Collection Inventory and Analysis from Fayetteville Arsenal, North Carolina

by
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Abstract

Schmidt, Mary E. Collection Inventory and Analysis from Fayetteville Arsenal, North Carolina. 51 pages, 16 figures. Excavations occurred in 1972 at the Fayetteville Arsenal site in Fayetteville, NC in response to North Carolina Department of Transportation's plans to construct the Central Business District Beltway. Exploratory trenching was done by CAI Preservation and successfully located the arsenal's foundation. An inventory and analysis of the 3,894 artifacts generate from the 1972 excavations represent 10 different artifact groups, 44 categories, and 148 different artifacts classes. Collection recommendations, spatial associations and future research potential are also examined.

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INTRODUCTION

General Site Information

Site Name/State ID: Fayetteville Arsenal, 31CD280**
Location: Fayetteville, North Carolina
Site Type: Military – Civil War Period, 1835-1865
National Register of Historic Places: #83001863
Accession Numbers: 72013p1 – 72013m1114

Purpose and Intent

This report is intended to provide an overview of the North Carolina Office of State Archaeology's Fayetteville Arsenal legacy collection that was generated in 1972 by CAI Preservation. It provides a detailed account of the standard archaeological laboratory techniques used over the course of inventorying, cataloging and conserving the collection. This report includes an inventory of all identified cultural material with descriptions, typological make-up, a brief spatial analysis, a research potential assessment, and further recommendations for the collection and its management.

Site History

In the early 19th century, the United States government selected Fayetteville, North Carolina as the location of an ordnance- and firearm-manufacturing site to fulfill the need for a weapons distribution center between Washington, DC and Augusta, Georgia. The cornerstone for the arsenal was laid on April 19, 1838 and it was completed in 1861. The project took 23 years due to the lack of skilled workers, a shortage of building materials, insufficient access to railroads, and intermittent funding from the federal government. On April 17, 1861, just prior to North Carolina's secession

from the United States, Governor John W. Ellis ordered the seizure of the arsenal. Shortly thereafter, Ellis offered the arsenal to the Confederacy, which was immediately put to use for arms production, upgrades, and repair (Belton, 1979). The arsenal was in use under the Confederacy for the entirety of the Civil War until Union forces under General Sherman destroyed it on March 14, 1865 during his North Carolina campaign (Figure 1).

Figure 1. Sketch of the Fayetteville Arsenal by B. Lossing, from NCDCR.

Previous Archaeological Work

Archaeological investigations at the Fayetteville Arsenal took place in three separate phases. The initial work was instigated by the North Carolina Department of Transportation's (NCDOT) plans to construct the Central Business District Beltway, which would run through the site from Hay Street to U.S. 301. The first phase was a ground

survey completed in July of 1968 by Stanley South of the North Carolina Division of Archives and History (A&H). Glenn Little with Contract Archaeology, Inc. who had been sub-contracted through A&H, supervised a second phase, from December 1971 to July 1972, which included exploratory trenching to locate the original foundation of the arsenal. The third and final phase included additional data recovery, conducted by John Clauser of A&H in the fall of 1980. Each of the collections that were generated over the three stages of archaeological work at Fayetteville Arsenal are housed at OSARC. The curatorial methods and treatments specified in this report refer to the collection of artifacts from the second phase only.

Archaeological investigations were motivated by groundbreaking public concern about the destruction of this site. Mrs. Margaret McMahan of the Cumberland County Historical Society brought the site to the attention of the Fayetteville community and reached out to the North Carolina Division of Archives and History (CAI, 1973). Public concern, as well as the interest of local government officials, led to legislation that approved the expenditure of funds by NCDOT for archaeological research and data recovery as a form of mitigation under the direction of the A&H.

In a cooperative effort between NCDOT and A&H, an agreement was made to conduct additional exploratory archaeological investigations at the recommendation of Glenn Little. The agreement states that the portion of the site acquired by NCDOT for the right-of-way lane on the Central District Beltway would still be available for road construction (Bradshaw, 1979). The area of the arsenal that remained was then nominated to National Register of Historic Places on February 23rd, 1983. As part of the

agreement between NCDOT and A&H, materials generated by the excavations were to be given to A&H. The collection was then handed over to the Office of State Archaeology upon its establishment in 1973 and was later re-housed at OSARC. Some of the collection was put on permanent loan to the city of Fayetteville and can be seen in the Museum of the Cape Fear in Fayetteville, NC. The area of the arsenal that remained was nominated to National Register of Historic Place on February 23rd, 1983.

Currently, the site is known as Arsenal Park and is a part of the Museum of the Cape Fear Historical Complex and is regularly open for visitation. The site includes explanatory signs, a steel life-size model of the Northwest tower, and two Civil War Trail markers. It is slated to be the future home of the North Carolina Civil War Museum ("Arsenal Park").

METHODOLOGY

Initial State of the Collection

As of March 2014, the collection remained unaltered since its submission and accessioning into the NCOSA repository in the 1970s and 1980s. Items were washed and stored in brown paper bags with provenience data recorded on them, likely the same bags used in the field at the time of collection. The collection was housed in 34 long boxes, on the third floor of the repository at K2B-C, which also included collections from Stanley South's 1968 work as well as both the 1972 and 1980 projects. OSARC staff also provided two extensive reports, *The North Carolina Arsenal Historical and Salvage Archaeological Study: Volumes I and II*, that were produced by CAI. The reports

provided additional information that would be used to recreate provenience data for the artifacts.

Methods and Procedures

According to the Curation of Federally-Owned and Administered Archaeological Collections, 36 CFR 79, the North Carolina Office of State Archaeology must be able to provide professional and accountable curatorial services on a long-term basis (Appendix 2). Some of the responsibilities required to meet these standards may include:

- Provide a catalog list of the collection contents to the responsible party (i.e., Federal Agency Official, Indian landowner, or Tribal official);
- Periodically inspect the physical plant to monitor physical security and environmental conditions;
- Periodically inspect the collection and associated records to monitor their condition;
- Periodically inventory the collection and associated records;
- Provide a written report of the results of inspections and inventories to the responsible party; and
- Make the collection available for inspection by the responsible party (Appendix 2)

Laboratory work should be carried out in a responsible and methodical way and should be part of a continuum from the field to laboratory to prevent data loss. It is important for laboratory staff to have an understanding of the field methods that were

employed during excavation to make a solid analysis and interpretation. However, this has not been the case with the Fayetteville Arsenal due to its creation and accession into the repository prior to the 1990 passage of 36 CFR 79. Despite the fact that 42 years have passed between the excavation and collection of the artifacts, the Fayetteville Arsenal artifacts were analyzed, conserved and curated in the most efficient and effective way possible over the course of this project.

The first step in processing the collection was to do an initial inventory of the contents of each of the nineteen long boxes. The long boxes had dimensions of 29.5 x 10 x 4 inches and contained anywhere from six to seventeen paper bags of material and occasionally larger, loose artifacts. Each bag was then logged into an Excel spreadsheet that included the provenience and bag label information as well as the identifications of the original box it was stored in. There was a total of 263 bags of material in the nineteen long boxes, including nine bags from Stanley South's 1968 work that were stored in multiple boxes.

The next step was to group the bags into temporary boxes on the basis of provenience. This was necessary because proveniences had been mixed up in their original boxes. The maps and provenience information recorded on each bag could be linked back to specific excavations and areas based on the data in *The North Carolina Arsenal Historical and Salvage Archaeological Study.* The provenience of most of the bags, 238 in total, was specified to the level of Area, Trench, and Artifact Collection (FA A-#-T-#-#). The labels on 34 bags were associated with the cistern and had Area and Artifact Collection Code designated (FA A-#-C-#). Seventeen bags had labels inconsistent

with the rest of the collection. The bags from these disparate provenience were grouped in a single box. Finally, the materials collected during 1968 ground survey project by Stanley South were deposited into a separate box as an independent collection that required its own accession number. The new box numbers for each provenience were then logged in the Excel spreadsheet.

Although the next step would typically be to clean, wash, and label the artifacts, it was found that this had already been done so the cataloging and analysis could begin. Prior to the artifact analysis, the 1972 collection was assigned an accession number by the OSA Site Registrar as no original/alternative accession system had been established from the collection.

The CAI report provided a rough inventory of artifacts that were to be found within each of the bags and a corresponding number (e.g. an artifact from bag A-1-T-2-13 would be labeled as A-1-T-2-13 (11)). These numbers has previously been labeled onto the physical artifacts with permanent marker and were repeated for every different artifact code number. Provenience descriptions linked to the artifact collection code number existed within the report, however, the numbers were not sequential within units nor were they related to any measurements of depth, so I was unable to reconstruct the artifact pattern stratigraphically within the individual units.

Cataloging the artifacts requires the completion of a two forms: an artifact data card that would later be input into OSARC's computerized database known as ARTCAT and a smaller artifact ID card that would be placed in the bag with the artifact. Both of the forms include the same information in slightly different formats but are meant to

serve as a backup to one another in the event of some kind of discrepancy (see "Guide for Completion of OSARC Artifact Catalog Cards" on file at OSARC). Data included on both of these forms includes:

1. The accession number. This number is made up of three parts: the lot number (72013 for the Fayetteville Arsenal), the lower case alphabetic classification number (e.g. a = artifact with significant diagnostic/interpretive value, p = pottery sherds, eb = ethnobotanical/organic materials, etc.), and the specimen number.
2. The age (e.g. Prehistoric, Historic, or Modern) and if possible, a specific time period associated with the artifact (e.g. 18th Century, 1790 – 1850).
3. The artifact group, category, and, if possible, the class associated with the artifact. The group refers to the broad functional category the item is a member of, the category is usually based on form or function, and the class is an exact descriptor of the object. OSARC employs the North Carolina Artifact Pattern, developed by Stanley South, to accomplish this. For example, a flat base sherd from a plate would be assigned "Kitchen/ceramics/plate" (South, 1977).
4. The material the item is made of (e.g. refined earthenware, lead, shell, etc).
5. A brief description of the item including measurements, weight, color, shape, design, glaze, pennyweight or any other distinguishing descriptive remarks.
6. The locality or the site number.
7. The association number, which indicates any provenience information available for the specimen.
8. The name of the principal investigator and the year of collection.

Additional information that may be included (if known) is any other non-OSARC numbers assigned the specimen, the OSARC box number, and the disposition (e.g., conserved, missing from inventory, etc.). After cataloging, the artifact, along with the artifact ID card, were inserted into a size-appropriate self-seal plastic bag for permanent storage and all the artifacts from each provenience were then grouped together in a larger bag that was marked appropriately. The catalog forms were put into a separate pile that was ordered numerically by specimen number and would later be used for data entry into ARTCAT.

During the cataloging and analysis process, I developed an Excel spreadsheet database to better organize and manage the data collected in an easy to use, searchable fashion (Appendix I). Because different categories of artifacts required the analysis and recording of different features, using Excel allowed for easy manipulation to look at patterns within data subsets. In addition to using Excel to track different features of different categories of artifact, it also permitted me to track other points that may be of interest to researchers that were not included in the general cataloging and analysis of artifacts required by the standard OSARC Laboratory Manual, such as the presence of decorated pottery, whether something was or was not mentioned in the original report, conservation needs, etc. Using Excel let me look at groups of artifacts by their location within the greater arsenal (for example, all items found within the west line of shops), what items required conservation, what items had completed conservation and what items were and were not included in the original 1973 catalog.

The OSARC Laboratory Manual recommends that conservation only begin after all artifacts have been assigned a catalog number (Carnes-McNaughton, 1992). However, because of the large amount of iron present in the Fayetteville Arsenal collection, time constraints and limited space for treatment, the conservation process began during cataloging. The most regular type of conservation that was performed on this collection was electrolytic reduction cleaning, or electrolysis, and galvanic wraps. Electrolysis is performed on iron items deemed treatable and helps to remove any corrosion or incrustation that has occurred. Each artifact was considered for treatment on a case-by-case examination of its current condition as well as long-term stabilization considerations. No ammunition or ordinance was considered for electrolysis. However, these were individually examined to see if they had been expended or if they still appeared to be active.

If an artifact was considered treatable by electrolysis, it was dry-brushed with a brass brush and placed into the electrolysis bin. The electrolysis bin consists of a power generator and a large, plastic bin containing water and washing soda. Leads connect the generator with a metal rod from which the artifacts are suspended within the water by means of wire and alligator clips. The electrical current that passes through the artifacts into the water is a process that reverses the flow of electrons in the galvanic cell, ultimately converting corrosion to a more stable or easily removed form ("What Is Electrolytic Reduction and What Are Its Risks and Benefits?"). Once completed, the items were neutralized in distilled water for 24 hours and painted with a diluted solution of water and tannic acid. Several coats of tannic acid were applied and allowed to

completely air oxidize between each application. After this, the metal was lightly coated with a clear acrylic spray as a final treatment and sealant and allowed to dry before being re-bagged and placed with the other artifacts from its provenience.

Electrolysis is not suitable for cupreous metals (brass, bronze, or copper). In these cases, galvanic wraps were used. If an artifact was deemed treatable by a galvanic wrap, it was placed in an aluminum foil pouch, which acts as an anode, and placed in acetic acid (white vinegar). Every few hours the artifact must be checked and upon completion the surface of the artifact should be clean and a brown copper oxide color. The item was then neutralized in distilled water for 24 hours before being return to its bag with the other artifacts from its provenience. Approximately 133 artifacts received electrolysis or galvanic wrap conservation treatments; those that did were deemed too fragile or diagnostically insignificant.

The collection was placed into 10 brand new, acid-free (pH 7.0) Hollinger boxes (12” wide x 15” long x 10” tall) and 1 of the original longboxes (10” wide x 29.5” long x 4” tall). The original longbox was lined with acid-free foam core and was used to house several artifacts that were too large for the Hollinger boxes. The boxes were each relabeled with the site name, site number and the range of accession numbers that were included inside. The boxes were taken upstairs to the second floor storage area and placed on industrial shelving constructed of 18 gauge steel with back and side braces attached for stability where they will remain for future research, loan or exhibit (“North Carolina Archaeological Curation Standards and Guidelines Purpose and Authority”).

The final step was to enter and update all site and catalog information into OSARC's digital database. To do this, the data from each individual data form is manually entered into ARTCAT. Upon entry, each handwritten card was checked against the Excel spreadsheet by the author in order to ensure quality control and accuracy.

Curation of the 1972 Fayetteville Arsenal collection took approximately 510 work hours. Work officially began on May 12, 2014 and completed, including all aforementioned methods and procedures, on December 10th, 2014.

DESCRIPTION OF THE COLLECTION AND ANALYSES

General Patterns

The final curated collection included 3,894 artifacts housed in 11 boxes. The artifact pattern included 10 different artifact groups, 44 categories, and 148 different classes. *The North Carolina Arsenal Historical and Salvage Archaeological Study* listed 2,277 artifacts that were both mentioned in the report and present in the collection. This means that 1,618 artifacts were not mentioned in the original report but were present in the collection. Out of the total, 82 are on permanent loan to the city of Fayetteville (Gluckman, "Contract of Loan"). Artifact #72013A1106, a 3.67" Hotschkiss shell (Figures 2-3), was removed from the collection and relocated. The shell appeared to have an active, sealed powder chamber in it and was securely transported to ordnance specialists at the OSA Fort Fisher office for further examination.

Figures 2 and 3. Photograph of Artifact #72013A1106. Active powder chamber can be seen on right.

Artifact Pattern and Distribution

The 1972 excavations at the Fayetteville Arsenal included 29 trenches that yielded 264 bags of excavated material. The artifacts were distributed among five areas (Areas 1-4 and the cistern) of the site that were designated and described within the CAI report. Figure 4 is a duplicate of the plan view map from the CAI report and illustrates the locations of the different areas and trenches within the site. Area 1 was at the northernmost end of the site included the north enclosing wall of the arsenal, a line of shops, the northwest tower, and a barracks aligned on an east-west axis. Area 2 was located directly opposite of Area 1 and included the southern enclosing wall, gun-carriage no. 2 and a paint shop aligned on an east-west axis. Area 3 was the largest area and included the entire west line of shops: a timber store, a smith shop, an engine shop,

a turning shop and the northern and southern gun carriages all aligned along the western, north to south running enclosing wall. Area 4 was opposite of Area 3 and included the main arsenal structure and an area directly in front of it. Drainage pipes that began at the two corners of the main arsenal building in Area 4 extend westward and ended at the cistern approximately 30 feet east of the engine shop in Area 2 (CAI Preservation Consultants, 1973). The cistern was a brick water-containment area measuring 20.5 feet in diameter and approximately 10 feet in depth.

Provenience data down to the trench level could be determined by using data collected directly from the artifact bags, the CAI report, and site maps. However, several discrepancies were found among all three resources (Table 2). Because of this lack of synchronicity, provenience data can only be referenced down to most reliable spatial information throughout all of the sources: the area. A sixth spatial group, Unknown, will be used to refer to artifacts in the collection that were found loose or have no known provenience data attached to them. The provenience descriptions within the report also describe several trenches as "contaminated" but the lack of information describing their layer/level information does not allow for a viable reconstruction of the stratigraphy that maintained its integrity.

Due to the discrepancies of the spatial data, the artifacts are discussed by their functional groups. These are broken down further into both category and class per the North Carolina Artifact Pattern. Overall, 44 categories and 148 different classes are present in the collection. Table 1 illustrates the make-up of the entire Fayetteville Arsenal collection by group.

Figure 4. Plan view map of the Fayetteville Arsenal site from CAI report.

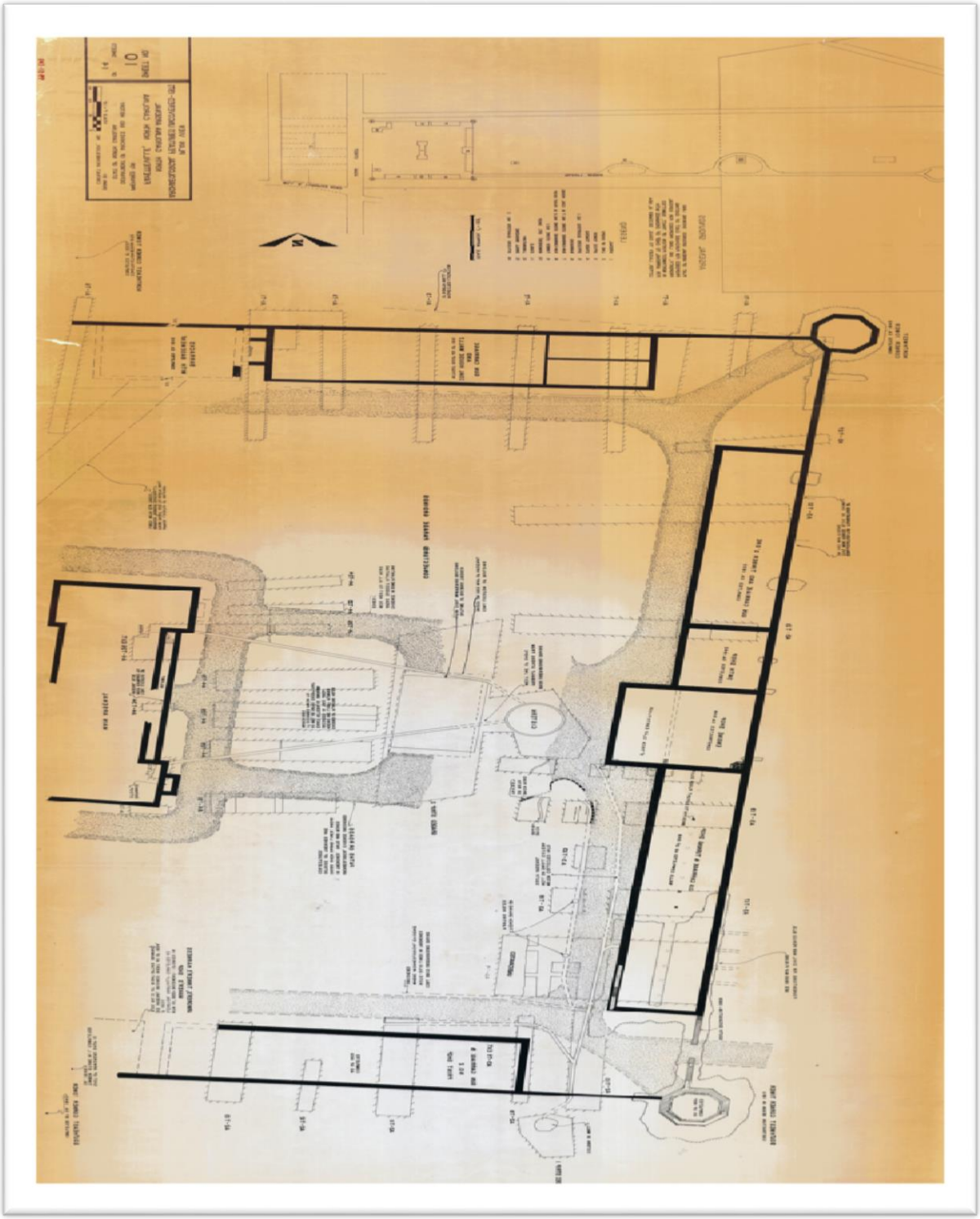

Table 1. Overall Summary of Groups in the Fayetteville Aresenal 1972 collection.

Groups	Counts	Percent	Weight (g)	Percent
Activities	127	0.03	19844.5	0.21
Architectural	2685	0.69	33179.2	0.35
Arms & Ammo	22	0.01	7677.5	0.08
Bone	34	0.01	526.4	0.01
Clothing	7	0.0	97.2	0.0
Furniture	8	0.0	214.0	0.0
Kitchen	622	0.16	8259.8	0.1
Miscellaneous	152	0.04	6362.1	0.1
Personal	3	0.0	68.0	0.0
Unidentifiable	234	0.06	17416.3	0.19
Totals:	3894	100%	93644.6	100%

Table 2. Summary of provenience discrepancies.

CAI Report	Plan View Map	Artifact Collection
Area 3 description states: "…Trenches 14 through 23 and Trench 27" = 11 trenches	A-3-T-17 A-3-T-18 A-3-T-19 A-3-T-21 A-3-T-22 A-3-T-23 A-3-T-27	A-3-T-? A-3-T-14 A-3-T-15 A-3-T-16 A-3-T-17 A-3-T-17/18 A-3-T-18 A-3-T-19 A-3-T-20 A-3-T-21 A-3-CENTER SECTION-WEST WALL OF SHOPS
Area 4 description states: "…Trenches 24 through 34" = 11 trenches	A-4-T-24 A-4-T-25 A-4-T-26 A-4-T-26 EXT A-4-T-28 A-4-T-29 A-4-T-30 A-4-T-31 A-4-T-33 A-4-T-34	A-4-T-26 A-4-T-28 A-4-T-29 A-4-T-31 A-4-T-32

Activities Group

The activities group is composed of a wide variety of artifacts reflecting a diversity of activities. The artifact pattern is often dependent on specialized activities that took place at a particular site; in this case the activities groups speaks to the general function of the arsenal as a place of industry and manufacturing.

The activities group consists of 127 artifacts, weighing 19,844.3g in total, and makes up 2% of the entire collection by count (Table 3). The activities group is largely made up of miscellaneous hardware, machinery parts and storage-related artifacts with all other categories comprising a significantly smaller portion of the group (Tables 4 and 5).

In terms of chronology, 119 artifacts are dated to the historic period, 4 artifacts are dated as modern, and 4 are unknown. Only one exact date range exists for the activities group and it is for the clay tobacco pipe, which has a date range from 1750 – 1800. This date was derived using the pipe's mean bore diameter (Binford, 1961). The four items dated to the modern period include a car battery core, two large pieces of terra cotta piping, and a license plate dated 1928. The four unknown items include a porcelain insulator, two terra cotta flowerpots and a metal pipefitting.

Table 3. Summary of the Activities group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 1	9	0.01
Area 2	24	0.01
Area 3	45	0.05
Area 4	22	0.03
Cistern	24	0.08
Unknown	3	0.02
Totals:	127	.20

Table 4 Summary of Categories within the Activities group.

Category	Counts	Percent	Weight (g)	Percent
Car Parts	1	0.01	51.9	0.00
Ethnobotanical	2	0.01	6.9	0.00
Industrial	1	0.01	60.3	0.00
Machinery Parts	23	0.18	12822.3	0.65
Military Objects	1	0.01	318.5	0.02
Misc. Hardware	62	0.49	4049.9	0.20
Sign	1	0.01	67.4	0.00
Stable and Barn	2	0.01	479.8	0.03
Storage	28	0.22	976.4	0.05
Tobacco Pipes	1	0.01	4.3	0.00
Tools	3	0.02	998.9	0.05
Toys	2	0.02	7.7	0.00
Totals:	127	1.0	19844.3	1.0

Table 5. Categories and artifact descriptions from the Activities group.

Category/ Artifact Description	Material	Count	Weight (g)
Car Parts			
Black car battery core	Unidentifiable	1	51.9
Ethnobotanical			
Marine shells, phylum *Mollusca*	Shell	2	6.9
Industrial			
Forge dropping	Lead	1	60.3
Machinery Parts			
Bolts	Iron	6	783.4
Saw	Iron	1	197.5
Fly wheel	Iron	1	265.4
Toothed gear and rod	Iron	2	3533.2
Hinged machine part	Iron	1	961.0
Machine key	Iron	1	674.0
Lathe bits	Iron	3	168.8
Lathe Dog	Iron	1	280.3
Piston	Iron	1	3700.0
Iron ring	Iron	1	783.7
Rod with ball tip	Iron	1	164.6
Spring	Iron	2	5.2
Broken gear	Iron	1	1207.6
Rod with square end	Iron	1	97.6
Military Objects			
Saber Scabbard	Iron & Brass	1	318.5
Misc. Hardware			
Bolts	Iron	5	386.3
Electrical insulator	Porcelain	1	3.8
End cap	Iron	1	4.4
Files	Iron	2	143.0
Hooks	Iron	5	256.9
Iron straps	Iron	2	132.5
Nuts	Iron	10	958.0
Piping	Terra Cotta & Iron	5	424.6
Rod	Iron	1	546.7
Strap seals	Iron	5	243.6
Washers	Iron	8	685.7
Wire	Iron	17	264.4
Signs			
License plate	Iron	1	67.4
Stable & Barn			
Hoof pick	Iron	1	10.2
Bridle	Iron	1	469.6

Category/ Artifact Description	Material	Count	Weight (g)
Storage			
Barrel/bucket bands	Iron	7	312.7
Bucket	Iron	16	535.7
Bucket handle	Iron	1	35.2
Metal lid	Iron	1	40.1
Mason jar lid	Iron	1	11.6
Terra cotta pot	Terra Cotta	2	41.2
Tobacco Pipes			
Pipe	Clay	1	4.3
Tools			
Chisel	Iron	1	520.0
Dividers	Iron	1	250.0
Wrench handle	Iron	1	228.9
Toys			
Doll parts	Porcelain	2	7.7
Totals:		127	19844.3

Architectural Group

The architectural artifact group is used to describe those artifacts related to the architecture of any building or structure (Carnes-McNaughton, 1992). The architectural group consists of 2,685 artifacts and a total weight of 33179.2g and makes up 69% of the entire collection by count. Architecture-related artifacts were present in Areas 1-4 and the cistern (Table 6). The architectural group is almost entirely composed of window glass and fasteners with all other categories making up a significantly smaller portion of the group (Tables 7 and 8).

All artifacts in this group date to the historic period. Nails have a well-documented evolution and exact date ranges could be derived using their basic body and head shapes. The earliest nails found in this collection were the rosehead nails (n=3) that have a date range from 1790 – 1820. Rosehead bodies were made by

machine and the operator would later add the head by hammering it on by hand, giving the nail its distinctive rosehead ("Nails Up To Now"; Nelson, 1968). The majority of the nails in this collection are machine cut nails (n=1146) that have a date range from 1830 – 1880. These nails are identified by their square cut, tapered bodies and machine made heads which do not deform the shank of the nail ("Nails Up To Now"). Wire cut nails (n=36) have a date range from 1880 through the present and are what are commonly seen today: nails with rounded steel bodies and a circular head. Some caution should be exercised with these dates as manufacturing dates are always being redefined, however, these are currently the best estimates available for when the nail-types were introduced or commonly available.

Table 6. Summary of the Architectural group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 1	191	0.4
Area 2	1055	0.77
Area 3	662	0.77
Area 4	649	0.81
Cistern	65	0.24
Unknown	63	0.43
Totals:	2685	3.45

Table 7. Summary of Categories within the Architectural group.

Category	Counts	Percent	Weight (g)	Percent
Window Glass	1326	0.50	6098.5	0.32
Fasteners	1318	0.49	10768.8	0.56
Building Material	26	0.01	60.3	0.01
Interior Finishings	1	0.00	33.0	0.00
Construction Hardware	7	0.00	458.2	0.02
Decorations	1	0.00	1132.7	0.06
Door Lock Parts	6	0.00	677.5	0.04
Totals:	2685	1.0	19229	1.0

Table 8. Categories and artifact descriptions from the Architectural group.

Category/ Artifact Description	Material	Count	Weight (g)
Building Material			
Barbed wire	Iron	1	8.8
Bricks	Brick	10	13403.0
Mortar	Mortar	2	91.0
Plaster	Plaster	6	60.9
Roofing slate	Slate	7	446.8
Construction Hardware			
Hinges	Iron	7	458.2
Decorations			
Finial	Iron	1	1132.7
Door Lock Parts			
Door handle	Iron	1	403.1
Escutcheon	Brass	1	1.1
Keys	Brass & Iron	2	155.4
Padlocks	Iron	2	117.9
Fasteners			
Nails (all types)	Iron	1200	8296.4
Roofing/flooring tacks	Iron	42	93.7
Screws	Iron	48	979.8
Spikes	Iron	24	1343.2
Staples	Iron	4	55.7
Interior Finishings			
Tile	Porcelain	1	33.0
Window Glass			
Window glass	Glass	1326	6098.5
Totals		2685	33179.2

Arms and Ammunition Group

The arms and ammunition group includes any elements of firearms, other weaponry, and ammunition for military or civilian use. Shot castings and bullet molds are also included in this group. Non-weaponry related artifacts of military origin are included in the Activities group under the Military Objects category. This group consists of 22 artifacts with a total weight of 7677.5g and makes up only 1% of the entire

collection by count (Table 9). The arms and ammunitions group is composed of seven different categories and is largely made up of gun parts (Tables 10 and 11).

All artifacts in this group date to the historic period. Firearms, ammunition and ordnance became widely available during the Civil War and manufacturing dates provide an excellent source for determining their age. The brass forend tip is from a Kentucky Rifle, or long rifle, with an octagonal barrel and dates from 1705 through the early 20th century. German immigrants began manufacturing long rifles in Pennsylvania prior Revolutionary War and they continued to be manufactured and used up until the early 20th century (Trussell, 2005). The Minié bullets are dated as post-1854. This kind of bullet was invented in 1849 by a French army captain but was not adopted by the United States military until 1854 (Thomas, 1981). It is highly likely that these Minié bullets were from the Civil War period (1861 – 1865) because during the conflict over one billion Minié bullets were bought or made by the Union, and approximately two hundred million were purchased or manufactured by the Confederacy (Thomas, 1981; Coggins, 1962). The Hotchkiss Shell is dates to post-1855. This is known because the manufacturers, Hotchkiss & Sons of New York, applied for a patent on October 9, 1855. All specimens of the Hotchkiss Shell have the patent date cast onto the base, and while this one is damaged and missing the base, it can still be dated (Dickey and George, 1993).

Table 9. Summary of the Arms and Ammunition group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 1	3	0.01
Area 4	3	0.01
Cistern	15	0.05

Unknown	1	0.01
Totals	22	0.08

Table 10. Summary of Categories within the Arms and Ammuntion group.

Category	Counts	Percent	Weight (g)	Percent
Ammunition	2	0.14	62.0	0.06
Gun Carriages	1	0.04	242.7	0.03
Gun Parts	9	0.41	334.6	0.04
Gunflint	1	0.04	9.2	0.00
Gunspall	1	0.05	1.4	0.00
Ramrods	3	0.14	135.1	0.02
Shot	5	0.18	6892.5	0.85
Totals	22	1.0	7677.5	1.0

Table 11. Categories and artifact descriptions from the Arms and Ammunition group.

Category/ Artifact Description	Material	Count	Weight (g)
Ammunition			
Minie Bullets	Lead	2	62.0
Gun Carriages			
Gun Carriage	Iron	1	242.7
Gun Parts			
Barrel Band	Iron	1	9.1
Mainspring	Iron	1	19.5
Forend tip	Brass	1	16.8
Frizzen springs	Iron	2	36.9
Unidentifiable part	Iron	1	18.1
Gunlock	Iron	1	90.3
Trigger guard	Iron	1	11.1
Trigger plate	Iron	1	132.8
Gunflint			
Gunflint	Chert	1	9.2
Gunspall			
Gunspall	Chert	1	1.4
Ramrods			
Tulip-head ramrods	Iron	3	135.1
Shot			
Grape shot	Iron	4	2192.7
Hotchkiss Shell	Iron & Lead	1	4699.8
Totals		22	7677.5

Bone Group

The bone group includes any elements of osseous material or remains. This may includes zoological artifacts that represent food scraps, non-food bone, or human remains. This group consists of 34 artifacts with a total weight of 526.4g and makes up only 1% of the entire collection by count (Table 12). Only one category and three classes are represented within the group and it is made up entirely of animal bone (Table 13).

All artifacts in this group likely date to the historic period. Butcher marks indicate that they were likely being processed for subsistence purposes.

Table 12. Summary of the Bone group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 1	23	0.049
Area 2	5	0.004
Area 4	3	0.004
Cistern	3	0.011
Totals	34	0.067

Table 13. Categories and artifact descriptions from the Bone group.

Category/ Artifact Description	Material	Count	Weight (g)
Animal Bone			
Cow Bone	Bone	7	141.2
Deer Bone	Bone	2	18.4
Unidentifiable Animal Bone	Bone	25	366.8
Totals		34	526.4

Clothing Group

The clothing group represents items used in the manufacture or use of clothing. This group consists of seven artifacts with a total weight of 97.2 g and makes up less

than 1% of the entire collection by count (Table 14). Three categories and five classes are represented within the group and are made up of only buckles, button and shoe parts (Tables 15 and 16).

All artifacts in this group date to the historic period. Only one item could be dated to an exact date range – the button. The button was dated to 1800 – 1830 based on the Stanley South button typology from Brunswick Town that illustrated the most common types of buttons in the 18th and 19th centuries (Hume, 2001).

Table 14. Summary of the Clothing group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 2	2	0.001
Area 3	2	0.002
Area 4	1	0.001
Cistern	2	0.007
Totals	7	0.013

Table 15. Summary of Categories within the Clothing group.

Category	Counts	Percent	Weight (g)	Percent
Buckles	3	0.43	34.3	0.35
Buttons	1	0.14	0.2	0.00
Shoes	3	0.43	62.7	0.65
Totals	7	1.0	97.2	1.00

Table 16. Categories and artifact descriptions from the Clothing group.

Category/ Artifact Description	Material	Count	Weight (g)
Buckles			
Buckles	Iron	3	34.3
Buttons			
Shell Button	Shell	1	0.2
Shoes			
Shoe sole	Leather	1	59.9
Shoe tack	Iron	1	0.8
Shoe	Leather	1	2
Totals		7	97.2

Furniture Group

The furniture group includes furniture parts, hardware, and home furnishings. Furniture parts are any recognizable element of a piece of furniture. Furniture hardware includes, drawer pulls handles, rollers, knobs, etc. Home furnishings include all non-kitchen related items (ex: lamps, curtain tie-backs, etc). This group consists of eight artifacts with a total weight of 214.0g and makes up less than 1% of the entire collection by count (Table 17).

Seven artifacts date to the historic period while 1 was dated as modern. The telescoping curtain rod was dated to the post-1907 era. Charles Kirsch invented this kind of curtain rod in 1907 and they did not come into popular use until the 1920s (Powell, 2006).

Table 17. Summary of the Furniture group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 2	7	0.005
Area 3	1	0.001
Totals	8	0.006

Table 18. Summary of Categories within the Furniture group.

Category	Counts	Percent	Weight (g)	Percent
Furniture Hardware	1	0.13	54.0	0.25
Bathroom Furnishings	7	0.87	160.0	0.74
Totals	8	1.0	214.0	1.0

Table 19. Categories and artifact descriptions from the Furniture group.

Category/ Artifact Description	Material	Count	Weight (g)
Bathroom Furnishings			
Bathroom Porcelain	Porcelain	7	160.0
Furniture Hardware			
Telescoping Curtain Rod	UID Metal	1	54.0
Totals		8	214.0

Kitchen Group

The kitchen artifact group represents the categories and classes associated with subsistence activities such as food storage, preparation and consumption.

The kitchen group consists of 622 artifacts weighing a total 8182.3g and makes up 16% of the entire collection by count, making it the second largest of all the artifact groups (Table 20). Five categories and 56 classes are represented within this group and are largely made up of ceramics (Table 21 and 22).

Over 600 artifacts in the kitchen group were dated to the historic period, six were dated to the modern period, and eight have unknown dates. Dates for ceramics can be easily obtained by comparing ceramics from archaeological collections to the known dates of production for the factories/types represented. The Florida Museum of Natural History has a vast, digital ceramic type collection that was used to date the

ceramics in this collection. Ceramic classes in this collection that have exact manufacturing date ranges can be seen in chronological order (by the earliest known production date) in Table 23. Multiple dates for one ceramic type indicate dates of manufacture for different motifs, designs or ink colors within that type.

Bottle glass can also be dated using physical and manufacturing related diagnostic features ("Bottle/Glass Colors"). No complete forms exist within this collection, only small shards with few diagnostic features, so there were many limitations to dating the bottles. Bottle dating resources from the Bureau of Land Management/Society for Historical Archaeology and in-house resources at OSARC were utilized to date bottles based on color and/or manufacturing features (Table 24). Caution should be exercised with these dates as bottle manufacturing and usage dates are always being refined, however, these are currently the best estimates available for when different bottle types/colors were manufactured and utilized.

Table 20. Summary of the Kitchen group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 1	211	0.15
Area 2	122	0.09
Area 3	53	0.06
Area 4	78	0.10
Cistern	88	0.33
Unknown	70	0.48
Totals	622	1.21

Table 21. Summary of Categories within the Kitchen group.

Category	Counts	Percent	Weight (g)	Percent
Ceramics	437	0.71	5247.1	0.64
Bottles	160	0.25	1498.1	0.18
Glassware	17	0.03	430.5	0.05
Kitchenware	6	0.01	947.5	0.12
Tableware	2	0.01	59.1	0.01
Totals	622	1.0	8259.8	1.0

Table 22. Categories and artifact descriptions from the Kitchen group.

Category/ Artifact Description	Material	Count	Weight (g)
Bottles			
Bottle Stoppers	Glass	1	19.3
Coca - Cola Bottles	Glass	6	52.3
Liquid Veneer Bottles	Glass	1	78.5
Pharmaceutical Bottles	Glass	18	200.6
UID Bottles	Glass	56	917.2
Wine Bottles	Glass	78	334.6
Ceramics			
American Redware	Coarse Earthenware	13	268.5
American Stoneware	Coarse Earthenware	43	2066.1
American Stoneware, Albany Slip	Stoneware	1	11.5
Annularware on Pearlware	Refined Earthenware	10	13.9
Black-glazed Redware	Coarse Earthenware	3	107.5
Blue-tinted Ironstone	Refined Earthenware	42	842.9
Chinese Porcelain	Porcelain	3	8.7
Creamware with Transferprint	Refined Earthenware	2	11.9
Decorated Ironstone	Refined Earthenware	2	61.4
Delftware	Coarse Earthenware	1	3.5
Early Polychrome Pearlware	Refined Earthenware	9	21.1
Embossed Ironstone	Refined Earthenware	3	93.9
Embossed Pearlware	Refined Earthenware	4	22.3
English Bone China	Porcelain	17	68.9
Feather-Edged Creamware	Porcelain	2	5
Feather-Edged Pearlware	Refined Earthenware	1	1.5
Handpainted Pearlware	Refined Earthenware	2	10.7
Handpainted Whiteware	Refined Earthenware	1	4.3

Category/ Artifact Description	Material	Count	Weight (g)
Handpainted Whiteware with Embossing	Refined Earthenware	1	5.9
Mochaware	Refined Earthenware	1	1.4
Pearlware with Tranferprint and Embossing	Refined Earthenware	2	5.3
Plain Creamware	Refined Earthenware	46	196.3
Plain Ironstone	Refined Earthenware	26	213.9
Plain Pearlware	Refined Earthenware	60	311.9
Plain Whiteware	Refined Earthenware	23	265.9
Porcelaneous	Porcelaneous	5	36.8
Rhenish Blue Stoneware	Stoneware	1	13.4
Royal Pattern Creamware	Refined Earthenware	1	4.2
Scallop-Edged Pearlware	Refined Earthenware	19	87.4
Sponged Pearlware	Refined Earthenware	3	19.8
Transferprint Pearlware	Refined Earthenware	55	196.9
UID Ceramics	Refined Earthenware	11	34.7
UID Porcelain	Porcelain	12	68.9
UID Stoneware	Stoneware	2	52.6
White Granite Semi-Porcelain	Semi-Porcelain	1	30.6
White Salt-Glazed Stoneware	Stoneware	1	10.9
Whiteware with Transferprint	Refined Earthenware	8	39.7
Glassware			
Decanter	Glass	2	62.1
General Glassware	Glass	10	194.4
Jars	Glass	5	174
Kitchenware			
Bowl	Iron Alloy	1	132.8
Pan	Cast Iron	5	814.7
Tableware			
Cutlery	Iron	2	59.1
Totals		622	8259.7

Table 23. Summary of ceramic date ranges present in the collection.

Ceramic Type	Date Range	Count
Delftware	1630 - 1790	1
Rhenish Blue Stoneware	1650 - 1725	1
Chinese Porcelain	1660 - 1800	3
Black-glazed Redware	1700 - 1830	3
White Salt-Glazed Stoneware	1720 - 1805	1
American Redware	1720 - 1900	13
Plain Creamware	1762 - 1820	46
Royal Pattern Creamware	1762 - 1820	1
Feather-Edged Creamware	1765 - 1810	2
Creamware with Transferprint	1765 - 1815	2
Sponged Pearlware	1770 - 1830	3
Plain Pearlware	1780 - 1840	60
Handpainted Pearlware	1780 - 1820	2
Annularware on Pearlware	1785 - 1840	2
	1790 - 1820	8
Scallop-Edged Pearlware	1785 - 1840	19
Transferprint Pearlware	1784 - 1840	49
	1809 - 1840	4
	1829 - 1840	2
Early Polychrome Pearlware	1795 - 1820	9
Mochaware	1795 - 1825	1
Decorated Ironstone	1805 - 1840	2
Embossed Ironstone	1805 - 1840	3
American Stoneware with Albany Slip	1805 - 1920	1
Porcelaneous	POST-1820	5
Embossed Pearlware	1823 - 1835	4
Feather-Edged Pearlware	1823 - 1835	1
Pearlware with Transferprint and Embossing	1823 - 1835	2
American Stoneware	1826 - 1905+	43
Whiteware with Transferprint	1830 - 1860	8
English Bone China	1830 - 1900	17
Plain Whiteware	1830 - Present	23
Handpainted Whiteware	1830 - Present	1
Plain Ironstone	1840 - 1930	26
Blue-Tinted Ironstone	1850 - 1885+	42
White Granite Semi-Porcelain	1900 - Present	1
Total		403

Table 24. Summary of bottle date ranges present in the collection based on color/manufacturing features.

Bottle Type	Date Range	Count
Liquid Veneer Bottle	1900 - Present	1
Pharmaceutical	1875 - Present	1
	1880 - 1914	1
	Late 1800S - Early 1900S	2
	1820 - 1915	1
	1850+	2
Unidentifiable Bottles	1860 - Present	8
	1875 - Present	4
	1880 - 1914	4
	1890 - 1960	1
	1913 - Present	1
	1929 - Present	1
	Late 1800S - Early 1900S	3
	Pre - 1870	1
Wine	Post-1867	69
Total		100

Miscellaneous Group

The miscellaneous group is reserved for any non-diagnostic pieces, by-products, or refuse (Carnes-McNaughton, 1992). There is no formal functional classification and the categories within this group were determined based on the composition of the site. In this case, it is largely burnt debris and organic material. This group consists of 152 artifacts with a total weight of 6362.1g and makes up 4% of the entire collection by count (Table 25). The miscellaneous group is made up of four different categories: coal, marble, rocks, and burnt debris (Tables 26 and 27).

No diagnostic features existed on any of the 152 artifacts so exact dating was not possible but it is probable that they date to the historic period. Many of the artifacts within the collection as well as a majority of the artifacts within the miscellaneous

groups experienced intense heat treatment, which can likely be attributed to when General William Tecumseh Sherman razed the arsenal in 1865.

Table 25. Summary of the Miscellaneous group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 1	26	0.06
Area 2	40	0.03
Area 3	52	0.06
Area 4	21	0.03
Cisten	8	0.03
Unknown	5	0.03
Totals	152	0.24

Table 26. Summary of Categories within the Miscellaneous group.

Category	Counts	Percent	Weight (g)	Percent
Burnt Debris	128	0.84	3589.4	0.56
Coal	1	0.01	2268.0	0.36
Marble	1	0.01	21.7	0.00
Rocks	22	0.14	483.0	0.08
Totals:	152	1.0	6362.1	1.0

Table 27. Categories and artifact descriptions from the Miscellaneous group.

Category/ Artifact Description	Material	Count	Weight (g)
Burnt Debris			
Melted Glass	Glass	101	1515.5
Melted Metal	Iron	4	202.8
Conglomerates	Mortar, Glass, Iron	4	1163.9
Unidentifiable Burnt Material	UID	1	52.0
Burnt Wood	Wood	18	655.2
Coal			
Coal	Coal	1	2268.0g
Marble			
Marble	Marble	1	21.7
Rocks			
Pumice	Basalt	1	37.2
Quartz	Quartz	2	130.8
Slate	Slate	18	315
Totals		152	6362.1

Personal Group

The personal group reflects items that are carried with or on an individual (in pockets or purses) or for personal grooming purposes. It is comprised of 3 artifacts weighing a total of 68.0 g and makes up less than 1% of the entire collection by count (Table 28). Only two categories are represented in this group (Tables 29 and 30).

Both of the knife blades in the personal group date to the historic period. The hair barrette resembled modern day metal hair clips but due to an inability to obtain information on historic hair accessories it was dated as unknown.

Table 28. Summary of the Personal group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 4	3	0.004
Cistern	2	0.007
Totals	5	0.011

Table 29. Summary of Categories within the Personal group.

Category	Counts	Percent	Weight (g)	Percent
Personal Items	1	0.33	2.6	0.04
Knives	2	0.67	65.4	0.96
Totals:	3	1.00	68.0	1.00

Table 30. Categories and artifact descriptions from the Personal group.

Category/ Artifact Description	Material	Count	Weight (g)
Personal Items			
Hair Barrette	Iron Alloy	1	2.6
Knives			
Pen Knife	Iron	1	14.9
Knife	Iron	1	50.5
Totals		3	68.0

Unidentifiable Group

The unidentifiable group reflects items that are too damaged to be able to identify their function. Like the miscellaneous group, this group has no formal functional classification and the categories within this group were determined based on the composition of the site. In the case of the Fayetteville Arsenal, the group is entirely made of unidentifiable scraps of metal (Tables 32 and 33). This group consists of 234 artifacts that weigh 17,416.3 g and makes up 6% of the entire collection by count (Table 31).

All of the artifacts within the unidentifiable metal groups likely linked to the historic period but none could be given exact date ranges. The large amount of random scraps of metal found at this site could be tied to Confederate efforts to collect any and all metal items from Fayetteville citizens to be melted down for light artillery during times of resource shortages (Belton, 1979).

Table 31. Summary of the Unidentifiable group distribution across the site.

Area	Count	Percentage of All Artifacts Per Area
Area 1	9	0.02
Area 2	109	0.08
Area 3	36	0.04
Area 4	14	0.02
Cisten	63	0.23
Unknown	3	0.02
Totals	234	0.41

Table 32. Summary of Categories within the Unidentifiable group.

Category	Counts	Percent	Weight (g)	Percent
Unidentifiable	234	1.00	17416.3	1.00
Totals:	234	1.0	17416.3	1.0

Table 33. Categories and artifact descriptions from the Unidentifiable group.

Category/ Artifact Description	Material	Count	Weight (g)
Unidentifiable			
Unidentifiable Metal	Iron, Brass & Lead	234	17416.3
Totals		234	17416.3

Spatial Analysis

While incomplete provenience data limits the ability of performing a comprehensive spatial analysis, two brief conjectures will be made about spatial associations of some artifact groups at the Fayetteville Arsenal site and what they may indicate. The first relates to kitchen-related artifacts and the second to arms and ammunitions – both important features of a functioning arsenal.

The analysis of the artifacts showed that 211 out of 622 kitchen-related artifacts and 23 out of 34 butchered animal bones are concentrated in Area 1. It is possible to conjecture that Area 1 (which included a line of shops, the northwest tower, and a

barracks) was an area where less manufacturing took place and perhaps more domestic activities like food preparation and cooking occurred. Further statistical analysis is recommended to look at the significance of the spatial relationship between subsistence related artifacts and Area 1.

The arms and ammunition group only made up 1% of the entire collection, which is very low for an arms and ammunition manufacturing site. However, the historical records show that prior to General Sherman and the Union forces arrival in Fayetteville, the arsenal was evacuated and all arms, ammunition and machinery were moved to nearby coalmines in Chatham County, North Carolina (Belton, 1979). No complete firearms were found at the site and most arms-related material was found in the cistern. It is possible to surmise that the cistern was being utilized as a dump for incomplete or damaged arms parts and fired ammunition at the time of evacuation. A Chi-Squared test was performed to see if a relationship between the cistern and the presence of broken arms and used ammunition exists (Table 34).

Table 34. Contingency table to test for significance.

Actual	Arms & Ammo Group	All Other Groups	Totals:
Cistern	15	243	258
All Other Areas	7	3629	3636
Totals:	22	3872	3894

The Chi-Square test results show that there is a significant relationship between the presence of arms and fired ammunition within the cistern (X^2 =135.51, df = 1, $p < 0.05$).

CONCLUSIONS

Future Recommendations

Because North Carolina is a Civil War state and battles and maneuvers of various kinds occurred here, I would recommend an update to the laboratory manual to include standard operating procedures for active ordnance. As a Civil War state, ordnance is expected to be found in the archaeological record; however, as ordnance sits dormant for many years, the main charge deteriorates and becomes unstable and highly sensitive to disturbance, rendering them dangerous to handle. The inclusion of standard operating procedures for active ordinance would be able to guide staff in how to safely identify, handle and store items that are active and could refer them to professional explosive ordnance personnel for further consultation and proper disarmament. The lack of operating procedures of this kind lead to conflict over how to properly handle the Hotchkiss shell (prior to its removal) which included putting it in a bucket of water and sticking dental picks into the fuse holes. The lack of professional opinion or consultation ultimately made some lab personnel feel unsafe and anxious and having dependable standard operating procedures could help prevent this in the future.

Further recommendations for the Fayetteville Arsenal collection would be to complete electrolysis on non-diagnostic artifacts. Initially, the decision had been made to try to complete 100% of all iron artifacts within the collection in order to be consistent with conservation. Time constraints and the need to share the electrolysis bin with other staff working on conservation projects compelled a reprioritization of

conservation needs for the collection, which resulted in the decision to conserve diagnostic artifacts only.

Additional recommendations can be made for future students that wish to participate in a similar kind of curation project. While the Graduate Manual for the Program in Anthropology at North Carolina State University currently recommends that a student "spend at least 80 hours on data collection, background research, or a discipline-appropriate experience," students should be aware that inventory and curation based projects may require a much larger investment of time (Graduate Manual for the Program in Anthropology, Department of Sociology and Anthropology, North Carolina State University, 2014*)*. The Fayetteville Arsenal inventory and curation was initially projected to be completed over the course five months by spending 2-3 days a week at OSARC for 8 hours a day over the summer recess. In reality, the inventory was not completed until late October and the data entry and electrolysis was not completed until December 2014 and took over 500 hours of work at the laboratory. Students should be mindful of the collection size upon selection due to the time investments that will be required of them to complete the project.

The non-thesis option allows students to pursue projects that will prepare them for non-academic careers that require anthropological training and knowledge. The larger investment of time required of a student undertaking an inventory and curation project also facilitates professional development that is incredibly beneficial. A project requires a student to become knowledgeable about artifact identification and analysis, federal and state cultural resource management legislation, laboratory techniques and

management, dating techniques, digital data management, and the role of the North Carolina Office of State Archaeology within the larger field of archaeology. Students also have the opportunity to be mentored by professionals currently working in the field and learn about anthropology's application from a real-world perspective.

Research Potential

Glenn Little employed specific methods during his excavation of the Fayetteville Arsenal in the 1970s that were designed to find the original foundations of the arsenal. The specificity of that goal creates some limitations on the research questions that the collection can answer. While it is difficult to examine activities within certain spaces of the site, the collection has much to offer by way of comparative studies and studies looking at architectural form and materials procurement.

The collection has the capability to tell the story of the Confederate soldiers and the laboring class that worked at the arsenal during the Civil War. Because ceramics can illustrate everyday characteristics of the past life in which they were used, the ceramics in this collection could provide an insight into the socio-economic status of the individuals working at the arsenal (Deetz, 1996). A preliminary socio-economic study of this kind would provide grounds for further regional studies of what life at Confederate military posts was like during the Civil War for both the soldiers and local people working there. Archaeological collections exist for several arms manufacturing sites including the Springfield Armory in Massachusetts, Harpers Ferry and the Augusta Arsenal in Georgia and each would provide rich data for a comparative study examining

laboring individuals at war-time manufacturing sites in both the North and the South during the war (Schackel, 1996; “Collections,” 2015; “From Gun Powder to Archaeology,” 2012). A regional-scale comparative focus of this kind could only be done through the use of existing collections as no individual site or settlement would be able to reveal such a complex story.

Finally, frequently overlooked within Civil War artifact assemblages, nails are capable of providing insights into material procurement at different times during the life of Fayetteville Arsenal. The arsenal was commissioned by the Federal government in 1838 and was continuously under construction even after its seizure by the Confederate States of America (CSA) (Belton, 1979). Similar to the work done by W.S. McBride (1994) at Camp Nelson in Kentucky, a more thorough examination of pennyweights and nail form (straight, pulled, L-shaped, etc.) could be compared with the original U.S. Army building manual and see how standardized building specifications for military facilities changed as the arsenal came into the CSA’s possession.

Conclusion

While the Fayetteville Arsenal collection has sat on the shelves for 42 years between being excavated and being curated, the collection has maintained its physical integrity as well as its value as a research specimen. The biggest loss to the collection’s research potential was inconsistent field methods and reporting done by CAI during the excavation. The discrepancies in the CAI report and site maps pose some limitations in examining the temporal relationships of artifacts in specific trenches of the site.

However, the ability for the site to be investigated as larger parts of a whole is maintained and can still be of great use research-wise. The lack of stratigraphical data should not detract from the fact that historic artifacts are for the most part, well-documented and many strong typologies exist for items from this particular period in time. Overall the collection is in good shape and even though it has taken some time to get completely processed and curated, it has much to offer.

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Appendix I.

Laboratory System for Classifying Artifacts

The following is an explanation of the classification system used for the 1972 Fayetteville Arsenal artifact assemblage. The classifications follow the guidelines of the North Carolina State Archaeology Research Laboratory and the North Carolina Artifact pattern, developed by Stanley South as well as additional categories that were created by the author. This document is intended to clarify the Excel Workbook that was created during this project for the collection and management of data. Included is a description of the information, categories, and values used within them.

The column headings in the spreadsheet include:

1. **Accession Number**: The number assigned to each item. It is made up of three parts: (1) the lot number (72013), (2) the lower case alphabetic classification number, and (3) and the specimen number.
    - a: artifact with significant diagnostic/interpretive value
    - b: designates animal bone
    - eb: desigjnates ethnobotanical, organic material
    - m: designates miscellaneous, non-diagnostic items
    - p: designates pottery sherds, ceramics
    - n/a: item that was recorded from the CAI report, but was not physically present in the collection
2. **Specimen Number**: Assigned in numerical order to each individual artifact. This column is meant to be a short-cut for filtering items.

3. **Unit**: Provenience data from the report and bags, usually 4 digits: Area - # - Trench - #, ex: A-1-T-2. Sometimes marked Unknown Provenience.
4. **Bag Number**: Data collected from the original collection bags, includes provenience data and artifact collection code established by CAI This number corresponds to the catalogue within the CAI report.
    - ex: A-#-T-#-Artifact Collection Code #
    - N/A used for items with unknown provenience
5. **Artifact Number**: Individual number assigned by CAI and written on each artifact and restarts at 1 for every separate bag number. Corresponds with a description with the CAI catalogue.
    - N/A used for items artifacts recorded from the CAI report but were not physically in the collection or items that were present but did not have an artifact number assigned to them.
6. **Group**: Stanley South artifact group categorization.
    - Activities, Architectural, Arms and Ammunition, Bone, Clothing, Furniture, Kitchen, Miscellaneous, Personal and Unidentifiable
    - N/A used for items recorded from the CAI report but are not present in the collection
7. **Category**: Based on form or function of the artifact according to the North Carolina Artifact Pattern.
8. **Class**: Exact descriptor of the object according to the North Carolina Artifact Pattern (ex: plate, chisel, Coca-Cola, L-shaped flooring nail).

9. **Period**: Modern, Historic, Pre-Historic
10. **Age**: Time period associated with the artifact.
11. **Count**: Quantity count of items being represented in entry.
12. **Description**: Brief description of each artifact.
13. **Glass Thickness**: In inches. N/A for all non-glass items.
14. **Part**: For ceramics only. Identifies a portion of the form (base, lid, handle, rim, spout)
15. **Length**: For whole nails or spikes only, in inches.
16. **Weight**: In grams.
17. **Material**: Identifies the source material from which the object was made (ex: refined earthenware, wrought iron, leather, bone).
18. **Decorated**: Applies to ceramics only. Yes or No.
19. **Color**: Identifies the color of the item. All colors are from the OSARC color list.
20. **Listed in Report**?: Yes or No. Identifies if the item is mentioned in the CAI report or not.
21. **In Collection?:** Indicates if artifact is physically present within the collection.
22. **Provenience Description:** Description is from CAI Report.
23. **Area #:** Area 1-4, Cistern, or Unknown.

Appendix 2.

United States Department of the Interior, National Park Service. *Curation of Federally-Owned and Administered Archeological Collections*, 36 CFR 79. 1990.

National Park Service
U.S. Department of the Interior

National Center for Cultural Resources
National NAGPRA

36 CFR 79: Curation of Federally-Owned and Administered Archaeological Collections

Authorities
Antiquities Act (16 U.S.C. 431- 433), the Reservoir Salvage Act (16 U.S.C. 469-469c), section 110 of the National Historic Preservation Act (16 U.S.C. 470h-2), and the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm).

What does 36 CFR 79 cover?

- Responsibility for Federal collections;
- Procedures and guidelines to manage and preserve collections;
- Terms and conditions for Federal agencies to include in contracts, memoranda, agreements or other written instruments with repositories for curatorial services;
- Standards to determine when a repository has the capability to provide long-term curatorial services; and
- Guidelines for collections access, loan, and use.

What is a "collection?"
A collection is *material remains* that are excavated or removed during a survey, excavation or other study of a prehistoric or historic resource, and associated records that are prepared or assembled in connection with the survey, excavation or other study. §79.4 provides detailed definitions of the kinds of material remains that fall under the regulation.

Who is responsible for ensuring that federally-owned and administered collections receive proper care?
The Federal Agency Official is responsible for ensuring proper care of federally owned and administered collections. The Federal Agency Official is "any officer, employee or agent officially representing the secretary of the department or the head of any other agency or instrumentality of the United States having primary management authority over a collection that is subject to this part." [36 CFR 79.4 (c)]

What constitutes proper care of federally-owned and administered collections?
Repositories, whether they are Federal, State, local, or tribal, must be able to provide professional, systematic, and accountable curatorial services on a long-term basis. Among their responsibilities, repositories must –

- Provide a catalog list of the collection contents to the responsible party (i.e., Federal Agency Official, Indian landowner, or Tribal official);
- Periodically inspect the physical plant to monitor physical security and environmental conditions;
- Periodically inspect the collection and associated records to monitor their condition;
- Periodically inventory the collection and associated records;
- Provide a written report of the results of inspections and inventories to the responsible party; and
- Make the collection available for inspection by the responsible party.

Are there special requirements for archaeological collections from Indian lands?
Yes. Because Indian tribes are sovereign nations, archaeological collections from Indian lands are treated differently under 36 CFR 79. The Indian landowner or Tribal official retains jurisdiction over the collections, including the right to determine access, use (including religious use), and disposition. Federal Agency and Repository Officials are encouraged to document their agreements with Indian landowners or Tribal official regarding the care and use of archaeological collections from Indian lands.

Appendix 2 (cont.)

What kinds of uses are encouraged for federally-owned or administered collections?
36 CFR 79.10 addresses the scientific, educational, and religious use of such collections. Appropriate educational and scientific uses of collections include in-house and traveling exhibits, teaching, public interpretation, scientific analysis, and scholarly research. § 79.10 also describes the requirements that must be met when loaning a collection, and provides guidance for allowing destructive analysis under certain circumstances.

Are there special requirements for the use of religious remains in collections?
Yes. Religious remains are "material remains that the Federal Agency Official has determined are of traditional religious or sacred importance to an Indian tribe or other group because of customary use in religious rituals or spiritual activities. The Federal Agency Official makes this determination in consultation with appropriate Indian tribes or other groups." [36 CFR 79.4 (i)]

Note that the definition of "religious remains" is broader than the NAGPRA definition of "sacred object."

Under § 79.10, religious remains in a collection must be made available to persons for use in religious rituals or spiritual activities. If the religious remains are from Indian lands, the Indian land owner or Tribal official must give consent prior to such use. Under § 79.11, religious leaders, Tribal officials, and official representatives of other groups for which the remains have religious or sacred importance have the right to periodically inspect the religious remains.

May a repository repatriate NAGPRA items that are part of a federally-owned or administered collection?
No. The Repository Official must "redirect any request for transfer or repatriation of a federally-owned collection (or any part thereof) to the Federal Agency Official, and redirect any request for transfer or repatriation of a federally administered collection (or any part thereof) to the Federal Agency Official and the owner." [36 CFR 79.8 (n)]

Further, "the Repository Official shall not transfer, repatriate or discard a federally-owned collection (or any part thereof) without the written permission of the Federal Agency Official, and not transfer, repatriate or discard a federally administered collection (or any part thereof) without the written permission of the Federal Agency Official and the owner." [36 CFR 79.8 (o)]

Are NAGPRA cultural items excavated or removed from Federal or tribal lands after November 16, 1990 considered to be "collections" under 36 CFR 79?
No. However, Federal agencies should adhere to the standards of 36 CFR 79 in providing care for such cultural items prior to their disposition.

Where can I learn more about 36 CFR 79?

- The complete text of the regulation is available online at http://www.cr.nps.gov/aad/tools/36cfr79.htm.
- Information about managing archeological collections, including the requirements of 36 CFR 79, is available online at http://www.cr.nps.gov/aad/collections/index.htm.