SMALL ARMS ARTIFACTS FROM

THE BATTLE OF PLATTSBURGH BAY

A Thesis

by

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ABSTRACT

On September 11, 1814, Captain George Downie of the British Royal Navy sailed a squadron of four ships and a dozen gunboats around Cumberland Head, on the New York shore of Lake Champlain, where Captain Thomas Macdonough of the United States Navy waited to engage him with a comparable naval force. Macdonough won the battle, capturing the four Royal Navy ships and forcing nearby British Army forces to retreat back to Canada.

After the victory, the captured British ships were temporarily positioned at Crab Island at the southern end of Plattsburgh Bay to be repaired before their removal to Whitehall, New York. Cleanup of the ships began in transit between the battle site and Crab Island, with debris and damaged equipment being thrown overboard. This jettisoned material remained on the lake bottom for the next century and a half.

In the late 1950's, a man named William 'Bill' Leege taught himself to dive with early scuba equipment and began to search Lake Champlain for the battlefield of Plattsburgh Bay. Leege spent the next three decades recovering artifacts from the lake bottom, all the while carefully documenting and retaining artifacts of significance.

The artifacts recovered by Bill Leege and his colleagues in the Lake Champlain Archaeological Association (LCAA) were later donated to the Lake Champlain Maritime Museum in Vergennes, Vermont, where many of the artifacts were conserved and are currently housed. The majority of small arms artifacts from Plattsburgh Bay and the surrounding area have never been displayed by the Museum, nor have they been analyzed and published in their entirety in any publicly available catalogue.

This thesis on the small arms artifacts in the LCAA collection at the Lake Champlain Maritime Museum will provide a greater depth of understanding of the reality of naval life and naval warfare on the lake during the War of 1812. It will allow for the comparative study of this collection of arms with other weaponry-related finds from the war and from the period. Historical research on the provenance of these small arms will give a deeper understanding of the nature of trade in small arms, and the accessories necessary for their maintenance and use, at the beginning of the 19th century.

DEDICATION

For my wife, Sarah.

ACKNOWLEDGEMENTS

It is with the help and guidance of many individuals and groups that I have been able to pursue this study, and I would like to take time here to express my gratitude to all those who have helped me along the way.

I would like to thank my committee chair, Dr. Kevin Crisman, and Mr. Chris Sabick of the Lake Champlain Maritime Museum for their assistance and guidance throughout the design and research of this project. I extend my thanks as well to Mr. William Leege of Plattsburgh, NY, whose lifelong work has provided us with the subject of this thesis. I would like to thank the Lake Champlain Maritime Museum whose mission is to preserve and present the history of Lake Champlain, as it has provided me and countless others with the chance to do meaningful work on the cultural heritage of Lake Champlain.

Much appreciated has been the guidance of Amy Borgens of the Texas Historical Commission; the firearms insight of gunsmith Dr. David Person of Braintree, VT; and the illustration instruction of Dr. Helen Dewolf of the Conservation Research Lab at Texas A&M University.

Finally, I would like to thank the members of my thesis committee, Dr. Troy Bickham and Dr. Donny Hamilton, for their time and assistance in writing this work. Furthermore, I extend my thanks to all those people who have assisted me in various ways to reach this point in my education.

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Contributors

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CHAPTER I

INTRODUCTION

Naval warfare over the past 500 years is not characterized by the use of ship-borne ordnance alone, but also by the small arms used in the hands of sailors and marines aboard those ships. By examining the weapons of the late Napoleonic period British Navy and then investigating the array of implements were used as the boarding weapons of choice by American sailors during the War of 1812, new insights into the nature of shipboard combat in the age of sail are possible

The available artifacts from the Battle of Plattsburgh Bay provide color and detail to the stories of that fight which are handed down to us. Many of the weapons and personal items inform us about the attitudes of the officers and enlisted men who served on September 11, 1814. This detailed study of the actual weapons and their provenance brings us closer to understanding the actions and limitations of their final users.

The bottom of Lake Champlain retains lost ships and other artifacts, items that are part of our history and shared heritage. This sunken museum has been off limits to anyone without the means and abilities to access them, but the introduction of inexpensive, popular SCUBA equipment made these hidden objects accessible and vulnerable. Recognition of the importance of the international cultural heritage at the bottom of Lake Champlain was one of the driving factors which motivated early lake divers, like William “Bill” Leege to explore the naval battlegrounds and to share their findings.

Bill Leege and the LCAA

Bill Leege first began his explorations of Lake Champlain as a teenager in the late 1950's.[1] Influenced by the underwater adventures of Jacques Cousteau, young Leege purchased or manufactured his first diving equipment and spent several days diving on a steamboat wreck near Rouses Point, New York. The things which Leege saw on that first dive hooked him for life. Massive boiler components, huge brass propeller equipment, and intricate castings and fittings were all strewn out before him like treasures on the lake bottom.

While Leege jokes that he began diving with little more than a straw and a goatskin bag, he gradually replaced his provisional and semi-homemade diving kit with more substantial gear, even purchasing his own air compressor. Most of Leege's summers have been spent diving in Lake Champlain searching for wrecks and areas of historical interest. During most of those summers early in his career Leege completed as many as five dives per day. He was careful to record each of his discoveries and to keep annual logbooks detailing the artifacts he saw and collected. In this period Leege personally located and mapped several sites, including portions of the War of 1812 naval battle site at Plattsburgh Bay.

Dive work slowed for Leege with his marriage and the arrival of young children, but as his children grew, Leege was able to return to his diving obsession with a new dedication and systemization. Often, Leege brought his children along with him in a 25-foot Maine lobster boat, which he purchased and outfitted for diving on shipwrecks and battle sites.

With his reentry into Lake Champlain diving and exploration in the 1970s, Leege found that many of the old sites he had frequented were unchanged and that not many people had shared his interest in the sites, but this was soon to change. The general popularity of diving was

growing and some people in the Plattsburgh area found their interests piqued through observation of Leege and his associates going on daily trips, often returning with artifacts from the lake. Before long, Leege was followed out to dive sites by curious boaters and eager new divers seeking to explore wrecks and find artifacts for themselves. Leege briefly associated with newly formed local dive clubs such as the Lake Champlain Wreck Raiders, a group for which Leege served as treasurer for a time. Desiring to improve the documentation and collection techniques of divers in Lake Champlain, Leege and other avocational archaeological divers founded the Lake Champlain Archaeological Association (LCAA) in the mid 1970's. Their intention was to further understanding of historical Lake Champlain through a systematic study of sites.

The LCAA spent the next decade collecting artifacts and keeping records from around the lake, with particular emphasis on the Plattsburgh Bay area and the Revolutionary War naval battle site of Valcour Island. Through its avocational surveys and record keeping, the LCAA team was able to develop an understanding of the circumstances of deposition for many of the artifacts found from the Battle of Plattsburgh Bay.

After the naval battle, the victorious Macdonough had the four captured British ships sailed to Whitehall, New York. However, before the ships could make this 90-mile (145 km) journey, they had to be cleaned and mended. Immediately after the captures, American sailors saw to the cleaning of the ships. As some sailors began to pitch debris from the battle overboard, others shifted the ships to a temporary shelter at Crab Island one mile (1.6 km) south of the battle site. What resulted from this clean up was a trail of battle waste, which leads from the precise location of the fighting to Crab Island. Interestingly, much of the debris that was strewn across the decks of the captured ships was randomly collected in barrels and buckets and thrown into

the lake.[2] This way of quickly disposing of the remains of the battle contributed to the preservation of the artifacts and made them easier to recover. Each barrel of waste became a trove of rescued history. During an interview, Leege recounted mapping the bottom of Plattsburgh Bay with his daughter during their summer dive trips. With Bill at the helm, his daughter and other divers from the LCAA were towed behind the lobster boat on dive sleds, recording the positions of debris piles and irregularities that merited further investigation.

The Leege / LCAA Collection

Over time, the LCAA amassed a large collection of debris, including ceramic and glass materials, wooden artifacts, metal work, small arms components, and a vast array of shipborne ordnance and maritime-related finds. Leege was the caretaker of most of the finds recovered by the LCAA. The decision to donate a large portion of the LCAA's colection and Leege's own personal collection was made in 1992.

In all, Leege and the LCAA donated some 7,000 artifacts found in the lake to the Lake Champlain Maritime Museum. More than half of these artifacts are from Plattsburg Bay and the surrounding area. The museum has taken on the responsibility for the care of these objects, with most of artifacts in the Leege collection receiving conservation treatments and packing for long term storage. Some LCAA donations are currently used in the museum's exhibits and the remainder are stored in the museum's collection. Due to the sheer volume of artifacts in the collection donated by Leege, the vast majority have not been exhibited or published.

CHAPTER II

HISTORY OF PLATTSBURGH BAY

During the war between Great Britain and Napoleonic France, Britain attempted to starve France of access to any trade with neutral powers by means of an embargo and blockade. To maintain their grip over maritime trade entering French territories, the British adopted a policy of impressing those who they viewed as blockade runners, including American merchants. In addition to hindering American commercial activity in Europe, Great Britain began to put up barriers to westward expansion in American territories by supplying weapons to Native American groups who might resist frontiersman settling new lands in the Great Lakes region.[3] These aggravations and, possibly, the opportunity to gain British territory in Canada whilst Great Britain had her hands full with Napoleon, gave hawks in the U.S. Congress the grounds to pursue war. On June 18, 1812, the United States, under President Madison, went to war with Great Britain.

Despite being able to repel American expeditions against Montreal in Canada in 1812 and 1813[4], Great Britain was not able to dedicate substantial resources to the Americas until the Treaty of Fontainebleau in 1814, which saw to the abdication of Napoleon and the removal of an immediate French threat. With their attention now fully upon the American theater, British naval forces in Canada were ready to continue with the suppression of the American Navy on the Great Lakes and the protection of Montreal against incursions via the Champlain Valley.

Formation of the Lake Champlain Squadrons

United States naval presence on Lake Champlain prior to the war was virtually non-existent, and so in 1812 Lieutenant Thomas Macdonough of the U.S. Navy was assigned the task of readying the ships to defend this likely corridor of military engagement. Within the first few months of Macdonough's assignment to the station, he prepared three sloops, commandeered from the Army and two gunboats to defend the Lake so that preparations could be made for greater naval expansion.[5]

In response to America's budding naval presence on the lake, in 1813 the British began to establish their own squadron of raiding vessels, composed of small gunboats and two sloops captured from the Americans. These British efforts challenged the relatively small American naval focus. When the British began construction of the 16-gun brig *Linnet* on the Richelieu River, Macdonough began construction of his own warships on Otter Creek in Vermont in late 1813, a naval arms race ensued on Lake Champlain.

Macdonough prepared the sloop *Preble*, the 17-gun schooner *Ticonderoga*, and the 26-gun corvette *Saratoga*, along with auxiliary gunboats by the summer of 1814. To match the growing threat of American lake dominance, the British hastily undertook the construction of the 36-gun frigate *Confiance*, which would be launched on August 25.

Upon learning of the amassing of British military forces along the Canadian border, seeing the British aquadron preparing in the Richelieu and, most importantly, when discovered that the massive *Confiance* was under construction just north of the boarder at Isle aux Noix, Macdonough responded by pursuing construction of the 20-gun brig *Eagle*. *Eagle* would be

completed before *Confiance* and would be ready to counter any attack carried out by a British Navy not yet acquainted with their new ships.[6]

With a naval force comprised the brig *Linnet*, the sloops *Finch* and *Chubb*, *Confiance*, and 12 gunboats, the British had the support needed to launch an invasion onto U.S. soil via the western shore of Lake Champlain. On the last day of August, Lieutenant General Sir George Prévost, commander of the 11,000-man British force assembled in Canada, began his march into New York in the hope that his actions would be the final incentive needed to assist the effort to outfit and man *Confiance* and get the squadron underway towards Plattsburgh. On the 8th of September, as Prévost and his men were engaging in skirmishes with New York and Vermont defenders, the British squadron under Captain George Downie set sail from Isle aux Noix with a still unfinished *Confiance* in tow.[7]

Battle of Plattsburgh

By constructing the brig *Eagle*, Macdonough, in effect, forced the British forces to play their hand and get their ships onto the lake and into battle first. This advantage was, however, tempered by Macdonough's own need to hastily train his crews, resulting in two undertrained forces going to battle with somewhat untested ships and sailors.

Saratoga, Macdonough's flagship, carried eight long 24-pound guns, six 42-pound guns, and twelve 32-pound carronades. *Eagle* carried eight long 18-pounders and twelve 32-pound carronades. The schooner *Ticonderoga* carried eight 12-pound long guns, four long 18-pounders, and five 32-pound carronades. The sloop *Preble* carried seven long 9-pound guns. Filling out the

American squadron, six row galleys carried one long 24-pounder and one short 18-pounder each, while four smaller galleys each carried one long 12-pound gun.

The British naval force, which circled round Cumberland Head the morning of the battle, was constituted as follows: *Confiance* carrying thirty long 24-pound guns, six 32-pound carronades, and one long 24-pound pivot gun. The *Linnet* carried sixteen long 12-pound guns. The *Chubb* carried ten 18-pound carronades and one long 6-pounder, while the *Finch* carried six 18-pound carronades, four long 6-pound guns, and one long 18-pounder.[8]

As the British ships sailed down the Richelieu and south along the coast of New York, they came around the head of the Cumberland peninsula into the bay of the city which they had hoped to win. Waiting to defend the city was Macdonough and the American squadron.

Macdonough, circling of Cumberland Head, allowed himself to strike the first blow. The *Saratoga* began what would be a decimating exchange between her and *Confiance*. Near the beginning of the battle, *Finch* drifted aground across from an American battery, leaving the ship to be beaten into defeat. Shortly after the fighting began, Captain Downie, in direct command of *Confiance*, was killed by cannon-fire from *Saratoga*.

In the coming hours, Macdonough's men ground down the British ships, all the while sustaining severe damage themselves, but managing to outmaneuver and outlast the British and successfully force a surrender. As soon as the outcome of the naval battle became clear to onlookers on the shores, Lieutenant-General Sir George Prévost was forced to make an about-face, withdrawing his troops back to Canada.

With the battle won and the invasion turned back, the captured, *Confiance*, *Linnet*, *Chubb*, and *Finch* were cobbled back together by the American sailors for sailed to Whitehall, New York, safely away from the possibility of British recapture. This victory, among others

across the nation, helped to make evident the deadlock between the two nations.[9] On Christmas Eve of 1814, the Treaty of Ghent was signed by representatives of both nations, at a meeting in the United Netherlands, bringing an end to the War of 1812.[10]

Many accoutrements used in the fight that took place on that September morning sank to the bottom of Lake Champlain. It would be 150 years before Leege, and the LCAA would begin to recover these artifacts and reveal the story told by these once lost materials. The following chapters of this thesis will exhibit objects from the naval battle site, as they were found to pertain to small arms and related weaponry. All personal weapons related artifacts from the Leege collection are described and illustraded herein, with details of their diagnostic measurements and states of preservation. The Thesis will discuss the historic interpretation of these items, and additional explanatory will be provided in the appendices.

CHAPTER III

BLADES

Sailors and marines would ideally be able to open melee combat with firearms, but in the close quarters of boarding actions, users of pistols and muskets took a gamble if they paused to reload of their firearms, a gamble less appealing than for soldiers doing so in open line formations. The shorter distances kept between shipboard defenders and their enemy meant that closing in with blade or bayonet or pike rendered the advantage to those willing to commit to hand to hand combat first.

Many of the swords, bayonets, and scabbards which littered the decks of the British ships after battle were cast overboard and are now contained within the Leege collection of artifacts at the Lake Champlain Maritime Museum. Bladed weapons components make up a large portion of the Leege collection, with eight sword hilt constituents including two cutlass grips, at least two French sword hilts, and an ornate gilded officer's sword. The collection contains six chape components, various sheath furniture, seven English frog studs from bayonet scabbards, four knives, an axe, and a razor.

Three types of sources were consulted during the research the bladed artifacts of the collection. Most heavily relied upon have been the field standard publications, William Gilkerson's *Boarders Away With Steel – Edged Weapons & Polearms* and George Neumann's *Swords and Blades of the American Revolution*, but other crucial sources include historical arms periodicals such as the French *Gazette des Armes*, and various online discussion forums for reenactors and collectors of historical militaria.

Hilt Components

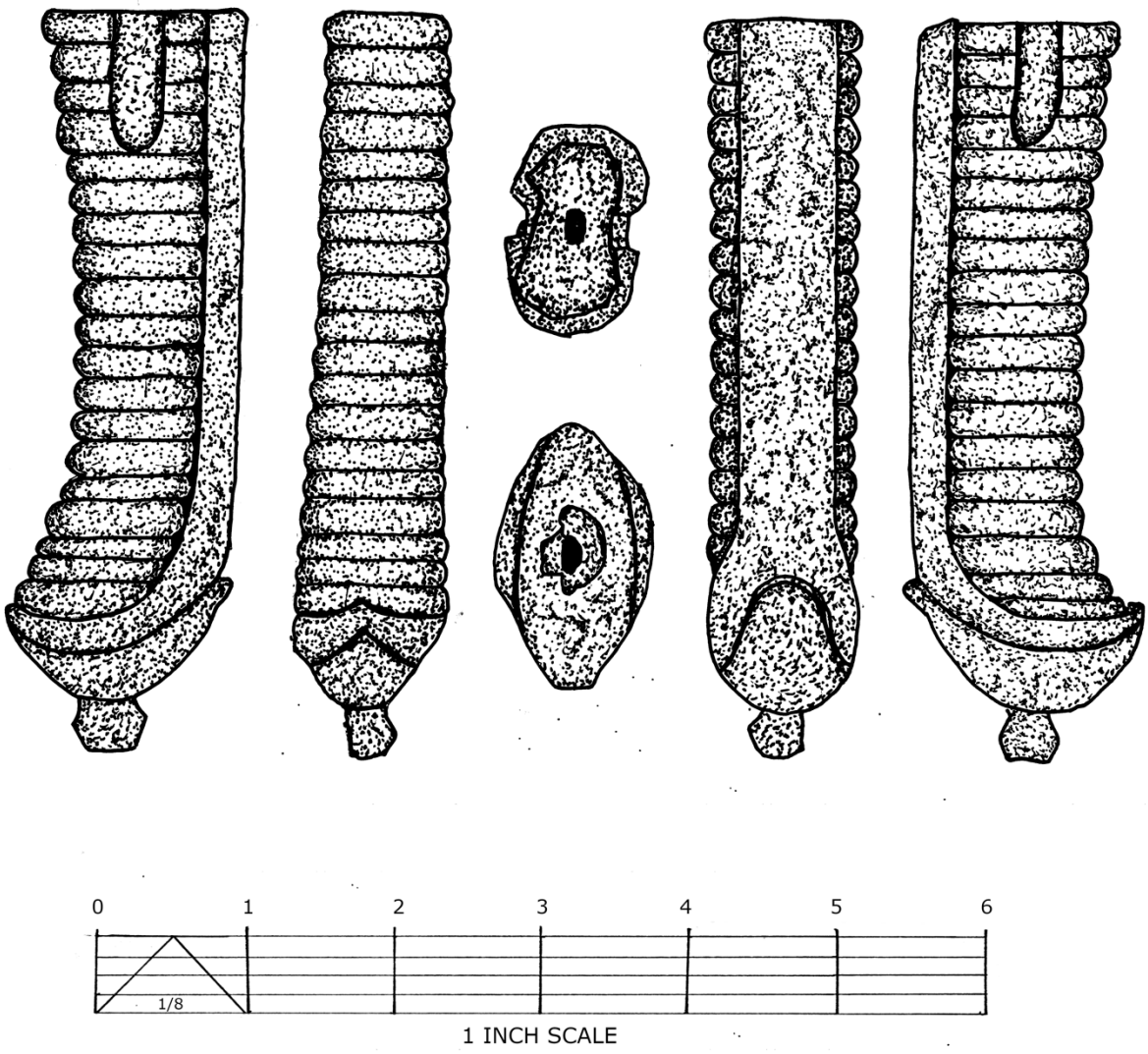

Figure 1. Brass Hilt (no catalogue number)

Brass Hilt:

This hilt is comprised of a single brass casting. The back strap of the hilt is smooth and runs down from a position flush with the absent cross guard. The strap extends down 3.35 inches (85.1 mm) before the .68 inches (17.3 mm) width of the strap swells to 1.05 inches (26.7 mm) where it is covered by the upper molding of the pommel. The pommel terminates in a 'v' shape on the forward side of the hilt, while the rear of the lower molding terminates in a semi-circular

tongue-shaped protrusion measuring .48 inch (12.2 mm) in diameter and extending .1 inch (2.5 mm) beyond the back strap. The pommel is capped with an oblate spheroidal peening block through which the sword's tang passed and was expanded to fix the blade to the hilt. This feature is integral to the casting and intended to imitate the capstan nut found on swords which possess a threaded tang. This peening block measures .48 inch (12.2 mm) in diameter and .33 inch (8.4 mm) in height; it is eroded on the right side of the guard.

The grip of the hilt is comprised of 19 filleted bands whose rounded edges meet tangentially such that the section of each band is a smooth arc from its upper edge to its lower measuring approximately 150 degrees. The 19 bands average .21 inches (5.3 mm) in thickness. The grip swells gradually towards the guard and swells sharply near the pommel. The minimum width of the grip is 1.16 inches (29.5 mm) at 15 bands away from the guard, while the maximum width is 1.35 inches (34.3 mm) at the guard and 1.64 inches (41.7 mm) at the ring furthest from the guard. The four bands closest to the guard have a recess cut into them, on both sides of the guard, for the languettes of the guard. These languette recesses measure .3 inch (7.6 mm) wide, .9 inch (22.9 mm) long, and .1 inch deep. Each languette recess is elliptically rounded at its terminus, with the right-hand recess being slightly misshape in casting, and drooping toward the back strap. The tang pass-through on the peen block measures .11 (2.8 mm) by .25 inch (6.4 mm); the guard side entrance for the tang is inset into the top of the hilt tapering from the mouth to the minimal dimension of .12 (3.0 mm) by .28 inch (7.1 mm) at a depth of 1.2 inches (30.5 mm).

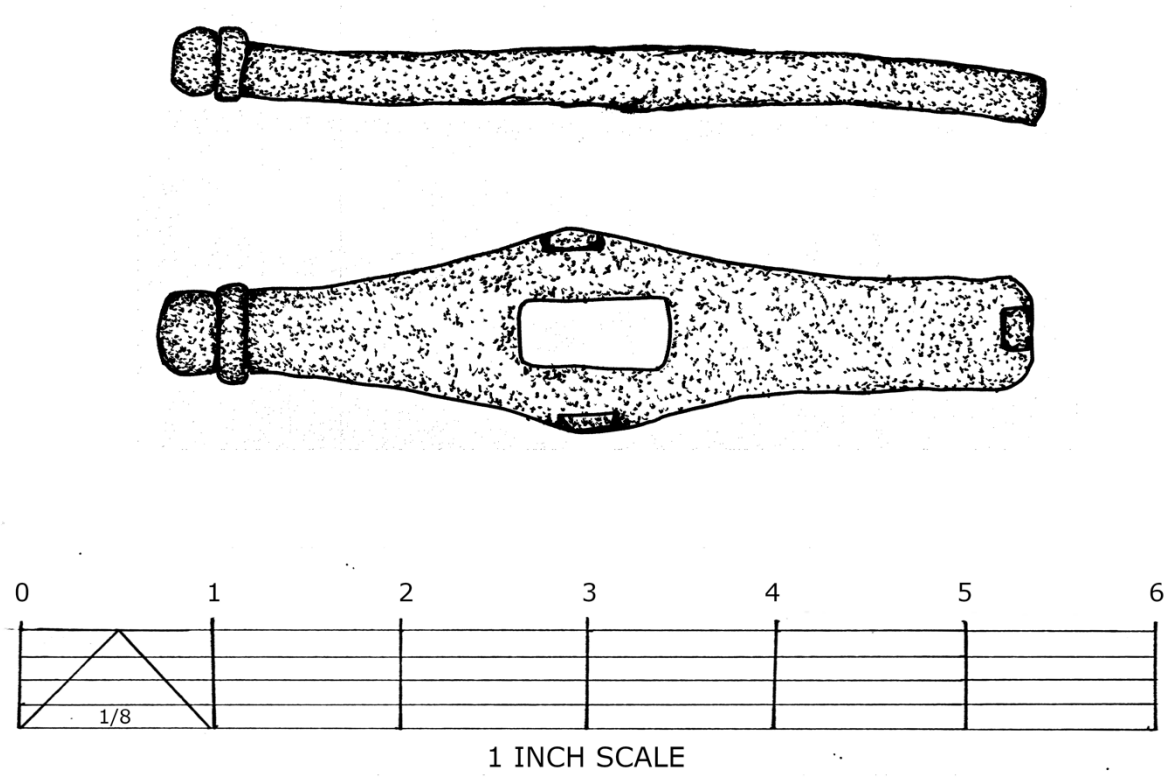

Figure 2. Guard 1997.9.1279

Guard 1997.9.1279:

The cast brass guard has an average overall length of 6.61 inches (167.9 mm), a thickness of .25 inch (6.4 mm) and a gentle 's' shape along its profile. The face of the guard is somewhat diamond-shaped, measuring 1.1 inches (27.9 mm) wide in the middle and tapering to .6 inch (15.2 mm) wide at the knuckle bow end and to .46 inch (11.7 mm) wide at the spine end before the decorative collar. The end of the guard, which rises above the spine of the blade, is finished with a decorative ball and collar both measuring .36 inch (9.1 mm) in thickness. The collar is .51 inch (13.0 mm) wide and the ball measures .46 inch (11.7 mm) wide at its maximum width. The trapezoidal pass-through for the tang measures .8 incs (20.3 mm) blade to spine, .35 inches (8.9

mm) wide at the spine side and .39 inch (9.9 mm) wide on the blade side. The large size of this pass-through indicates that the blade had a pronounced ricasso at the base of the blade.

Two languettes, on either side, extended from the guard into the hilt. While neither of these languettes is present on this guard, scars from where the languettes were broken off remain, indicating their previous location. Interestingly, the languette which sat to the left of the blade was broken off during the manufacturing process and was replaced with a languette hand filed to fit the guard, which was dovetailed in place. The remnant of the languette still survives in the dovetail mortise shown as the upper languette scar in the front view illustration. The dovetail measures .21 inch (5.3 mm) at its narrower width, .31 inch (7.9 mm) at its maximum width, and .1 inch (2.5 mm) in depth.

The stirrup-shaped knuckle bow, which extended from the hilt side face of the guard, was fixed into place after casting with a small dovetail. It is not clear whether this was intentionally pieced together or, rather if like the left side languette, it was cast with the guard as a single component and repaired to fit the guard during a later stage of manufacturing.

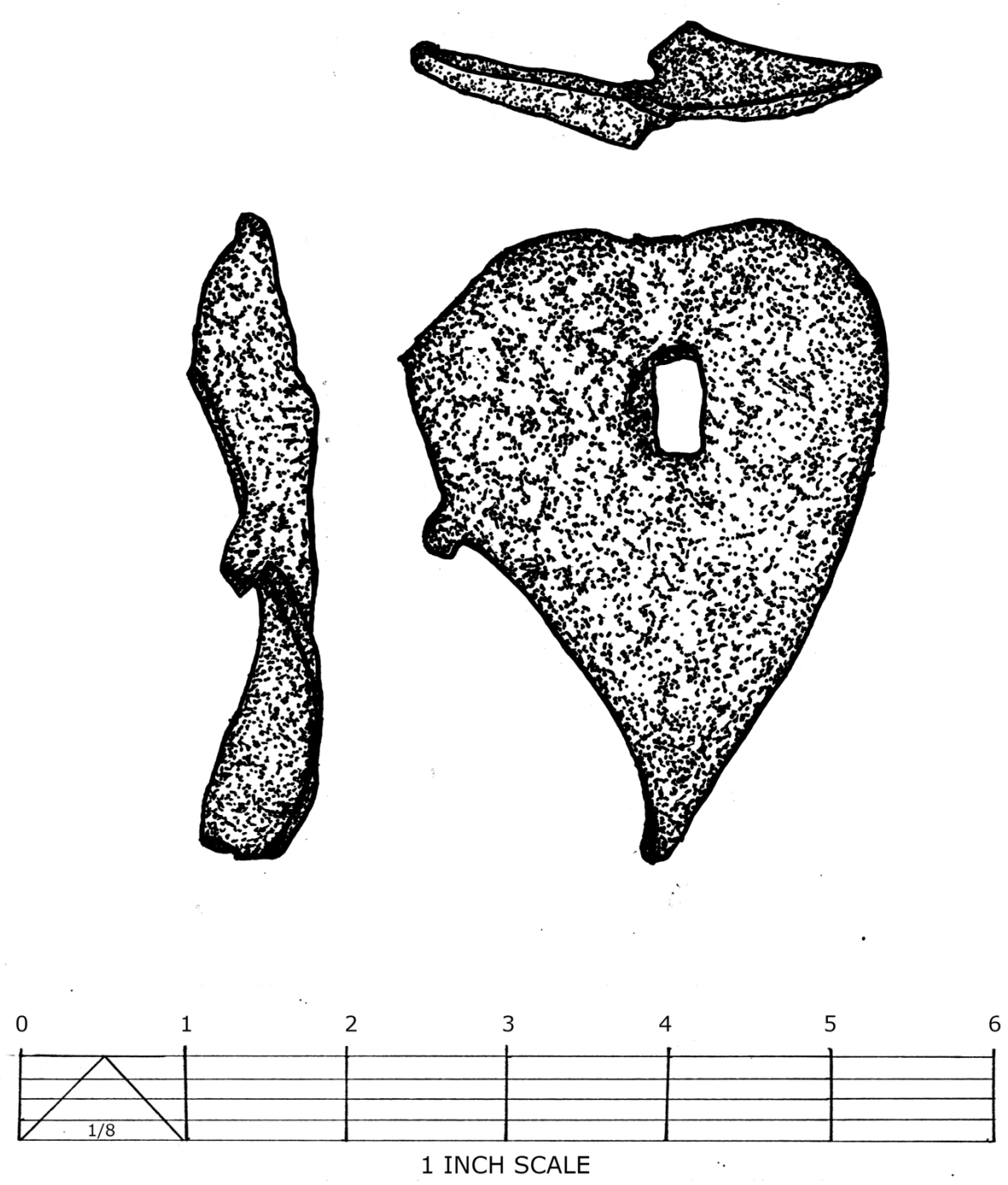

Figure 3. Heart Guard 1997.9.3393

Heart Guard 1997.9.3393:

The only surviving portion of this cast brass guard is the heart-shaped plate which is slightly belled. Three breaks are clearly evident where the guard at one time continued into the D-shaped knuckle bow: two sweeping branches extend to the right of the blade and protected the back of the user's right hand, and a forward-swept quillon which emerged from the top of the guard at the spine of the blade. The guard measures 4 inches (101.6 mm) in height with only .75 inch (19.1 mm) existing above the pass-through for the tang. This relatively small dimension of the guard above the spine of the blade indicates the former presence of the upper quillon. The surviving portion of the guard measures 3.05 inches (77.5 mm) wide at its widest point, either side of the blade, and it measures .1 inch (2.5 mm) thick on average. The pass-through for the tang of the sword measures .56 inch (14.2 mm) in the direction of the blade and roughly .3 inch (7.6 mm) perpendicular to the blade. The wisth of the blade opening varies from .3 to .39 inch (7.6 – 9.9 mm) as the guard was, at one point, damaged. During the sword's use its blade was bent heavily to the left, resulting in the guard plate buckling around the tang pass-through, perhaps leading to the discarding of the sword.

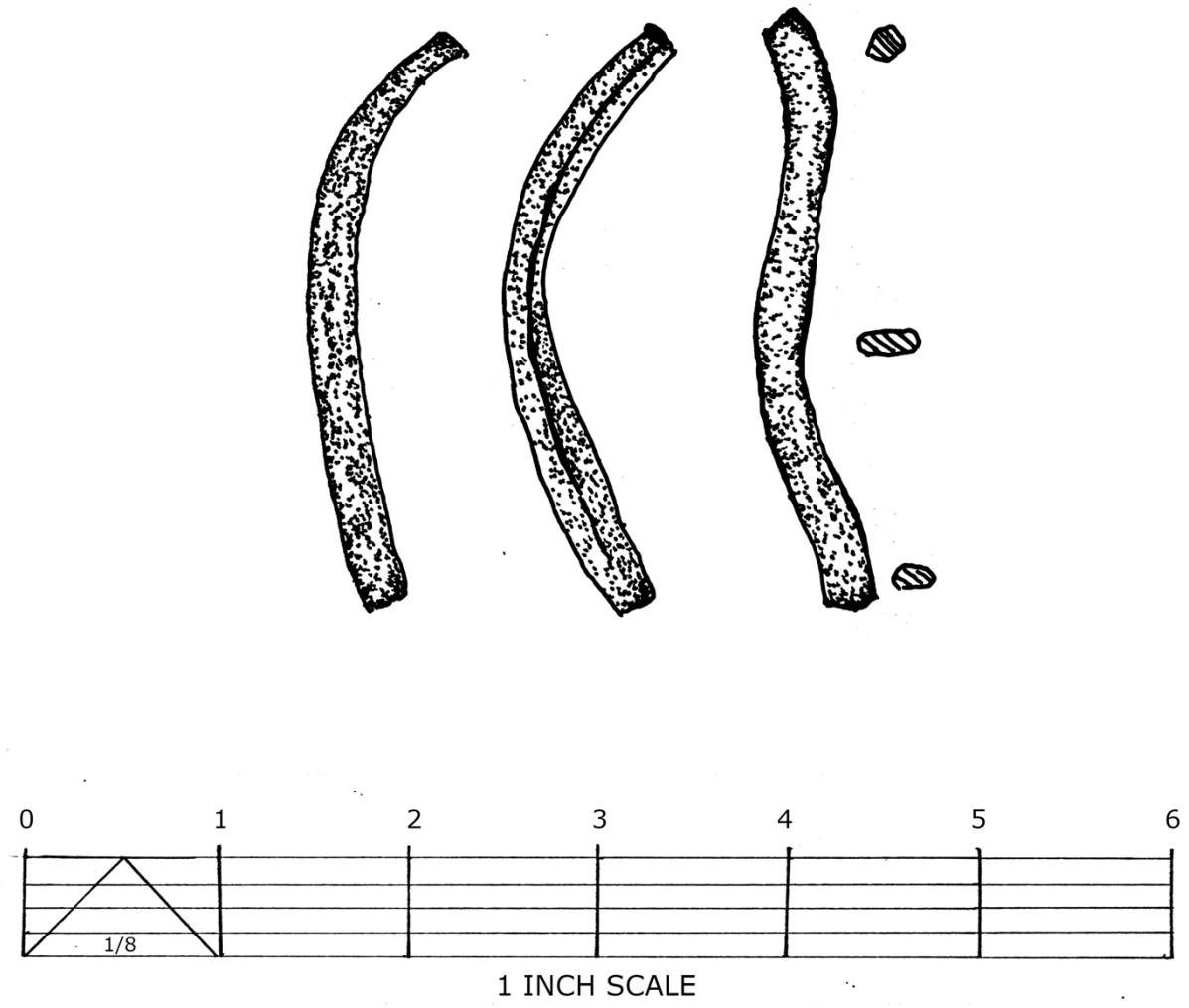

Figure 4. Knuckle Bow 1997.9.3396

Knuckle Bow 1997.9.3396:

This cast brass knuckle bow or branch was part of a swept hilt guard not unlike those once attached to the heart-shaped guard 1997.9.3393, though the two objects do not appear to have any direct association. The branch itself is 3.15 inches (80.0 mm) in length and its cross-section changes throughout that length, being more circular in section at either end and ovoid in the middle. At the ends, the diameter is roughly .18 inch (4.6 mm) and the section in the middle of the branch measures .13 inch by .32 inch (3.3 by 8.1 mm).

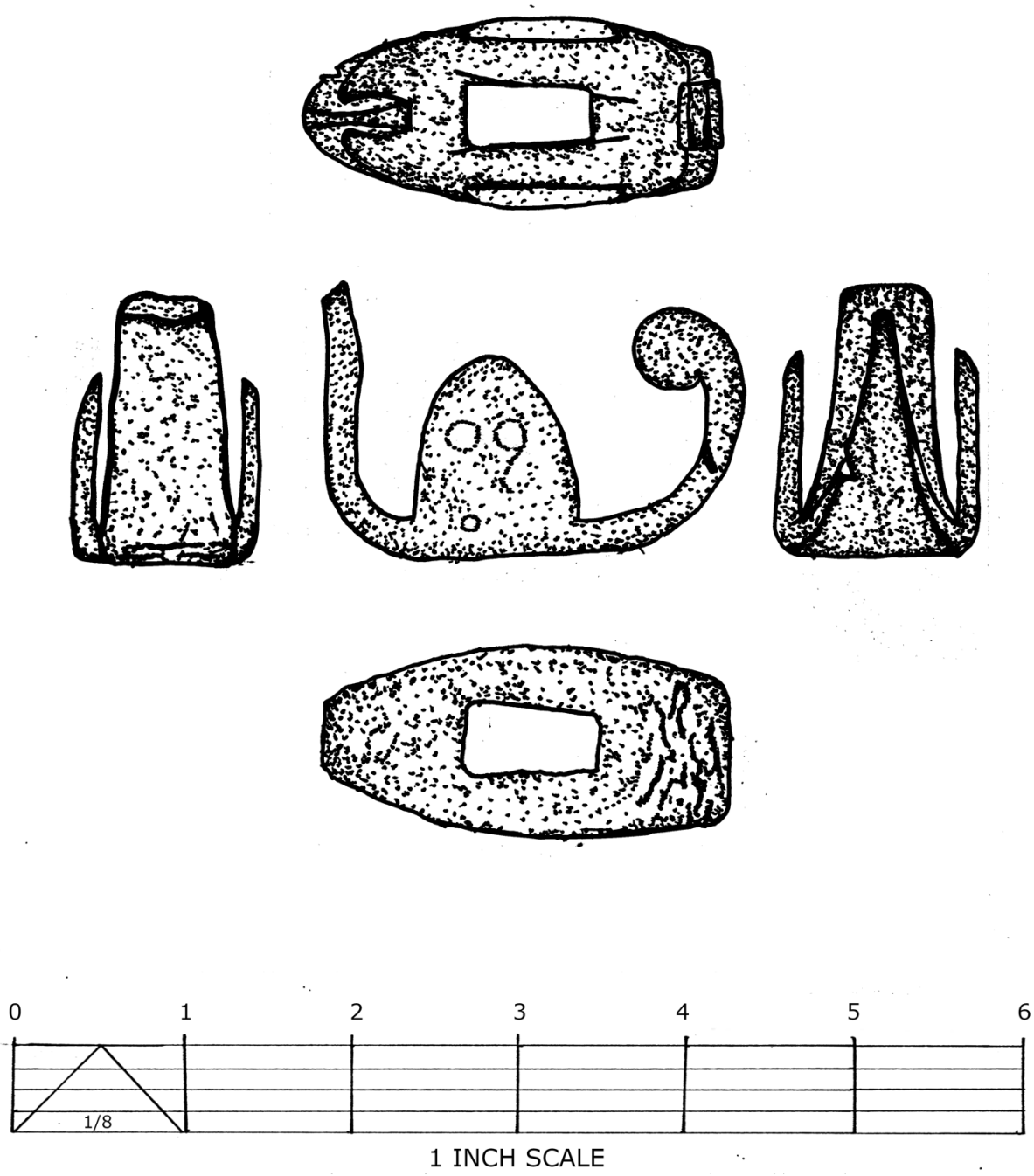

Figure 5. Bent Guard 1997.9.6000

Bent Guard 1997.9.6000:

The forward section of this cast brass guard was bent upward after the single stirrup-shaped knuckle bow was broken off the sword. The bent portion of the guard shows deep crazing at the line of the bend, indicating that the guard was damaged when the sword was assembled.

The fact that the sword blade was still in place is indicated by the pressed incision of the cheeks of the blade in the softer brass guard itself. This same pattern indicates the blade may have had a slight ricasso, which was flat-ground so as to taper from spine to blade. This creates a lighter backsword, which was not in the earlier pipe-back style, but more likely triangular in section, resulting in a lower-grade weapon that was not an example of high craftsmanship. The blade impressions in the forward face of the guard indicate that the sword likely saw use after this alteration. Further damage of the blade can be seen on the forward furling quillon which extends up from the back of the guard. A deep triangular gouge is evident on the left side of this quillon inside the guard

Stamping on the left-hand languette may bean inventory or rack number, identifying the weapon's place in some barrack collection or shipboard weapons locker. Thestamps include the faintly visible numbers 09 pecked into the languette by means of a punch, and a small circle to the lower right of the numerals, made by the same method.

The guard measures 1.18 inches (30.0 mm) wide at the tang, and extends 2.53 inches (64.3 mm) in the direction of the blade in its current configuration. Were the guard not bent upwards, this second measurement would be approximately 3.6 inches (91.4 mm). The quillon terminates in a decorative lozenge-shaped scroll .25 inch (6.4 mm) wide when viewed from above, with a circular profile .5 inch (12.7 mm) in diameter. The quillon, the base of the guard, and of the upward bent stirrup guard extension are all approximately .2 inch (5.1 mm) thick.

The minimum dimensions of the bent portion of the guard, from its widest point, measure .47 inches (11.9 mm) where the guard originally turned 90 degrees and enclosed the user's hand. The languettes are half oval in shape, measuring 1 inch (25.4 mm) wide at the base with a length of 1 inch (25.4 mm) creating a parabolic arc within these dimensions. The languettes measure .12 inch (3.0 mm) thick and its edges are filleted to create a domed or arcing section perpendicular to the blade. The pass-through for the tang measures .8 inch (20.3 mm) in the direction of the blade and tapers in width from .42 inch (10.7 mm) at the spine to .33 inch (8.4 mm) at the blade. The impression left from the blade or ricasso extends .12 inch (3.0 mm) above the spine edge of the pass-through and .26 inch (6.6 mm) below the blade side.

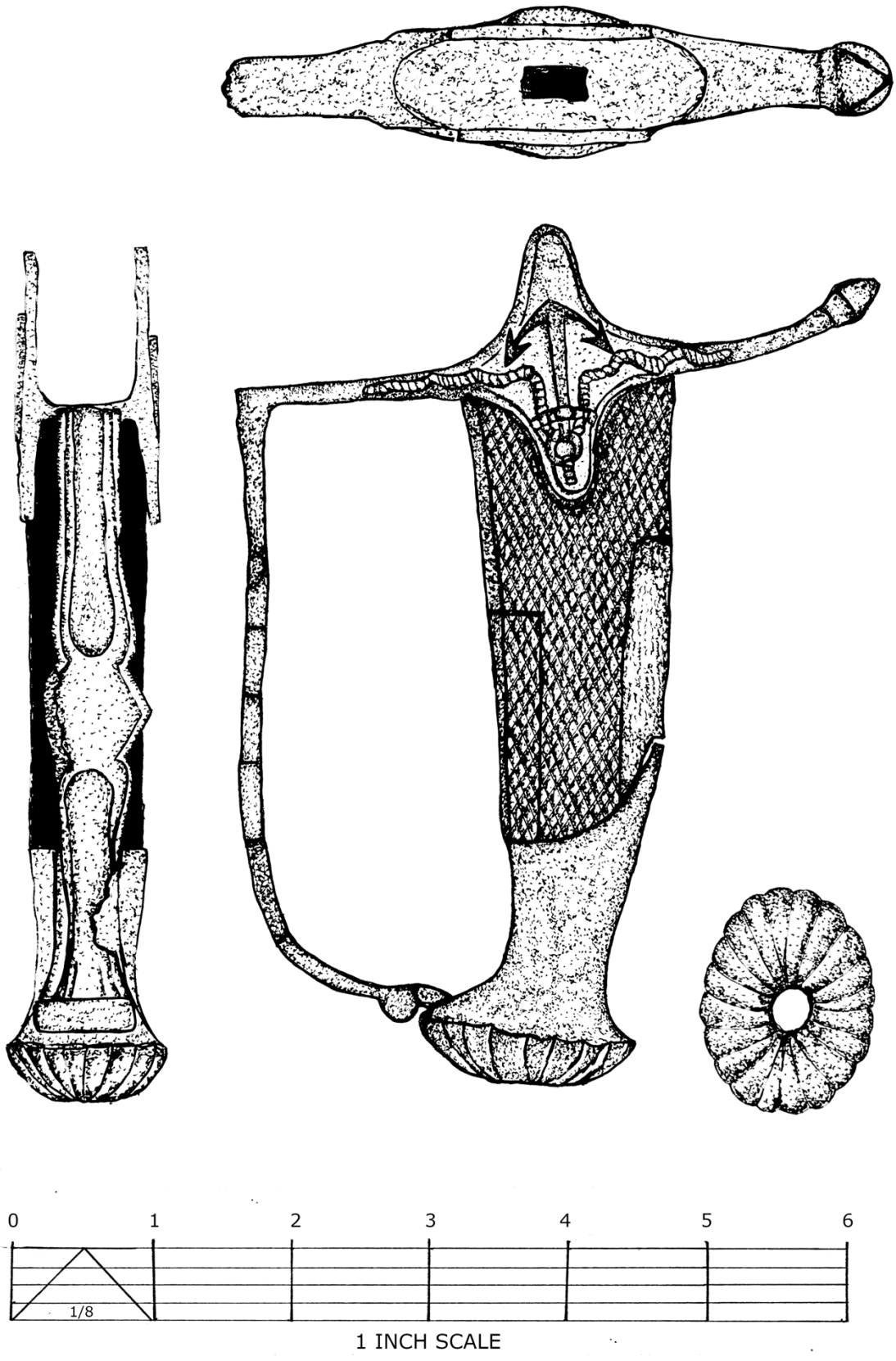

Figure 6. Officer's Sword 1997.9.3389

Officer's Sword 1997.9.3389:

This highly ornate and fine quality cast brass sword hilt survives intact, including a grip of ebony wood scales, gold gilt work, and a leather washer. The grip of the sword is rectangular in section with excurvant sides. The grip is nearly flat on its forward face and its back arcs toward the pommel, narrowing in width from 1.57 inches (39.9 mm) at the cross guard to .77 inch (19.6 mm) at the narrowest portion of the pommel. The wooden portion of the grip measures .85 inch (21.6 mm) in thickness near the guard and tapers slightly to .79 inch (20.1 mm) at the pommel. The grip is comprised of a hardwood core of unknown wood, with ebony scales laminated on either side of the grip. Diamond-shaped knurling was incised into the scales. The diamonds of the knurling measure .07 inch (1.8 mm) in width and .15 inch (3.8 mm) in length and are precisely cut. A cove of .07 inch (1.8 mm) in radius is cut into the two interior edges of the grip, which is finished on its outer edge with a shallow rabbet measuring .01 inch (0.3 mm) squared. The left side of the grip shows two locations in which the left-hand scale of the grip was repaired during the manufacturing process. In these places, two rectangular sections of the wood were removed and replaced with new pieces of ebony prior to the cutting of knurling into the grip. Of the two repairs, only the inner side piece survives; it measures .05 inch (1.3 mm) in thickness. The base of the wooden grip fits into the pommel by means of an integral wooden plug which tapers to a .55 inch (14.0 mm) diameter circular section which extends .64 inch (16.3 mm) beyond the grip where it meets the pommel on the interior and 1.5 inches (38.1 mm) beyond the grip where it meets the pommel on the back of the grip.

The pommel of this hilt is cast as a single brass component which lofts from a rectangular section, where it meets the grip, to a rounded rectangular section at its most narrow point before lofting again into the scalloped ovular shape of its butt end. Viewed in profile, the width of the

pommel smoothly tapers from 1.1 inches (27.9 mm) at the grip to .75 inch (19.1 mm) at its most narrow to 1.55 inches (39.4 mm) at its base. The pommel measures .8 inch (20.3 mm) at the grip, narrowing to .7 inch (17.8 mm) and opening to 1.16 inches (29.5 mm) at the base end. The scalloped butt cap portion of the pommel is egg-shaped and, when viewed from above measures 1.64 inches (41.7 mm) in length and 1.16 inches (29.5 mm) at its widest point, about one-third of the length down from the spine side of the pommel. The butt cap is segmented into lobes, which are arrayed around the off center opening for the blade's now missing tang and capstan, creating twenty lobes of even angles. From the pass-through on the base of the butt cap, the lobes sharply arc to their exterior edges, a distance of .33 inch (8.4 mm) when viewed from the side. The tang opening measures .3 inch (7.6 mm) in diameter.

The cross guard and knuckle guard of this hilt are cast as a single component. The cross guard measures 4.83 inches (122.7 mm) from the knuckle bow to the end of the upper quillon and is about .45 inch (11.4 mm) wide and .15 inch (3.8 mm) thick. The cross guard widens to .86 inch (21.8 mm) at the languettes which extend a further .1 inch (2.5 mm) on either side with a decorative moulding for a total width of 1.06 inches (26.9 mm). The languettes are 2.06 inches (52.3 mm) long in the direction of the grip and the sides of each languette taper to match the thickness of the guard in approximately 2.1 inches (52.4 mm) centered around the tang pass-through. The sides of each languette taper towards the upper and lower ends, meeting in rounded ends measuring .33 inches (8.4 mm) in diameter. The cruciform faces of both languettes are filled with a moulded anchor-and-rope motif. The edges of the guard around the languettes is rabbeted .04 inch (1.0 mm) wide and .01 inch (0.3 mm) deep.

The quillon extends 1.6 inches (40.6 mm) beyond the back side of the sword's grip and 2.17 inches (55.1 mm) beyond the pass-through for the blade's tang. The quillon is upswept,

arcing forward towards the blade's spine so that its center line is .4 inch (10.2 mm) offset from that of the guard at its terminus. The quillon ends in an octahedral ball with softly curved faces, which measures .3 inch (7.6 mm) thick and .5 inch (12.7 mm) wide, tapering to a rounded point .5 inch (12.7 mm) from the base of the ball.

At the pass-through for the tang, the impression of an ovular leather washer has differentially eroded the brass of the guard so that an outline of the washer's original extent is visible. Some of the leather surrounding the pass-through has become impregnated with iron and survived; these remenants are approximately .02 inch (0.5 mm) thick. The leather washer measured .63 inch (16.0 mm) wide (the total width between the interior faces of the languettes), and 2.25 inches (57.2 mm) in length, being rounded at either end. This washer would have covered the entire opening of the sword's brass sheath, protecting the sword from becoming marred. The pass-through for the tang measures .25 inch (6.4 mm) wide and .5 inch (12.7 mm) long.

The blade side of the cross guard measures .45 inch (11.4 mm) thick near the outer end and gradually widens towards the languettes at the terminus of the guard. At a point 1.45 inches (36.8 mm) from the interior of the grip, the casting makes a sharp 94 degree turn into the knuckle guard of the hilt. The knuckle guard measures .45 inch (11.4 mm) wide along its decorated face. At 1.58 inches (40.1 mm) below the cross guard, the width increases to .62 inch (15.7 mm) in a teardrop motif which tucks back into a width of .55 inch (14.0 mm) a further .2 inch (5.1 mm) down. The teardrop ends where it meets a diamond motif, which was at one time around .95 inch (24.1 mm) at its widest, though only .79 inch (20.1 mm) of this diamond's width survives. The diamond motif measures .7 inch (17.8 mm) long and is truncated at either end where it meets the teardrop motif. Below the diamond, a second teardrop mirrors the first with the exception that

this shape terminates in a fishtailed scroll which measures .75 inch (19.1 mm) wide and has a diameter of .25 inch (6.4 mm). From the interior side of the knuckle guard scroll, a .14 inch diameter (3.6 mm) plug extends through a corresponding hole in the pommel cap, securely fixing the two components to each other. The knuckle guard has a .06 inch (1.5 mm) rabbet cut into the edge on either side to a depth of .01 inch (0.3 mm), and the teardrop motifs include a corresponding molding .12 inch (3.0 mm) from the edges of the guard which stands .01 inch (0.3 mm) proud of the guard's face. The guard is heavily eroded on its right side from the diamond motif to the scroll and on its left side .5 inch (12.7 mm) above the scroll.

All of the cast brass components of the sword are expertly treated with chasing, gilding, and burnishing. The faces of the languettes exhibit a wide variety of textures too fine to have been created during the casting process. The details of the anchor molding are sharpened and finished by a number of different chisels and burnishing tools. Triangular chisel marks clarify the facets of the rope and knot work, ovular stampings outline the languettes, dimpling made by a circular punch covers the negative space of the motif, and the surfaces of the anchor itself have all been planished smooth. The ormolu gilt work of the guard has survived extensively around the details of the languettes and in the troughs between the scalloping of the pommel. The thickness of the gilding could not be determined.

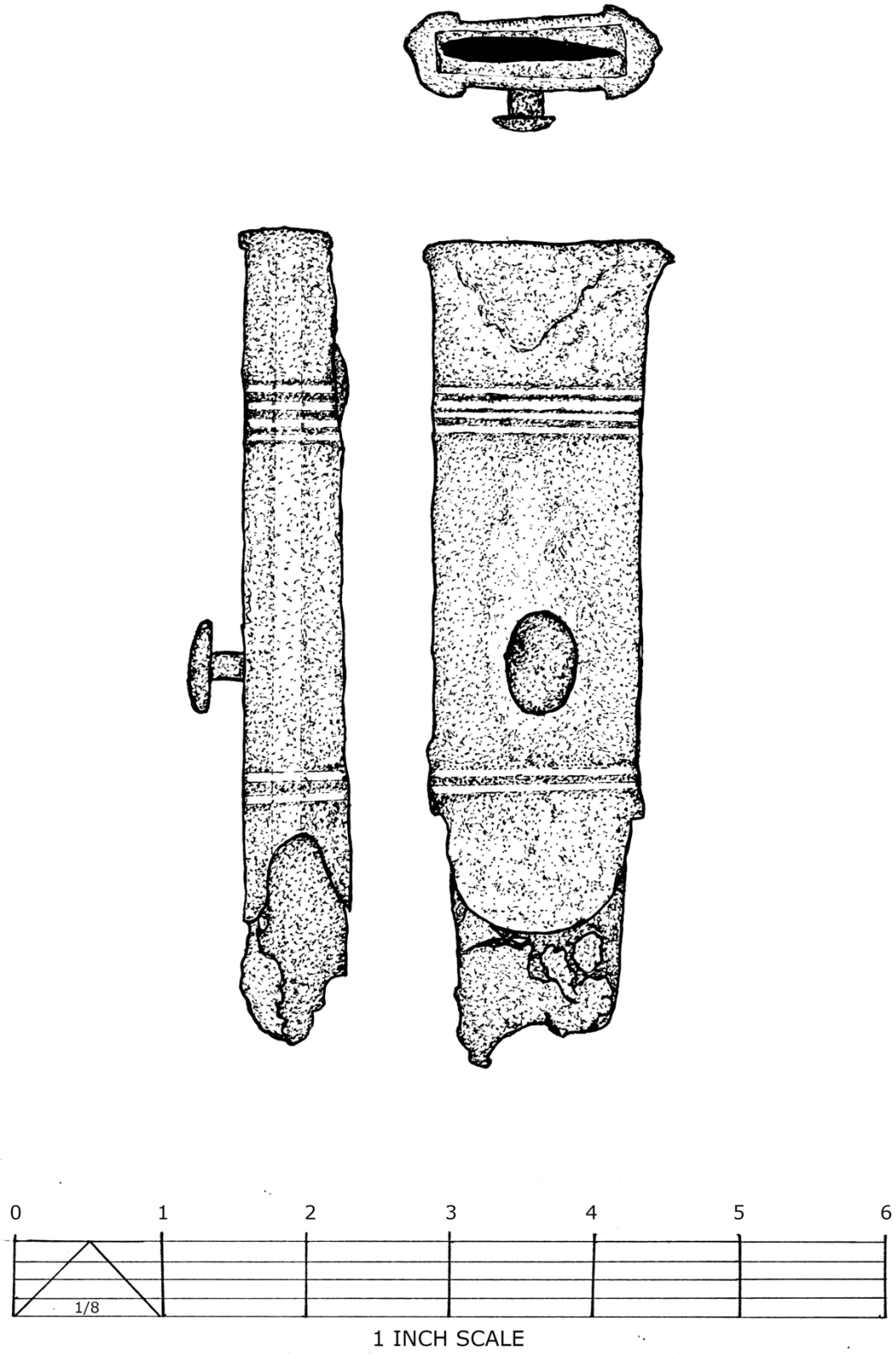

Figure 7. Officer's Sword Scabbard Locket 1997.9.3389

Officer's Sword Scabbard Locket 1997.9.3389:

The previously discussed officer's sword hilt was found in association with this brass and leather scabbard locket. After being dropped in the lake, the hilt remained in position on the scabbard throat so that corrosion accelerated between the interior forward face of the languettes of the hilt and the exterior of the locket near its opening. The brass portion of the scabbard measures 4.75 inches (120.7 mm) in length, 1.45 inches (36.8 mm) in width, and .72 inch (18.3 mm) in thickness. In section, the locket is lozenge shaped with a .2 inch (5.1 mm) wide flat at either end with the sides being arched to meet these edges and reach the maximum width of the locket. At the opening for the sword's blade, the width increases to 1.75 inches (44.5 mm) and the thickness tapers down to .6 inch (15.2 mm) before ending in a .72 inch (18.3 mm) thick lipped portion which is rectangular in section. Beyond the brass locket of the scabbard, a further .87 inches (22.1 mm) of scabbard leather survives, leather heavily impregnated with iron from the sword blade it once held.

The opening of the scabbard throat has a .06 inch (1.5 mm) wide lip that circumscribes the spine and blade ends of the opening. A gap is left in the lip on either side of the opening 1 inch (25.4 mm) in length to accommodate the languettes of the hilt, which remained outside the scabbard when the sword was within. The interior opening of the brass component is trapezoidal and measures 1.28 inches (32.5 mm) by .35 inch (8.9 mm) at the spine end and .27 inch (6.9 mm) at the blade end. The leather of the sheath was flush with the opening, serving as a liner on both sides of the locket. The leather was a minimum of .13 inches (3.3 mm) thick.

On the sides of the locke, two sets of debossed bands, four bands on top and two on bottom, retain some of the original gold gilding. Likewise, some of the gilding remains on the surface where it was protected by the frog stud, indicating that the entirety of the locket was once

gilded. The upper four bands are .03 inch (0.8 mm) wide and spaced .04 inch (1.0 mm) apart; they begin 1.06 inche (26.9 mm) below the throat. The second set of bands are the same width, but are separated by a .06 inch (1.5 mm) gap; these bands begin 3.7 inches (94.0 mm) below the throat. A decorative tongue located 4 inches (101.6 mm) from the opening of the throat extends over the leather but does not continue around the sheath. The semi-circular tongue is inset from either side by .1 inch (2.5 mm) and measures 1.25 inches (31.8 mm) in width and .75 inch in length (19.1 mm). The tongue on the front side of the locket is bordered with a debossed line which traces the perimeter and is inset .04 inch (1.0 mm). This line, like the six circumscribing bands, measures .03 inch (0.8 mm) in width. The tongue on the opposite side of the locket is severely corroded but its corrosion products have left an outline on the underlying leather.

The frog stud of the locket is oval in shape, measuring .7 inch (17.8 mm) long and .5 inch (12.7 mm) wide. It has a flat base and a domed face which is .16 inch (4.1 mm) thick in the middle. In the center of the base, an .18 inch (4.6 mm) diameter circular riser holds the stud with a clearance of .2 inch (5.1 mm) between the base and the locket. The frog stud is centered 3 inches (76.2 mm) below the opening of the throat.

Scabbard Components

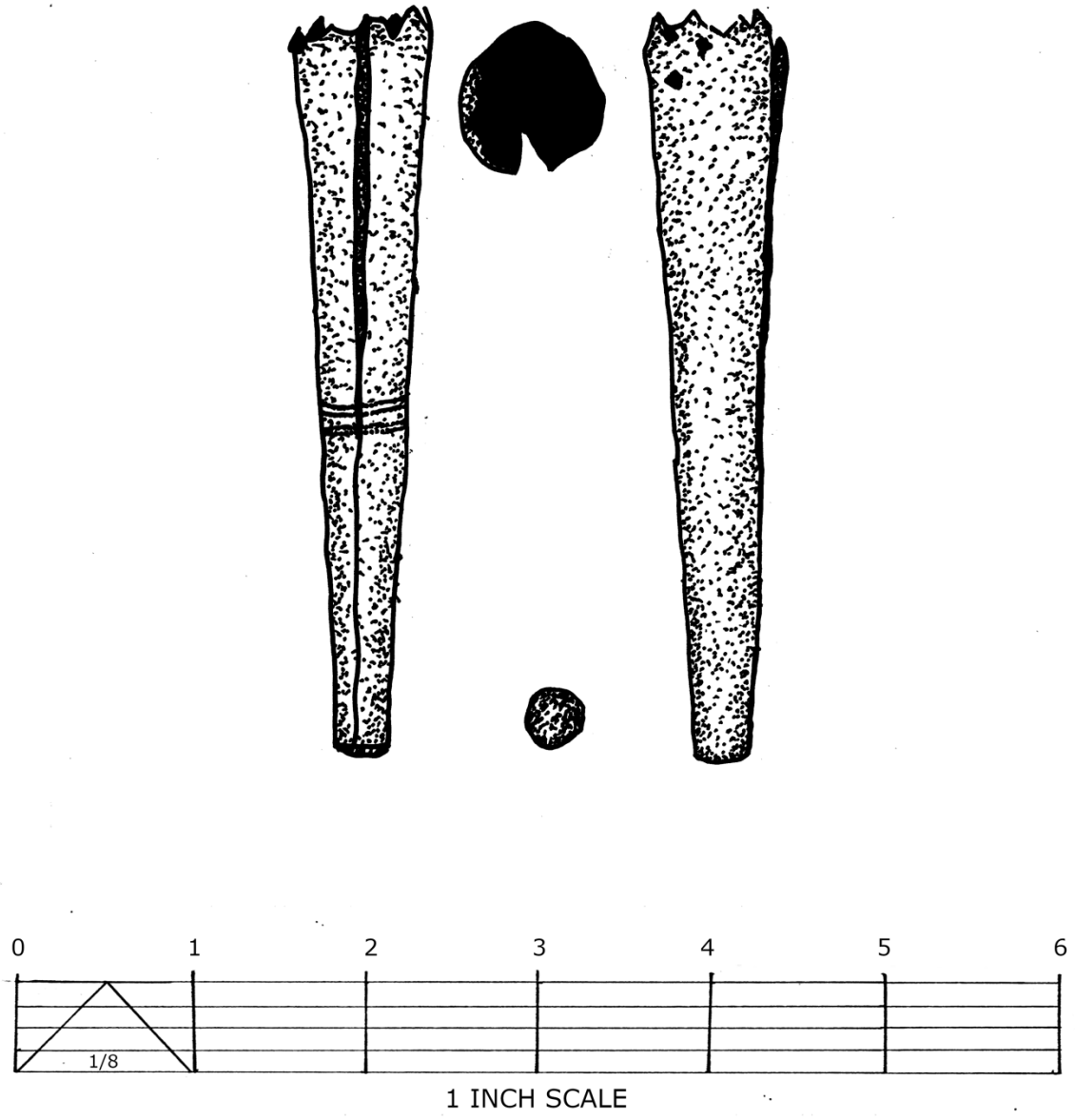

Figure 8. Chape 1997.9.3998

Chape 1997.9.3998:

This sheet copper alloy chape would have encased and protected the end of a smallsword scabbard or bayonet scabbard. The conical chape is constructed in two pieces: a sheet which makes up the cone and a small end cap. The main sheet is twisted into a truncated cone measuring .81 inch (20.6 mm) in diameter at the top opening, into which the leather scabbard

was fixed. It tapers to .32 inch (8.1 mm) at the bottom end cap. The overall length of this cone measures 4.32 inches (109.7 mm) and the thickness of the copper sheet is .03 inch (0.8 mm). The sheet is not closed by mechanical means and the seam, along the length of the chape is held closed only by the strength of the bent sheet itself. The circular end cap protrudes .06 inches (1.5 mm) from the bottom of the cone and extends for an undetermined distance into the body of the chape. The cap is soldered in place. Two decorative bands are lightly debossed into the copper 1.85 (47.0 mm) and 1.95 inches (49.5 mm) above the end cap; these are plain, solid bands with a thickness of .2 inch (5.1 mm). Three holes, centered .6 inch (15.2 mm) left of the seam and .2 inch (5.1 mm) below from the opening of the chape, indicate where the chape was once fastened to the leather scabbard by means of small tacks. The tack holes are spaced .2 inches (5.1 mm) apart in a triangular pattern and show that the tacks used had a square shank measuring .06 inch (1.5 mm) in section. The opening of the chape is decoratively dagged with irregular triangles measuring an average of .1 inch (2.5 mm) high, and .15 inch (3.8 mm) wide at the base. Nine or ten of these dags were once present, but some have corroded, leaving eight dags intact.

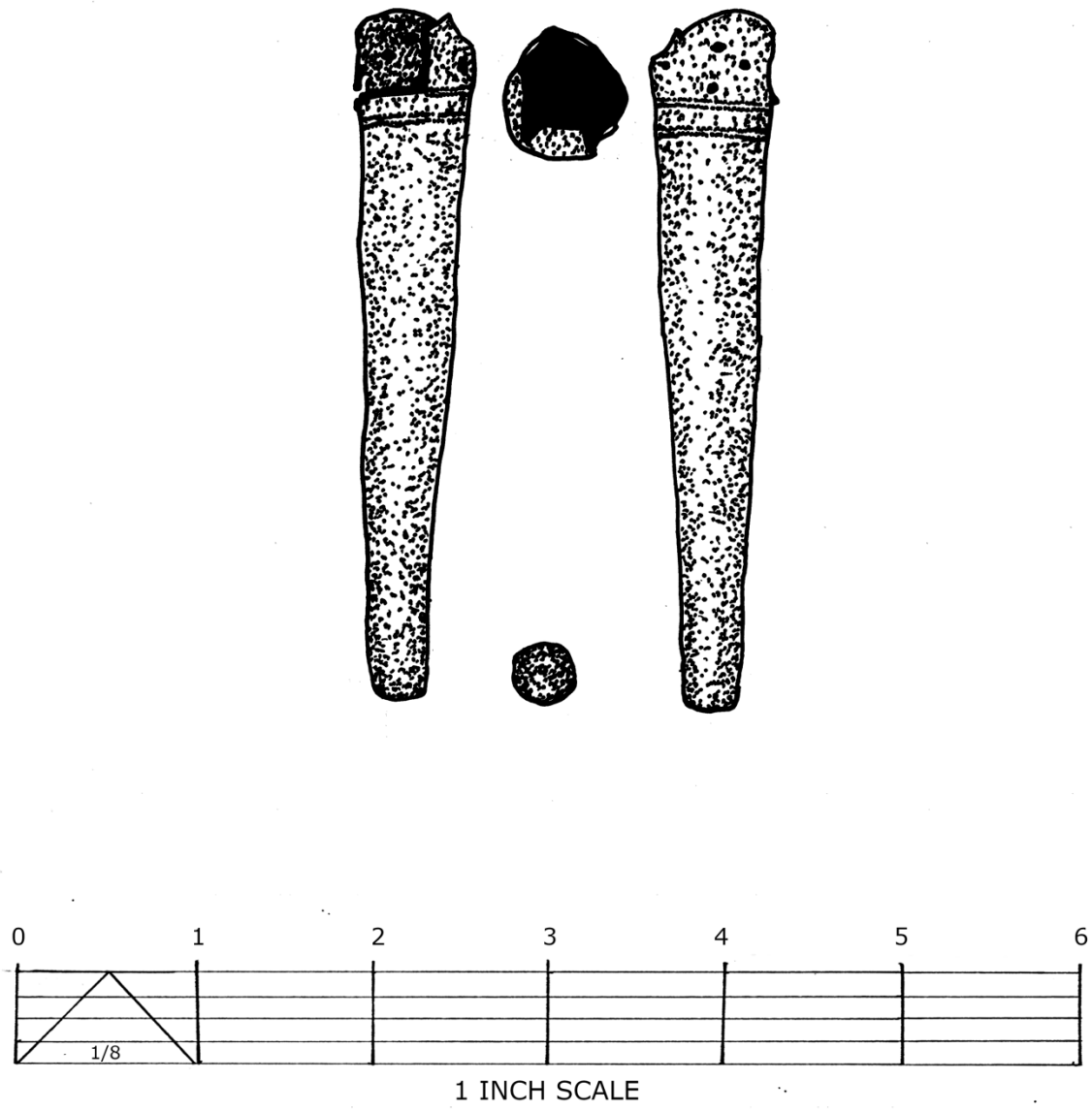

Figure 9. Chape 1997.9.3999

Chape 1997.9.3999:

Similar in function to chape 1997.9.3998, this object completed the scabbard of a smallsword or bayonet. This chape is also constructed of two pieces, a copper alloy sheet, twisted into a conical shape with a seam running along one side, and a circular end cap. In the case of chape 1997.9.3999, the side seam is fastened shut by means of a soldered butt joint

between the edges of the copper sheet. This join is finished over by filling and brushing, which gives the chape a nearly seamless appearance. The end cap is soldered in place.

The chape measures 3.94 inches (100.1 mm) in length, .73 inch (18.5 mm) in circumference at its top opening, and it tapers to .3 inch (7.6 mm) at its base. The end cap protrudes from the bottom of the chape .09 inch (2.3 mm). Two decorative bands are debossed into the chape .45 (11.4 mm) and .6 inch (15.2 mm) from the uppermost edge of the chape opening, these are .02 inch (0.5 mm) width. The upper .45 inch (11.4 mm) of the chape is formed into tongue-shaped petals, which ornament the opening of the chape. Of the two or three petals which may have existed, only one survives intact, one being severely corroded, and a space for a possible third being sheared off along the upper of the two debossed bands. Tack holes of similar spacing and arrangement as to those found chape 1997.9.3998 are present on this chape; however, these holes represent the usage of tacks with a slightly smaller shank, a bit under .05 inch (1.3 mm) in section.

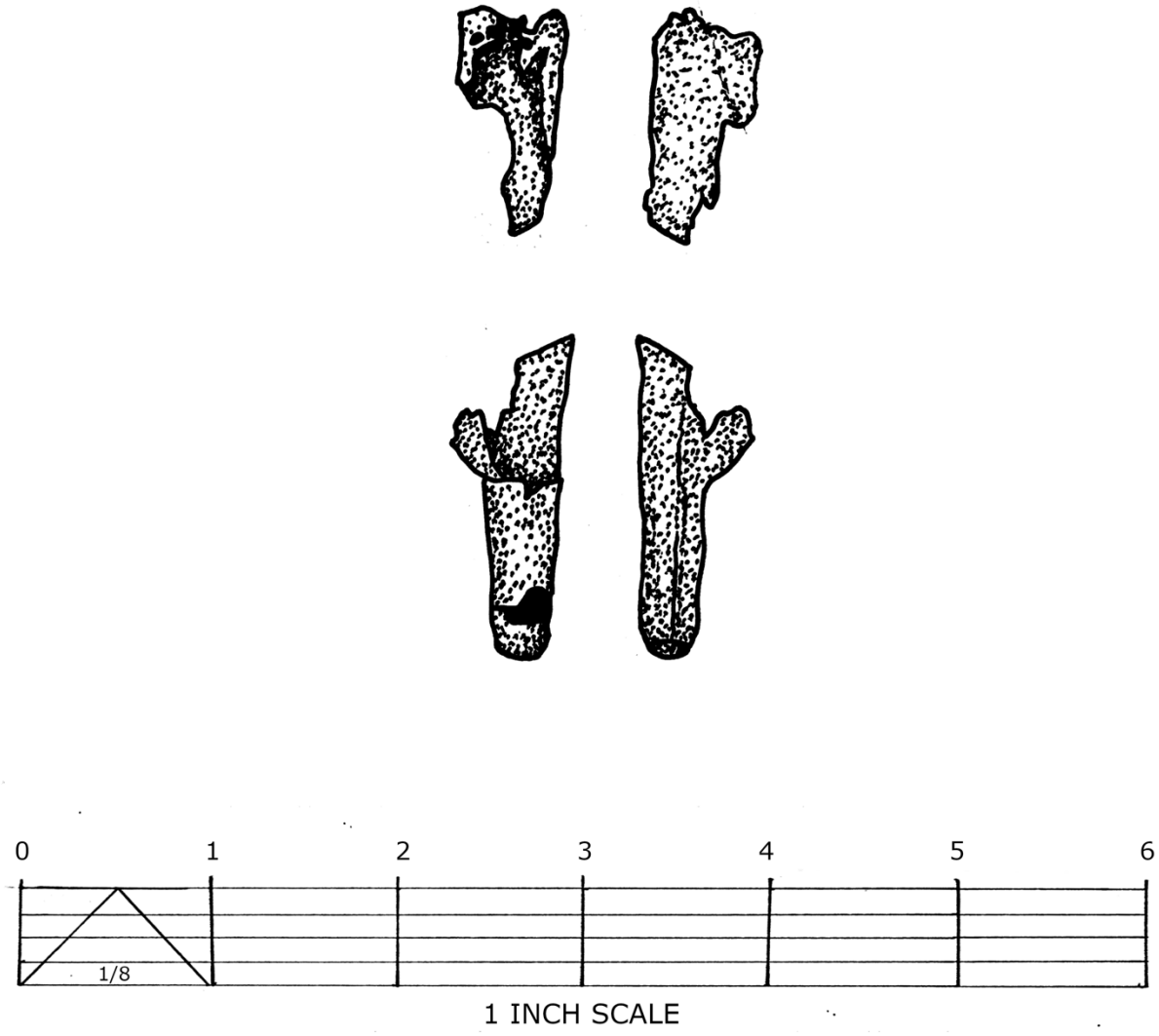

Figure 10. Chape 1997.9.3400

Chape 1997.9.3400:

Chape 1997.9.3400 is the third and final conical-style chape in the collection in. As with the prior chapes, this one is constructed of a .03 inch (0.8 mm) thick copper alloy sheet with a seam running down one edge and soldered-on copper alloy end cap.

The upper and lower portions of this chape are extant, though the middle section was lost to corrosion. The chape's upper remnant has two tack holes near its opening. The length of this

upper portion is 1.15 inches (29.2 mm), its full circumference has not survived, but its estimated diameter is .55 inch (14.0 mm). Extrapolating the dimensions of this portion, it can be assumed that this chape was a bit shorter than the other conical chapes in the collection and would have been approximately 3.5 inches (88.9 mm) in overall length.

The lower portion of the chape measures 1.73 inches (43.9 mm) long, .28 inch (7.1 mm) in diameter at its base, and .4 inch (10.2 mm) in diameter at its open end, which is 1.2 inches (30.5 mm) up from the base. One side of the chape shows its seam, butt jointed and soldered as seen on chape 1997.9.3999. However, this seam is not finished to the same degree of smoothness. Extensive corrosion near the bottom of the lower portion reveals the construction of the chape's end cap. The end cap is copper or brass and extends from the bottom the cone .06 inch (1.5 mm). The total length of the end cap is .22 inch (5.6 mm), meaning that a .18 inch (4.6 mm) section of the end cap is soldered into the cone to plug the end of the chape. It is reasonable to assume that this chape's end cap had dimensions similar to those of other conical chapes in the collection.

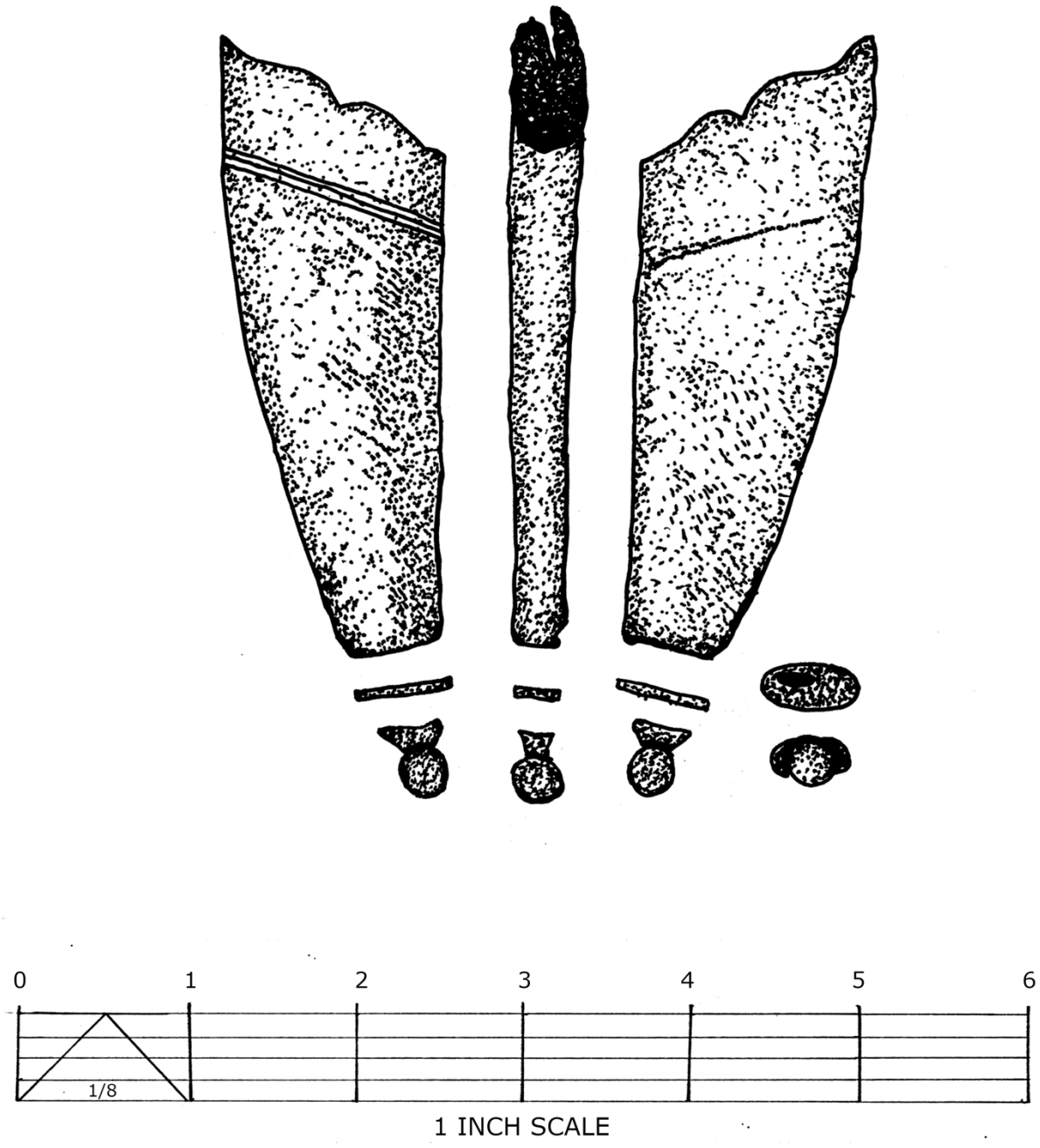

Figure 11. Chape 1997.9.6001

Chape 1997.9.6001:

This backswept chape, or drag, protected the lower end of a saber's scabbard. The chape is made up of three components now separated: a dapped and planished sheet brass body, a base cap, and a decorative finial. The body of the chape measures 3.8 inches (97 mm) in length. It is 1.3 inches (33.0 mm) wide at its opening and .56 inch (14.2 mm) wide at its base. At the chape opening, the body has a thickness of .45 inch (11.4 mm), this thickness tapers to .32 inch (8.1 mm) at the base. The blade side of the chape is formed by the dapping of the sheetmetal stock, which is worked around and sealed with a soldered butt jointed seam on the spine side of the chape. The join is finished with filing and brushing. The lip of the opening on each side of the chape has two 's' shaped recurves which meet in a 'v' shape in the middle, on either side of the chape. The lip of the chape is positioned at a 120 degree angle, relative to the spine side of the chape. Three debossed bands are present below the lip of the chape's opening. The bands measure .01 inch (0.3 mm) in thickness with .01 inch (0.3 mm) spacing between them. They begin .4 inch (10.2 mm) below the lip on the spine side of the chape, and continue up either face of the chape at an angle of 110 degrees, relative to the spine side. Both the spine and blade sides of the chape are filleted, rounding the sides of the chape.

The chape's simple, oval-shaped, sheet-brass base measures .32 inch (8.1 mm) by .56 inch (14.2 mm), and is .06 inch (1.5 mm) thick. There is a small hole corroded through the center of this base. The finial is a brass sphere atop a trapezoidal prism block. The block measures .38 inch (9.7 mm) wide at the chape and .18 inch (4.6 mm) wide at the sphere of the finial, is .15 inch (3.8 mm) thick, and separates the sphere from the base by .15 inch (3.8 mm). The sphere of the finial measures .28 inch (7.1 mm) in diameter and is centered upon the trapezoidal block.

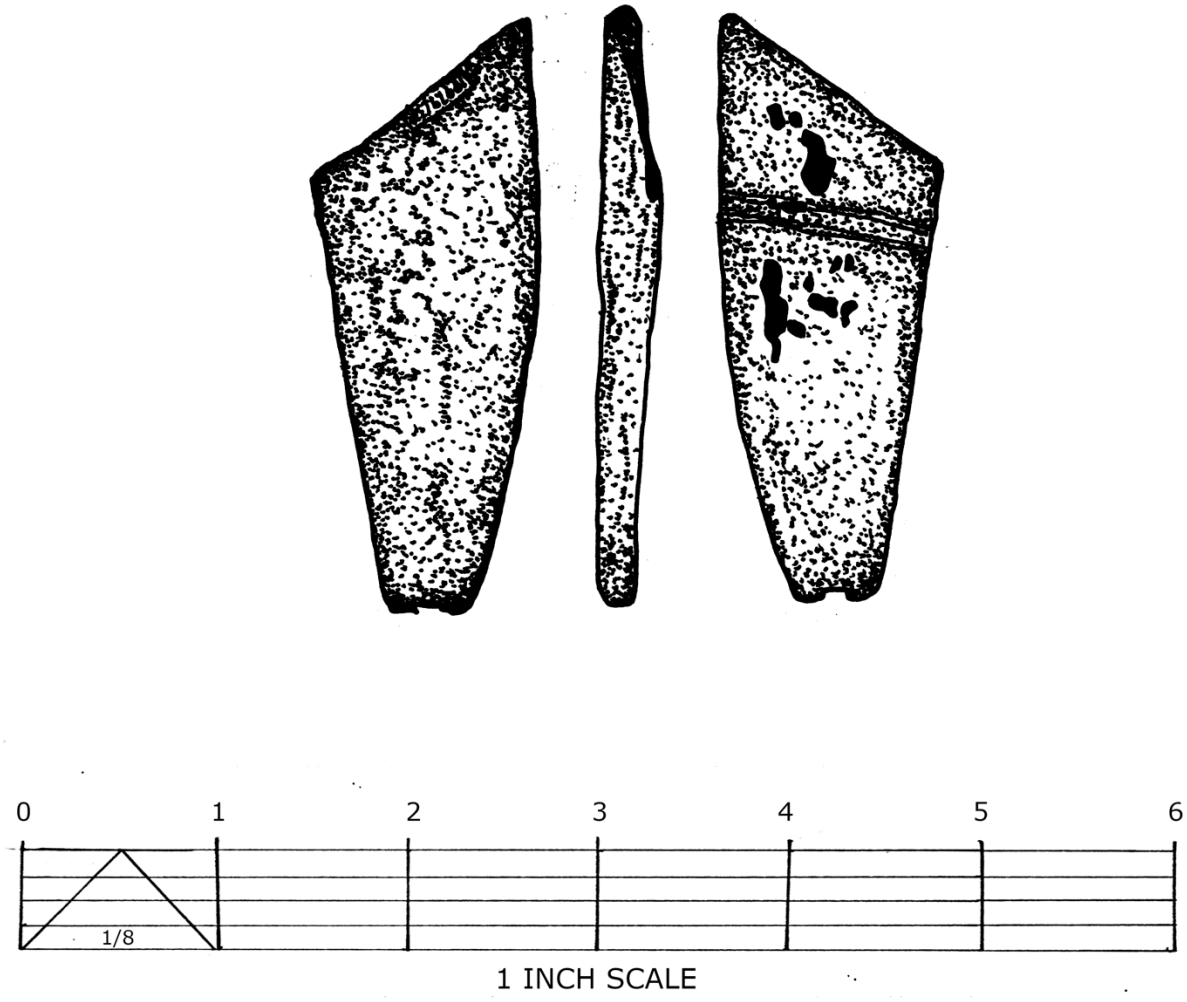

Figure 12. Chape 1997.9.2328

Chape 1997.9.2328:

The second backswept chape of the collection is eroded on the right hand side and is partially crushed. Similar in style to Chape 1997.9.6001, this chape is made of sheet brass or other copper alloy dapped on the blade side, and sealed with a soldered butt jointed seam on the spine side of the chape. The chape measures 3.12 inches (79.2 mm) long, 1.16 inches (29.5 mm) wide at its opening tapering to .5 inch (12.7 mm) wide at its base, and .25 inch (6.4 mm) thick at the base. The original thickness above the base is unknown due to the partial crushing of the

chape but, in its current state, the chape is .16 inch (4.1 mm) at its thickest near the opening. The lip of the opening is flat, undecorated, and is positioned at an angle of 135 degrees relative to the spine side of the chape. The chape is decorated with two debossed bands starting .3 inch (7.6 mm) and .42 inch (10.7 mm) below the lip on the spine side. These bands measure .01 inch (0.3 mm) in thickness and are positioned perpendicular to the chape spine.

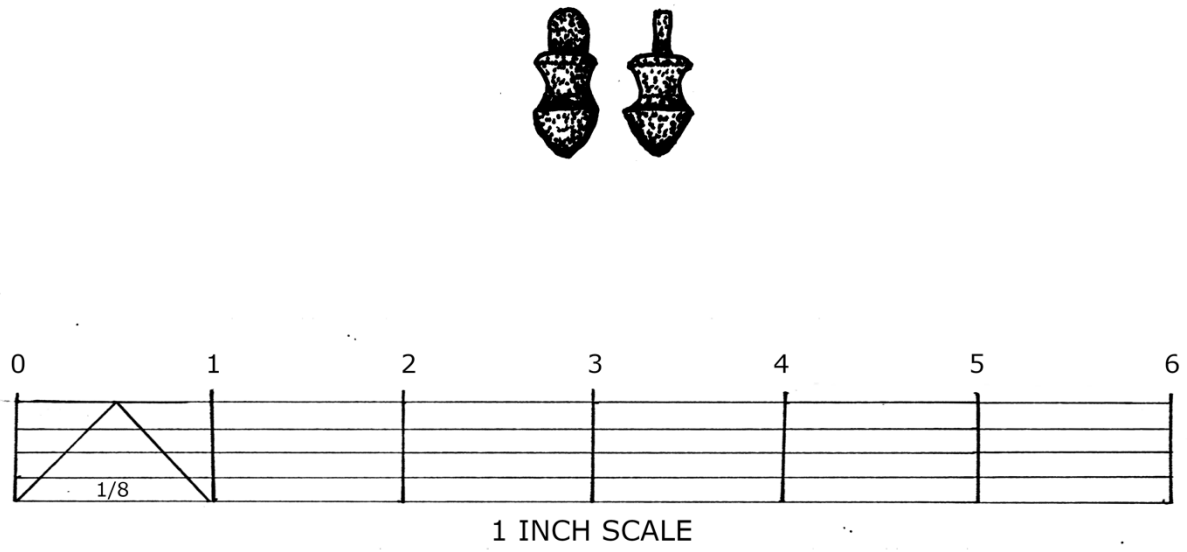

Figure 13. Chape Finial 1997.9.1282

Chape Finial 1997.9.1282:

Scabbards and chapes were often finished on their lower ends with a decorative finial such as this cast copper alloy one. It measures .75 inch (19.1 mm) long, with the lower .22 inch (5.6 mm) being a tongue-shaped shank used to fix the finial to a scabbard or chape. The shank is .07 inch (1.8 mm) thick. The exposed portion of the finial is shaped as a revolved cove topped with an acorn. The cove is .33 inch (8.4 mm) in diameter at either end and .2 inch (5.1 mm) in diameter in the middle, and measures .28 inch (7.1 mm) in length. The acorn portion is .33 inch (8.4 mm) in diameter at its base and .25 inch (6.4 mm) in length. This finial is not associated with Chape 1997.9.2328.

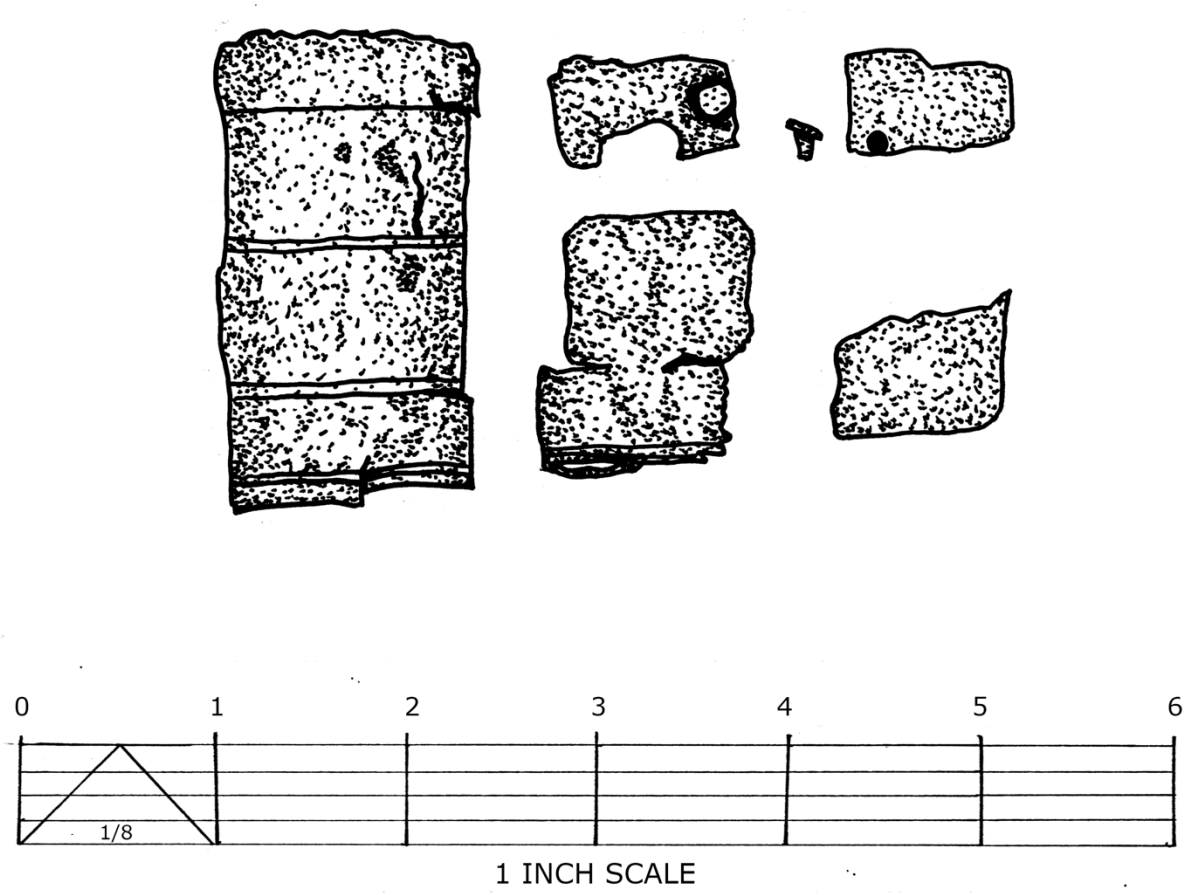

Figure 14. Sheath Parts 1997.9.3257-61

Sheath Parts 1997.9.3257-61:

This small lot of copper-alloy sheath parts was given to the museum as a set and is comprised of three portions of scabbard lockets and two small plates each with a single rivet.

The largest of the sheath components is the locket covering made of .01 inch (0.3 mm) thick brass sheet. This piece is 2.48 inches (63.0 mm) long and 1.34 inches (34.0 mm) wide, with its sides curled down at the edges. Both ends of the piece are corroded and, as a result, the throat end of the locket cannot be determined. One end of the locket has separated from the sheet at the outermost debossed line. Five sets of lines are debossed into the locket: two lines are present along the clean separation, another set of two lines are present .05 inch (1.3 mm) below the first

set, a third set of two lines is present .34 inch (8.6 mm) below the second, a fourth set of two lines are .68 inch (17.3 mm) below the third, and a single line is .68 inch (17.3 mm) below the fourth set of lines. Each debossed line is .01 inch (0.3 mm) thick and the spacing between lines in a paired set is .06 inch (1.5 mm).

The second largest component is a brass sheet with a set of three debossed lines at one end. It is heavily corroded and is especially thin, less than .01 inch (0.3 mm) in thickness. It measures 1.38 inches (35.1 mm) long and 1.12 inches (28.4 mm) wide. The decorative lines begin along one edge of the piece. They are .01 inch (0.3 mm) thick and are spaced .04 inch (1.0 mm) apart. This component was likely part of a scabbard locket.

The remaining three pieces in this set of brass sheath parts are harder to identify. They are each of similar thickness, about .01 or .02 inch (0.3 – 0.5 mm), and less than a square inch in size. The first of these measures .68 inch (17.3 mm) by .9 inch (22.9 mm), and its only two finished edges meet in a filleted corner with a radius of .2 inch (5.1 mm). The remaining two pieces are eroded on all edges. The first measures .97 inch (24.6 mm) by .52 inch (13.2 mm) and has a large section missing from one side. The second of these measures .55 inch (14.0 mm) by .84 inch (21.3 mm) and has a hole in one corner which once held the rivet pictured to its left. Both rivets of these last two components had internal heads, which are .2 inch (5.1 mm) in diameter, .03 inch (0.8 mm) thick, and which stood on shanks.06 inch (1.5 mm) in diameter with a clearance of .12 inch (3.0 mm).

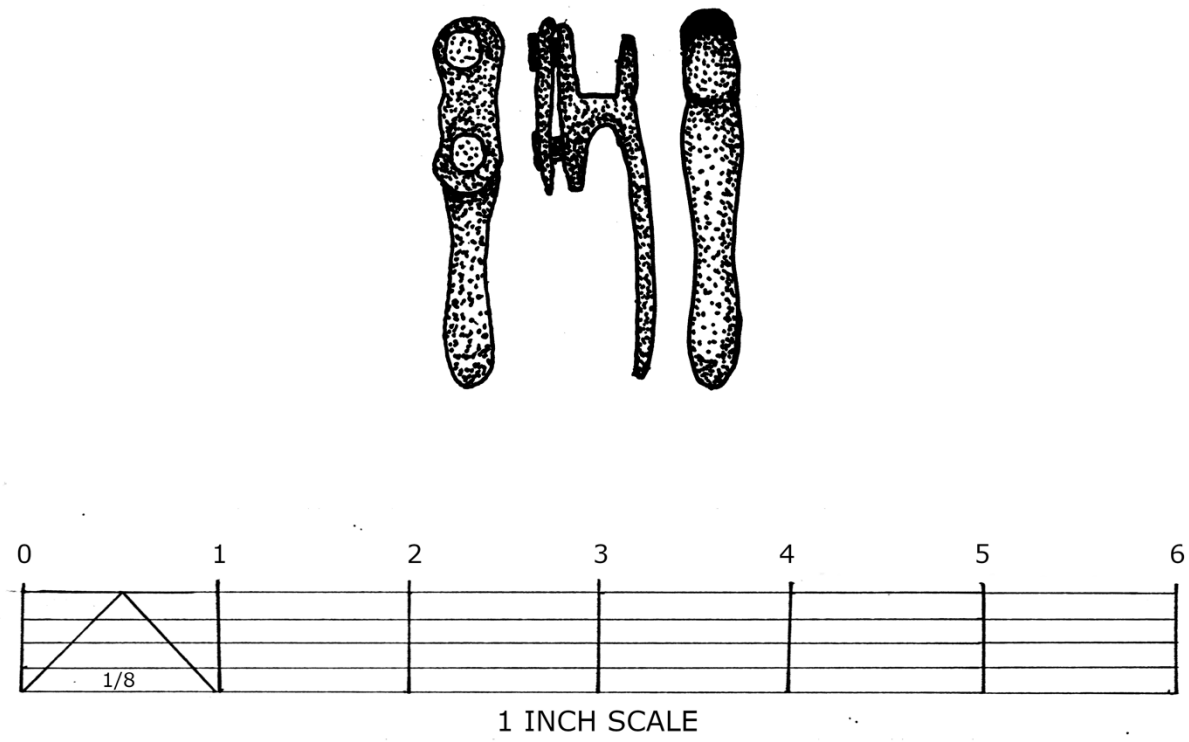

Figure 15. Frog Stud 1997.9.1611

Frog Stud 1997.9.1611:

The Leege collection contained seven cast copper-alloy frog studs with rivets and backings. These studs were riveted through the leather of a sheath or scabbard, near the scabbard throat, to allow the sheath to be supported by a leather belt frog. Each frog stud has a lobe-shaped protrusion from the upper end and an elongated hourglass-shaped hook extending down from the stud. Each stud also has a riveted baseplate and was originally riveted through a leather scabbard. The hooks, the stud, the baseplate, and the rivets are all cast as a single brass object, and the rivets are fixed through a backing plate located inside the leather scabbard.

The upper lobe of frog stud 1997.9.1611 measures .28 inch (7.1 mm) wide and .38 inch (9.7 mm) long and is roughly ovular in shape. The hourglass hook measures 1.45 inches (36.8 mm) in length and is .32 inch (8.1 mm) wide at its upper swell, .27 inch (6.9 mm) wide at its

lower swell, and .2 inch (5.1 mm) wide at its narrowest point. The stud is .18 inch (4.6 mm) thick and holds the lobe and hook .18 inch (4.6 mm) away from the baseplate. The baseplate is .83 inch (21.1 mm) in length and .27 inch (6.9 mm) in width, with heavily rounded corners, and the baseplate is .07 inch (1.8 mm) thick. The backing plate is figure-eight shaped. It is .92 inch (23.4 mm) long and .37 inch (9.4 mm) wide at its widest point. The rivets are .09 inch (2.3 mm) diameter in their shanks and the ends are peen to a diameter of .18 inch (4.6 mm).

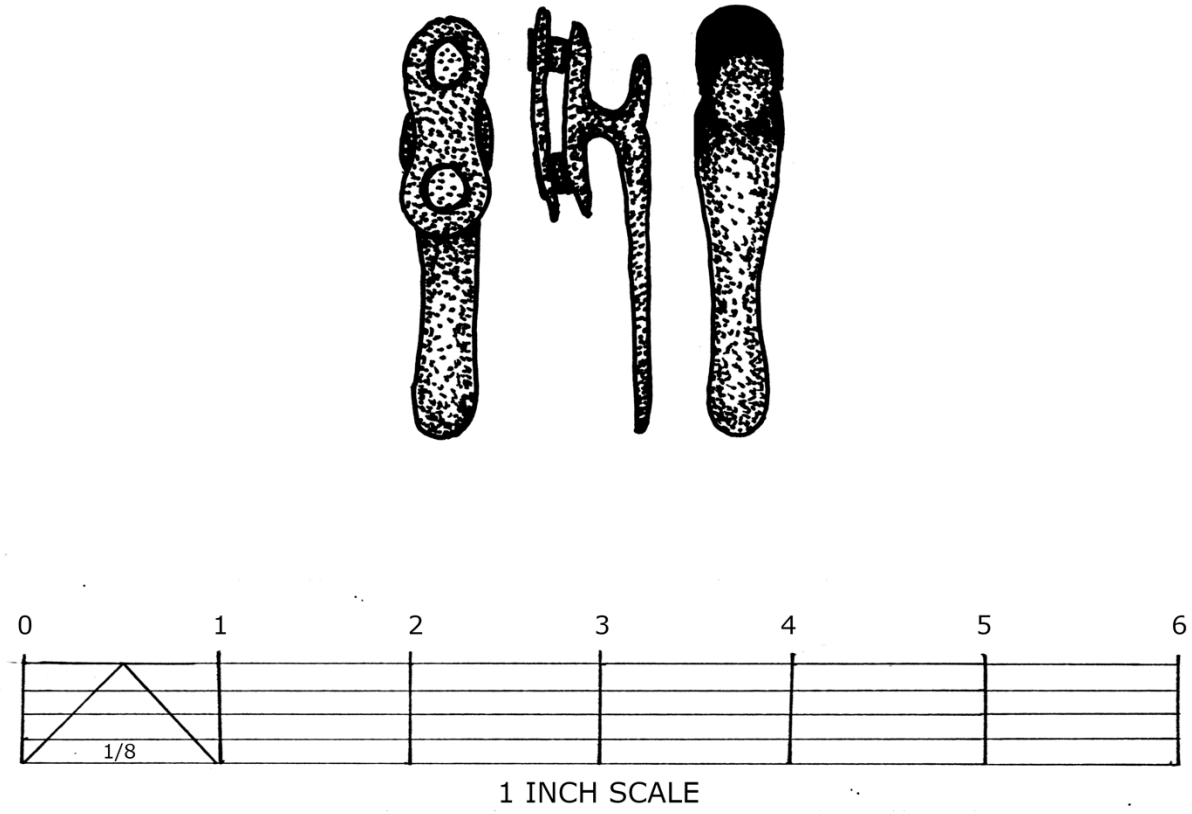

Figure 16. Frog Stud 1997.9.4093

Frog Stud 1997.9.4093:

The upper lobe of this frog stud measures .33 inch (8.4 mm) wide and .39 inch (9.9 mm) long and is roughly ovular in shape. The hourglass hook measures 1.62 inches (41.1 mm) in length and is .45 inch (11.4 mm) wide at its upper swell, .3 inch (7.6 mm) wide at its lower swell,

and .24 inch (6.1 mm) wide at its narrowest point. The stud is .13 inch (3.3 mm) thick and holds the lobe and hook .19 inch (4.8 mm) away from the baseplate. The baseplate is 1 inch (25.4 mm) in length, .48 inch (12.2 mm) in width, .12 inch (3.0 mm) thick, and has heavily rounded corners. The backing plate is figure-eight shaped, 1.13 inch (28.7 mm) long, .45 inch (11.4 mm) wide at its widest points, and is .05 inch (1.3 mm) thick. The rivets have a .15 inch (3.8 mm) shank diameter and the ends are peened to a diameter of .2 inch (5.1 mm).

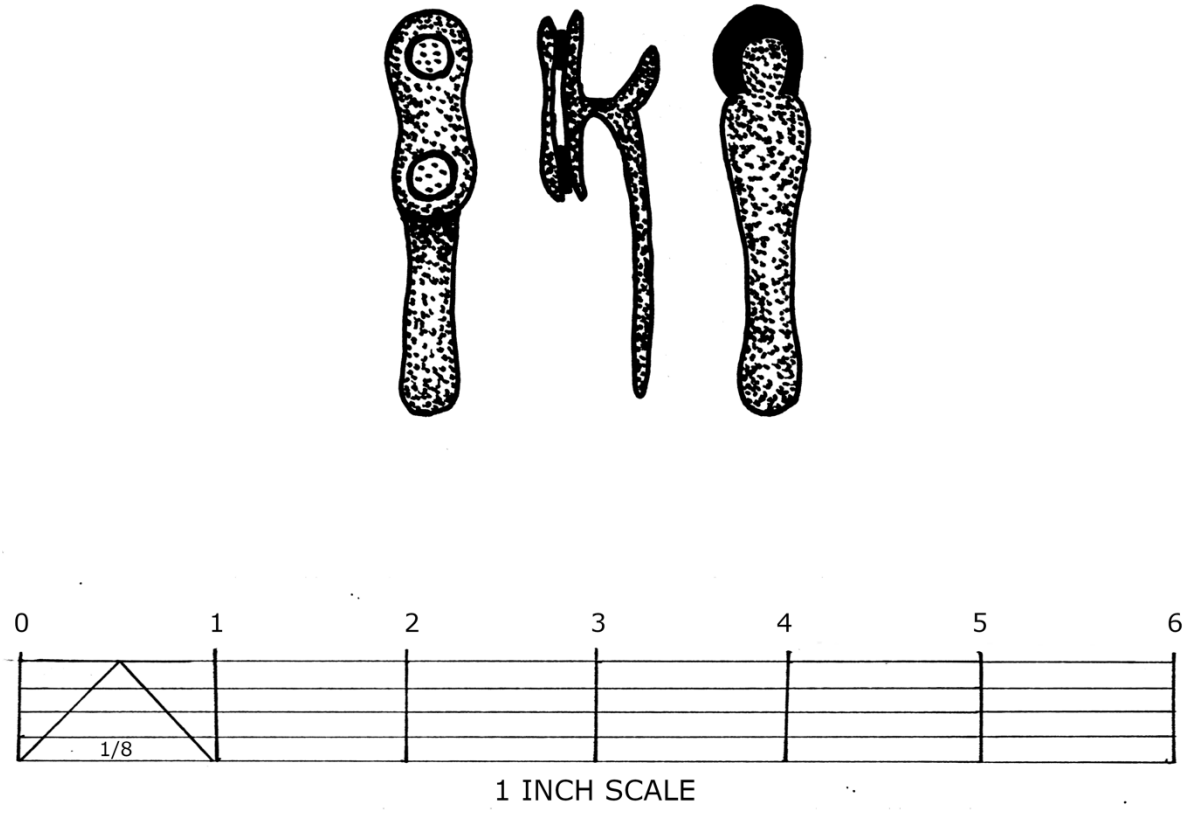

Figure 17. Frog Stud 1997.9.4094

Frog Stud 1997.9.4094:

The upper lobe of this frog stud measures .24 inch (6.1 mm) wide and .28 inch (7.1 mm) long and is roughly ovular in shape. The lobe is bent upwards 20 degrees. The hourglass hook measures 1.66 inches (42.2 mm) in length and is .45 inch (11.4 mm) wide at its upper swell, .3

inch (7.6 mm) wide at its lower swell, and .25 inch (6.4 mm) wide at its most narrow point. The stud is .08 inch (2.0 mm) thick and holds the lobe and hook .25 inch (6.4 mm) away from the baseplate. The baseplate is .93 inch (23.6 mm) in length and .43 inch (10.9 mm) in width, .09 inch (2.3 mm) thick, and has heavily rounded corners. The backing plate is figure-eight shaped, 1.06 inch (26.9 mm) long, .45 inch (11.4 mm) maximum width, and is .05 inch (1.3 mm) thick. The rivets are .18 inch (4.6 mm) diameter in their shanks and the ends are peen to a diameter of .2 inch (5.1 mm).

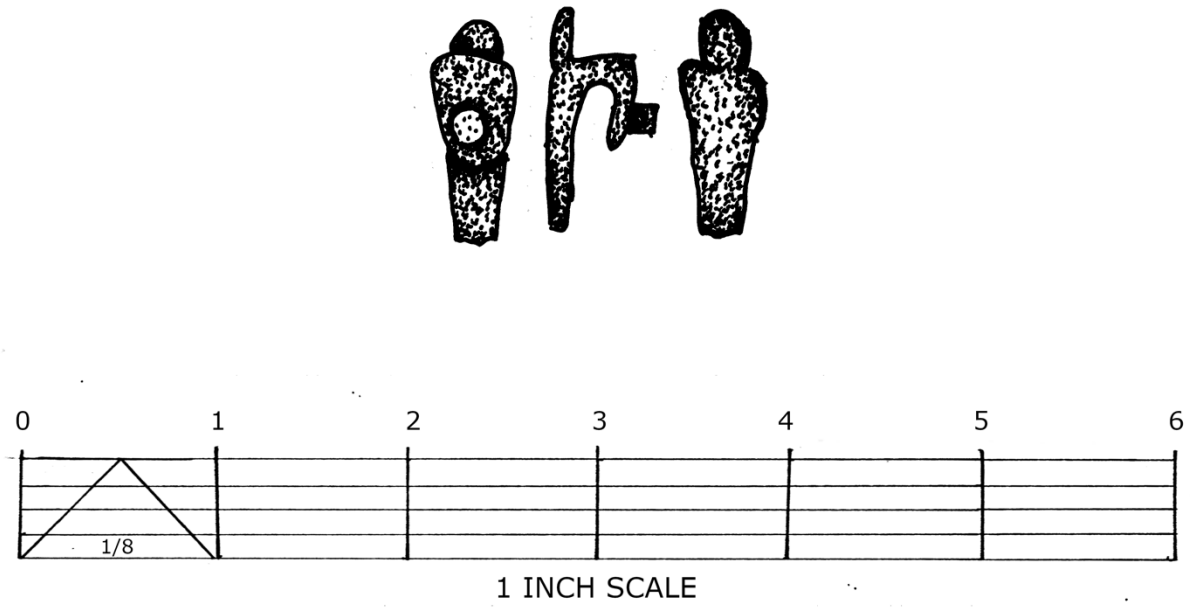

Figure 18. Frog Stud 1997.9.3152

Frog Stud 1997.9.3152:

This frog stud is damaged; it is missing the lower portion of its hook, the upper portion of its baseplate, and its backing plate. The upper lobe measures .26 inch (6.6 mm) wide and .31 inch (7.9 mm) long, and is ovular in shape. The hourglass hook is broken at its narrowest point. The hook measures .85 inch (21.6 mm) in length, .42 inch (10.7 mm) wide at its upper swell, and .22 inch (5.6 mm) wide at its narrowest point. The stud is .15 inch (3.8 mm) thick and holds the lobe

and hook .18 inch (4.6 mm) away from the baseplate. The baseplate is broken at the upper end of the shank; it measures .45 inch (11.4 mm) in length by .45 inch (11.4 mm) in width, and is .11 inch (2.8 mm) thick. The rivet is .13 inch (3.3 mm) in diameter in shank dimension, and the peened end is heavily eroded.

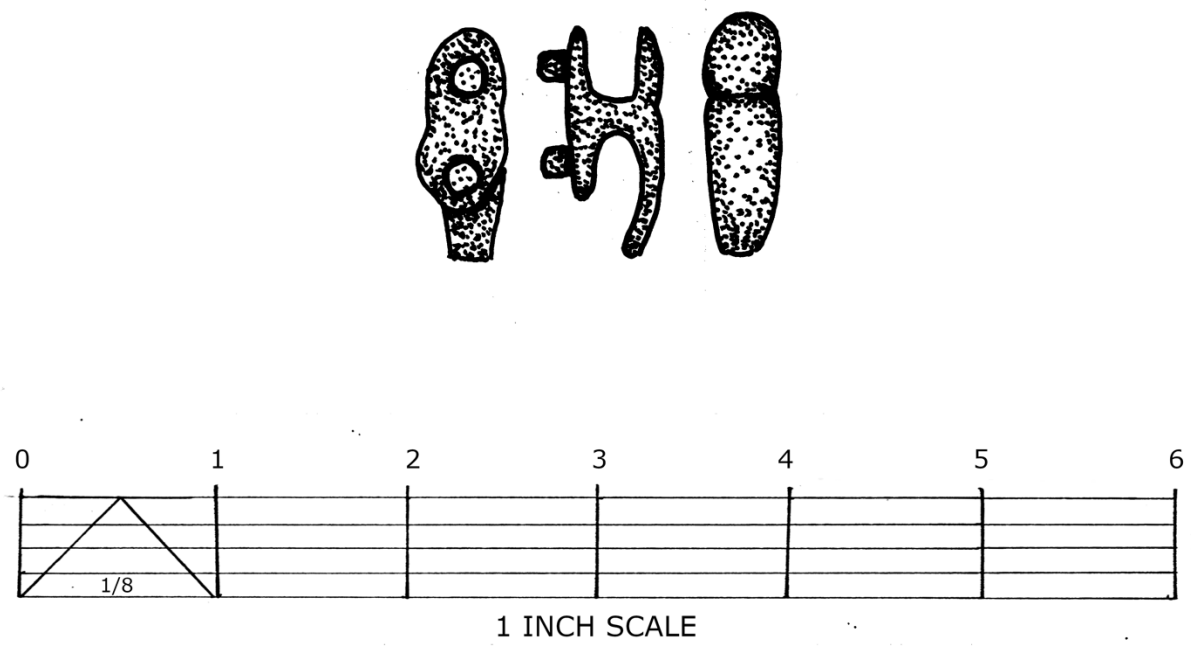

Figure 19. Frog Stud 1997.9.3390

Frog Stud 1997.9.3390:

This frog stud is also damaged, missing the lower portion of its hook and its backing plate. The upper lobe measures .38 inch (9.7 mm) wide and .42 inch (10.7 mm) long and is roughly ovular in shape. The hourglass hook is broken at its narrowest point. The hook now measures .78 inch (19.8 mm) in length, .38 inch (9.7 mm) wide at its upper swell, and .2 inch (5.1 mm) wide at its narrowest point. The stud is .16 inch (4.1 mm) thick and holds the lobe and hook .24 inch (6.1 mm) away from the baseplate. The baseplate is .8 inch (20.3 mm) in length,

.43 inch (10.9 mm) in width, .15 inch (3.8 mm) thick, and has rounded corners. The rivets are .14 inch (3.6 mm) diameter in their shanks and the peened ends are corroded.

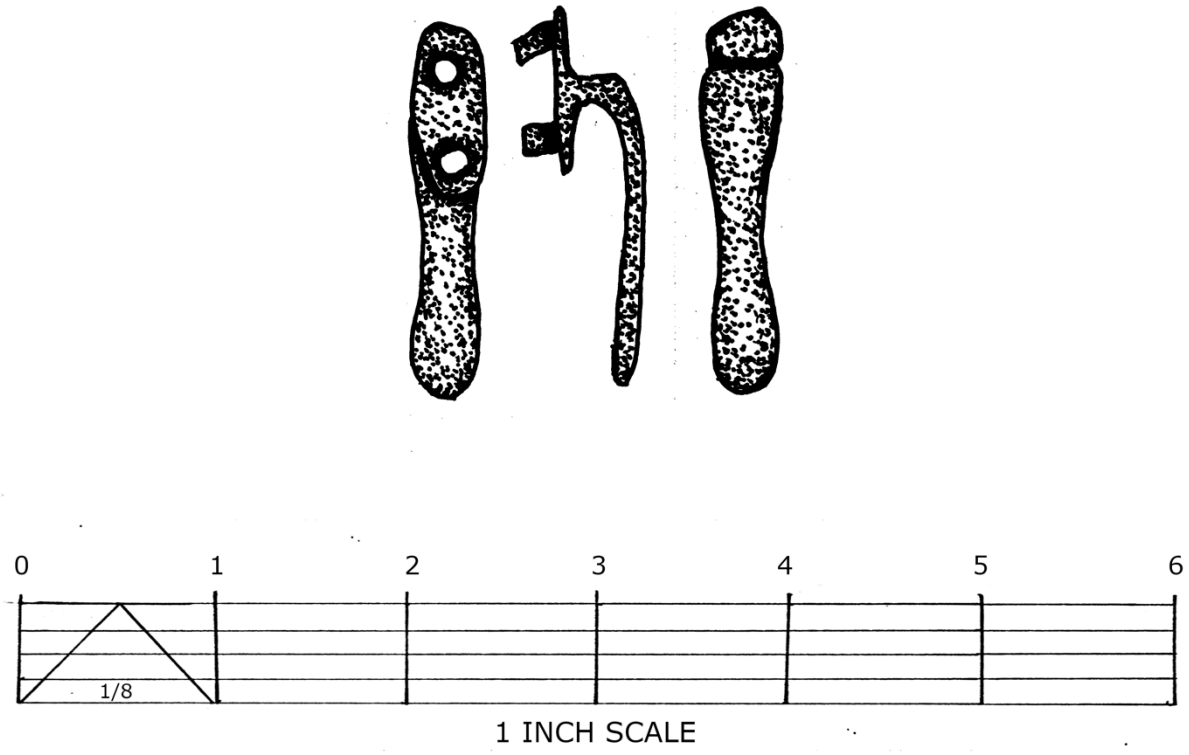

Figure 20. Frog Stud 1997.9.3391

Frog Stud 1997.9.3391:

This frog stud has a missing upper lobe. The scarred area where it once joined the shank is, however, filed smooth, indicating that the piece saw use after the loss of the lobe. The hourglass hook measures 1.72 inches (43.7 mm) in length and is .43 inch (10.9 mm) wide at its upper swell, .33 inch (8.4 mm) wide at its lower swell, and .22 inch (5.6 mm) wide at its narrowest point. The stud is .14 inch (3.6 mm) thick and holds the hook .26 inch (6.6 mm) away from the baseplate. The baseplate is .85 inch (21.6 mm) in length and .38 inch (9.7 mm) in width, .1 inch (2.5 mm) thick, and has rounded corners. No backing plate was found in association with

this piece. The rivets are .13 inch (3.3 mm) in diameter in their shanks and the peened ends are corroded.

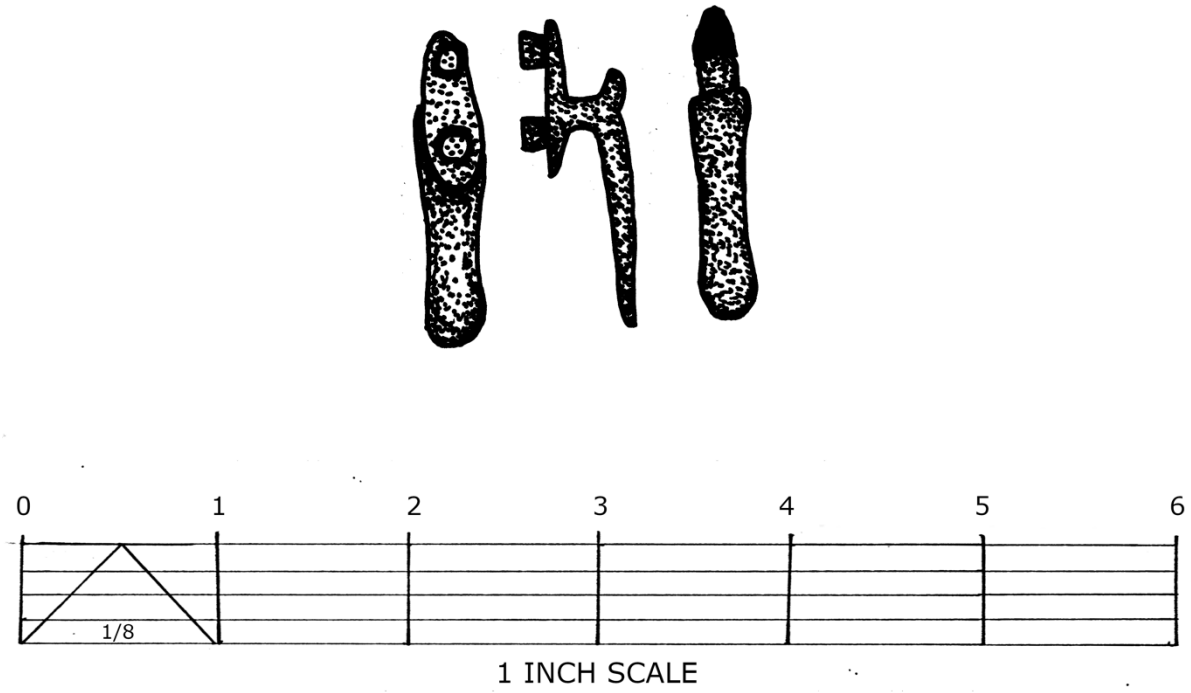

Figure 21. Frog Stud 1997.9.3392

Frog Stud 1997.9.3392:

The final frog stud of the collection is slightly smaller than the rest, with a missing backing plate and a diminutive upper lobe. The upper lobe measures .19 inch (4.8 mm) wide and .2 inch (5.1 mm) long and is roughly ovular in shape. The hourglass hook measures 1.18 inches (30.0 mm) in length, .3 inch (7.6 mm) wide at its upper swell, .3 inch (7.6 mm) wide at its lower swell, and .23 inch (5.8 mm) wide at its narrowest point. The stud is .14 inch (3.6 mm) thick and holds the lobe and hook .2 inch (5.1 mm) away from the baseplate. The baseplate is .8 inch (20.3 mm) in length and .3 inch (7.6 mm) in width, .08 inch (2.0 mm) thick, and has rounded corners. The rivets are .18 inch (4.6 mm) diameter in their shanks and the ends are peen to a diameter of .2 inch (5.1 mm).

Knives and Other Bladed Tools

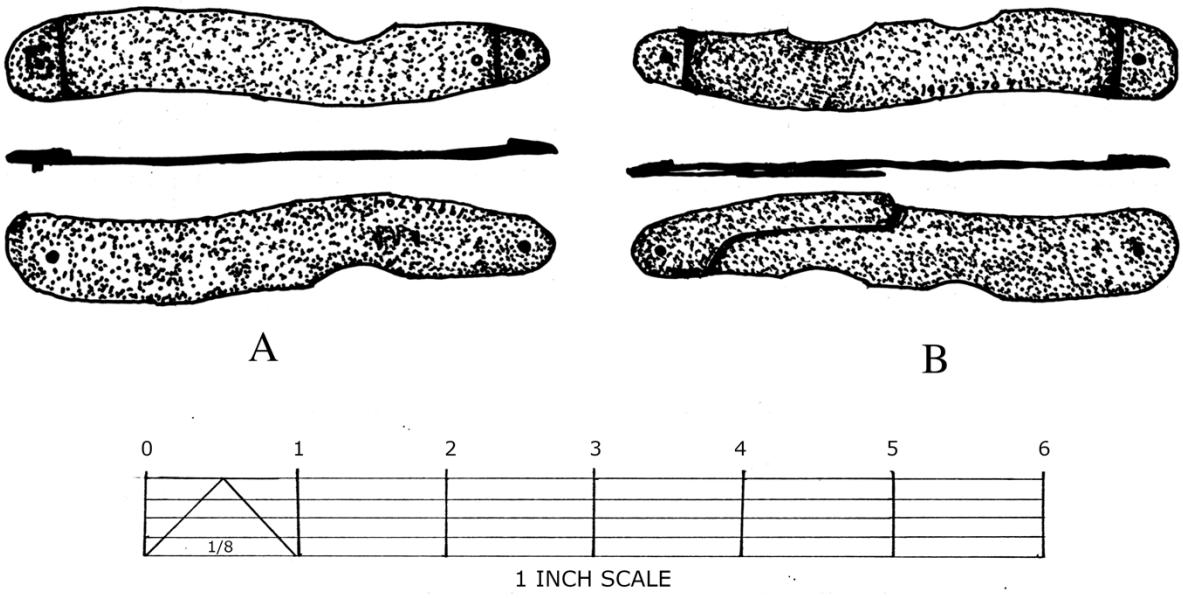

Figure 22. Folding Knife 1997.9.704

Folding Knife 1997.9.704:

The Leege collection contains several pocket knives. This jack knife is the only knife in the collection which probably once once had a secondary blade; three hollows are recessed into the belly side of the pocket knife's liners to allow access to the spines of the blades contained within the handle. Two hollows oppose each other, allowing the user to pinch either side of the knife's main blade, while a third hollow allowed the user to push against the flat and spine of a smaller auxiliary blade in order to open it. The only surviving portions of this knife are the bolsters, the bolster linings, a center lining, and several pins. All of the surviving components are made of brass.

Left-hand bolster liner, A, has one hollow inset into the narrower end of the handle. The overall length of the liner is 3.65 inches (92.7 mm), and, at the narrow end bolster, the liner is .4 inch (10.2 mm) wide. The width gradually swells along the serpentine path of the blade until becoming .55 inch (14.0 mm) at the bolster of the wider end. The liner is .05 inch (1.3 mm)

thick. Each bolster is rounded into a gumdrop shape. The smaller bolster measures .36 inch (9.1 mm) long, .4 inch (10.2 mm) wide, and is .06 inch (1.5 mm) thick. The larger bolster is .35 inch (8.9 mm) long and .55 inch (14.0 mm) wide, it, too, is .06 inch (1.5 mm) thick. The hollow of the liner measures .5 inch (12.7 mm) long and .1 inch (2.5 mm) in depth, it begins 1 inch (25.4 mm) from the smaller end of the knife liner. Pins, or rivets, .05 inch (1.3 mm) in diameter are centered .16 inch (4.1 mm) in from the ends of either bolster.

The righthand bolster liner, B, is the mirror image of its lefthand counterpart, with two additions. Firstly, in addition to the primary hollow 1 inch (25.4 mm) from the small end of the liner, a second hollow, of equal dimensions, begins 2 inches (50.8 mm) from the smaller end of the knife liner. While it is possible that each of the three hollows allowed for access to one of three blades, a primary blade adjacent to the lefthand liner and two secondary blades beside the lefthand liner, the lack of a full partition between these two blade spaces seems to hint at a primary blade which was grasped on either side when opening the knife. The second feature present on bolster B liner is one half of the original center liner. The center liner piece which is extant is fixed through the bolster pin of the narrow end bolster. It is 1.75 inches (44.5 mm) in length, surviving up to the central knife pin location. It reaches the full width of the bolster for the outermost .6 inch (15.2 mm) before rapidly diminishing to .25 inch (6.4 mm) in width, thus providing clearance for the user to access either side of the primary blade through the liner hollows.

Along with the central knife pin and bolster pins, each liner has two additional pin hole.25 inch (6.4 mm) inside of the bolster pin locations, which contained the pins or rivets that fixed the handle scales to the liners between the bolsters.

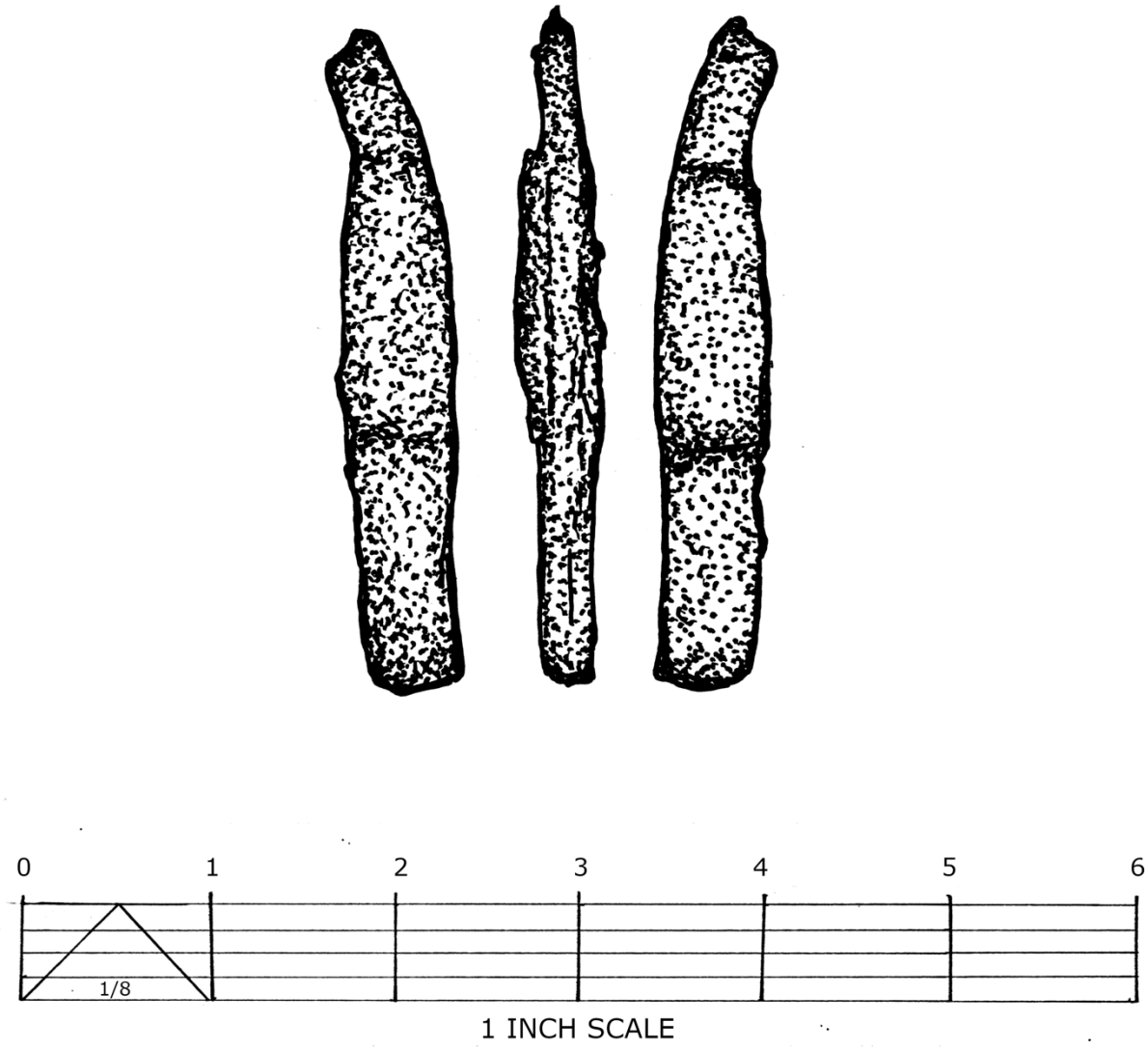

Figure 23. Folding Knife 1997.9.1614

Folding Knife 1997.9.1614:

This barlow-style pocket knife is made mostly of iron and is severely corroded. While the iron components are little more than powdered rust, the corrosion compounds have impregnated the scales of the knife so that perceiving them beneath a layer of oxides and concretion is difficult. The scales are severely damaged but likely made of bone or wood.

The knife is 3.63 inches (92.2 mm) in length. The blade's bolster is uniquely long, measuring 1.25 inches (31.8 mm) in length, as .6 inch (15.2 mm) in width, and .3 inch (7.6 mm)

thick. The section of the knife which is scaled on either side measures 1.62 inches (41.1 mm) in length, .6 inch (15.2 mm) wide at the bolster end, and .36 inch (9.1 mm) wide at the heel end. The scaled portion of the knife is .52 inch (13.2 mm) in thickness and is heavily corroded on the lefthand side of the knife. The heel of the knife handle is broken off at the end but appears to have, at one time, continued into an upturned finial. The extant portion of the heel measures .75 inch (19.1 mm) in length, .4 inch (10.2 mm) wide, and .19 inch (4.8 mm) thick. The spine side of the handle is defined by a smooth 'S' shape with the non-extant upturned heel being an ergonomic accommodation for the user's palm and little finger.

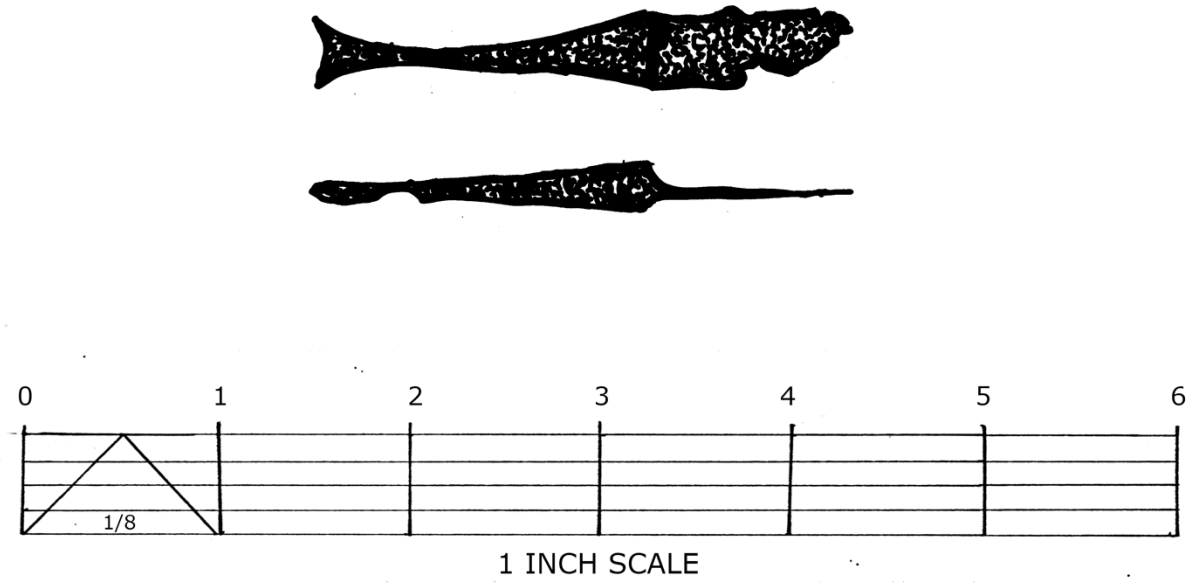

Figure 24. Possible Small Knife 1997.9.3136

Possible Small Knife 1997.9.3136:

This iron artifact is heavily corroded, though it may have been a knife. The handle measures 1.75 inches (44.5 mm) in length with a thickness of .25 inch (6.4 mm) at the bolster and .1 inch (2.5 mm) at the heel. The width of the handle was an elegant fishtail form, which measures .4 inch (10.2 mm) wide at the bolster, .08 inch (2.0 mm) wide at its narrowest point,

and abruptly decreases to .35 inch (8.9 mm) wide at the heel. The surviving portion of the blade of this knife measures .35 inch (8.9 mm) wide and 1 inch (25.4 mm) long. It is .05 inch (1.3 mm) thick at the spine, which tapers to the blade's edge on the other side. The blade has corroded edges and is broken off after 1 inch (25.4 mm). This seems to be a tool of precision and feels quite blade-intentioned when held between the first three fingers and thumb.

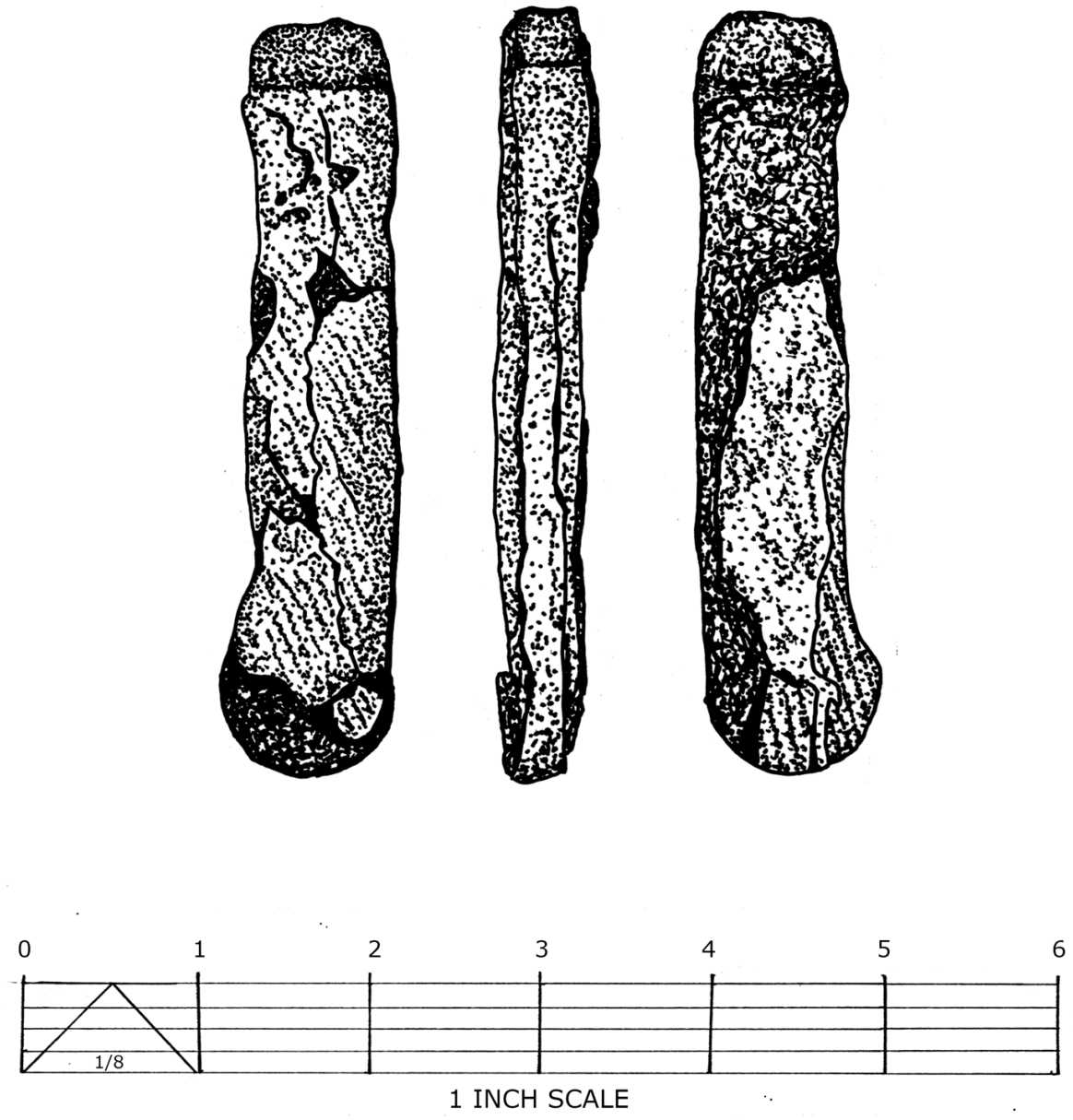

Figure 25. Folding Knife 1997.9.1489

Folding Knife 1997.9.1489:

The final folding knife in the collection is this large, rectangular, single bladed knife. The knife is primarily made of iron, and has deeply incised bone scales, which survive largely intact. The knife handle measures 4.41 inches (112.0 mm) in length with an average width of .86 inch (21.8 mm), enlarging to 1.02 inches (25.9 mm) at the moderately up-swelled heel. The handle is .48 inch (12.2 mm) thick. In section, the handle is rectangular with little to no chamfering of the corner edges. The bolster of the knife measures .35 inch (8.9 mm) long, .82 inch (20.8 mm) wide, and .45 inch (11.4 mm) thick. While much of the righthand scale has deteriorated to expose the iron liner beneath, the righthand liner survives with much of its original surface finish. The bone handle scales are deeply incised with diagonal hatching, the troughs of which are cut .03 inch (0.8 mm) wide and .02 inch (0.5 mm) deep every .07 inch (1.8 mm). This hatching runs at a 60 degree angle from the spine of the handle toward the bolster and covers the entirety of the handle scales.

The backside of the handleshows the blade is a slip joint style knife, as the endspring can be seen through the center of the handle. The endspring measures .2 inch (5.1 mm) in thickness and seems to form an integral part of the heel. In addition to being part of the heel, the endspring appears to form a movable cover for the spine edge of the bolster at its forward end. The iron liners are heavily corroded but appear to be .03 inch (0.8 mm) in thickness. The blade of the folding knife is so heavily eroded that the blade's spine is no longer present and whatever blade remnants still exist are deep within the liners of the handle.

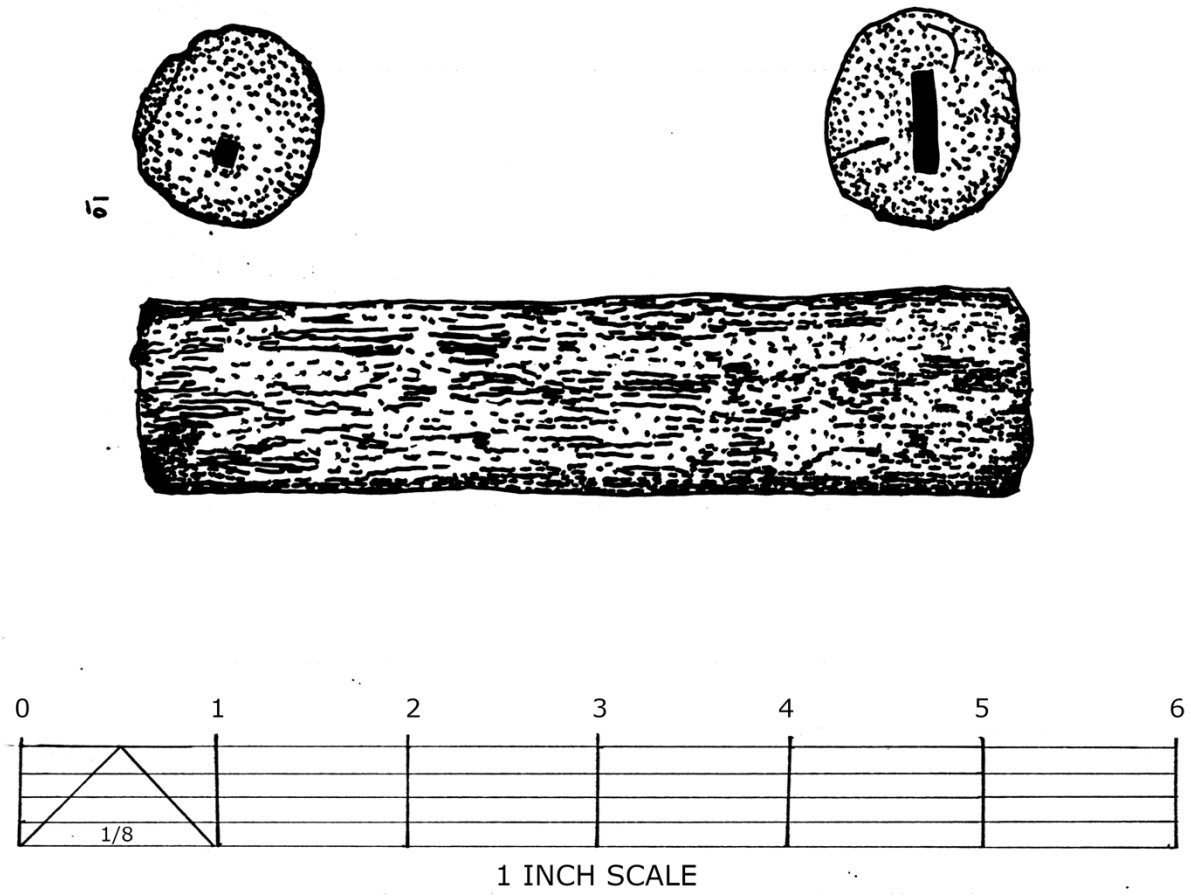

Figure 26. Cutlass Grip 1997.9.3410

Cutlass Grip 1997.9.3410:

This wooden cutlass grip is circular in section, 1.03 inches (26.2 mm) in diameter, and 4.67 inches (118.6 mm) in length. The pass-through for the tang of the cutlass measures .54 inch (13.7 mm) by .12 inch (3.0 mm) at the guard end and .12 inch (3.0 mm) by .13 inch (3.3 mm) at the pommel end. The only surviving component of this cutlass is the wooden core of the grip, any leather or fabric wrapping has long since disintegrated. The only remnants of the hilt furniture and blade are ferrous staining and light concretion near the tang pass-through.

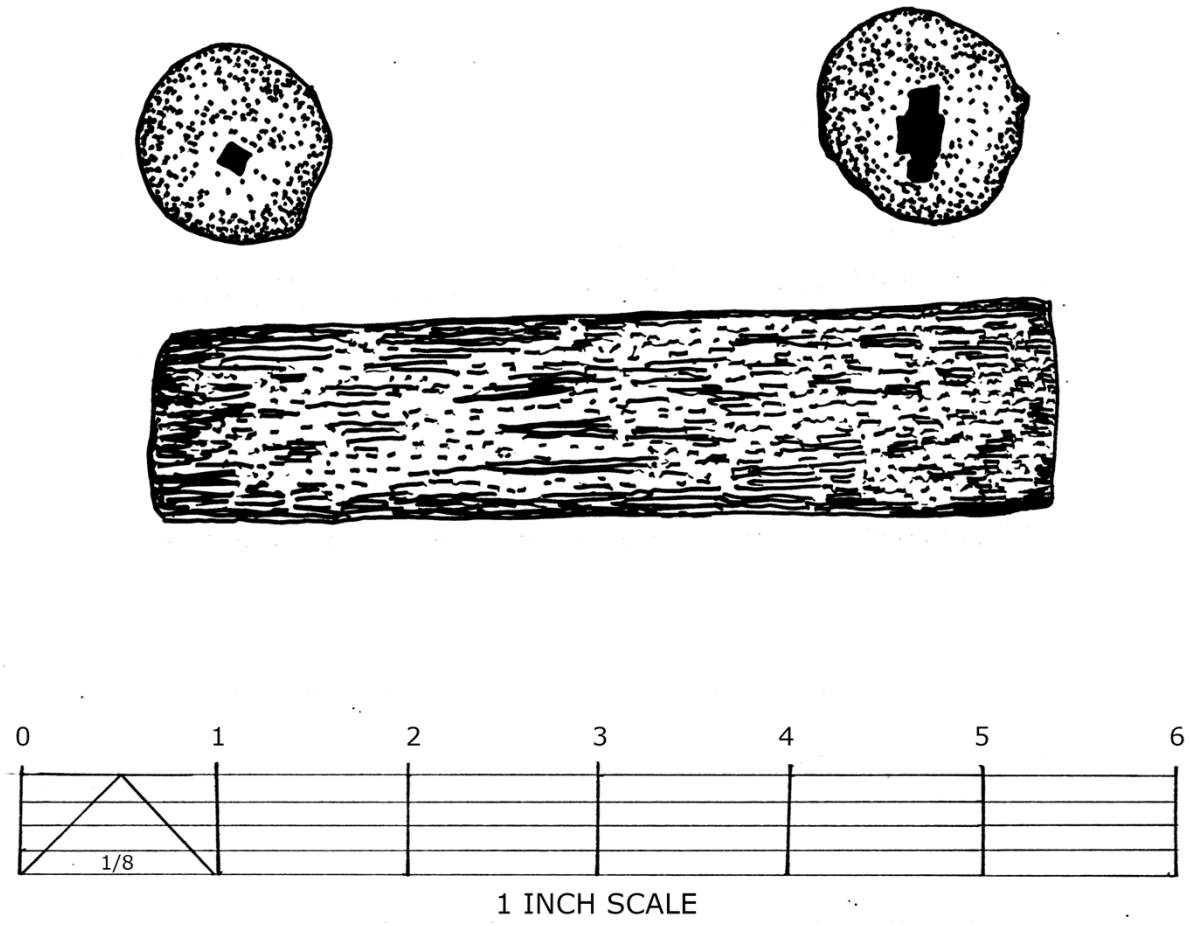

Figure 27. Cutlass Grip 1997.9.3411

Cutlass Grip 1997.9.3411:

As with the previous cutlass grip, this piece is comprised of only a wooden core with light iron staining at either end. This grip is 1.12 inches (28.4 mm) in diameter at the guard end, tapering to 1 inch (25.4 mm) in diameter at the pommel end. The tang pass-through measures .5 inch (12.7 mm) by .15 inch (3.8 mm) at the guard end, and .12 inch by .12 inch (3.0 by 3.0 mm) at the pommel end.

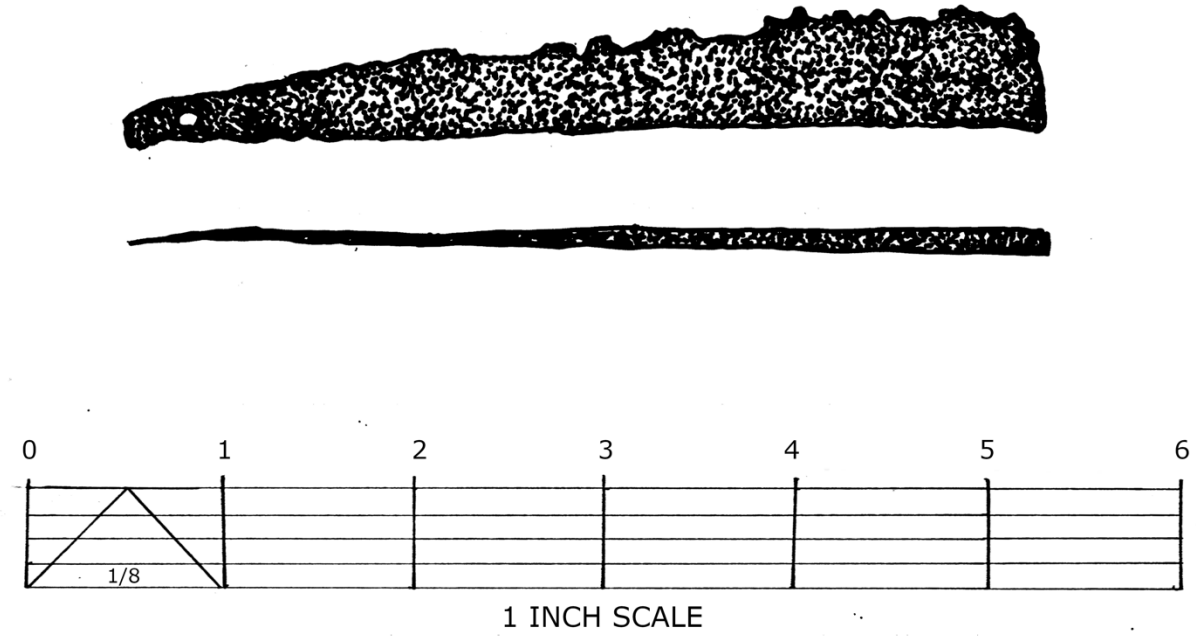

Figure 28. Razor 1997.9.4085

Razor 1997.9.4085:

One bladed tool included in the Leege collection which was not likely intended as a weapon but nevertheless included here is this blade. It is a shaving razor blade with no associated handle. It measures 4.79 inches (121.7 mm) in length, with part of the tail being corroded away. The blade measure .62 inch (15.7 mm) wide at the tip and .2 inch (5.1 mm) wide at the rivet point. The rivet point is 4.47 inches (113.5 mm) from the tip of the blade and measures .06 inch (1.5 mm) in diameter. The spine of the razor is .12 inch (3.0 mm) thick at the tip and .08 inch (2.0 mm) thick at the rivet point. The blade is not hollow ground like common straight razors of later periods but, rather, is flat ground from spine to edge.

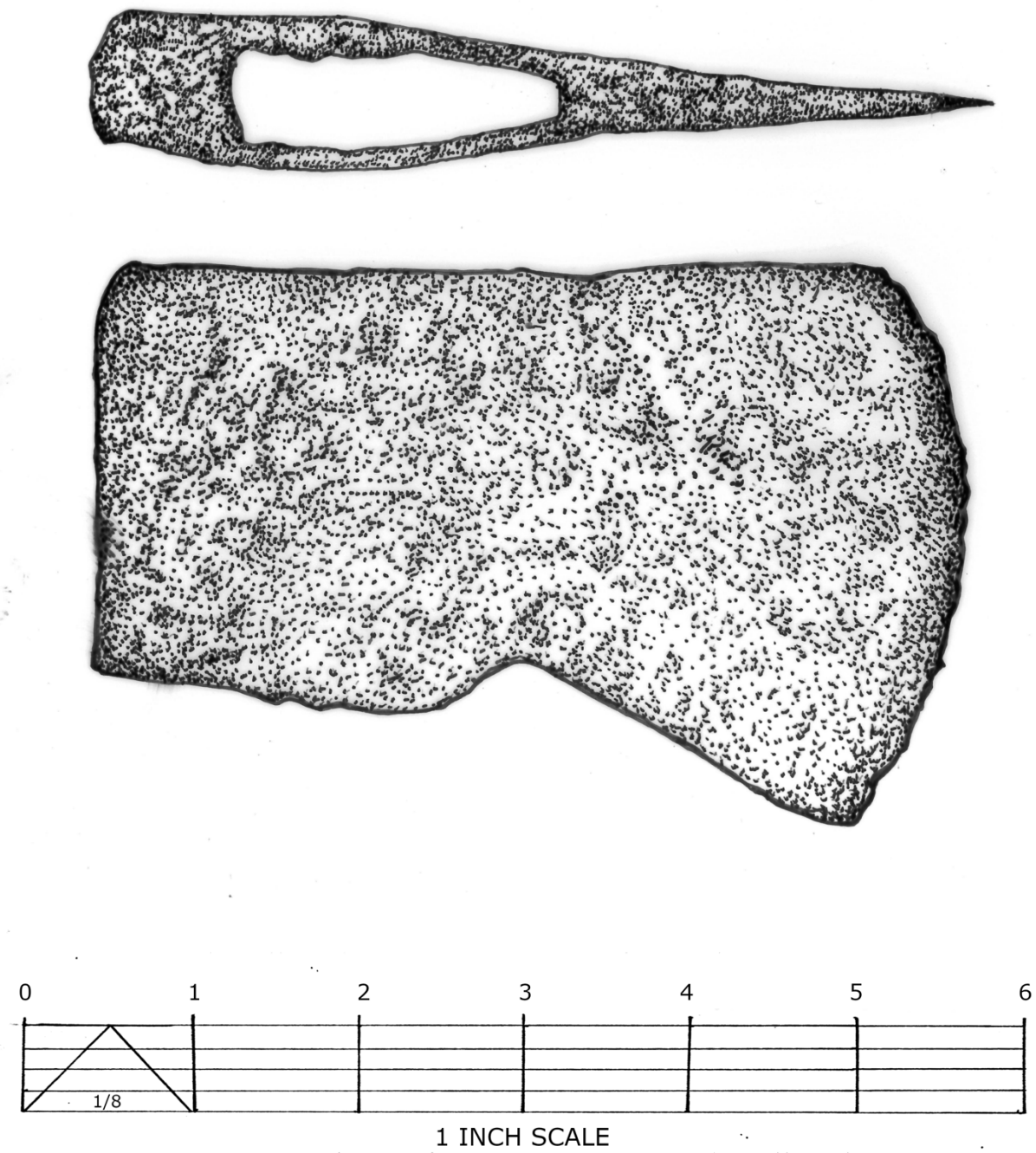

Figure 29. Axe Head

Axe Head:

The final bladed tool in the collection is a medium-sized wroght iron axe head. The axe is square polled, with the poll measuring 2.5 inches (63.5 mm) wide and .85 inch (21.6 mm) thick. The toe of the cutting bit is 4.75 inches (120.7 mm) from the back of the poll and the leading edge runs perpendicular from the poll to the toe of the bit. The bit is ground at a fairly aggressive 3 inch (76.2 mm) radius, measuring 3.33 inches (84.6 mm) from toe to heel. The cheeks are angled 12 degrees from bit to ear.

The ears of the axe widen from the poll toward the front of the eye, where they are 2.65 inches (67.3 mm) wide. The neck of the axe is 2.3 inches (58.4 mm) wide with the beard descending 1 inch (25.4 mm). It should be noted that the cheeks of the axe allow for adequate clearance of the ears even though the axe is thickest around the eye's center. The eye of the axe measures .58 inch (14.7 mm) wide at the poll end and .21 inch (5.3 mm) wide at the bit end. The eye is 2.15 inch (54.6 mm) in length and does not appear to taper from leading edge to following edge. The axe is thickest near the center of the eye, measuring 1 inch (25.4 mm) thick in this location. The axe head weighs just over 1.5 pounds. It is unknown whether the blade is bimetallic or simply iron.

CHAPTER IV

FIREARMS

British regulations for the production of military small arms at the end of the 18th century saw the division of arms into two categories: land service and sea service. All infantry, dragoon, and marine muskets and all carbines fell under land pattern regulations, while sea service regulations covered blunderbusses, musketoons, and sea pistols, bright finished muskets, and black finished muskets.[11] Moving into the 19th century, many of the regulations surrounding muskets began to shift and the divisions between land and sea service muskets began to minimize because the reduction of manufacturing cost and build time was chief among the concerns of the British government.

Unlike British military weapons, American firearms, in general, did not become more standardized over time, but rather, vernacular gunsmithing traditions and the colonially-inspired need to hoard arms which retained any measure of serviceability, likely led to the wide diversity of arms, trade gun components, and firearms paraphernalia seen in the North America.

The Leege collection contains several firearms-related artifacts, including components from the firing mechanisms of muskets or rifles and furniture from formally regulated British manufacturers. Most of these artifacts show no indication of being interrelated, though one musket does survive with part of its furniture and stock intact.

Firing Mechanism

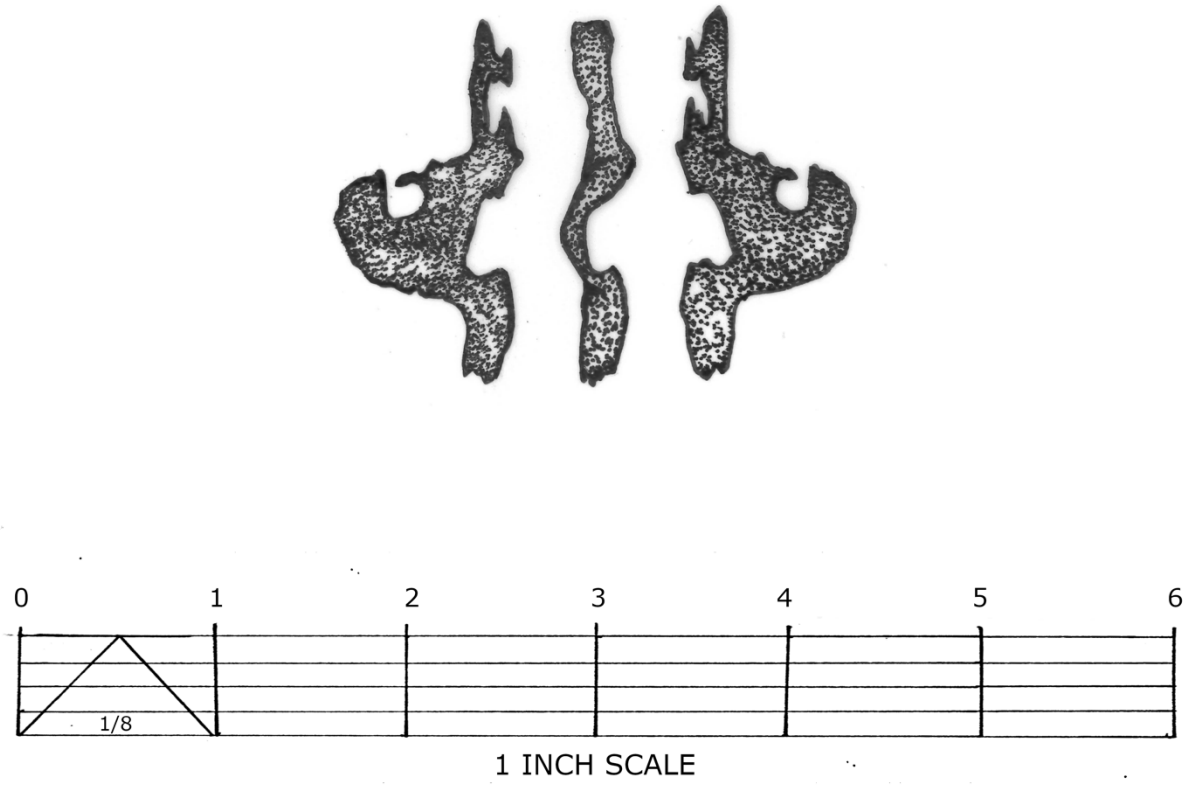

Figure 30. Pan 1997.9.0157

Pan 1997.9.0157:

This iron pan the type which sat on the upper end of a musket lock plate, adjacent to the vent of the barrel near the breech. Neither the iron bolster on the base of the pan, nor the forward end of the pan, are formed into a bridle to shore up the frizzen.

The artifact measures .19 inch (4.8 mm) in length, with the shorter side of the bench being .21 inch (5.3 mm) wide, the pan being .93 inch (23.6 mm) wide and the narrowed portion of the bench being .22 inch (5.6 mm) wide. The whole piece is roughly .2 inch (5.1 mm) thick. The pan itself measures .92 inch (23.4 mm) wide, and .72 inch (18.3 mm) in length, while the graved recess of the pan is .33 inch (8.4 mm) by .6 inch (15.2 mm) and .14 inch deep (3.6 mm).

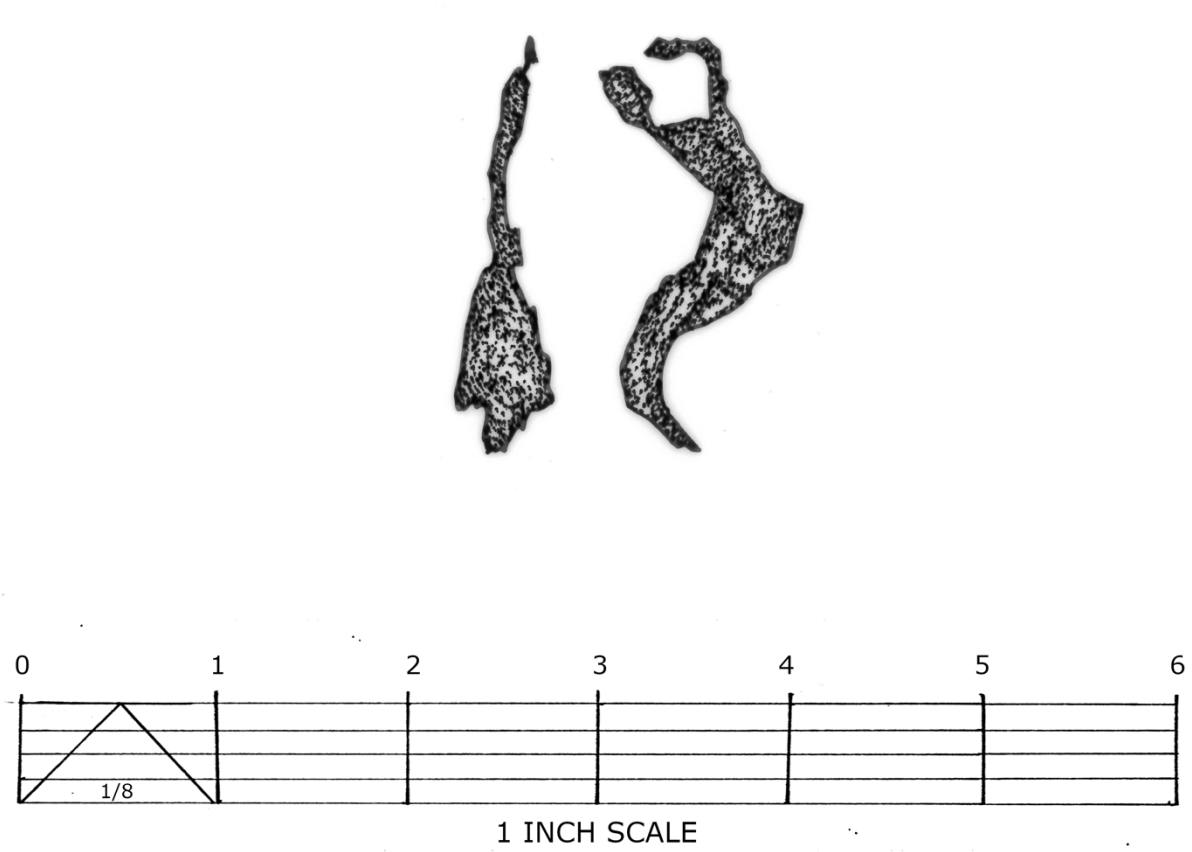

Figure 31. Trigger 1997.9.0150

Trigger 1997.9.0150:

This iron fragment, apossible trigger, measures 2.12 inches (53.8 mm) long and 1 inch (25.4 mm) wide, overall. The trigger portion is 1.25 inches (31.8 mm) long to the trigger bar and is .35 inch (8.9 mm) wide tapering to .04 inch (1.0 mm) wide near the terminus. The finger plate of the trigger is .47 inch (12 mm) at its widest near the terminus and tapers to .15 inch (3.8 mm) wide near the trigger bar.

The trigger bar measures 1.31 inches (33.3 mm) long and is .3 inch (7.6 mm) wide at the trigger and .58 inch (14.7 mm) wide at its terminus. The end of the trigger bar is socketed with a square opening .34 inch (8.6 mm) on a side, set 45 degrees askew relative to the trigger bar. The trigger bar itself is mounted at a 100-degree angle relative to the centerline of the trigger.

Unfortunately, the style of lock which utilized a trigger such as this one could not be determined. There is no central pin location for the trigger to toggle a sear, as in standard French musket locks, leaving only the square socket at the rear of the suspected trigger bar to serve as a pivot point. No common locks of the 18th and early 19th century incorporated moving parts as far back on of the trigger as would be required of this object, is indeed a trigger. It is possible that a sear could be keyed to match the square socket of this trigger bar, resulting in a permanently sprung trigger, but the author is not aware of any period examples of this simplified design. For these reasons, it should be assumed that this artifact, despite trigger-like its appearance, is not a trigger. One further note is that the socket contained in this artifact is identical to that which would serve as the union between a musket cock and tumbler, though the geometry of this object makes it entirely unsuitable for use as a cock.

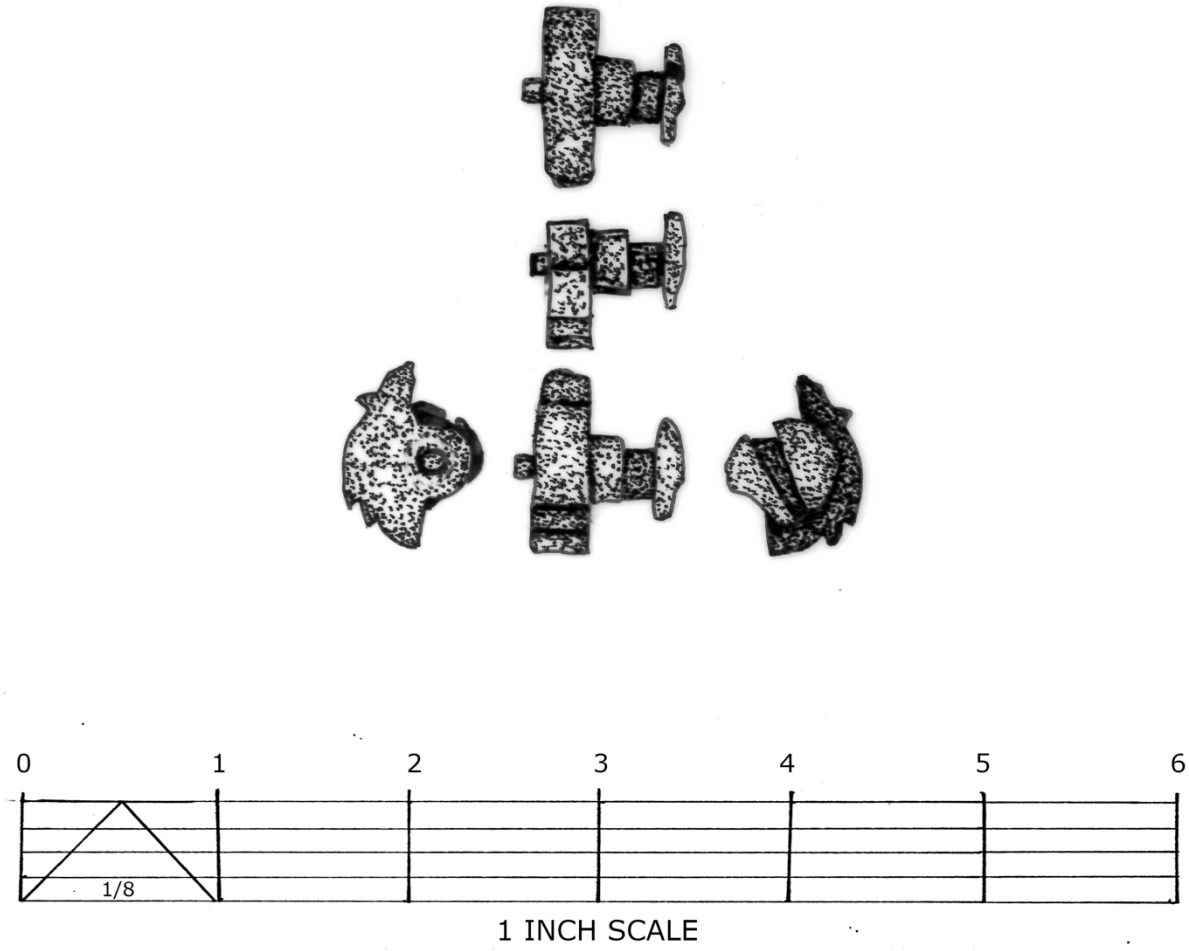

Figure 32. Tumbler and Cock Screw 1997.9.0158

Tumbler and Cock Screw 1997.9.0158:

The iron tumbler measures .58 inch (14.7 mm) from its inboard pivot stud to the square key upon which the cock can be mounted. The key is .16 inch (4.1 mm) wide and is square in section, .25 inch (6.4 mm) on a side. The shaft of the tumbler, which passes through the lock plate of a gun, measures .17 inch (4.3 mm) thick and is circular in section. The diameter of the shaft is .33 inch (8.4 mm).

The tumbler body measures .95 inch (24.1 mm) in length and .65 inch (16.5 mm) in height; it is a constant width of .25 inch (6.4 mm). The spurred cam of the tumbler is arced .53 inch (13.5 mm) in radius and is offset .03 inch (0.8 mm) below the inboard pivot stud, having flat shoulders which would be inline with the bore of the firearm. The forward edge of tumbler has corroded slightly, but the face of the unsprung spur survives and is well-defined. The unsprung spur sits at 40 degrees relative to the shoulder of the cam and is cut to a depth of .08 inch (2.0 mm). This spur doubled as a stop the forward rotation of the cock. The half-cock spur sits 110 degrees relative to the shoulder of the cam and is cut to a depth of .06 inch (1.5 mm). The cocked spur site is 135 degrees relative to the shoulder of the cam and is cut to a depth of .04 inch (1.0 mm). The forward end of the sear engages the spurred notches of the tumbler much like the pawl of a ratchet. The forward end of the sear used with this tumbler was not able to pivot much more than the .06 inch (1.5 mm) necessary to clear the halfcock spur, and was not able to move the .08 inch (2.0 mm) necessary to clear the forwardmost spur. This limited the travel of the tumbler-cock assembly. The attitude of the halfcock spur is more severe than that of the fullcock spur, such that a sear would not have been able to dislodge from the spur under the travel of the tumbler as moved by the trigger alone, but would have dislodged by the forward ramp of the final, fullcock spur.

The inboard pivot stud is circular in section, being .1 inch (2.5 mm) in diameter and .1 inch (2.5 mm) in length. The final component of the tumbler is the retention screw for the cock. The screw is .55 inch (14.0 mm) in diameter and .13 inch (3.3 mm) thick. The lane of the flathead screw is cut with squared walls .08 inch (2.0 mm) deep and .7 inch (17.8 mm) apart. The screw head is heavily corroded in several places.

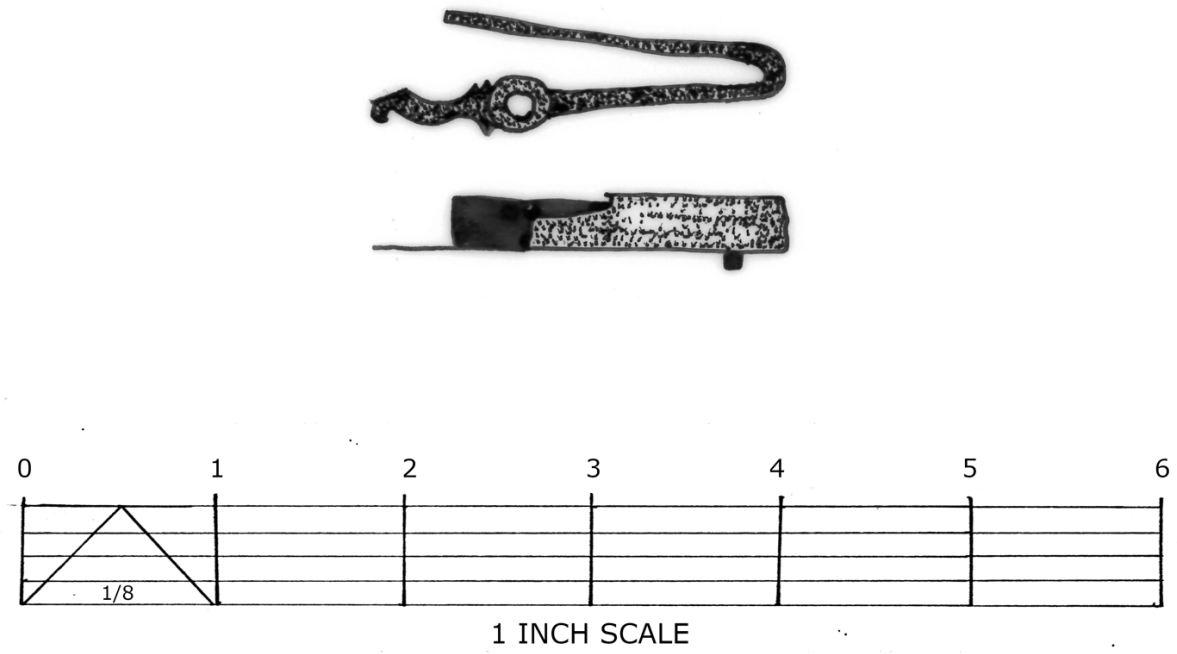

Figure 33. Frizzen Spring 1997.9.0155

Frizzen Spring 1997.9.0155:

This iron frizzen spring is non-symmetrical. The finial shows signs of very fine file work, including a gentle downward recurve, three points near the base, and what may have once been a trifoil terminus. Only one leaf of the trefoil survives, the lowermost leaf.

The finial measures .6 inch (15.2 mm) long and .25 inch (6.4 mm) wide. The screw cup has an internal diameter of .13 inch (3.3 mm) and an external diameter of .33 inch (8.4 mm). The finial and screw cup are .02 inch (0.5 mm) thick. The lower arm is 1.18 inches (30.0 mm) in length and the upper arm is 1.75 inches (44.5 mm) in length. The two arms of the spring measure .28 inch (7.1 mm) wide and .07 inch (1.8 mm) thick, and meet in a .25 inch (6.4 mm) diameter bend. The width of the lower arm tapers to meet the thickness of the finial and screw cup. The locating post is .5 inch (12.7 mm) inside the bend on the lower arm. The post measures .07 inch (1.8 mm) in diameter and is .07 inch (1.8 mm) long.

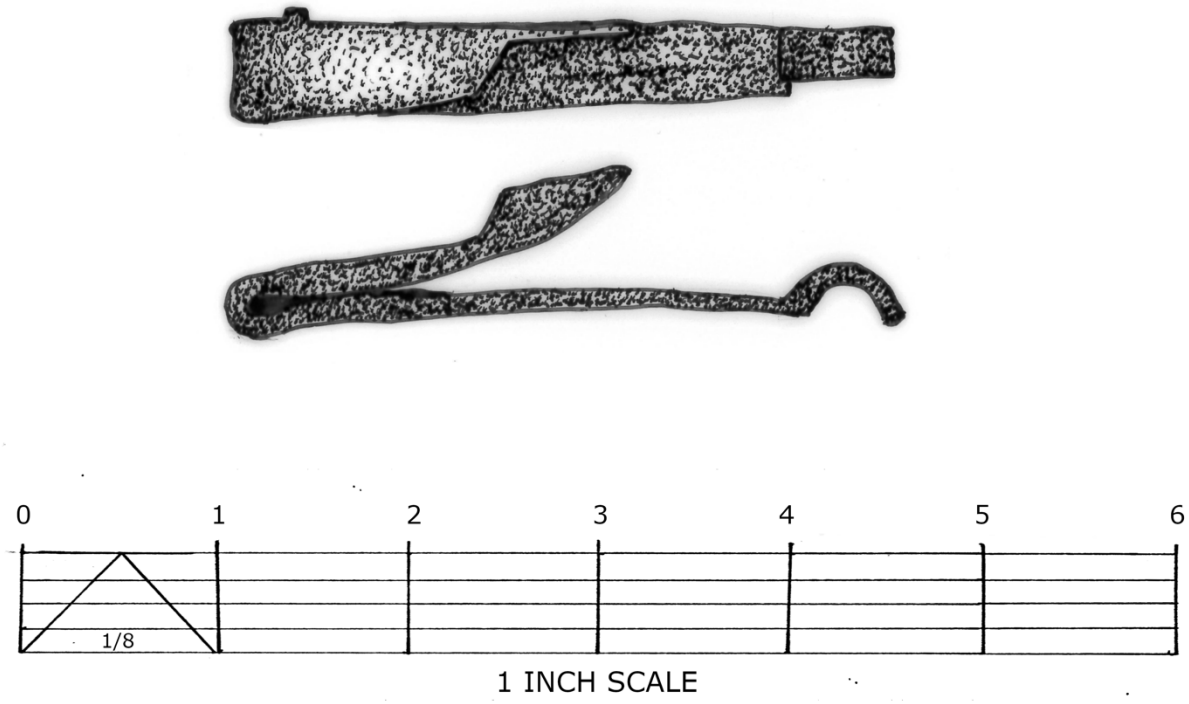

Figure 34. Main Spring 1997.9.0151

Main Spring 1997.9.0151:

This iron mainspring measures 3.52 inches (89.4 mm) over the length of the lower arm. The lower arm of the spring measures 3 inches (76.2 mm) from the bend to the pawl. The pawl measures .6 inch (15.2 mm) from spring arm to end; it rises .3 inch (7.6 mm), and measures .25 inch (6.4 mm) wide and .12 inch (3.0 mm) thick.

The upper arm of the spring measures 2.22 inches (56.4 mm) overall and has a large bladed terminus which fit into a slot on the bolster of the pan. From the bend of the spring to the base of the bladed terminus, the spring measures 1.25 inches (31.8 mm) in length. The width and thickness of the spring were established in a smooth taper from the base of the terminus to the pawl of the spring, prior to the forging of the spring. The width of the spring at the upper end is

.53 inch (13.5 mm) and the thickness is .15 inches (3.8 mm). These dimensions taper to .35 inch (8.9 mm) and .08 inch (2.0 mm), respectively, at the lower end.

The bladed terminus, which slots into the pan bolster, is stepped down in width from the upper arm of the spring to a width of .08 inch (2.0 mm). The flat of the blade diminishes toward the tip, resulting in an upward-curving sheep's-foot shape. The upper arm of the spring contains a locating post on its outboard side which once fit into the corresponding pin hole of a lock plate. This locating post measures .12 inch (3.0 mm) in diameter, .08 inch (2.0 mm) long, and is positioned .33 inch (8.4 mm) from the bend of the spring.

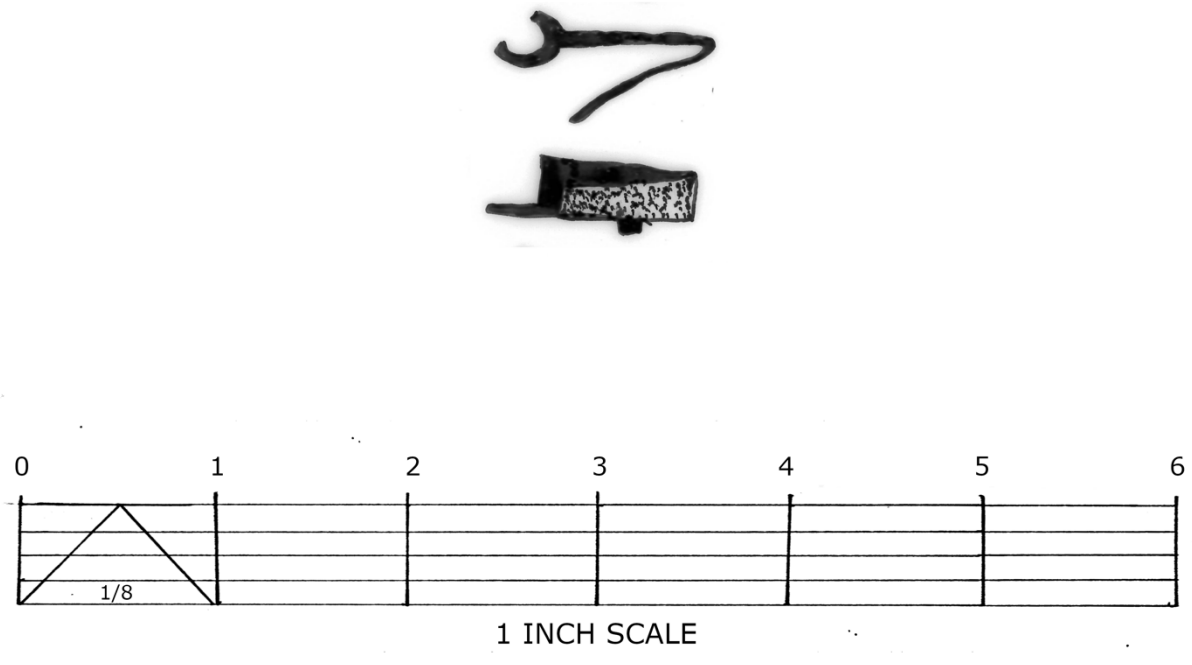

Figure 35. Sear Spring 1997.9.0159

Sear Spring 1997.9.0159:

This sear spring forced the sear of a musket or pistol down, allowing it to lock the mechanism's tumbler into position. The upper arm of the spring measures 1.15 inches (29.2 mm) in overall length. The screw cup, located at the end of the upper arm, has an internal diameter of .18 inch (4.6 mm) and an external diameter of .34 inch (8.6 mm). It is .07 inch (1.8 mm) thick and mounted perpendicular to the spring body on the outboard side. The upper arm of the spring, inside of the screw cup, measures .75 inch (19.1 mm) to the bend of the spring.

The lower arm of the spring, the working arm, measures .83 inch (21.1 mm) from the bend of the spring to the end. The width of this sear spring tapers smoothly from its fixed end to its working end much like Main spring 1997.9.0151, and the spring was forged into shape after its taper was established. The spring measures .31 inch (7.9 mm) wide and .08 inch (2.0 mm) thick at its fixed base, and .15 inch (3.8 mm) wide by .04 inch (1.0 mm) thick at its working end. A locating post is positioned .5 inch (12.7 mm) behind the screw cup, on the upper arm of the spring.

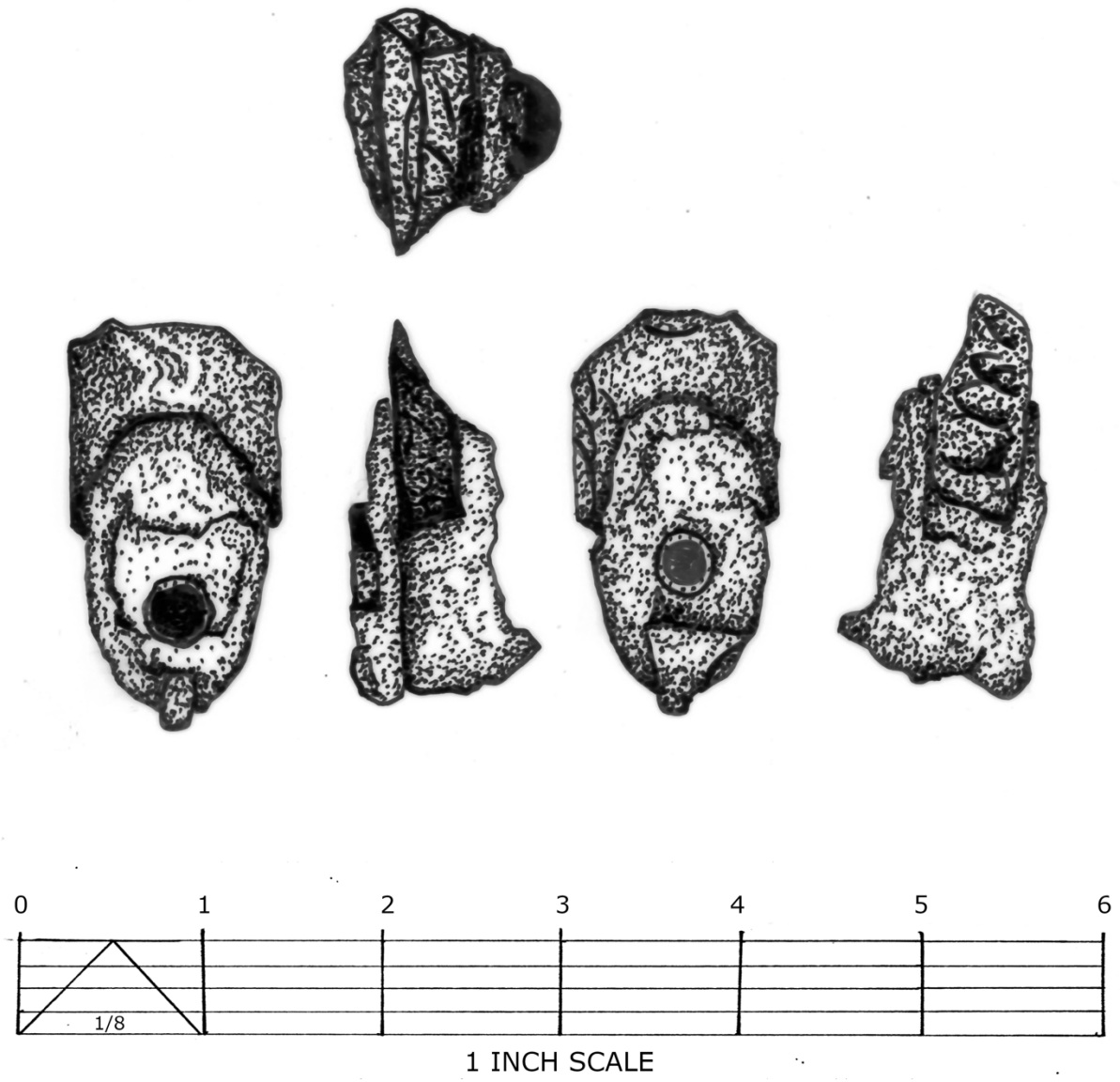

Figure 36. Cock Jaws with Contained Flint 1997.9.3408

Cock Jaws with Contained Flint 1997.9.3408:

This set of jaws is heavily corroded and contains a grey flint secured by a leather flint pad. The flint itself measures 1.23 inches (31.2 mm) long and 1.12 inches (28.4 mm) wide. The flint is knapped to a platform shape, which is defined by its upper five facets and flat bottom. The rear facet of the flint meets the flat bottom of the flint at an angle which approaches 80

degrees. This rear face forms a perpendicular heel, which would not be useful as a blade to strike against the frizzen once the primary blade has been worn away. The flint is mounted in the jaws upside down, with the facets facing the mechanism of the firearm and the flat bottom facing upward. The orientation of the flint is evidenced here by the top jaw of the cock being adjacent to the flat of the flint and by the percussive fracture cones which propagate from the blade edge through the flat of the flint where the blade strikes the frizzen.

The lower jaw of the cock measures 1.65 inches (41.9 mm) long and .97 inch (24.6 mm) wide. What survives of the lower jaw measures .2 inch (5.1 mm) thick below the flint and .75 inch (19.1 mm) thick at the back, where the body of the jaw begins to taper into the neck of the cock. The partial section of the neck can be seen where it enters the lower jaw. This section is triangular with an obtuse vertex at the rear of the cock; the forward base of the triangle having a width of .7 inch (17.8 mm) and the triangle having a length of .48 inch (12.2 mm) from front to rear.

The upper jaw of the assembly measures 1 inch (25.4 mm) in width and 1.6 inches (40.6 mm) in length, and it is .31 inch (7.9 mm) maximum thickness, near the rear of the jaws. The upper jaw was held to the lower by means of a now-absent thumbscrew, which passed through a .3 inch (7.6 mm) hole centered .57 inch (14.5 mm) forward of the rear of the top jaw. The thumbscrew tightened the top jaw down over the flint and leather pad by engaging with the threads of the corresponding hole in the lower jaw. The internal diameter of the threads in the lower jaw is .25 inch (6.4 mm) while the external diameter of the threads is roughly .33 inch (8.4 mm). The threaded hole for the thumbscrew is centered .7 inch (17.8 mm) forward of the rear of the lower jaw.

The pad which cushions and secures the flint inside of the jaws is impregnated with ferrous corrosion products and heavily eroded. It measures .4 inch (10.2 mm) thick. The jaws of the cock provide a lateral clearance of around .7 inch (17.8 mm) for the installation of the flint, in this particular case, .14 inch (3.6 mm) of clearance remains un-utilized by the flint.

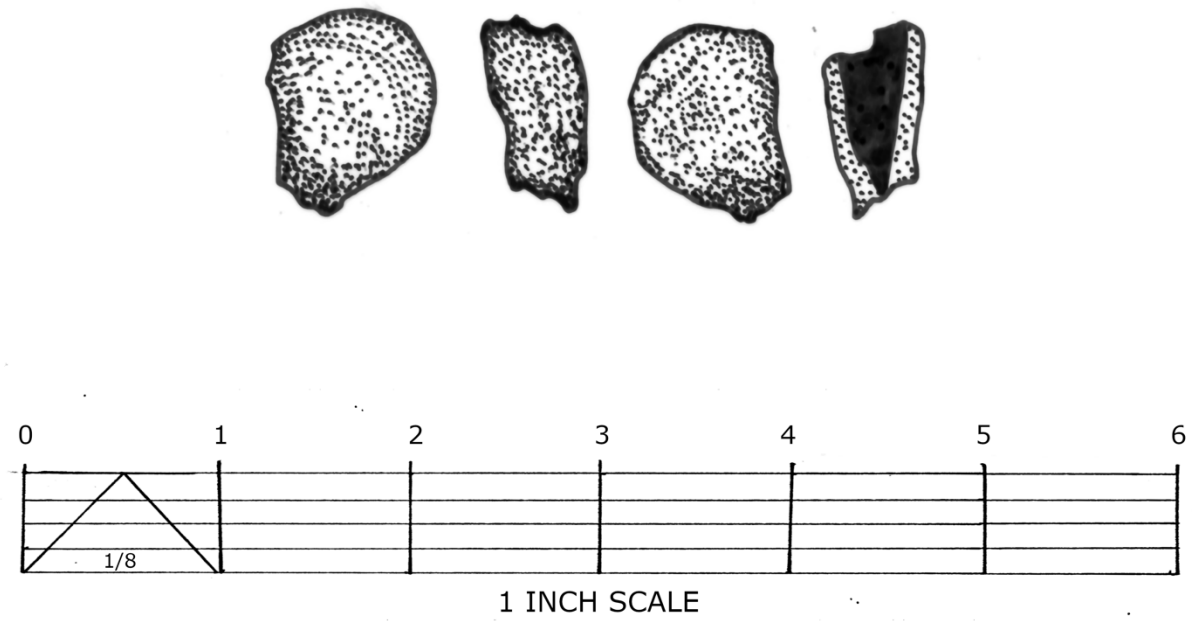

Figure 37. Leather Pad 1997.9.9160

Leather Pad 1997.9.9160:

The Leege collection contains several flint pads, which were used to help hold a flint securely in the jaws of a musket, as well to help cushion the blow when a flint strikes against the frizzen when firing a piece. This leather flint pad, the only leather pad in the collection besides the one bonded to the iron jaws of artifact number 1997.9.3408, consists of a .12 inch (3.0 mm) thick leather pad folded over on itself. The pad measures .84 inch (21.3 mm) long and 1 inch (25.4 mm) wide and it is folded to a total thickness of .45 inch (11.4 mm).

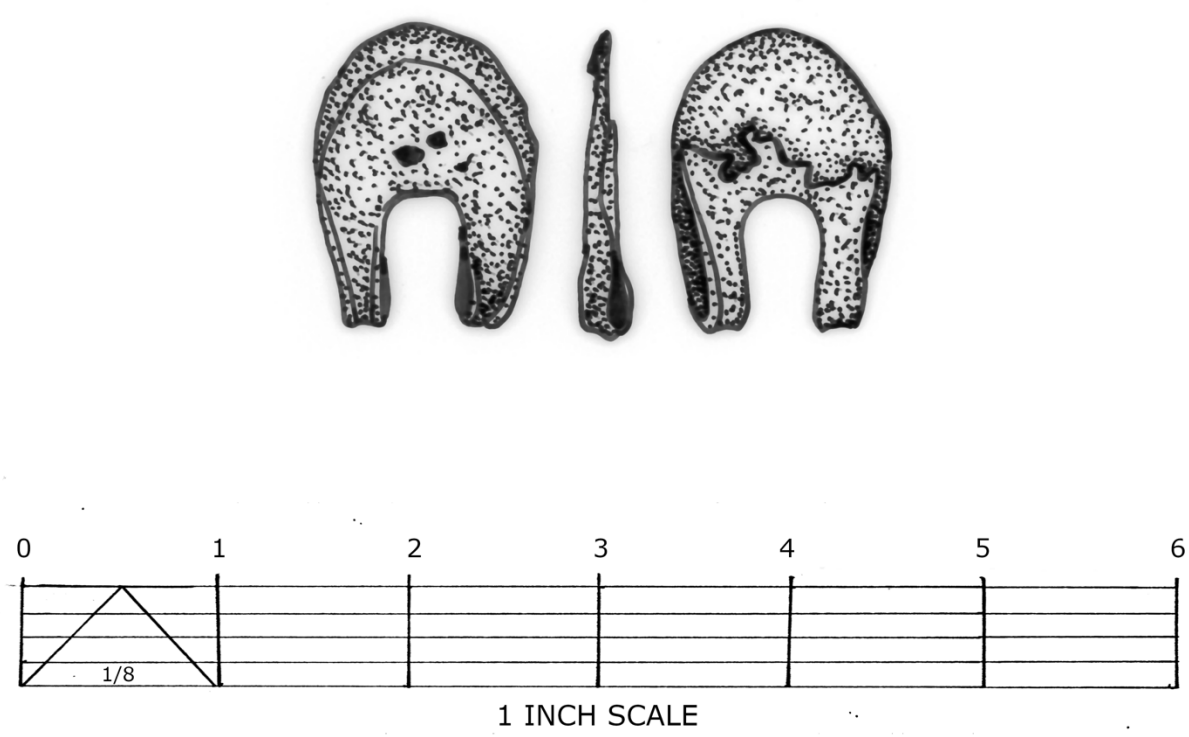

Figure 38. Lead Pad 1997.9.1490

Lead Pad 1997.9.1490

This is the first of two lead pads included in the Leege collection. Lead is a good material for holding the flint very firmly within the jaws, as when pressure is applied to the flint and pad with a thumbscrew, the lead deformed to fill voids in the fractured surface of the flint. However, it may not have supplied the same cushioning as a leather pad.

This pad is a single sheet of lead with a hole in the center-rear to allow for a thumbscrew to pass through this hole is .6 inch (15.2 mm) long and .4 inch (10.2 mm) wide. The folded-over pad has a total thickness of .28 inch (7.1 mm). The pad measures 1.58 inches (40.1 mm) long and 1.14 inches (29.0 mm) wide. The individual leaves of the pad are .04 inch (1.0 mm) thick with a lip which extends out .1 inch (2.5 mm) on average. The lip which surrounds the edges of the pad continue through the bend of the pad, indicating that they were not formed by the jaws of the

firearm which contained the pad, but rather were cast or stamped into the pad at the time of its creation. This lip helped to quickly center a new flint. The pad does show signs of use, with sharp geometric pitting on the interior of the upper leaf.

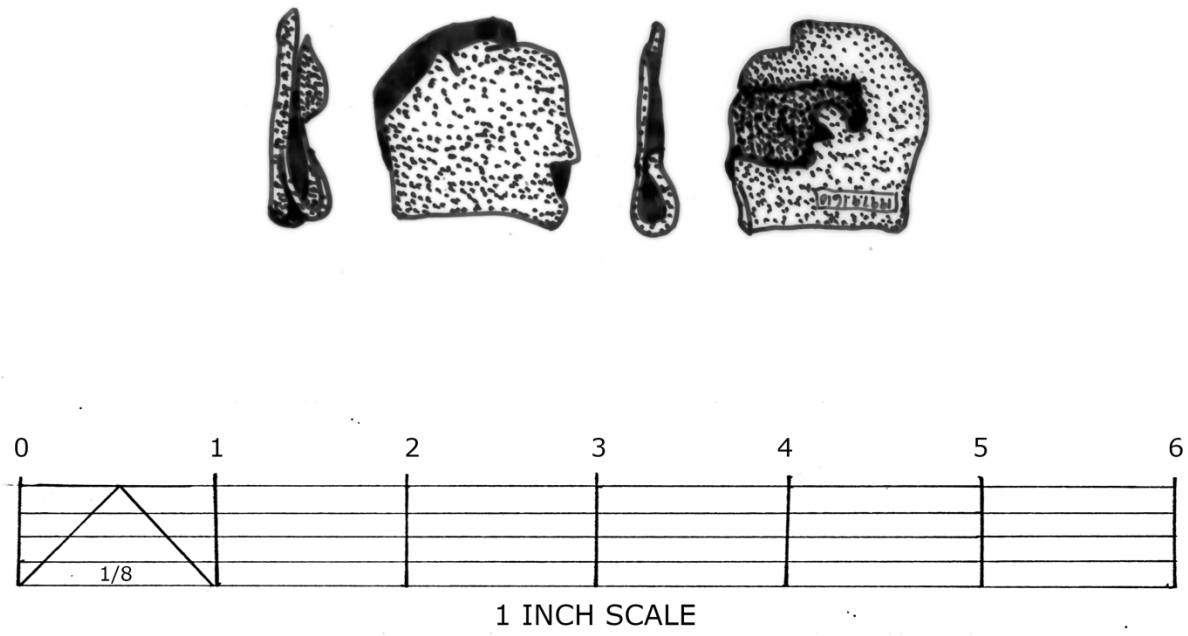

Figure 39. Lead Pad 1997.9.1608

Lead Pad 1997.9.1608:

This lead pad is much smaller and simpler than the previous one, and is similar to the leather pad in the Leege collection, as it is free of a hole for the thumbscrew. The pad was figure-eight shaped when unfolded, measuring .8 inch (20.3 mm) wide at the fold, and 1 inch (25.4 mm) wide at the swell on either leaf. It measures 1.05 inches (26.7 mm) long and is folded over to a

thickness of .23 inch (5.8 mm) thick. The thickness of the individual leaves is .04 inch (1.0 mm).

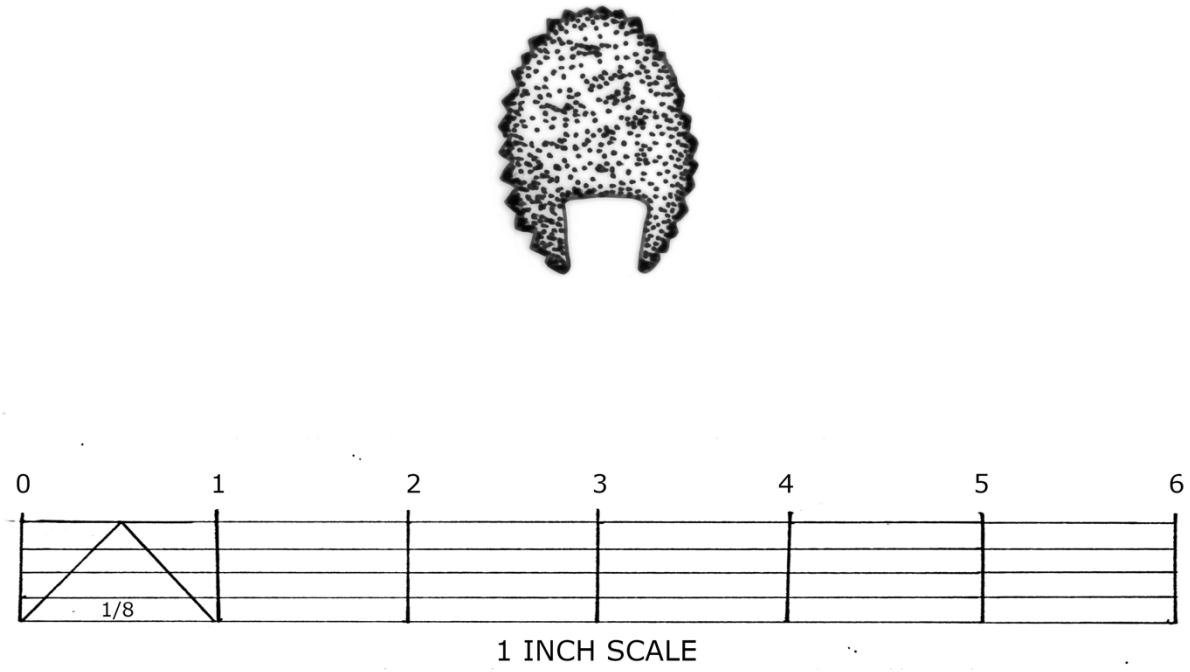

Figure 40. Copper Pad 1997.9.788

Copper Pad 1997.9.788:

The Leege collection contains what appear to be two copper flint pads. Copper seems too hard to conform to a flint without crushing it, but, nonetheless, these artifacts are the size and shape of flint pads, complete with cutouts to accommodate the thumbscrew of a set of jaws.

The first of the two copper pads 1997.9.788 is ovular in shape and is decoratively scalloped with 29 small dags, each having a base of .09 inch (2.3 mm) and a height of .05 inch (1.3 mm). The pad measures 1.38 inches (35.1 mm) in length, 1.03 inches (26.2 mm) in width, and .03 inch (0.8 mm) thick. The rear cutout is an open trapezoidal shape: .4 inch (10.2 mm) long, .41 inch (10.4 mm) internally, and .35 inch (8.9 mm) at the mouth.

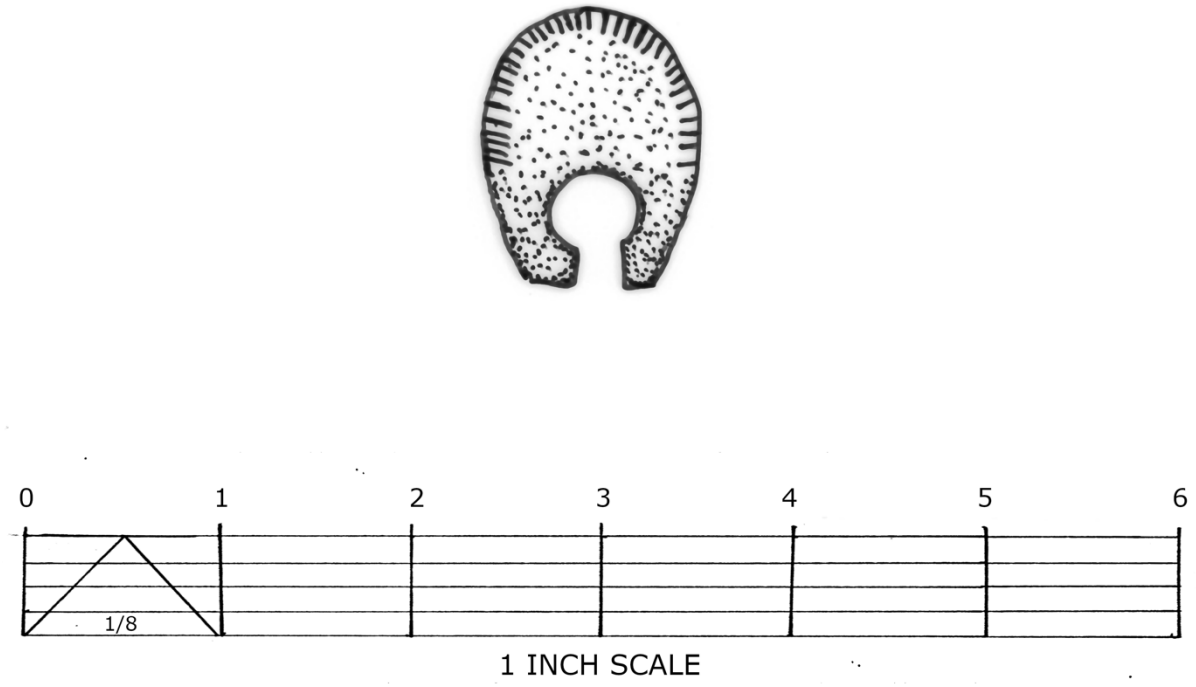

Figure 41. Copper Pad 1997.9.789

Copper Pad 1997.9.789:

The second copper pad has the same ovular shape as 1997.9.788 and measures 1.43 inches (36.3 mm) in length and 1.1 inches (27.9 mm) in width. This pad is .03 inch (0.8 mm) thick. Beginning .56 inch (14.2 mm) from the rear, the edge of this pad is decorated with crimped linear marks extending from the circumference toward the center to a length of .1 inch (2.5 mm) deep; there are 32 of these evenly-spaced marks. The rear cutout of the pad is keyhole shaped, with a length of .62 inch (15.7 mm), an opening of .21 inch (5.3 mm) wide, swelling to a circular hole .47 inch (11.9 mm) in diameter at a depth of .15 inch (3.8 mm).

Furniture

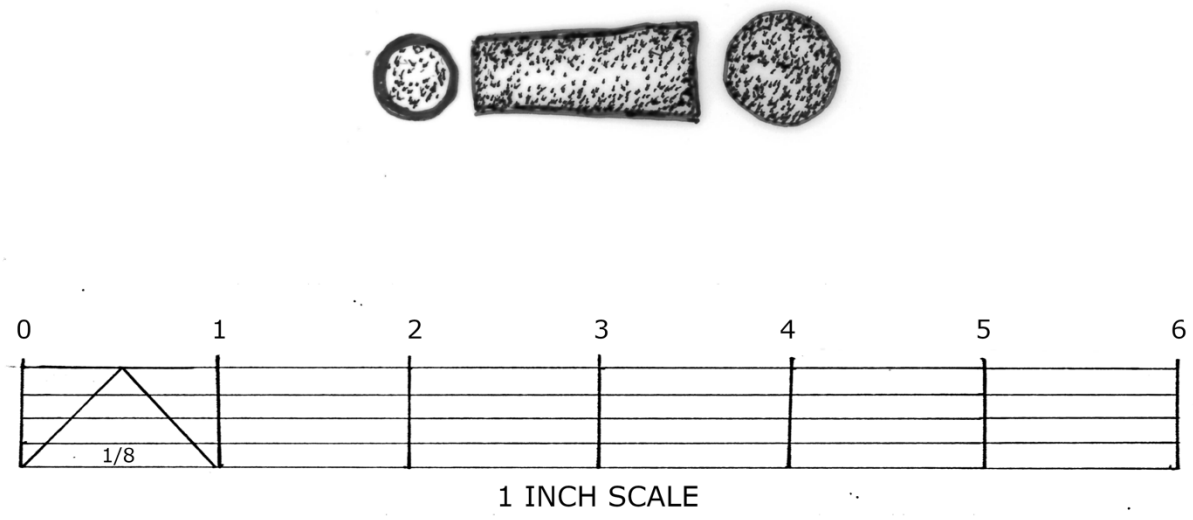

Figure 42. Ramrod Tip 1997.9.1084

Ramrod Tip 1997.9.1084:

This ramrod tip is constructed of two brass pieces, a collet and a bottom plate. The collet measures 1.15 inches (29.2 mm) long and tapers from a .56 inch (14.2 mm) external diameter at the base to a diameter of .41 inch (10.4 mm) at the top, where it was hafted onto a wooden ramrod. The collet has a wall thickness of .05 inch (1.3 mm).

The bottom plate is .46 inch (11.7 mm) in diameter and of an unknown thickness. The plate is seated within the end of the collet, with its external face flush with the lower edge of the collet. The two are likely joined by a soldered joint, but, the remnant of the wooden ramrod shaft inside the collet obscures the tip's interior.

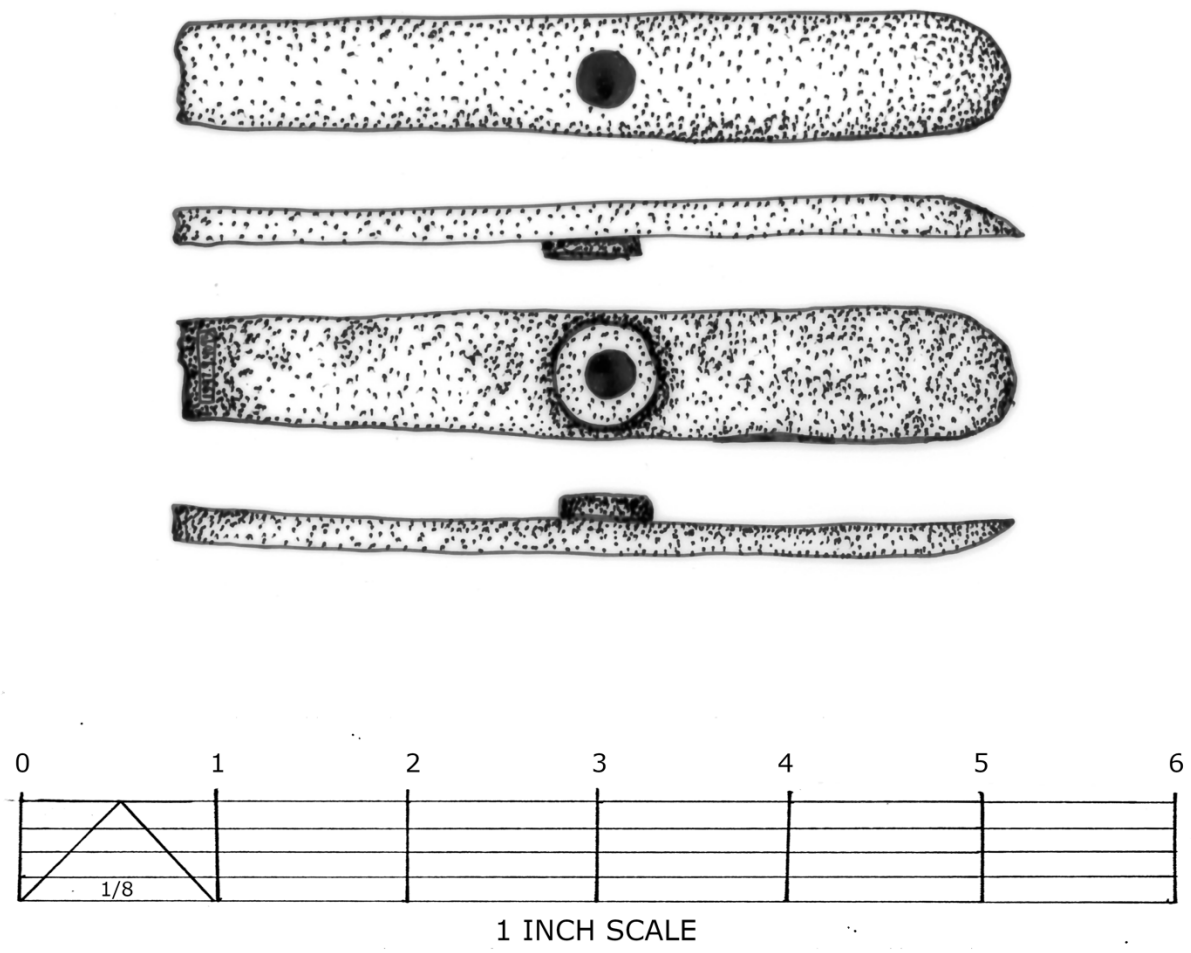

Figure 43. Rearmost Portion of Trigger Guard 1997.9.4095

Rearmost Portion of Trigger Guard 1997.9.4095

This brass component is the rearmost portion of a musket trigger guard. While cast as one piece with the bow of a trigger guard and decorative fireguard, it is now the only remnant of the guard. The piece measures 4.36 inches (110.7 mm) in length and has a beavertail-like appearance, tapering in width from .62 inch (15.7 mm) at its base to .51 inch (13.0 mm) where it is broken off. The base is rounded off in a full half circle with a diameter equal to the width of the piece at its widest point. The piece has a constant thickness of .17 inch (4.3 mm) along the center line with the edges beveling downward to meet the edge of the inward face of the piece.

A screw hole is centered 2.1 inches (53.3 mm) from the back. The hole measures .27 inch (6.9 mm) on the outside, being slightly countersunk to its internal diameter of .23 inch (5.8 mm). A circular protrusion extends from the interior face of the piece .1 inch (2.5 mm). This protrusion is .52 inch (13.2 mm) in diameter and off-centered from the screw hole, being slightly forward of the screw hole center.

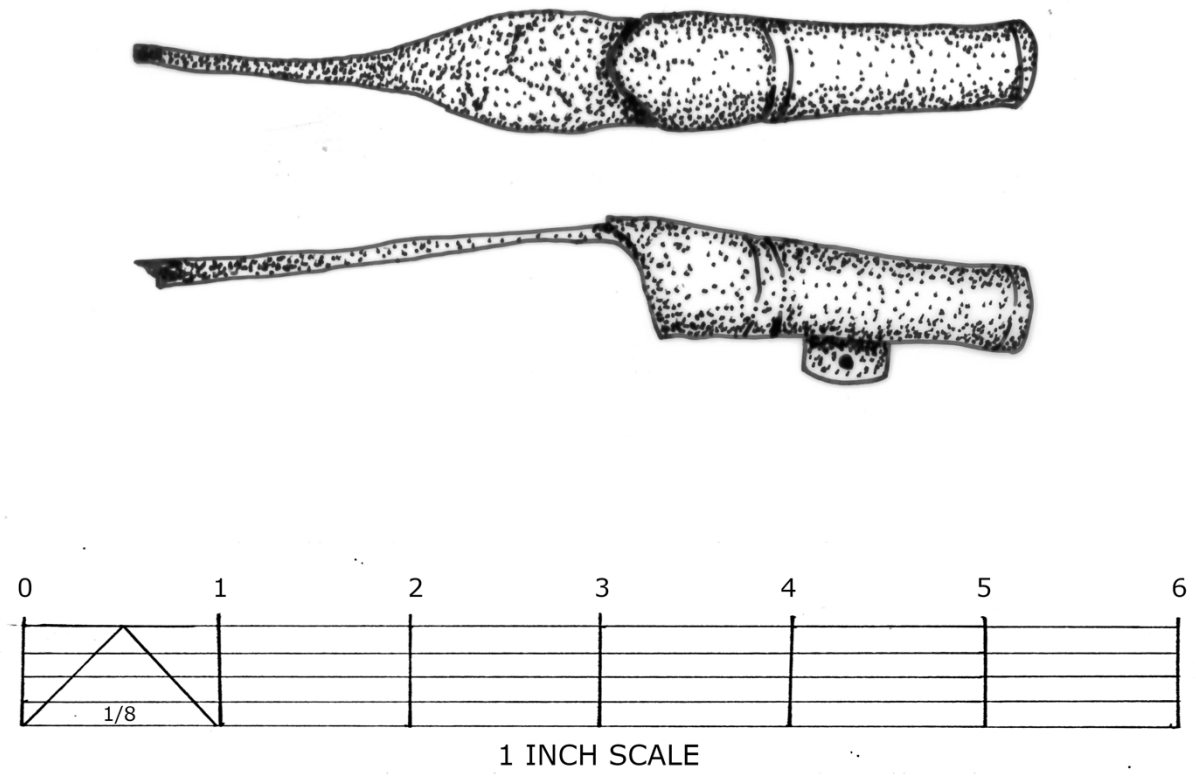

Figure 44. Ramrod Tail-Pipe

Ramrod Tail-Pipe:

This cast brass tail-pipe and the following three artifacts – a musket sling loop, an escutcheon plate, and a trigger plate -- are not themselves in the Leege collection at the LCMM, but are in the hands of a private collector associated with the LCAA who generously allowed the

author to document them for inclusion in this work. These non-Leege-collection artifacts are from the same archaeological context as the other objects in this thesis.

The tail-pipe wasoriginally fitted to the underside of a musket forestock and secured the ramrod when it was not in use measures 4.67 inches (118.6 mm) in overall length. The mouth of the thimble measures .45 inch (11.4 mm) in external diameter and .35 inch (8.9 mm) in internal diameter. The thimble body swells toward its rear opening, which measures .62 inch (15.7 mm) external diameter and .4 inch (10.2 mm) internal diameter. This opening is not concentric with the exterior, but rather is offset .07 inch (1.8 mm) in from the upper lip of the exterior. The upper side of the thimble, which mounts within the stock of a musket, is 1.9 inches (48.3 mm) in length. The lower side of the thimble, which is external to the firearm when mounted, measures 2.25 inches (57.2 mm) in length, with the final .25 inch (6.4 mm) being a decorative tongue that rises .03 inch (0.8 mm) above the subsequent teardrop tang. A lip .07 inch (1.8 mm) wide and raised .02 inch (0.5 mm), is present at the mouth of the thimble. Two decorative bands are cast into the thimble 1.3 inches (33.0 mm) and 1.42 inches (36.1 mm) back from the mouth. These decorative bands are .03 inch (0.8 mm) in width and are inset .01 inch (0.3 mm) into the thimble.

The final 2.5 inches (63.5 mm) of the tail-pipe is a flat tang, which is teardrop shaped and which is angled upwards at 25 degrees. Where the tang meets the thimble and where the final .25 inch (6.4 mm) of the thimble overlaps the tang, the tang is .5 inch (12.7 mm) wide. This width swells to a maximum width of .6 inch (15.2 mm), approximately .6 inch (15.2 mm) beyond the start of the tang. The width of the tang has a tapered recurve which reduces to .12 inch (3.0 mm) about 1.6 inch (40.6 mm) from the beginning of the tang; the tang remains at this width until its terminus is reached. The tang thickness tapers from .14 inch (3.6 mm) at its end to .06 inch (1.5 mm) where it meets the thimble.

A mounting lug is centered .95 inch (24.1 mm) behind the mouth of the thimble. This lug is .45 inch (11.4 mm) in length and protrudes .25 inch (6.4 mm) upwards. The top of the lug is domed and centered .08 inch (2.0 mm) above its junction with the thimble; a .04 inch (1.0 mm) pin hole is present. The pin hole would have been used to fix the tail-pipe to the musket with a drift pin let in through the side of the gun stock. The pin pierced the stock, from one side to the other and was likely to be uniform in thickness.

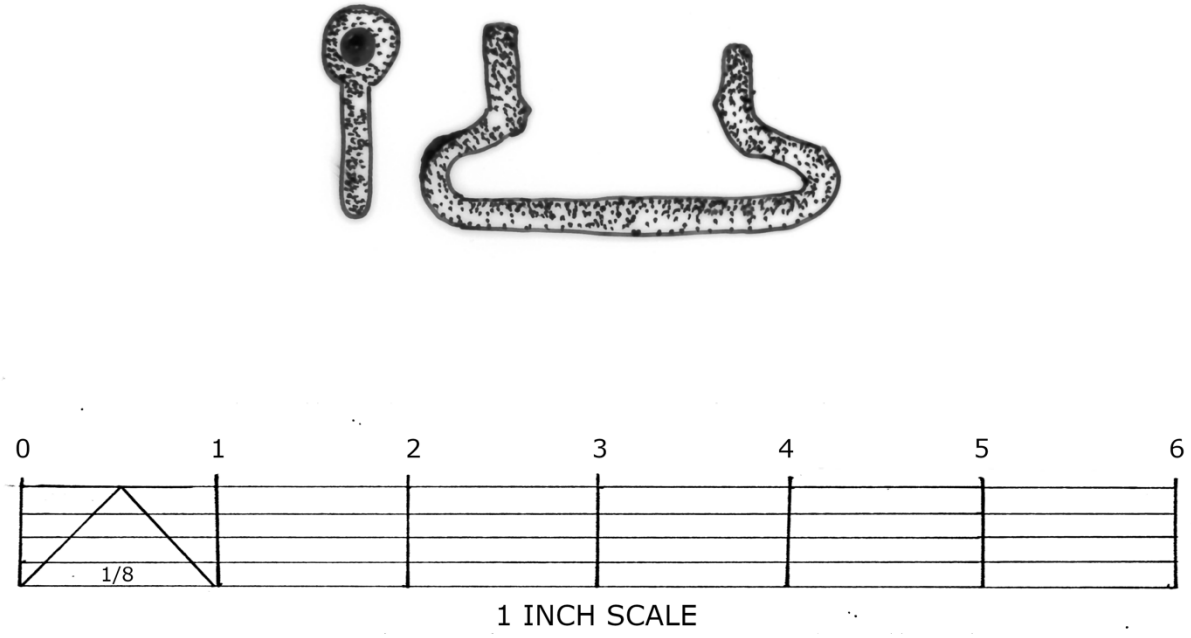

Figure 45. Sling Loop

Sling Loop:

The brass sling loop measures 2.18 inches (55.4 mm) in overall length, and 1.13 inches (28.7 mm) in height. The majority of the body is circular in section and .16 inch (4.1 mm) in diameter. The arms of the loop bend inward and are tied with circular ears with holes for a pin set perpendicular to the main bar of the loop. One ear of the loop is slightly crushed in, reducing the clearance of the arm; the other ear appears to be in its original, position. The uncrushed ear is centered .8 inch (20.3 mm) above the main bar of the loop. The clearance inside the loop is 1.85 inches (47.0 mm) in width and .2 inch (5.1 mm) in height. The ears measure .4 inch (10.2 mm) external diameter and have a hole for a pin of .16 inch (4.1 mm) in diameter. The ears are spaced 1 inch (25.4 mm) apart to accommodate a musket fore-stock.

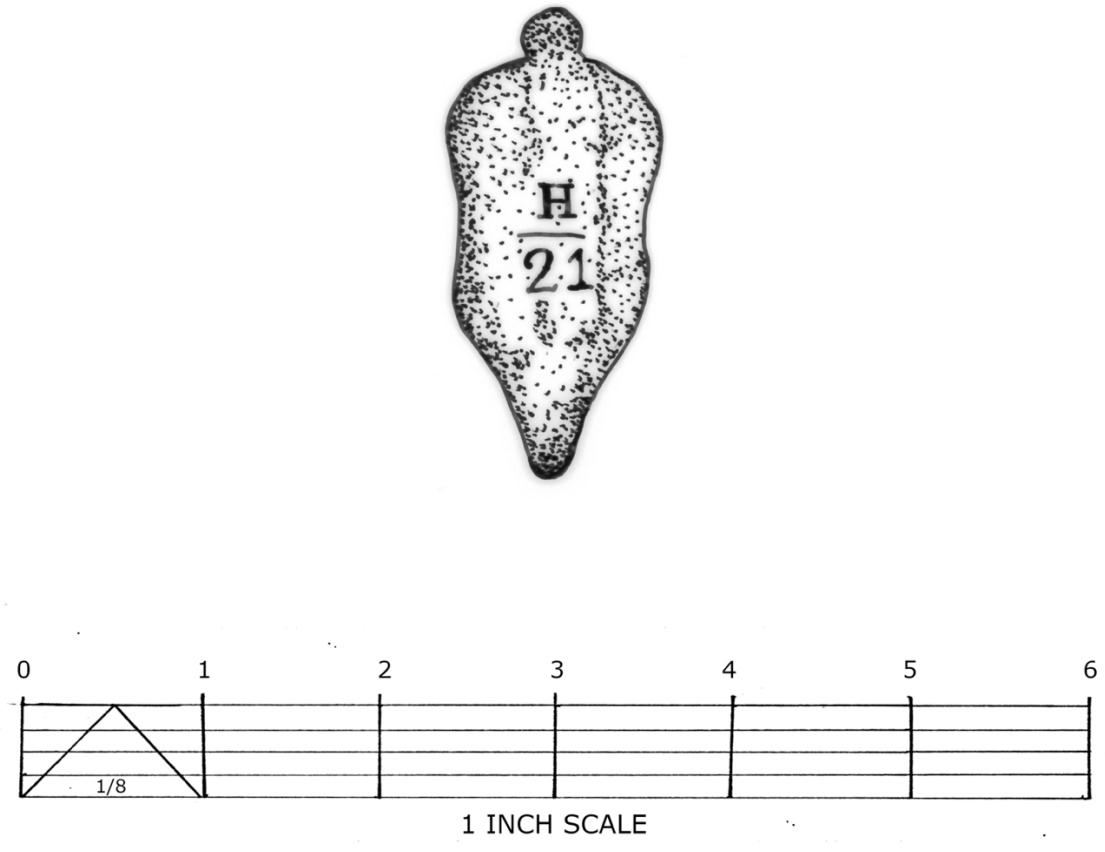

Figure 46. Escutcheon

Escutcheon:

This cast brass escutcheon was originally installed on the upper side of a musket stock, forward of the comb, on the grip. Sometimes called a thumb-plate, the user of this musket would come to rest his thumb on or near this plate when holding the gun in a firing position.

The escutcheon measures 2.66 inches (67.6 mm) in length. The top of the escutcheon has a decorative ball .33 inch (8.4 mm) in diameter which meets tangentially with the "shield" of the plate. The shield has two swells, the upper being 1.22 inches (31.0 mm) wide and the lower 1.1 inches (27.9 mm) wide. Between the two swells, the shield is 1 inch (25.4 mm) wide. Below the smaller, lower swell, the shield tapers to a rounded point, .2 inch (5.1 mm) in diameter. The escutcheon is engraved with a letter 'H' over the numeral '21' with a narrow bar separating the two. The letter height of the 'H' is .18 inch (4.6 mm) and that of the '21' is .24 inch (6.1 mm). The separating bar measures .37 inch (9.4 mm) long and is .01 inches thick (0.3 mm).

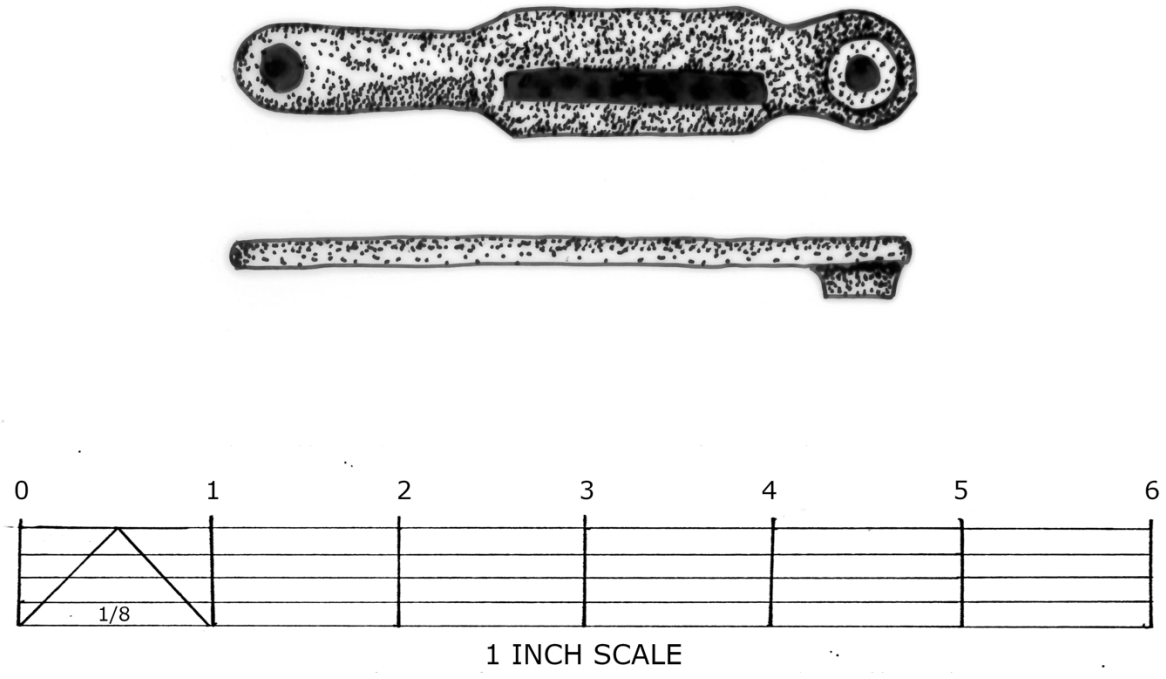

Figure 47. Trigger Plate

Trigger Plate:

This cast brass trigger plate is typical of "Brown Bess" muskets and measures 3.6 inches (91.4 mm) in overall length. The forward portion of the plate is circular and .63 inch (16.0 mm) in circumference. The portion of the plate which the trigger passes through is rectangular in shape and measures .67 inch (17.0 mm) in width. The trigger pass-through, 1.38 inches (35.1 mm) long and .17 inch (4.3 mm) wide, is offset toward the right side of the plate. The right edge of the pass-through opening is .15 inches (3.8 mm) from the right edge of the plate. The tail portion of the plate is .43 inch (10.9 mm) wide and 1.35 inches (34.3 mm) long; the end is finished in a half circle extending from one edge to the other.

A screw hole is centered .25 inch (6.4 mm) from the end of the tail and is .25 inch (6.4 mm) in diameter. The edges of this screw hole are parallel with no countersinking. Another screw hole is present in the forward end of the plate. This forward hole is .25 inch (6.4 mm) on the face, which is countersunk to a hole diameter of .2 inch (5.1 mm). The forward screw hole has a circular protrusion which sits .16 inch (4.1 mm) proud of the interior surface of the plate. The protrusion is circular with a diameter of .35 inch (8.9 mm) and was used to locate the plate on a musket stock.

Figure 48. Musket (no collection number)

Musket

The Leege collection contains one partial musket which retains portions of its stock, barrel, furniture, and trigger, the collection numbers of these artifacts are unknown. This musket has several interesting features: including a sheetmetal nose cap, a large two-screw side plate, and a trigger guard with an ornamental curl on the interior of its rear side.

The largest component of the musket is the stock, which survives from a position forward of the comb to the nose cap. The overall length of the surviving portion of the stock is 46.5 inches (1181.1 mm), being 2.12 inches (53.8 mm) wide at the breech end and 1.18 inches (30.0 mm) wide at the nose cap end. The musket stock is 2.06 inches (52.3 mm) tall at the breech end, tapering to 1.44 inches (36.6 mm) at the tail-pipe swell which is 12 inches (304.8 mm) forward of the breech bedding location. At the tail-pipe swell, the height of the stock is reduced to 1 inch (25.4 mm) within the span of .06 inch (1.5 mm), after which point the stock begins to taper in height to its minimal dimension of .6 inch (15.2 mm) at the nose cap. As viewed from above, the swell near the tail-pipe exhibits no change in width, having sides parallel the remainder of the stock. A hole for the forward sling attachment furniture is located 10 inches (254.0 mm) back from the end of the nose cap and measures .25 inch (6.4 mm) in diameter.

None of the thimbles of the stock survive, however, their locations and dimensions are preserved through the carved inlets which once housed them. The tail-pipe inlet measures 4.84 inches (122.9 mm) in length and has a teardrop-shaped tang with an aggressive recurved taper. The tang portion of the inlet measures 2.4 inches (61.0 mm) in length and is .5 inch (12.7 mm) wide where it meets the thimble of the tail-pipe. The tang inlet swells to a maximum width of .6 inch (15.2 mm) and tapers to a minimum width of .09 inch (2.3 mm) at its rear end. The thimble

portion of the tail-pipe inlet measures 2.44 inches (62.0 mm) in length and is .5 inch (12.7 mm) in width toward the rear, while being .33 inch (8.4 mm) in width at its forward end. The tail-pipe inlet is centered around the hand swell of the stock. The ramrod channel which begins at the forward end of the tail-pipe thimble measures .25 inch (6.4 mm) in width and is a half-circle in section. A recess for the mounting lug measures .6 inch (15.2 mm) long and .1 inch (2.5 mm) wide, and is located .5 inch (12.7 mm) back from the forward end of the inlet.

The second thimble inlet forward is separated from the tail-pipe inlet by 7.25 inches (184.2 mm). The second thimble inlet is rectangular in section and measures 2.25 inches (57.2 mm) in length by .25 inch (6.4 mm) in width. The mounting lug location is obscured by swollen woodgrain and abundant corrosion.

The third thimble inlet is separated from the second by 8.32 inches (211.3 mm), including a portion of broken woodgrain which has resulted in a slightly longer separation than would otherwise be the case. The inlet is rectangular in section and measures 2.25 inches (57.2 mm) in overall length and .42 inch (10.7 mm) in width. There is a small inlet which allows for the forward lip of the thimble, which is .08 inch (2.0 mm) long and .48 inch (12.2 mm) wide. The recess for the mounting lug is centered and measures 1.47 inches (37.3 mm) long and .1 inch (2.5 mm) wide. The lengthy mounting lug recess did not accommodate a larger sized mounting lug, but was made oversized to make faster chisel work for the gunsmith.

The forward-most thimble inlet is separated from the third thimble inlet by 6.5 inches (165.1 mm). This final inlet measures 4.25 inches (108.0 mm) in overall length with a width of approximately .42 inch (10.7 mm), which flares to a width of .55 inch (14.0 mm) at the funnel-shaped mouth of the thimble inlet. The funnel-shaped mouth flares over .35 inch (8.9 mm) of length and has a .08 inch (2.0 mm) lip at the base where it meets the body of the thimble inlet.

Two recesses are carved for mounting lugs centered .35 inch (8.9 mm) forward of the rear end and .9 inch (22.9 mm) behind the forward end of the inlet. The stock forward of the rear mounting lug recess is eroded and split following the grain of the wood and little detail can be observed in what remains of the stock at this location. Channels for .09 inch (2.3 mm) diameter pins can be seen centered about the mounting lug recesses. The mouth of the inlet ends .45 inch (11.4 mm) behind the rear end of the nose cap location and 1.25 inches (31.8 mm) behind the forward end of the stock.

The stock has recesses cut for the breechplug and tang. A recess is cut into the rear of the breech bedding area to allow for the base of the breech plug. This recess measures .75 inch (19.1 mm) long and .62 inch (15.7 mm) wide. The tang recess runs back a further 1.5 inch (38.1 mm) from the rear end of the breech plug base recess and flares out to a width of .8 inch (20.3 mm), resulting in a beavertail shape. The screw hole for the tang is centered .75 inch (19.1 mm) forward of the rearmost end of the tang recess.

While none of the lock of the musket survives, the recess in the stock which once housed the lock has a rabbeted lip that outlines the limits of the missing lock plate. The total length of the lock plate recess is 6.9 inches (175.3 mm) and it is 1.2 inches (30.5 mm) wide at the breech. The lock plate recess tapers back toward the rear point and forward toward the front tongue of the lock plate recess. While the lock plate recess has banana-shape overall, the forward tongue of the recess is rather short and flares out toward the location of the frizzen rather abruptly. The raised seat that surrounds the lock plate recess is roughly .25 inch (6.4 mm) thick around the perimeter of the recess and swells to a thickness of .65 inch (16.5 mm) near the forward end of the recess.

The cast brass side plate of the musket has survived and measures 6.35 inches (161.3 mm) in overall length. It is installed on the opposite side of the stock from the lock plate. Itis a decorative two-hole plate with a slight downward curve and scalloped back. The forward tongue of the plate measures 1.95 inches (49.5 mm) in length by .5 inch (12.7 mm) in width and ends in a half-circle terminus. The first hole is centered on the tongue .35 inch (8.9 mm) behind the front end; this hole measures .25 inch (6.4 mm) in diameter. The rear 4.4 inches (111.8 mm) of the plate have a drooping, knife-blade shape that reaches a point .33 inch (8.4 mm) below the centerline of the side plate. The rear of the side plate meets the forward tongue with a rectangular shoulder .75 inch (19.1 mm) wide. 1.75 inches (44.5 mm) back from the shoulder, the plate swells to a width of 1.1 inches (27.9 mm). At the swell, the second screw hole is placed .25 inch (6.4 mm) in from the upper edge of the plate; the hole is .28 inch (7.1 mm) in diameter. Three scallops- 1.25 inches (31.8 mm), .65 inch (16.5 mm), and .75 inch (19.1 mm) in length- are cut into the upper edge of the side plate, closing the gap between the swell of the plate and the rear point. All edges of the side plate are chamfered .09 inch (2.3 mm) from the edge. The two holes of the plate are spaced 3.33 inches (84.6 mm) apart, center to center.

The cast brass trigger plate of the musket is still present on the bottom of the stock. One curious aspect of the trigger plate is that only the front portion seems to have been used in the original musket. The rear of the trigger plate was cut off where the opening for the trigger begins. The plate measures 2.35 inches (59.7 mm) long and .68 inch (17.3 mm) wide and otherwise resembles a British military pattern trigger plate. The plate is rectangular around the trigger but, forward of this it narrows to a tongue shape which measures 1 inch (25.4 mm) long and .55 inch (14.0 mm) wide. A single screw hole of .2 inch (5.1 mm) in diameter is centered .25

inch (6.4 mm) back from the forward end of the plate. Most of the iron trigger survives, corroded in place.

The extant portion of the cast brass trigger guard measures 4.08 inches (103.6 mm) in overall length, with the forward and rear extensions being broken off. The average thickness of the guard is .18 inch (4.6 mm). The guard measures .65 inch (16.5 mm) wide at the forward end and .45 inch (11.4 mm) wide at the rear end, and bulges at the bow of the trigger guard to 1.1 inches (27.9 mm) in width. The forward extension of the guard is broken off just forward of a reduction in width from .65 inch (16.5 mm) to .45 inch (11.4 mm). The reduction is executed by means of quarter circular shoulders removed from the corners. A mounting lug measuring .29 inch (7.4 mm) wide and .63 inch (16.0 mm) tall is centered over the forward portion of the trigger guard. The mounting lug is .1 inch (2.5 mm) thick and has a .08 inch (2.0 mm) diameter pin hole centered .4 inch (10.2 mm) above the upper surface of the guard. A .5 inch (12.7 mm) filigree curls forward from the rear of the trigger guard to enclose the trigger space. The guard creates an ovular trigger clearance which measures 1.75 inches (44.5 mm) long and 1 inch (25.4 mm) high. The forward portion of the guard bow meets the horizontal portion of the guard in a triangular junction roughly .65 inch (16.5 mm) wide and .6 inch (15.2 mm) high. Centered in the triangular junction is a hole for the lower sling attachment furniture which measures .17 inch (4.3 mm) in diameter.

The end cap of the musket is a .04 inch (1.0 mm) thick and .64 inch (16.3 mm) wide brass sheet. It is bent into a ‘C’ shape with inward curling lips which once held it to the stock of the musket. A .09 inch (2.3 mm) diameter pin hole is centered .6 inch (15.2 mm) below the upper lip of the cap on either side. In profile, the ‘C’ of the cap measures 1.4 inches (35.6 mm) wide

and .75 inch (19.1 mm) tall. At one time, a solid plate may have been soldered to the end of the nose cap but there is no surviving evidence of this.

The iron musket barrel is heavily corroded, with only 28.4 inches (721.4 mm) of its original length surviving. The external diameter of the barrel at the breech is 1.45 inches (36.8 mm). At the extant forward portion of the barrel, the external diameter is .91 inch (23.1 mm) and the internal diameter is approximately .79 inch (20.1 mm). The breech plug base extends .43 inch (10.9 mm) behind the rear opening of the barrel and measures .48 inch (12.2 mm) wide. The tang survives 2.18 inches (55.4 mm) behind the back of the barrel and tapers from a thickness of .25 inch (6.4 mm) at the breech plug base to a corroded point at its rearmost extent. The touch hole is located .6 inch (15.2 mm) forward of the rear of the barrel and is positioned .1 inch (2.5 mm) below the barrel centerline. On the stock, the total length of the barrel bedding measures 41.25 inches (1047.8 mm). No markings survive anywhere on the barrel or the tang.

The flint found with this musket is a grayish brown color and is heavily worn on both its forward and rear edges, with acutely stepped fracturing occurring on the upper and lower surfaces. The shape of the flint is similar to the platform shape common to other grey flints in the Leege collection but, rather than the upper facets of the flint meeting in a central platform, the forward and rear edges meet in a central ridge which runs parallel to the striking edge of the flint.

Flints

Figure 49. Representative Sample of Flints and Shot from Plattsburgh Bay

The Leege collection contains a total of 29 gunflints of two colorations and in different stages of use. Among these flints, honey-colored flints and grey flints can be found knapped into four forms. The collection contains eight honey colored flints, all showing signs of use, and 21 grey-colored flints, 19 of which have not yet been discussed. Two grey-colored flints were previously described: one contained in the remnants of a cock (artifact number 1997.9.3408) and the other is associated with the musket documented in this paper.

While flint color is a very useful feature for the discussion of the flints found in Plattsburgh Bay, it is wrong to claim that color alone indicates definitive origins for flints. Dark grey gunflints, such as those in the Leege collection, were some of the most common flints available in Europe in the 19th century. Many of these originated in southern England, but numerous other European regions contained this color of flint as well, including Denmark, Sweden, and parts of France. Honey-colored flints, however, have a much narrower range of natural occurrence: France and to a limited extent in Italy.[12]

Archaeologists thus far have attempted to describe the geometry of gunflints in a variety of ways and, as a result, each author has a unique set of terminologies for the features of gunflints and no coherent typology has unified European gunflints in a satisfactory way. In the 46th issue of *Post-Medieval Archaeology*, Torben Ballin attempts to marry some of the most common archaeological notions of gunflints in order to establish a standard set of terminology for the field of flint studies. This thesis will describe the flints using an adapted version of Ballin's terminologies.[13]

The gunflints of the Leege Collection represent at least four geometries of flint: platform flints, spalled flints, rectangular wedges, and simple wedges. Excluding the flint spalls, all of the gunflints in the collection were created using the same method: first, raw flint nodules were broken down into conical cores. Second, blades were flaked off from the cores by striking the base of the conical core with some form of striking mallet. The percussion of a mallet against the core base would result in a conical fracture propagating through the flint core and leaving behind an elongated, cupped scar on the interior of each long shard of flint removed from the core. As the long shards, also called blades, of flint were removed from the core, most had two or three cupped scars down their exteriors, with a single, slightly convex interior, where they were

separated from the core. The third step of the process involved breaking the long flint blade into short, rectangular pieces, appropriately sized to the cock-jaws of the flintlock firearms. After the pieces were sized, their edges were redressed, often in order to include a dorsal bevel on the exterior which tapers upwards from the sides of the flint towards the central platform of the flint.[14]

In thecase of Leege collection flints, no distinction will be made between the faces of a gunflint result in a from the geometries of the blades from which they were separated and the dorsal bevels which follow from flints' redressing. Rather, these will be referred to as facets. In contrast, the flat or slightly convex interior of the blade is not counted among these outward facing facets.

Generally, the shapes of gunflints in the collection can be described as follows. First, spalled gunflints are the most primitive of the collection. These have a flat base and have been redressed on the opposite side, creating a single, circular edge which tapers toward a central point, resulting in a limpet-shaped gunflint. Second, simple wedges have a single discernible facet, with three roughly redressed edges at the rear forming a gentle curve; the flint tapers in thickness from the rear of the flint toward the forward edge which strikes the frizzen of a gun lock. Third, a rectangular wedge flint is much like a simple wedge flint except that the sides of the flint are formed into dorsal bevels. Fourth, a platform flint, the most common in the collection, has at least five distinct facets on its upper surface, four of which taper inwards towards one or more central facets which do not meet with an exterior edge of the flint, but which rather form a small platform parallel to the flat top of the flint, thereby allowing the jaws of a firearm's cock to firmly grasp the flint.

The orientation of a flint within the cock-jaws of a firearm has been perennially asserted to aid in the identification the nationality of a gunflint's owner. It is generally accepted that English and European flintlock users installed their gunflints with the multifaceted side of the flint facing upwards, while Americans placed the flat back of the flint upwards.[15] A pattern of use is indicated on a flint by tight conical fracturing which occurs where the blade of the flint strikes against the frizzen of the lock. The direction of the fracturing indicates which orientation the flint was in when it was installed in the cock-jaws of a firearm. When sharp conical fracturing is exhibited on the faceted side of the flint, it is evident that the flint was installed in the firearm with the facets up, whereas fracturing on the flat of the flint indicates the opposite orientation. Sometimes, normal use patterns include slight crushing along the forward edge of the flint, which helps to distinguish these from the more uniform and conical fractures of an initial redressing of the edge. Furthermore, during the life of a gunflint, resharpening may occur as a flint dulls. The use of a small gunflint hammer or rough scrubbing stone may return the flint to a more usable state. Personal use of reproduction flintlocks, as well as the academic endeavors of Scott Williams, have served to aid in the distinction of these types of use wear patterns.[16] Some flints exhibit clear signs of use, while others show more uniform signs of manufacturer redressing. The author has tried carefully to distinguish between the two for this thesis.

The 21 dark grey flints are contained in the Leege collection, two of those being associated with other firearms components in this thesis. Of the 19 grey flints with no other associations, one flint is in the form of a simple wedge, two are small gun spalls, and 16 are platform shaped. Two of the grey platform shaped flints have six facets on their upper surfaces while the remaining 14 all have five facets. Some of the platform shaped grey flints have a symmetrical profile, with forward and rear edges of the flint tapering toward the central platform such that, when one side had been worn dull through use, the other side could be put into position to allow the flint to be reused without the need for sharpening. None of the symmetrical platform flints show signs of use. The larger portion of the platform shaped flints, 68% of them, have an evident forward edge and rear edge forming a nearly perpendicular heel which would have been installed to the rear of a set of jaws. Platform shaped grey flints which showed signs of use did not indicate a preferred orientation of installation, with two appearing to exhibit facet-up use wear and two exhibiting the opposite.

The average grey flint of the collection is, therefore, a five faceted platform shaped flint with a perpendicular heel, having an approximate length of 1.28 inches (32.5 mm), an approximate width of 1.15 inches (29.2 mm), and an approximate thickness of .44 inch (11.2 mm).

Artifact Number	Color	Shape	Length	Width	Thickness	Condition	Orientation	Facets	Notes
1997.9.1198	Grey	platform	1.29	1.13	0.4	new		6	perpendicular heel
1997.9.1199	Grey	platform	1.12	1.05	0.36	used	flat down	6	perpendicular heel
1997.9.1200	Grey	platform	1.25	1.1	0.58	new		5	perpendicular heel
1997.9.1201	Grey	platform	1.28	1.06	0.43	new		5	
1997.9.1202	Grey	platform	1.25	1.07	0.45	new		5	perpendicular heel
1997.9.1203	Grey	platform	1.25	1.25	0.45	used	facet down	5	perpendicular heel
1997.9.1204	Grey	platform	1	1.2	0.46	used	flat down	5	perpendicular heel
1997.9.1205	Grey	platform	1.47	1.15	0.39	new		5	
1997.9.1206	Grey	platform	1.29	1.15	0.44	new		5	perpendicular heel
1997.9.1207	Grey	platform	1.08	1.2	0.42	new		5	perpendicular heel
1997.9.1208	Grey	platform	1.4	1.25	0.37	new		5	
1997.9.4196	Grey	platform	1.3	1.12	0.43	new		5	perpendicular heel
1997.9.4197	Grey	platform	1.35	1.14	0.36	new		5	
1997.9.4198	Grey	platform	1.4	1.17	0.65	new		5	
none (no.1)	Grey	platform	1.28	1.2	0.4	new		5	perpendicular heel
none (no.2)	Grey	platform	1.5	1.16	0.55	used	facet down	5	perpendicular heel
1997.9.3207	Grey	spall	0.72	0.65	0.25	used	both	0	limpet shaped
1997.9.153	Grey	spall	0.68	0.68	0.29	used	both	0	limpet shaped
1997.9.152	Grey	simple wedge	1	1.3	0.27	heavily used	both	1	heavy iron staining
average		**platform**	**1.28**	**1.15**	**0.44**	**new**	**either**	**5**	**perpendicular heel**

Table 1. Grey Flints

The honey colored gunflints of the Leege collection are fewer in number, but are more varied and show more extensive use than the grey flints. Platform shaped flints, simple wedges, and rectangular wedges are included among the honey flints, with simple wedges being most common. The average length of the honey flints is 1.08 inches (27.4 mm), while the average width is .93 inch (23.6 mm). It should be noted that several examples are broken so that the maximum width was not discernible. The average thickness of the honey flints, as is the case with the grey flints, is .44 inch (11.2 mm).

While each of the honey colored flints in the collection show indications of use wear in the form of slightly crushed and acute conical fracturing along their forward edges, no orientation was favored. Four of the flints show wear consistent with having been used in a facet up position, while three flints show facet down wear.

One interesting aspect regarding the general shape of some of the honey colored flints is that they are wider than they are long. At least three of the honey colored flints are broader than their grey counterparts and at least five of the honey flints have distinctively rounded heels. Both the broader shapes and rounded heels of the honey flints are typical of French-made flints from the 18th century forward, in contrast to the elongated rectangular flints typical of British makers from the 19th century on.[17]

Artifact Number	Color	Shape	Length	Width	Thickness	Condition	Orientation	Facets	Notes
1997.9.792	Honey	platform	1.16	1.25	1.34	used both sides	facet up	5	
1997.9.793	Honey	simple wedge	0.84	0.84	0.29	used	facet up	1	
1997.9.794	Honey	platform	1.17	0.67	0.3	used	facet down	5	broken along long axis
1997.9.795	Honey	simple wedge	1	1.21	0.25	used	facet up	1	heavily used
1997.9.796	Honey	simple wedge	1.19	0.95	0.31	used	facet down	5	perpendicular heel
1997.9.797	Honey	simple wedge	0.99	0.69	0.28	used		1	undiagnostic fragment
1997.9.798	Honey	rectangular wedge	0.8	0.66	0.26	used	facet up	3	
41997.9.4195	Honey	platform	1.36	1.15	0.47	used	facet down	5	
Average	**Honey**	**Simple wedge**	**1.08**	**0.93**	**0.44**	**Used**	**Either**	**No Pattern**	**No Pattern**

Table 2. Honey Flints

Shot

A total of 138 unfired lead shot from Plattsburgh Bay are included in the collection at the Lake Champlain Maritime Museum. When organizing the collection, the Museum assigned artifact numbers to many of the shot pieces as groups or lots, while other shot pieces are catalogued under individual numbers. In this work, the lead shot discussed are grouped by their diameter, with artifact number references given when applicable.

The shot diameters in the collection range from .29 inch (7.4 mm) in diameter to .71 inch (18.0 mm) in diameter. Two calibers dominate the collection: .50 caliber, with 26% of the total shot being .49 -.51 inch (12.4 – 13.0 mm) in diameter, and .68 caliber, with 48% of the total shot being .67 - .69 inch (17.0 – 17.5 mm) in diameter. Several smaller caliber groupings and a few bastard calibers fill out the remainder of the shot collection, with eight shot being about .30

caliber (7.6 mm), nine being about .45 caliber (11.4 mm), and eight shot being about .62 caliber (15.7 mm).

While most of the shot are unremarkable, several of them have distinctions which will be mentioned here. Shot 1997.7.1602 is a .69 caliber ball (17.5 mm) which retains the base of its sprue from casting; this sprue measures .19 inch (4.8 mm) in diameter. Two shot, from the 33 shot collectively numbered artifact 1997.7.1060, are .62 caliber balls (15.7 mm) which are cut roughly in half or were perhaps the result of partially-filled ball molds. In the sub-collection of shot numbered 1997.7.1088 - 1140, there exists one .50 caliber (12.7 mm) shot which results from a partially filled mold, one .54 caliber (13.7 mm) shot which has been cut into quarters, and one oddly large shot of .72 caliber (18.3 mm).

Caliber (.00")	Metric	Number of Shot
29	7.4	5
30	7.6	3
44	11.2	1
45	11.4	7
47	11.9	1
48	12.2	1
49	12.4	3
50	12.7	31
52	13.2	2
53	13.5	1
54	13.7	1
55	14.0	3
56	14.2	1
60	15.2	1
61	15.5	3
62	15.7	4
63	16.0	1
64	16.3	1
67	17.0	10
68	17.3	47
69	17.5	9
70	17.8	1
72	18.3	1

Table 3. Shot

CHAPTER V

ARCHAEOLOGICAL AND HISTORICAL ANALYSIS

In summary, the small arms related artifacts of the Leege collection are numerous and often unique. Among the many artifacts, however, several stand out as being particularly interesting or indicative of broader relationships. These artifacts will now be explored in more detail.

Blades

The first sword discussed in Chapter 3, the brass hilt, is a model IX infantry saber, which falls under the broad French category *briquette*. The first briquettes of this general style were those created for French infantry and grenadiers as early as 1752, though specifically, the model IX was created in 1767. The model IX is distinguished by its 19 or 20 filleted bands around the grip and the presence of reverse languettes which extend through the fourth, or sometimes fifth, band of the grip. A further identifying element of construction in the model IX is the use a faux capstan which, rather than tightening a threaded tang to a hilt by means of a threaded nut, instead passes through a fake nut, above which the tang end is peened open like the end of a rivet. The construction of this sort of sword hilt took place in three steps. First, a cross guard complete with languettes was cast. Second, a mortise was cut into the forward end of the cross guard and the knuckle bow was fit and soldered into the opening. Lastly, the tang of a prepared sword blade had a mold of the hilt built up around it, to ensure that when the brass was cast into the mold, a

perfect fit was made between the tang and hilt.[18] Presumably, the hardening and tempering of the blade took place after this overmolding process.

At first, the brass guard, artifact number 1997.9.1279, was taken to be unrelated to any particular item in the collection, though, it is distantly related to the cross guard of a model IX briquette, and most likely is a partner to the hilt discussed above. The model IX was used in the French Army from its implementation in 1767 through 1807, making it a long-lived model. [19] This common sword pattern, given to infantry, grenadiers, sergeants, musicians, and the French Rifle Corps, made its way around the world and gave birth to countless variants of the basic form. The French marked the ricasso of the blade of model IX's with the number of the regiment which owned the sword. However, this hilt, with its blade long rusted away, is not identifiable to this level. One interesting departure of this sword from other French swords of the time is its tendency toward anglicization. The flat curved blade and corresponding wooden scabbard designed to hang from the locket were closer in style to English swords than French swords of the mid 18th century.[20]

The second sword of interest in the collection is the officer's sword, artifact number 1997.9.3389, along with its corresponding scabbard locket, artifact number 1997.9.3389. In the Napoleonic Empire, sword designs of the French military followed from those swords used by light calvary. Four main categories of sword came to represent the mass of French swords at the beginning of the 19th century in France: a three-branched-hilt saber de cavalerie legere; sabers with ball or pearl motifs called saber de garde perlée; a pattern referred to as sabre á la hongroise, which followed the style of the Hungarian sabers, with their single knuckle bow and languettes which fit into recesses at the throat of a scabbard; and finally the sabers á la Allemande, which had a straight or nearly straight cross guard, a square sectioned grip and a

single knucklebone which was set into a square pommel.[21] Sabers á la Allemande incorporated aspects of Hungarian sabers as well as aspects from swords brought back by officers from Egyptian campaigns.[22] The sabers á la Allemande were most popular among French officers and, accordingly, were often ornately decorated with fine engravings and silver or gold gilding over their brass components. These sabers were the epitome of high fashion, not only in France, but in America as well. French and American officers, if they had the funds, purchased the finest swords of the times from smiths around Europe. American Navy and Army officers (U.S. Navy hero Oliver Hazard Perry is shown with one of these swords) are depicted in portraits with these swords.

While American officers were enamored with all things French, British offers may have been less likely to seek out what they viewed as "Frog" weapons. Officer's sword 1997.9.3389 is a saber á la Allemande and was likely owned by an American officer aboard the fighting ships at the Battle of Plattsburgh. The ever-changing styles of officer's swords by private cutlers meant that styles for individual components would come and go. Certain component shapes were often regionally popular among craftsmen in close proximity to one another for short periods of time. It can be assumed that sword crafters relied on a repertoire of individual hilt components and mixed and matched them to make new sword designs, while relying on a smaller set of master moulds.

Through the author's search for contemporaneous swords with similar finishings to those of 1997.9.3389, three sources stand out. First, a historic French sword catalogue classifies a saber with a hilt identical to 1997.9.3389 in every way expect for the style of the languettes as a "Saber of the infantry officer, epoch of the Empire".[23] The second sword similar to 1997.9.3389 is depicted in a portrait in a portrait of Oliver Hazard Perry painter John Wesley Jarvis.[24] Lastly,

some stylistic aspects of 1997.9.3389 are closely, if not exactly, reflected in a sword owned by a private collector, images of which were posted to napoleon-series.org in November 2000.[25] In particular, the ebony grip and knuckle bow of the sword in the posting appear to have been made with the same tooling as 1997.9.3389. The sword posted to napoleon-series.org has a maker's mark: the letters 'N' and 'K' with a cloth of grapes between the two characters. This is the mark of a family of armourers from Solingen, Germany, called the Katternbergs. Other makers of the same city, such as sword smith Peter Wilhelm Knecht, utilized many of the same style findings for sword hilts.[26] While there is no clear indication of sword 1997.9.3389's maker, it is evident that sword makers in Solingen used unique design elements identical to those found on this sword hilt, which had made its way to the bottom of Lake Champlain in New York by 1814.

The cutlass grips of the Leege collection, 1997.9.3410 and 1997.9.3411, are harder to assign a particular classification, as the nature of cutlasses for all navies was to be utilitarian and inexpensive, i.e. made a simply as possible. This meant that the most common cutlass configurations contemporary to the battle- including the French model 1801, pre-1804 English double disks cutlasses, and American model 1797 cutlasses- all used simple iron sheetmetal guards, simple iron pommels, and simple turned cylinders of wood for grips.[27] One piece of information which would help in deciding of the country of origin of these cutlass grips would be the wood species. If the Lake Champlain Maritime Museum has a sample of the cutlass grips identified, it may indicate a country of origin. Hard maple or birch could indicate American, whereas beechwood would narrow the scope of search to central Europe.

Certain knives in the Leege collection exemplify early editions of what are, in some cases, still popular forms of pocket knife through to the current day. Starting with folding knife 1997.9.1614, we can see an early English Barlow style knife. This particular knife, though

heavily corroded, shows the hallmarks of English pocket knives as they were during the Revolutionary War as well as the French and Indian War. The especially long bolster and upturned heel mark this knife as peculiarly British in form.[28] Pocket knives of this style were quite popular with British soliders into the War of 1812 era.

The Barlow style of knife saw many variations in its design, some of which can be seen in folding knife 1997.9.1489. This knife retains the upturned heel of the earlier form of Barlow described above, with the handle being more rectangular and filled out, a style similar to a knife found at the 17th Regiment of Foot's Revolutionary War camp at Inwood, New York.[29]

One immediately recognizable knife form is that of the stockman's or trapper's knife, as seen in folding knife 1997.9.704. Here we have something of a puzzle. While multi-bladed jackknifes of the sort exist and date back through the late 17th century, this particular form of knife did not see widespread use until the mid 19th century as the classic "cowboy's" pocket knife. While finding the first examples of a knife which has become so culturally ubiquitous is a mammoth task due simply to the prevalence of the form, no evidence as of yet found by this author supports that such a knife was in use at the beginning of the 19th century. Consequently, I would caution that this blade might well be a drop-in artifact, perhaps lost by some young person out on the winter ice of Lake Champlain later in the 1800's.

Axes at the time of the War of 1812 largely fell into three sizes: hawks, hatchets, and pole axes. Several features distinguished boarding axes and combat axes in general from more mundane tools. Firstly, boarding axes were light, rather then being several pounds, which would have increased the time required to recover an axe after a swing. A boarding axe head of about a pound (.5 kg), give or take a few ounces, allowed their wielders to swing and recover rapidly during battle. Next, boarding axes were deeply cambered at their cutting edge, the severe radius

allowing the axe head to deliver effective cuts to rigging, timbers, and men without as much need for focus and control. Lastly, and most importantly for boarding axes, picks were incorporated onto the poll of the axes to make them useful in moving rigging and sailcloth that was loose on deck, especially in instances when such material was set alight by enemy incendiary weapons.[30]

The axe head in the Leege collection is, not a boarding axe. Neither is it a hewing axe or a side axe, or any other axe unique to or necessary for shipboard applications. Rather, the axe in the Leege collection is simply a forest axe of medium size, manufactured in a typically American style with ears and a slight beard. This form would come to be the most common form of axe and hatchet head in the late 19th century and through to the current day, though one difference remains between the axes of the War of 1812 and those of the current day. It was not until the mid 19th century that the axe handle began to take on its now-essential sheeps foot design. During the War of 1812 era, this forestry axe, with its primary purpose of clearing brush and small trees, had a straight shafted handle with no curve whatsoever.[31]

Similar in form to the axe head found at the battle site, a second axe head which was present with the squadron was found in the bilges of the schooner, *Ticonderoga*, when the wreck was raised in 1958. The axe head found on *Ticonderoga* was conserved in 1982 and is currently on display, as are the remains of the ship itself, at the Skenesboro Museum in Whitehall, New York. [32]

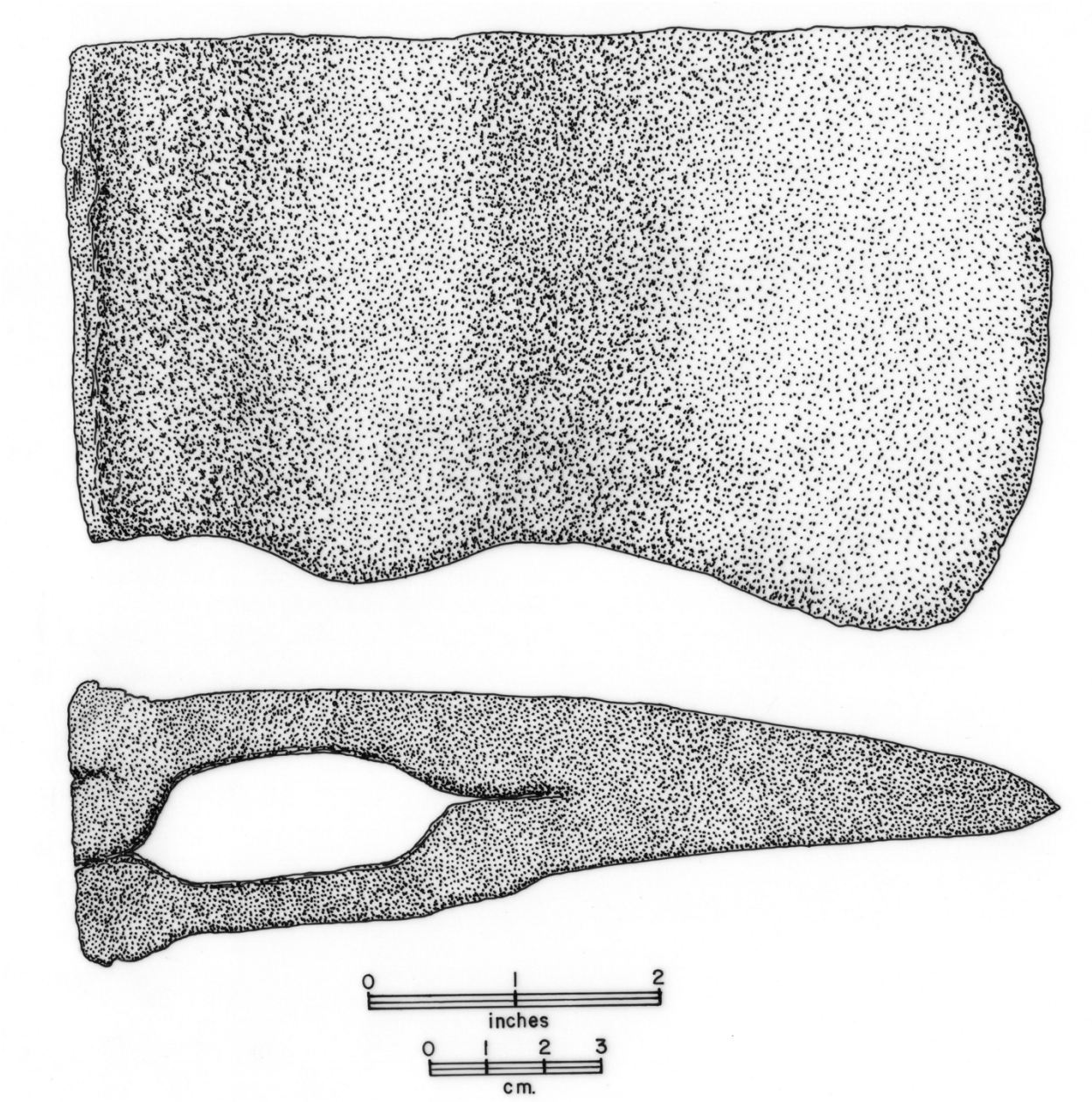

Figure 50. Ticonderoga Axe Head (Courtesy of Dr. Kevin Crisman, 1982) [33]

Firearms

The firearms components contained in the Leege collection represent a mix of British-made musket parts and American redesigns. Of the components which were recovered from the lake, none, except the partial musket, bear any relation to one another, so they are herein considered individually.

The general process for the construction of a gun was the same for the British government as it was for many American gunsmiths. Rarely ever would one man oversee the entire creation of each component of a firearm through to the final construction of a gun. Instead, systems of ordnance procurement were well-established and required the skills of numerous craftsmen. For example, the British system for the production of small arms proceeded as follows: upon the request of ordnance from some regiment or ministry, the Army Board of ordnance contracted from no less than seven associations of craftsmen to make firearms. Founders cast components for gun furniture and mechanism, smallwork makers refined castings and created mechanical components for the firearms. Gunlock makers fitted and tested firing mechanism components (they seldom started from raw materials). Gun barrel makers provided and arranged the proofing of gun barrels with the guidance of Tower of London inspectors, while ram-rod makers and bayonet makers each had their own trade to ply. After the creation of all of a firelock's components, rough stockers shaped the stock of a firearm. Finally, persons referred to as setters uppers, the persons who we now might think of as "the gunsmith", fitted all of these parts together, making slight changes to ensure each and every piece functioned as designed.[34]

Whether or not the components of the Leege collection were in British hands at the time of the Battle of Plattsburgh, is a relatively simple question. For the most part, they were not. The

British had long though unofficially accepted the service life of muskets to be at most 12 years. This life expectancy was shortened due to campaigning and even more severely shortened by sea service.[35] While many terrestrial British soldiers brought to North America the arms they carried since the beginning of the Napoleonic wars, the British Navy in the Americas exclusively used the 1802 sea service musket and the 1801 sea service pistol. Because it operated in an environment particularly detrimental to the maintenance of firearms, the Royal Navy had a need for re-equipping. [36] With the exception of the tumbler assembly and sear spring from the Leege collection, none of the small arms components were of the type found on model 1802 sea service muskets. The trigger plate and sling attachment from the private collection discussed in Chapter Four, however, are possibly of a style from the 1802 muskets, though these parts are far from unique to the 1802 sea service muskets.

One of the methods for dating muskets is the inclusion of a double bridle in the gun lock. A double bridle refers not to one feature but rather two separate bridles. The first is internal and links the sear and tumbler mechanisms with a free-moving plate; the bridle which gives a diagnostic date is external. The second bridle of a double bridle system refers to a small extension from the front of the pan of the lock, which creates a gap between the bridle and the lock plate into which the frizzen of the lock can be very securely installed. In contrast, earlier locks with no double bridle hold the frizzen to the lock plate with only a single screw and friction. The generally accepted date by which double bridles become universal is 1745.[37] Pan 1997.9.0157 of the Leege collection does not contain any indication of a double bridle, and so, is likely from a firearm which was either vintage in its time or was created using older surplus parts.

Generally speaking, ramrods of earlier flintlocks were wooden, while later ones were iron. The short land pattern musket in 1770 was the last military pattern arm to be converted from using wooden ramrods to ramrods of iron or steel.[38] While not the best diagnostic tool for dating firearms, the ramrod tip 1997.9.1084 was likely used with 1814 British military equipment. The ramrod tip of the Leege collection likely was a military surplus component from a much earlier British-made musket which saw use either in an American-made musket or in a genuine antique which saw use right through the Battle of Plattsburgh. In 1750, with the adoption of steel ramrods in long pattern muskets, the British began to issue new ramrods of iron to replace wooden ones. Since iron ramrods did not need the same diameter of rod as did a wooden rod, the same strength could be achieved with a thinner section. To keep thin new ramrods from shaking around in the tumbles or pipes of muskets, thimbles were made smaller after this date. Interestingly, older and larger thimbles were not discarded when a gun required a new ramrod and received a thin iron rod. Rather, the thimbles were removed from the gun and an iron lining was soldered on the inside of the thimble to close the gap between the old and new diameters. The thimbles, thus retrofitted, were reinstalled on the firearm.[39] The ramrod tail-pipe discussed in Chapter Four is of a larger diameter to accommodate a wooden ramrod and was not lined to accept an iron ramrod. Thus, it is most likely that it, too, was in American hands at the time of the battle.

One final point of interest is the escutcheon marked ‘H/21’ on its shield. This marking is not indicative of any regimental marking, British or American. Such regimental markings are found on barrels, lock plates and, in some cases, escutcheons. However, the best understanding of this marking is that it represents the bookkeeping of the barrack or armory which once

contained it. What 'H/21' would signify in that context is a rack number for a large store of arms: Rack H, Musket #21.

One of the most impressive pieces of the Leege collection, the partial musket, is also one of the more difficult artifacts to date. Muskets of the same British military model can be found from the 1720's through the early 19th century. One of the first indications of nationality and age is the fact that it is not an 1802 sea service musket. As mentioned in the above discussion section, the British Navy stationed in the Americas during the war exclusively used the 1802 sea service musket. Presumably, this musket in question was used in American hands during the battle.

The stock itself carries a vague terminus post quem in the form of the thin palm swell at the location of the tail pipe. Before the late pattern 1730/40 musket, the palm swell of the stock of muskets for British military service were bulbous, but with the pattern 1742 and 1756 muskets onwards, all stock swells were narrowed as is exhibited on the musket of the Leege collection.[40] For this reason, the stock itself can be dated sometime after the early 1740s. A more established dating feature is the inclusion of a forward-curled spur in the trigger guard bow, which was introduced in 1740 and became standard thereafter.[41]

The next diagnostic feature of the musket is the long trumpet thimble for the forwardmost thimble of the musket. The long trumpet saw use as a fore-pipe as early as the land service musket of 1742, but was made a standard feature on the pattern 1756 long land musket.[42] The long trumpet was used in conjunction with steel or iron ramrods and aided in the swift re-insertion of the ramrod into the storage position. In 1777, a secondary trumpeted thimble designed by English gunmaker William Pratt was introduced to allow even easier ramrod insertion.[43] The usefulness of the Pratt pipe led to its immediate widespread application in British

guns and, being that a Pratt pipe is conspicuously absent from the Leege collection musket, this gives some soft indication of a terminus ante quem in the late 1770's.

The sheet metal nose cap, or "latten" band, was introduced in the mid 1740's and was replaced by a cast nose cap starting in 1749.[44] This date range is one possibility for the initial creation of this firearm. Another possibility is that the musket was a later production, still likely before 1777, which was repaired with a makeshift sheet metal nose cap. It is even possible that the firearm was created at a much later date, up to the time of the battle, out of a large variety of spare parts. The fact that the trigger plate of the musket is cut behind the trigger seems to indicate that either the plate was cut to force match a variety of different pattern components or a repair was made which required the installation of this new trigger plate and the gunsmith was unwilling to remove the trigger before installing the plate. One further feature which hints that the musket was created from mixed parts at a later date is the inclusion of the ornamental two screw side plate. While not as ornate as many trade gun side plates, the side plate of the Leege collection musket is more decorative and uses far more metal than any military issue firearms of British or American forces at this time. While there are period examples of non-military guns with similar side plates, the author has not yet come across any military guns with such side plates.

Concerning the Leege collection musket, the author has concluded that it was either a mid 1740's military weapon which saw a long post-service life with many repairs and upgrades though time or that it was produced by colloquial local in the United States area in the late 18th or early 19th century.

CHAPTER VI

CONCLUSIONS AND FURTHER RESEARCH

The small arms utilized and subsequently lost at the Battle of Plattsburgh Bay included bladed implements of several different national origins: British, American, French, and perhaps German. The popularity of French-designed swords as a badge of office and a marker of social status among American officers resulted in the importation not only of common regimental arms such as briquettes, but also of high-quality swords. One such sword is the gilded officer's sword, 1997.9.3389, likely made by highly skilled craftsmen in Germany.

This research has revealed that many of the blades, personal tools, and firearms of participants in the battle were possibly much older than their context suggests, with some artifacts potentially having origins closer to the Revolutionary War. The pocket knives, in particular, show the development of British knives over time as the tastes and needs of soldiers developed.

On a related note, a clear pattern of reuse of small arms components in the form of refitted arms has been established. Many of the firearms components of the collection were likely not used as issued. For instance, the partial musket contains components designed for a variety of guns and styles that were likely force-matched in order to create a functional weapon that could be used to hunt in the northern wilderness or to fight a war on land or on the water.

Continued research on the weaponry in the Leege collection should include the determination of flint origins by means of micro-fossil, cystaline, or X-ray flourecense analysis; the dendrologic examination of the musket stock and cutlass grips to determine, if possible, the species of wood and, thereby, possibly the country of origin of the artifacts; and the further

evaluation and comparison of sword components, to narrow down possible makers of the distinctive hilts.

The undertakings of William Leege and the Lake Champlain Archaeological Association (LCAA) marks a fortuitous departure from the common practice of looting cultural heritage sites on Lake Champlain. While some divers have and still continue to take advantage of a shared underwater heritage, this way of pillaging has been greatly discouraged due to the influence of groups such as the LCAA. Thankfully, most divers now are concerned with the preservation of underwater heritage sites and are interested in the publication and accessible curation of objects of historical importance. The Lake Champlain Maritime Museum and other local historic societies have enabled research like this thesis to take place and continue to allow our development of a better understanding of the material world and customs of sailors over the last 250 years of maritime activities on the waters of Lake Champlain. The efforts of the LCMM to incorporated the work of avocational divers in itsarchaeological research is an example of what ought to be viewed as best practice.

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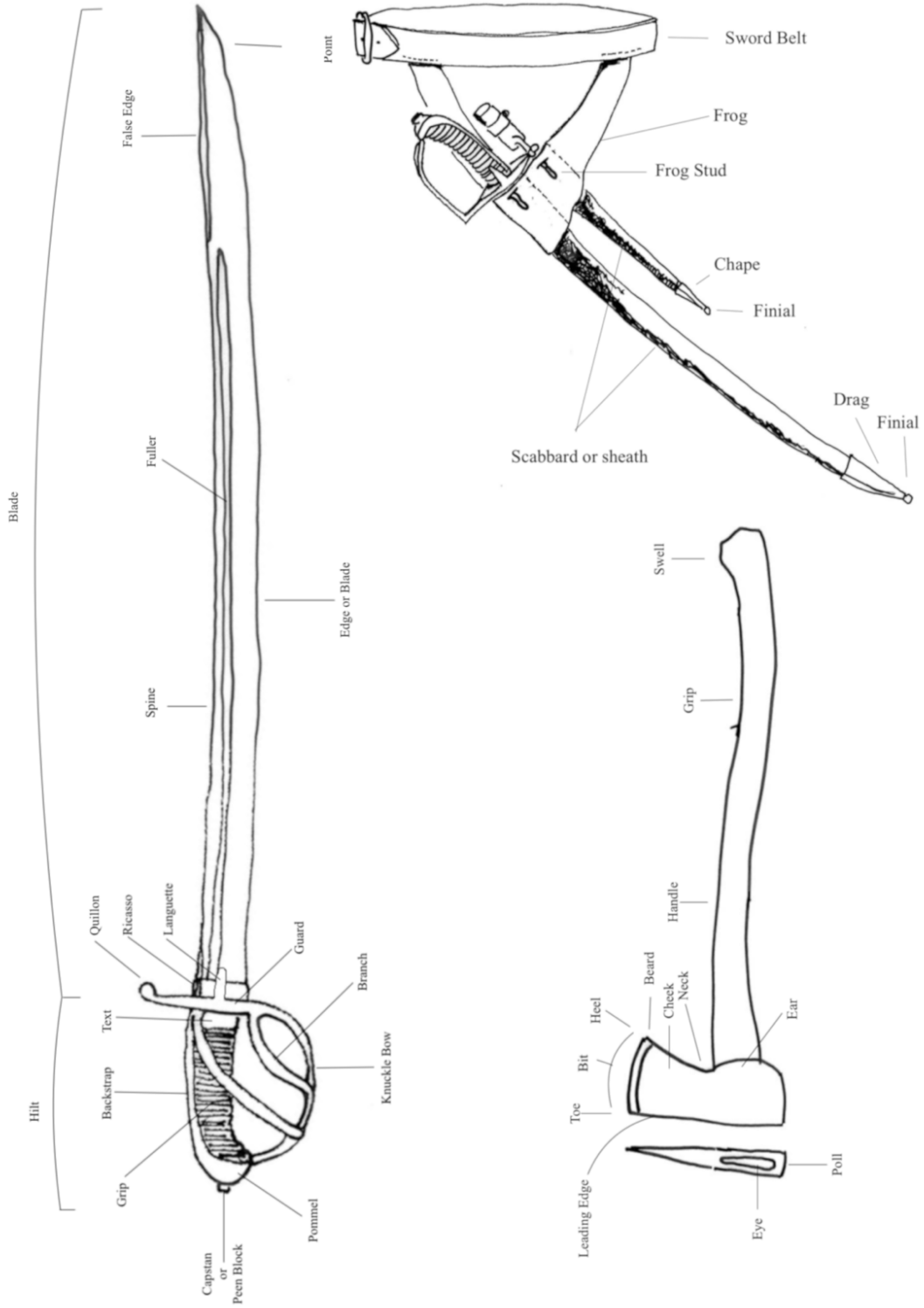
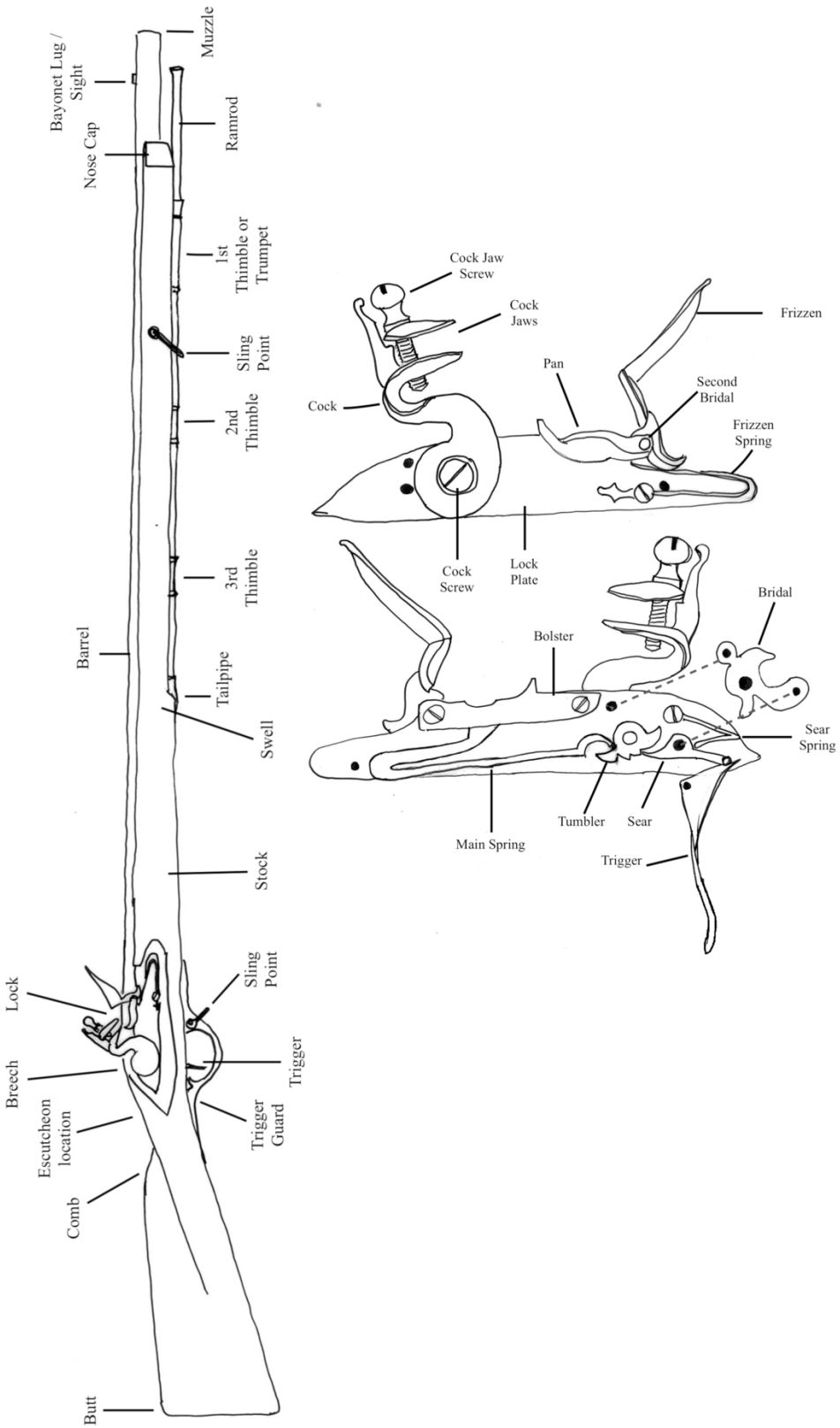
APPENDIX A

DIAGRAMS OF NOMENCLATURE




Muzzle
Bayonet Lug / Sight
Ramrod
Nose Cap
1st Thimble or Trumpet
Sling Point
2nd Thimble
3rd Thimble
Barrel
Tailpipe
Swell
Stock
Sling Point
Lock
Trigger
Breech
Trigger Guard
Escutcheon location
Comb
Butt
Cock Jaw Screw
Cock Jaws
Frizzen
Pan
Second Bridal
Cock
Frizzen Spring
Cock Screw
Lock Plate
Bridal
Bolster
Sear Spring
Tumbler
Sear
Main Spring
Trigger

APPENDIX B

GLOSSARY OF TERMS

AXES

BEARD The portion of the axe bit, which extends below the main portion of the axe head.

BIMETALLIC An axe head that is primarily made of cheaper iron, but with a high quality steel bit forge-welded in place.

BIT The cutting edge of an axe head.

CAMBER The curvature of an axe bit as described by the radius of the arc of the bit.

CHEEK The "wedge" of the axe whose angle is the primary factor in determining an axes suitability for a particular task.

EAR The side portion of an axe head, in line with the eye, which may or may not slightly extend down the handle of the axe.

EYE The tapered opening in the axe head which retains the axe handle.

HEEL The lower corner of the axe bit.

LEADING EDGE The top portion of the axe head.

NECK The recessed portion of the axe head between the ear and beard

POLL The rear of the axe head, which is either squared or rounded off.

TOE The upper corner of the axe bit.

FIREARMS

BARREL The metal tube of a firearm from which a projectile is fired.

BREECH The rearmost portion of the barrel.

BREECH PLUG The threaded plug which closes the rear end of the barrel. The plug has the threaded portion and a tang portion for which an inlet must be made in the stock of the firearm.

BRIDLE An auxiliary support or backing made of metal which supports the fasteners and pivoting components within a flintlock. The first bridle is internal and helps support the tumbler while the second bridle is part of the pan bolster and helps support the frizzen.

BUTT The widening portion of the stock which rests on the shoulder of the user.

BUTT PLATE A cast cap or plate which protects the butt of the stock.

COCK The lock component which holds the flint in its jaws and strikes the frizzen.

COMB the portion of the butt stock which rises to provide a cheek rest for the user.

ESCUTCHEON A decorative metal plate inlaid into the stock forward of the comb.

FRIZZEN The steel portion of the lock which protects the primed pan and which is abraded by the flint in order to generate the hot iron sparks which ignite the priming powder.

FRIZZEN SPRING A spring which provides pressure to hold the frizzen in a closed or opened position

LOCK PLATE The plate upon which the firing mechanism is mounted.

MAIN SPRING The large spring that provides the energy to throw the cock forward when the firearm is discharged.

MUZZLE The forward end of the barrel.

NOSE CAP The cap which protects the forend of the stock. Typically made of cast brass.

PAN The location which holds priming powder such that heat from the powder's ignition in tern detonates the black powder charge within the breech of a loaded flintlock via the touch hole.

PAN BOLSTER The supporting framework which attaches the pan to the lock and, in the case of double bridled locks, supports the frizzen.

RAMROD The rod used to seat a projectile over a black powder charge during the loading process.

SEAR The lock component which translates the movement from the trigger to the tumbler.

SEAR SPRING the small spring which holds the sear against the tumbler.

SIDE PLATE The backing plate located on the side of the firearm opposite the lockplate.

STOCK The wooden portion of the firearm to which the firing mechanism, barrel, and furniture are fastened

SWELL The swell of the stock at the location of the tailpipe which accommodates the user's support hand.

TAILPIPE The innermost thimble on a flintlock.

THIMBLE One of a set of small pipes which help to retain the ramrod below the stock when not in use.

TOUCH HOLE The small hole through which Heat from the priming powder charge ignites the main blackpowder charge.

TRIGGER The component which causes the sear to disengage with the tumbler, firing the firearm.

TRIGGER GUARD A brass bow that protects the trigger from damage and accidental discharge.

TRIGGER PLATE The plate through which the trigger passes below the stock.

TRUMPET A particular type of thimble which flares open at its front edge. If in the forwardmost thimble position it can be called a trumpet, and if in the second thimble position is called a Pratt pipe.

TUMBLER The lock component which translates energy from the mainspring of the firearm to the cock. Two notches are filed into the lower-rear portion of the tumbler which engages the sear, these are the half cock and full cock notches. The half cock notch is too deep for the sear to be disengaged with the tumbler under normal travel of the trigger, only being disengaged when the cock if brought fully back. The full cock notch is shallow enough such that the travel of the trigger sufficiently displaces the sear as to disengage the sear from the tumbler allowing the tumbler to rapidly release the energy of the mainspring which was compressed by the cocking of the firearm.

KNIVES

BOLSTER Metal reinforces located between the handle and the blade of a knife.

LINER The framework of the knife which supports both the handle scales and the blade. Liners are located inside of both handle scales.

CENTER LINER In knives with multiple blades, a center liner can be employed to separate the blades and fill out the handle.

DOUBLE END SPRING An end spring which supports a blade at both ends.

END SPRING A spring which is fixed to the knife frame at one end or in the middle, which engages the heel of a folding knife blade in order to support it in an open or closed position.

HANDLE SCALE The material which protects the frame of a folding knife and provides grip to the user.

HEEL The squared cam end of the blade of a folding knife which, when acted upon by an end spring, holds the blade in an open or closed position.

HOLLOW A recess cut into the frame and scales of a folding knife which allows the user to manipulate the blade with their fingers.

SLIPJOINT A folding knife which is held open by a means of a leafspring, which can be opened and closed with a normal force, but which does not otherwise lock in the open or closed position.

SCABBARDS AND SHEATHS

CHAPE The metal tip which protects the lower portion of a scabbard or sheath.

DRAG A particular form a chape which is crescent shaped and has additional sacrificial metal along the bottom edge, meant to keep a saber scabbard from dragging along the ground when worn from a swordbelt.

FINIAL A decorative metal casting fixed to the bottom of a sheath or chape.

FROG A leather tube which hangs from a swordbelt or some other feature of the user's outfit which holds a scabbard or sheath within it.

FROG STUD One method by which a sheath or scabbard may be fixed within a frog. A downward facing hook which passes through a corresponding hole in the frog thus securing the sheath.

LOCKET The metal covering which protects the upper portion of a sheath or scabbard.

THROAT The opening of a sheath or scabbard.

SWORDS

BACKSTRAP The back portion of a saber hilt which helps to provide grip and hold the hilt together.

BLADE The cutting edge of the sword.

BOLSTER A metal reinforce located at the forward edge of a sword grip, before the guard.

BRANCH A portion of the guard that wraps around the exterior of the user's hand, which is comprised of a thin metal rod.

CAPSTAN The nut which threads onto the end of a threaded sword tang thus holding the hilt together.

GUARD The crosspiece or plate which protects the user's hand from incoming blows.

GRIP The portion of the sword which is held when in use.

KNUCKLE BOW Protects the user's hand in much the same way as does a branch, but is more substantial and forms a 'D' shape which runs parrallel with the blade.

LANGUETTE Tongue shaped protrusions from the front the guard, which engage with recesses in the scabbard to help secure the sword and reduce scabbard rattling when not in use. Decorative languettes may also exist protruding backwards from the guard into the grip.

PEEN The act of upsetting the end of an unthreaded tang such that the lower end of the sword blade acts like a rivet, fixing the blade to the hilt.

PEEN BLOCK A metal block which helps distribute the compressive force of a peened tang throughout the pommel of the sword hilt.

POMMEL A swell at the base of a sword hilt which aids in maintaining a firm grip on the sword.

QUILLON A protrusion from the grip of the sword which serves to expand the guard.

RICASSO A short, unground portion of a sword blade near the hilt.

SCABBARD A storage container for a sword which is made of wood, steel, leather or some combination thereof, which protects the blade and its owner when the sword is not in use.

SCALES The outermost layers of a laminated sword grip.

SPINE The unsharpened back side of a sword.

TANG The portion of the sword blade which protrudes though the guard and the hilt. The tang can be fixed where it exits the hilt's base or pommel either by a threaded capstan or by peening.

MANUFACTURING

BRUSHING A finishing technique which is achieved through scraping the surface with abrasive wire hand brushes, leaving a matte surface finish.

BURNISHING A polishing process which achieves its goal through the rubbing and compression of the material being polished.

CHASING A process which creates debossed features in metal by hammering with the use of a specialized chisel called a chaser. The process is typical for the finishing of fine castings.

DAPPING A process which creates embossed features in sheet metal by hammering the metal from one side into a swage or dapping block on the other.

DEBOSSING The fabrication of debossed features by any means.

FILING The removal of material with serrated files.

GILDING The covering of a substrate material with precious metal leaf secured by means of adhesive bonding agents.

KNAPPING The subtractive manufacturing of flints through strategic breaking and chipping away of material.

KNURLING The production of a textured surface through either impressing or carving of a pattern into a material's surface.

ORMOLU A method of achieving a more permanent gilding effect in which a gold-mercury amalgam is applied to a metal surface to be gilded, subsequently the mercury is burned off in a furnace, leaving behind the bonded gold.

PLANISHING The smoothing of a metal surface by gentle, repetitive hammering.