are dome-shaped with small decorative 'beads' (approx. 16-20) around the circumference of the face and one in the center. On the back of the head, a flash line or mold seam is visible across the middle from edge to edge. No mold seams are evident on the top of the heads although lead around the edge of the beading exudes slightly to the back on some. The shank comes from the center of the head on complete studs. Some shanks are almost flat while others are slightly

oval-shaped in cross-section, but both types exhibit mold seams down each side. The width of the shank tapers slightly from head to tip but does not come to a point. [Figure 2]

Figure 2 Stud head with decorative beads and visible mold seams underneath

The presence of mold seams indicates that the studs were made by casting, possibly in a three-part mold, with the dome of the head cast complete in the bottom mold and the shank cast in two molds positioned vertically. The molten metal would be poured from the tip of the shank. As a result of the casting method, excess lead around the edge beading could have been folded to the back which could account for the lead that exudes to the back of the stud head. [Figure 3]

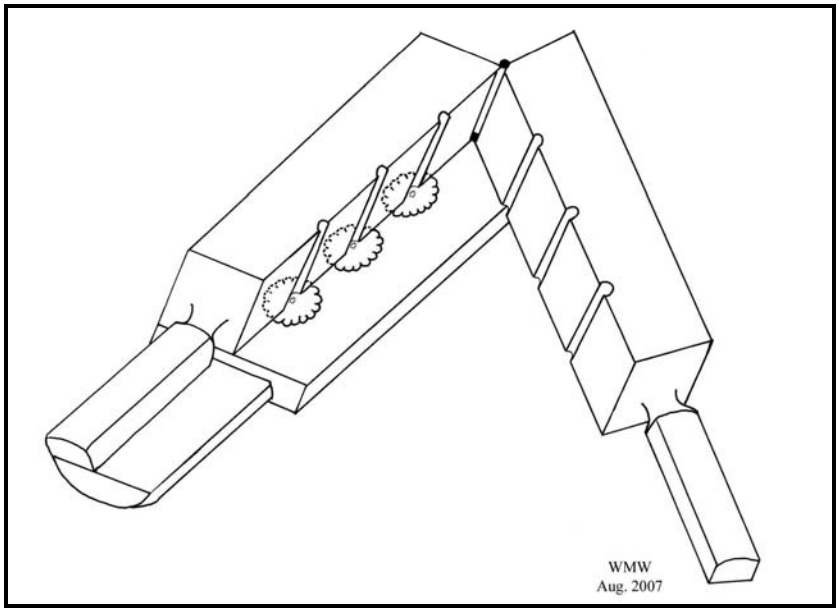

Figure 3 Illustration of possible mold

The shanks of the two studs joining two rectangular pieces of leather (QAR 232.020) have been coiled over at the back to secure the studs in position. [Figure 4] The leather is very thin, .05 inches (.1 cm) thick. The pieces of leather measure 2.10 by 2.86 inches (5.3 by 7.3 cm) and 3.15 by 3.16 inches (8.0 by 8.0 cm) with an overall length of 4.54 by 3.16 inches (11.5 by 8.0 cm). The leather overlap is .65 inches (1.7 cm) and is held together by the studs; there is no evidence of stitching present. The edges perpendicular to the overlap, as well as the edges of the overlapped portion, appear to be worked or cut. Other edges are torn and degraded. A third stud (QAR 341.011) was also found in association with leather in concretion QAR 341.000. This leather was also very thin, but too degraded to recover from concretion. The stud had a coiled shank [Figure 5] similar to the two studs from QAR 232.020.

Figure 4 Lead studs and leather

Most of the nineteen shanks, not associated with the leather, were relatively straight although some were slightly bent. One was very corroded (QAR 322.000) and it was difficult to interpret any detail. Five studs comprise shanks with no heads. Six heads are flat against the shanks and the other seven shanks are more or less perpendicular to the heads. Of the seven that appear to be closest to their original shape, some heads are slanted up and others are bent down square on the sides.

Figure 5 Lead stud with coiled shank

Archaeological Context

The twenty-two studs recovered from the shipwreck were located within three zones: the stern (N25 - N45), the aft (N45 - N65) and mid ship (N65 - N85). Locations and associated artifacts are summarized in Table 2. Nineteen of the studs were recovered in close proximity to one another within the stern zone, among items like brass instruments and gold dust. Of these nineteen, fifteen studs were loose on the bottom. Concretions QAR 326.000 and QAR 345.000, which were riddled with lead shot, yielded four more studs. Three cannon (C12, C16, and C18) lie within ten feet of where these studs were found.

The two studs securing the leather (QAR 232.020) were discovered within concretion associated with Cannon C2 (QAR 232.001) in the aft zone. The leather and studs were adjacent to two 1.5-foot (45.7 cm) wrought iron ringbolts (QAR 232.032), beside one another, and under the ring lying on top. [Figure 6] The head of the studs faced the ringbolts with the coiled shanks toward the ring. A sail needle (QAR 232.014) was found directly adjacent to the leather.

Stud QAR 341.011 was also found in concretion near Cannon C4 (QAR 366.001) in association with leather and a large ringbolt (QAR 341.010). The stud was found near the middle of the three-foot (91.4 cm) wrought iron ringbolt shank with the shank of the stud towards the bolt, but not directly on the iron surface. [Figure 7]

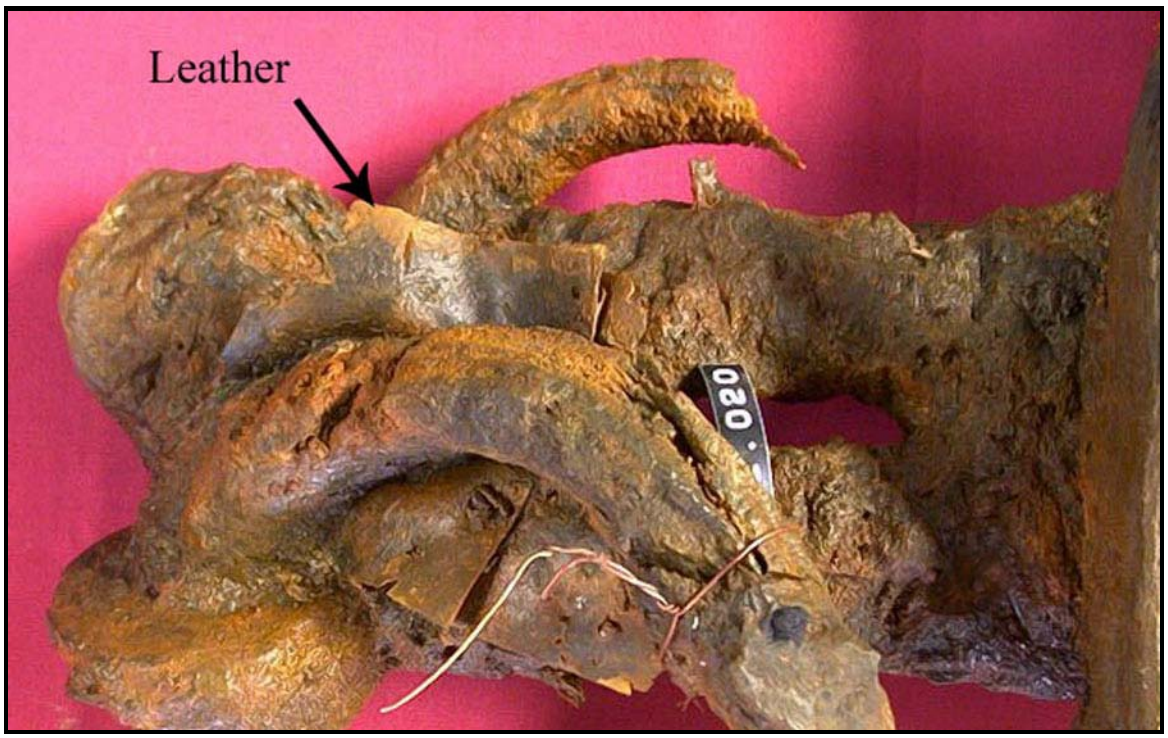

Figure 6 Lead studs and leather between ringbolts

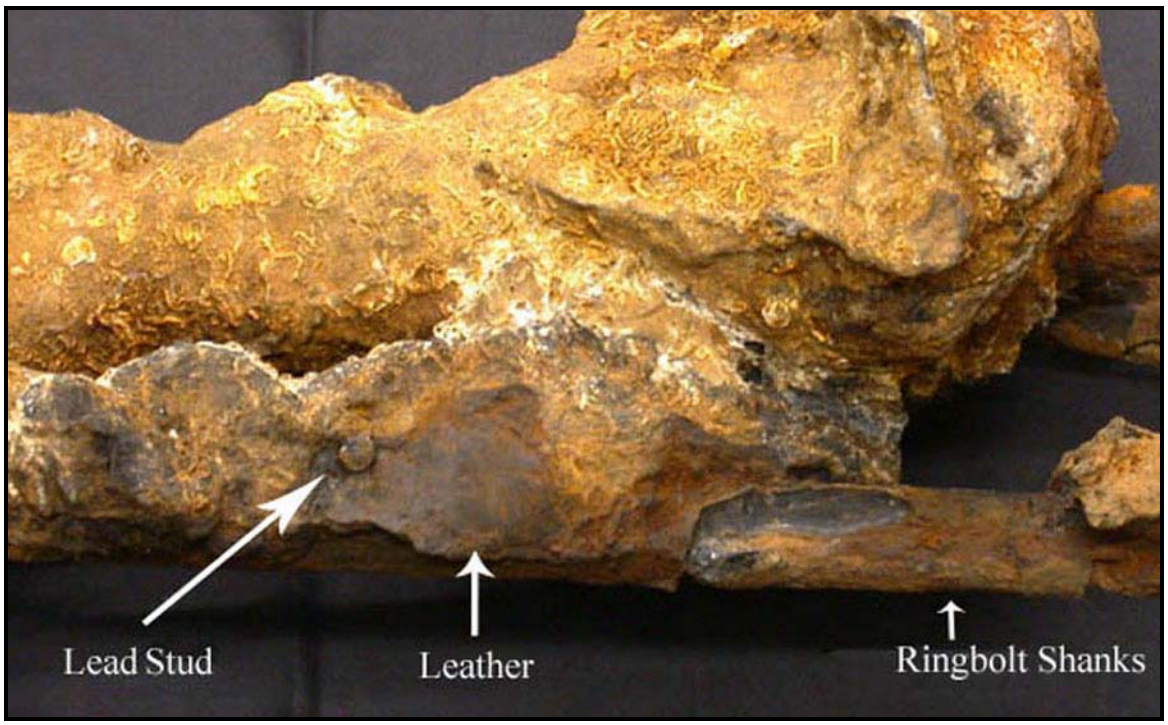

Figure 7 Lead stud (QAR 341.011) and leather in concretion

Area of ship	QAR #	Provenience	No. Studs	Associated Artifacts
Stern (N25 - N45)	322.000	E75 N30	3	Pewter charger, cannon shot, lead shot, ceramics, glass, near C12 & C16
	326.005	E70 N30	1	Surveying sight, gunner's rule, syringe, whetstone, gunlock, ceramics, lead shot, glass, fabric, near C12 & C16
	328.000	E80 N30	11	Surveying mount, sight set screw, sounding weight, lead shot, ceramic, near C12 & C16
	338.000	E77 N45.5	1	Onion Bottle, lead shot, near C18
	345.007	E75 N33.5	1	Gold, ceramic, fasteners, lead shot, cannon shot, gouge, rope, bead, near C12 & C16
	345.018	E75 N33.5	1	
	345.023	E75 N33.5	1	
Aft (N45 - N65)	232.020	E82.3 N62.5	2	Concretion off C2, and against ringbolts (QAR 232.032), sail needle, wood
Mid Ship (N65 - N85)	341.011	E74.5 N74	1	Concretion just west of C4 and against ringbolts (341.010), wood

Table 2 Summary of provenience and associated artifacts

Discussion of Stud Function

With the bead decoration around the edge of the heads, these studs are clearly intended to be decorative. The three studs found with coiled shanks were being used as fasteners to join pieces of leather with the shanks turned over like rivets or studs. As the studs are made of lead (soft metal), the decorative detail and the absence of a point to the shank makes it unlikely that they were driven in by force, at the head. If they were used as fasteners, most likely the material was first punctured or pre-punched. The malleability of lead suggests that little stress was placed on the leather joinery, otherwise leather thong or cloth stitching would have been employed.

The nineteen studs found as single items, being of same style and design as the three securing leather, may originally have had the same function. Although they were not found in position through any organic material, this may have decomposed and been lost. However, the relatively straight shanks and upward slants of some of the heads, as well as some without heads, could indicate that they had been removed from a source and were intended for reuse or recycling of the metal. It is also possible that they could have been damaged or dislodged during the wrecking process. It has been suggested that these studs were decorative studs from chair upholstery (Babits 2005), but this seems doubtful given the softness of the metal. A stronger metal such as brass would have been more practical for this purpose. The proposed thought of the studs being part of a leather-covered box or trunk has been put forward as well (Pittman 2005).

One possible explanation for their use was for joining pieces of leather to use as cannon covers for weather protection or even camouflage. The proceedings recorded in Charleston during the trial of Stede Bonnet and his crew reveals this potential function:

> "…took a Scooner as they sailed from *Virginia* to *Philadelphia*, in the Latitude of *thirty eight* North, Coming from *North Carolina*, bound to *Boston*, about thirty or forty Tons, Name of the Vessel or Master unknown to this Deponent, and took out of her about two dozen Calf-skins to make Covers for guns, and kept her about three days…."(Herriot 1719:47)

This statement by one of the pirates in Bonnet's crew during the trial appears to lend credence to the cannon cover hypothesis, as many of Bonnet's crew would have sailed with Blackbeard's fleet and been familiar with the practice. The three lead studs associated with leather recovered from 31CR314 were found in close proximity to cannon. This certainly represents a research question to pose as excavations continue on the site, as a wider distribution may reveal other functions.

Summary and Recommendations for Further Research

Twenty-two cast lead studs recovered from shipwreck 31CR314 were examined for this report. Nineteen recovered as single items, and three found associated with leather. The function of these studs remains unclear yet they have been found on three early eighteenth century shipwrecks. The studs were clearly decorative and at least three were used to fasten leather together, although other uses are possible. Further research in historical records, particularly in the areas of personal accoutrements, naval armament (cannon coverings), and decorative arts (such as furnishings) may help to identify their original function. Analysis of more studs could establish whether or not all are lead or whether any are pewter as those described from *Whydah*.

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