MORTUARY ARCHEOLOGY OF A 19TH -20TH CENTURY FAMILY TOMB IN NEW BERN, NORTH CAROLINA

By

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The excavation and study of 19th and 20th century cemeteries in North America have not only illuminated shifts in mortuary behavior but also highlighted the lives of those invisible in the documentary sources, particularly women and children. However, unlike neighboring regions to the north and south, very few archaeological explorations of 19th and 20th century cemeteries in eastern North Carolina exist. A gradual picture of life in eastern North Carolina is emerging through explorations of family vaults and cemeteries, largely initiated by their descendants. In 2019, the Anthropology department at East Carolina University was asked by descendants of the Rhem family in New Bern to clear the ca. 1853 above-ground structure in preparation for restoration. This created the opportunity to study the material evidence for 19th and 20th century burial practices as well as the human remains within the vault during the 2021 field season. This thesis dated the commingled coffin hardware from the Rhem Vault using hardware trade catalogs and comparative excavations to detail the use history of the Rhem Vault and aid in identifying the burials within the vault. The coffin hardware from the commingled deposits acts as evidence for mortuary behavior during a rapidly changing period of funerary history in the U.S. in order to document how these trends were practiced within eastern North Carolina.

MORTUARY ARCHEOLOGY OF A 19TH -20TH CENTURY FAMILY TOMB IN NEW BERN, NORTH CAROLINA

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CHAPTER 1:

INTRODUCTION

In recent decades there has been greater academic interest in historic cemeteries as an increasing number of cemeteries have been relocated and excavated due to mitigation efforts for construction and suburban sprawl (LeeDecker 2009). Historic cemeteries are important sources for understanding past attitudes about death, and excavations of them can lead to information beyond what has survived in the archival and historical record. For instance, the excavation of historic vaults, cemeteries, and iron coffins has led to a greater understanding of the funerary customs of the 19th century (Allen 2002; Bell 1990; Bybee et al. 2002; Connolly et al. 2009; Davidson 1999; Garrow 1987; Hill & Pye 2012; Leader et al. 2001; Little 1992; McKillop 1995; McWilliams et al. 2014; Owsley et al. 2006; Roller 2016; Rotman et al. 2000; Thiel & Margolis 2007; Thiel et al. 2013; Wescott et al. 2010; White 2014; Woodley 1992). Excavations of private vaults are less common in the literature (Grabowski et al. 2010; Burgess & Owsley 2018), but they can provide an interesting view of the level of mortuary continuity within a lineage. Cemetery excavations in eastern North Carolina are often limited to headstone analysis, ground penetrating radar (GPR), and other non-invasive methods for finding graves and mapping boundaries (Bailey & Ewen 2020; Ewen 2020; Smith 2010; Ransone 2021). However, a few private family cemeteries and vaults have been excavated in eastern North Carolina with the consent and support of the descendants (Cone 2023; Long 2019; Perry et al. in press; Quintana 2019; Seeman 2011; Trinkley & Hacker 2015). This project focuses on a burial vault in New Bern, North Carolina, that was used by the Rhem family for over a century across the 19th and 20th centuries to establish regional mortuary practices expressed through coffin hardware (Figure 1.01).

Figure 1.01: The east wall of the Rhem Vault. Virginia creeper can be seen growing through the roof on the left, and additional roof supports are visible on the right corner of the roof. Photo by Dr. Megan Perry.

The inclusion and collaboration with descendants throughout this project are positive examples of public archeology in academia. Rhem family descendants initiated this project to clear remains and artifacts from the vault in preparation for restoration work. After a century of use, the structural integrity of the above ground vault was compromised by an unstable roof that caused extensive interior water and root damage. In April 2019, researchers were invited to view the vault and begin work on this project. Excavation began in June 2022 as researchers excavated intact coffins and commingled deposits below the shelves. During the excavation, the

descendants assisted in screening, photographed the artifacts and the excavation process, and shared local and personal histories surrounding the Rhem family, Cedar Grove Cemetery, and New Bern. Those local stories were an integral aspect of interpreting the history of use for the vault and identifying members of the Rhem family that were tied to the vault. The family also provided the results of their extensive genealogical research of the Rhem family through newspapers, obituaries, and other records for information on the family (Cordes Porcelli & French 2020). However, further research into the history of the Rhem family was required to link more individuals to the Rhem Vault.

The excavation of the Rhem Vault was a coordinated effort divided into skeletal and material cultural analysis. The skeletal analysis of the commingled remains was performed by another student in the East Carolina University Bioarchaeology Lab (Cone 2023). The combined skeletal and artifactual data of the vault was used to identify mortuary trends that are both regionally distinct and those that reflect a larger pattern, independent of population and region. Discovering how the Rhem family's mortuary trends fit into the timeline of established trends for the 19th century will illuminate the pervasiveness of localized traditions in urban communities amidst larger-scale cultural trends.

The objectives of this thesis were closely tied to the descendants' final plans for the Rhem Vault. The descendants identified two main objectives during the excavation: removing the coffins and all debris from the vault and identifying the individuals buried in the vault. Following the conclusion of this research, the remains and material culture will be repatriated to the descendants and returned to the restored vault. Since the intent is repatriation, a full report and inventory of all the skeletal remains and artifacts were also essential objectives for future research that may still be done with this collection. However, the scope of this thesis is limited to

the coffin hardware from the commingled deposits. This report establishes a typology and inventory of the commingled coffin hardware that can be consulted for future excavations. Another objective was to identify and date the coffin hardware of the Rhem Vault based on matches to hardware catalogs and comparative collections. The dates obtained from the commingled coffin hardware and other artifacts were an integral step in identifying remains from the vault and clarifying the history of use for the Rhem Vault. Investigating the commingled coffin hardware and use history of the Rhem Vault will provide new data to substantiate and reify the patterns and changes in mortuary behaviors over time for eastern North Carolina and more generally for North America.

CHAPTER 2:

BACKGROUND

Historical Background

This thesis focuses on the mortuary behaviors and coffin hardware of American Victorian society. The term "Victorian" is used in this paper to reference the cultural traditions of American society with primarily European ancestry from both high and low social classes in the 19th and early 20th centuries. This study uses coffin hardware and other funerary objects as tangible expressions of mortuary trends and practices. Specifically, this thesis focuses on the artifacts and mortuary practices from the Rhem Family Vault located in Cedar Grove Cemetery in New Bern, North Carolina. The Rhem Vault was used for over a century and is an example of elite mortuary traditions in eastern North Carolina for the 19th and 20th centuries.

Local History

The majority of the burial vault's use overlaps with the post-Civil War reconstruction period in New Bern, North Carolina. New Bern was established in 1710 as the provincial center of British colonial rule in North Carolina, with Tryon Palace serving as the governor's seat (Watson 1987). The city served as the first permanent colonial and state capital from 1746 to 1794, and up until 1840, it was the most populous city in the state (Watson 1987; Wilson 1995). While "urban" in the context of eastern North Carolina, New Bern is not fully comparable to contemporary cosmopolitan centers like Philadelphia and New York. Nonetheless, New Bern enjoyed commercial success as a port town during the late 18th and early 19th centuries with its advantageous location along the Neuse and Trent rivers (Figure 2.01; Ellis 2016; Watson 1987). Its location on a coastal plain also yielded an ideal climate for farming and livestock production

(Watson 1987). From the 1830s until the 1850s, New Bern experienced a brief economic downturn, then recovered with increased industrialization in the form of new sawmills and factories that reduced dependence on Northern manufacturing and slave labor (Ellis 2016; Watson 1987). Although prospects in New Bern improved in the 1850s, the occupation of New Bern by Union forces from 1862 to 1865 halted economic progress yet again (Watson 1987).

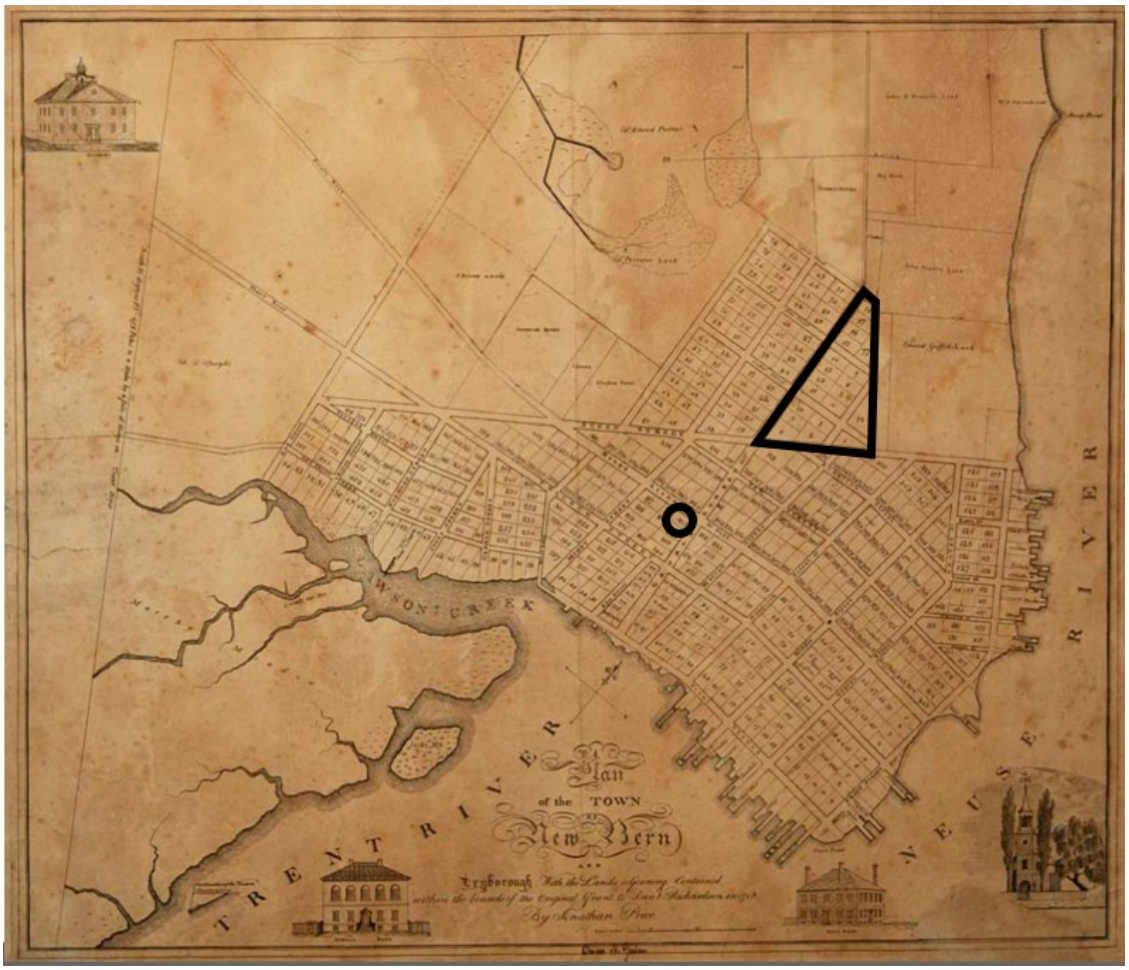

Figure 2.01: A map of the city of New Bern in 1817 from the collection of Tryon Palace Historic Sites & Gardens, New Bern, North Carolina; North Carolina Department of Cultural Resources, Division of Archive and History. Cedar Grove Cemetery is marked by a triangle, and the Rhem Family home is marked by a circle.

Rhem History

The Rhem family has a visible role in the history and economy of New Bern, which began with its patriarch Joseph Lane Rhem Sr (1825-1901). Joseph L. Rhem Sr. was born in 1825 in Lenoir County, North Carolina to Amos Rhem (1789-1853) and Theresa Lane Rhem (1794-1853). Joseph Sr. married Ann Kilpatrick (1833-1853) in 1847; shortly afterward, they both moved to the outskirts of New Bern (U.S. Census Bureau 1850).

Joseph's parents and brother died in 1853, leaving Joseph the executor of their wills and the inheritor of additional land and resources (North Carolina County, District, and Probate Records Microfilm 123589-123696). In the same year, his wife and son, Amos (1852-1853), also passed away, leaving Joseph as the single father of two daughters, Susan (1848-1928) and Martha (1850-1903) (Cordes Porcelli & French 2020). Joseph remained in New Bern despite his loss and diversified his prospects by starting business partnerships in town (Newbern Daily Progress, Jul 01, 1861; The Newbern Journal, Jul 04, 1855). In 1855, Joseph married his second wife, Sarah Catherine Tucker (1835-1880), and purchased a house in town at the corner of Broad and George Streets in New Bern from George Attmore (Figure 2.02; Jones 1972b; North Carolina Marriage Records). The Rhem Family Vault was modeled after this house and was likely built around the same period, as family history notes that his first wife Ann and infant son Amos were interred there after their death in 1853. Sarah Catherine and Joseph had ten children together from 1857-1876, of which three survived to adulthood (Table 2.01; Cordes Porcelli & French 2020). After Joseph Sr. died in 1901, the family property was sold by one of his daughters (The Daily Journal, Dec 31, 1902). His last surviving daughter, Carrie Rhem Cole, passed away in 1954, and only a few family members remained within the New Bern area after the mid-20th century.

Figure 2.02: The Rhem family house in New Bern, North Carolina (Clark Collection 1733-1975).

Table 2.01: The children of Joseph L Rhem Sr. and Sarah Catherine Tucker. The records do not include the year that Frank Hoke Rhem died, but he was not listed in the 1870 census with the family (U.S. Census Bureau 1870).

Name	Birth and Death Year
Joseph Lane Rhem Jr.	(1857 - 1871)
Kate Eula Rhem Spencer	(1859 - 1943)
Mary Bertha Rhem	(1860 - 1861)
Lula Newbernia Rhem	(1862 - 1867)
Frank Hoke Rhem	(1863 - <1870)
John Rhem	(1865 - 1872)
Caroline Rhem Cole	(1867 - 1954)
Joseph Franklin Rhem	(1871 - 1924)
Hugh Dudley Rhem	(1872 - 1873)
Bertha Rhem	(1876 - 1877)

Fluctuations in New Bern's economy did not affect the prosperity of Joseph Sr., who invested in agriculture and truck farming and made roughly $40,000 annually in the postwar period (Chas. Emerson & Co.'s Newbern Directory [1880-1881] 1880; The Newbernian, July 21, 1877; Watson 1987). Today, this amount is equivalent to over 1 million U.S. dollars (Webster 2012). The Rhem family was often intertwined economically and socially with other land-owning Victorian families in New Bern and its environs. For example, Kitty Rhem, the paternal aunt of Joseph Sr., married into the Foscue family, another elite family who owned land ca. 11 miles to the south along the Trent River, near Pollocksville, NC (Perry et al. in press). Joseph Sr's wealth is evident in the construction of his private vault in the city cemetery and the cost of the numerous iron coffins and caskets recovered from the vault.

The Rhem descendants created a list of individuals most likely buried in the vault based on family lore and the Rhem Family Bible. Based on the number of coffins visible within the vault, the family assumed that 14 individuals were interred inside (Figure 2.03). The initial list included Ann Kilpatrick and her infant son, who were believed to be the earliest burials within the vault. The list also included the burials of Joseph's five children that survived to adulthood. It is clear that three out of five of Joseph's adult offspring are not within the vault as two are buried within other plots at Cedar Grove Cemetery and one in the family plot of her husband. The remaining two adult daughters, Carrie Rhem Cole (1867-1954) and Kate Eula Spencer (1859-1943), are believed to be within the vault. These two women remained in New Bern and were well-known widows in the community (The News & Observer, Jan 14, 1943; U.S. Census Bureau (1920, 1930). The other nine children of Joseph L. Rhem Sr. died young and have the highest potential of having been buried in the vault (Table 2.01). The only non-Rhem on the list from the descendants was Elizabeth Ann Pelletier Fisher (1821-1863). Approximately 10 miles

south of the Rhem Vault, there is a memorial plaque for Elizabeth Ann at the Fisher family cemetery. The plaque claims that Elizabeth is buried in New Bern (Findagrave.com/memorial/145685935/elizabeth-ann-fisher). The local narrative claims that the Fisher family could not get permission to cross the river and bury Elizabeth Ann when New Bern was occupied by Union forces (Personal Communication with David French 2021). The presumptive identities of those from the vault will be discussed in further detail in the following chapters.

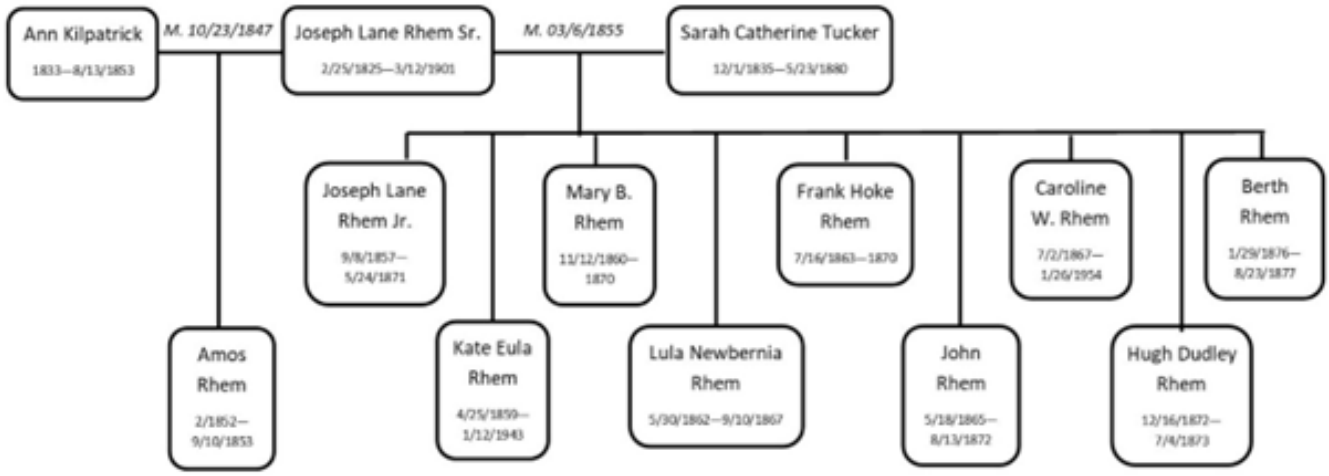

Figure 2.03: Familial relationships between the individuals the Rhem descendants believed were buried in the vault. The birth and death dates are derived from the Rhem Family Bible and obituaries from the New Bern Weekly Journal, the Newbernian, New Bern Weekly News, and cemetery records (Cordes Porcelli & French 2020). This chart does not include all the offspring of Joseph Rhem Sr; only children initially linked to the vault were included. Also, this chart does not include Elizabeth Ann Pelletier, a family friend that was also thought to be buried in the family vault.

19th and 20th Century U.S. Mortuary Traditions

The funerary artifacts of the Rhem Vault showcase the traditions and trends practiced in eastern North Carolina for over a century. Funerary artifacts disseminate information about religion, the afterlife, and how a specific community viewed death (Rainville 1999). These death attitudes change over time but are expressed as transient mortuary traditions and behaviors which are evident in the treatment of the dead. Coffin hardware is used in studies to date burials, determine the cost of the burial and relative status of the deceased, and reflect changes in perceptions of death (Garrow 1987; Hacker-Norton & Trinkley 1984). The mortuary behaviors in the Rhem Family Vault can illuminate the changing attitudes and trends in urban eastern North Carolina from the mid-19th century into the early 20th century and the pervasiveness of localized traditions in urban communities amidst larger-scale cultural trends.

Coffins and caskets are paramount in mortuary archaeology, and the treatment of the casket is often reflected in the treatment of the body. The shift from coffin to casket follows a significant change in the ideology and death attitudes from the 19th century. In the 18th and early 19th centuries, wooden coffins were viewed as an extension and representation of the body's corporeal form even after decomposition (Tharp 2003). Local cabinet makers built these early hexagonal 'pinch toe' coffins with flat or gabled lids as needed (Habenstein & Lamers 1962; LeeDecker 2009; Metcalf & Huntington 1991). Preparing the deceased for burial was a community affair in the early 19th century and a regular part of their social world (Baxter 2019; Schantz 2008). Women from the community would wash and dress the body before burial in long shirts or dresses and then wrap the body in a burial shroud (Farrell 1980; LeeDecker 2009; Pike & Armstrong 1980). These practices were tied to earlier colonial beliefs and concerns about

corrupting the physical body (LeeDecker 2009). Shroud pins, the shape of the coffin and coffin lid, and the type of nail are often used to date burials to the early 19th century (Connolly et al. 2010; Fox 1984; Leader et al. 2022; LeeDecker 2001).

Attitudes changed in the mid-19th century with the beginning of the Beautification of Death movement. The high mortality in the Civil War made death familiar and transformed death attitudes into a romantic movement celebrating the fallen (Baxter 2019; LeeDecker 2009). This new perspective also used public displays of sorrow and wealth to communicate the depth of emotional connection and respect for the deceased (Pike & Armstrong 1980). Funerals focused on preserving the deceased, which blurred the line between life and death. For example, the use of sealed iron caskets and embalming served to preserve the life-like appearance of the deceased, who was now "at rest" (LeeDecker 2009; Rainville 1999). Many new euphemisms for death emerged as cemeteries were designed as fields of rest, and the deceased were posed as if asleep within their coffins (LeeDecker 2009). Coffins transitioned to torpedo and rectangular-shaped caskets that were more like jewelry boxes than the utilitarian coffins of the past (Pike & Armstrong 1980). The deceased were displayed in their finest clothes for the funeral and subsequent burial (LeeDecker 2001). Also, many new forms and styles of intricately designed coffin hardware became widely available as the movement grew in popularity across the country (Hacker-Norton & Trinkley 1984; LeeDecker 2001; Little 1992). The elaborate decoration, increase in types of coffin hardware, and shift in coffin style are often used to date burials to the mid to late 19th century (Allen 2002; Bybee et al. 2002; Connolly et al. 2010; Davidson 1999; Garrow 1987; Hacker-Norton & Trinkley 1984; Hill & Pye 2012; Leader et al. 2001; Little 1992; McKillop 1995; McWilliams et al. 2014; Owsley et al. 2006; Roller 2016; Rotman et al. 2000; Springate 2015; Thiel & Margolis 2007; Thiel et al. 2013; Wescott et al. 2010; White & Mooney

2010; Woodley 1992). The Beautification of Death tradition glorified individual achievement through the excessive elaboration of mortuary behaviors and material culture (LeeDecker 2009).

The next major shift in mortuary trends occurred at the turn of the century, following the advances in technology for mass production and the advent of the professionalization of death (Buikstra et al. 2000; Farrell 1980; Pike & Armstrong 1980; Rainville 1999). Undertakers began selling services instead of just hardware, distancing the community from death and simplifying the funeral process for the bereaved (Habenstein & Lamer 1962; Rainville 1999). Visitations to cemeteries decreased over time, and burial sites began to be cared for by cemetery employees rather than family members (Rainville 1999). Professionals prepared the bodies and displayed them in funeral parlors instead of letting family members care for the deceased in the family home (Habenstein & Lamer 1962; Metcalf & Huntington 1991; Rainville 1999). In the 20th century, caskets used fewer decorative elements and became streamlined and understated (Farrell 1980; Hacker-Norton & Trinkley 1984). As the professionalization of the death industry continued, many communities began to fear death and became disoriented by the funeral process (Habenstein & Lamer 1962; Metcalf & Huntington 1991). Modern funeral parlors manage all aspects of death, including selling caskets in their display rooms, preparing the body, organizing the viewing and funeral, and filing the paperwork for death certificates (Habenstein & Lamer 1962). This full-service experience separated the family from many parts of the funeral process and widened the gap between the living and the dead.

The Cedar Grove Cemetery and Mortuary Trends in New Bern

Many of the traditions discussed above are captured within the architecture and burial practices of Cedar Grove Cemetery (Figure 2.04). The cemetery is located at the intersection of Queen Street and George Street in New Bern, North Carolina. Cedar Grove was historically

owned and managed by Christ Episcopal Church from 1800-1853 before ownership was transferred to the city (Jones 1972a). Many cosmetic changes to the cemetery occurred at this point, including constructing an iron gate and outer wall (Jones 1972a). These alterations were a delayed expression of a cemetery trend, commonly referred to as a "lawn-park cemetery," first appearing in the U.S. in the 1830s (Farrell 1980; Jones 1972a). Cedar Grove Cemetery has expanded many times and has incorporated the mortuary traditions of multiple decades by pairing many aesthetic trademarks of a lawn-park cemetery in the landscaping and design of different monuments and vaults with trademarks of a rural cemetery through the location outside of the original city limits and along the water's edge. The location of Cedar Grove Cemetery overlooking the riverbank of the Neuse River and the open landscaping with massive red cedar trees shows the importance of nature in this park meant for contemplation (Jones 1972a; LeeDecker 2009). Many notable historical figures are buried in the cemetery, including Caleb Davis Bradham Sr., the inventor of Pepsi-Cola (Jones 1972a). Cedar Grove Cemetery has several historic vaults, including a central burial vault and memorial that honors the Confederate soldiers that fought in the Civil War (Jones1972a). Unfortunately, the cemetery's rich history makes it a target for looting and vandalism. Many vaults, including the Confederate Memorial and the Rhem Vault, have reportedly been vandalized in the late 20th century. Consequently, the Rhem Vault was heavily disturbed when the excavation began.

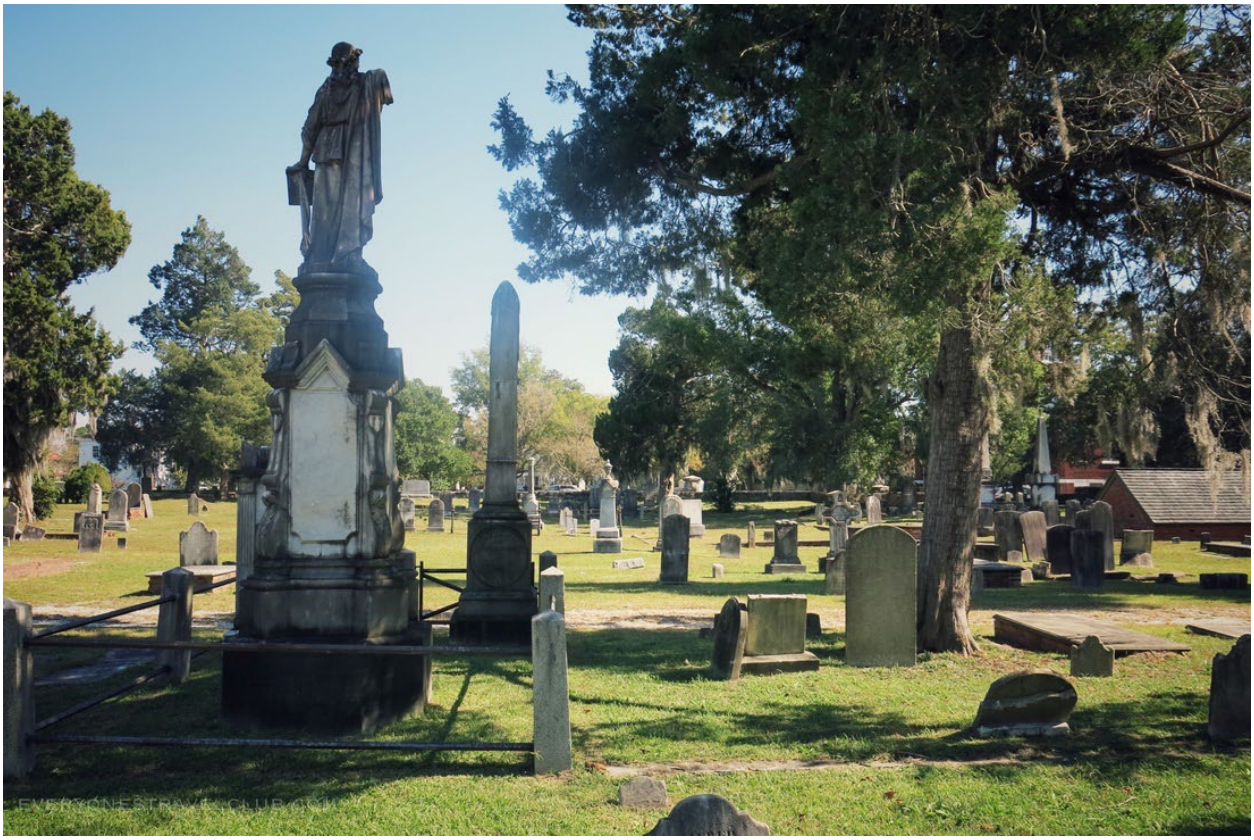

Figure 2.04: Victorian monuments and headstones from Cedar Grove Cemetery. Photo taken from https://www.everyonestravelclub.com/blog/the-cedar-grove-cemetery-new-bern-nc.

Coffin Hardware Typologies

One of the earliest systematic coffin hardware typologies for North America defined seven categories of hardware: handles, thumbscrews, escutcheons, plates, caplifters, decorative studs, and white metal screws (Figure 2.05; Hacker-Norton & Trinkley 1984). This early typology was based on trade catalogs and the excavation of the stock from an undertaker's store (Hacker-Norton & Trinkley 1984). The project centered on handles with minimal information on the other hardware categories and identified patterns of use and the popularity of specific hardware forms over time (Hacker-Norton & Trinkley 1984). The next significant typology was produced by Garrow (1987) and was based on the excavation of two cemeteries in Georgia. This

seriation included two more categories of hardware: glass viewing ports and iron closures (Garrow 1987). This typology obtained dates for the burials from associated headstones, oral histories, and historical documents instead of the hardware (Garrow 1987). These dates were then applied to the hardware and used to analyze changes in the form and style of hardware over time (Garrow 1987). These typologies focused on dating hardware forms, not stylistic motifs and other decorations on coffin hardware.

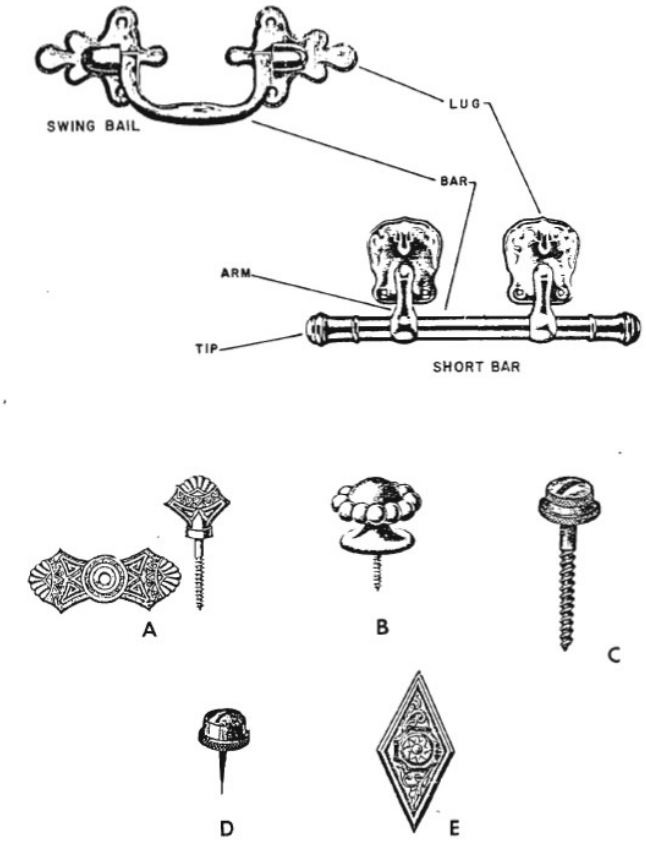

Figure 3. Handle parts of short bar and swing bail handles and miscellaneous hardware (A, thumbscrew and escutchion; B, caplifter; C, white metal coffin screw; D, coffin tack; E, stud).

Figure 2.05: The seven categories of coffin hardware identified by Hacker-Norton & Trinkley (1984).

The methods of these two iconic studies were refined in Davidson (1999). The in-depth research of trade catalogs allowed for tight dating of burials from the Freedman's Cemetery in Dallas, Texas (Davidson 1999), and the project became a hallmark study for mortuary archeology (Hill & Pye 2012; Roller 2016; Springate 2015). The Davidson typology identified and defined the usage dates for even more categories of coffin hardware than before and became the standard for dating mortuary artifacts (Hill & Pye 2012; Roller 2016; Springate 2015). Contrary to the methods of Garrow (1987) and Hacker-Norton and Trinkley (1984), this study used the patents and trade catalogs to date the burials based on design motifs on the hardware, not the form (Davidson 1999). More recently, Springate (2015) created a typology that organized coffin hardware by function with three major categories: structure, decoration, and identification. The typology built upon previous research and defined new divisions of many hardware categories, including thumbscrews (Springate 2015).

Most other cemetery research combines the dates from multiple pieces of hardware to provide more specific dates and information about a specific burial. However, the analysis of the commingled Rhem Vault collection concentrated on the dates and patterns observed in hardware categories rather than individual burials. Therefore, to maximize the potential of this collection, this research combined the methods of dating both specific motifs and the general hardware forms to define the periods of use for the commingled deposits of the Rhem Vault and observe patterns in the vault over time.

Identifying and Dating Mortuary Hardware

This research identifies and categorizes the coffin and casket hardware found in the Rhem Vault to identify dates of use and trends over time, with the ultimate goal of situating the use of different coffin and casket types in the use history of the vault. As noted above, coffin and

casket hardware typologies have been developed that were used to track changes in mortuary behavior. This research used the terminology and hardware classifications from the typologies discussed above to identify and date the hardware found in the Rhem Vault. However, the Rhem Vault collection may include design motifs and hardware styles that are not previously documented or identified. Following the methods of Davidson (1999), these new types will be aligned with the already developed typologies based on hardware form.

Handles

Handles are the most variable type of hardware associated with coffins and the most visible, making them a strong temporal indicator. According to early hardware catalogs, the quality and number of handles determined the cost of the coffin more than any other coffin trimmings (Hacker-Norton & Trinkley 1984). The trends for coffin handles are based on the handle form, the number of handles used, and the decedent's age at death. For example, adult coffins generally used three handles for each side, while children's coffins used only two (Hacker-Norton & Trinkley 1984). However, fewer handles were sometimes used to reduce the cost of the coffin or the number of pallbearers (Hacker-Norton & Trinkley 1984).

There are four principal forms of handles: swingbail single lug, swingbail double lug, stationary short bar, and stationary extension bar (Figure 2.06). Archaeological collections and hardware catalogs show that each form was popular during different periods; swingbail forms gave way to stationary forms in the 1880s, and eventually, extension bars became popular in the early 20th century (Hacker-Norton & Trinkley 1984). Extension bars and stationary corner braces grew in popularity in the early 20th century (Hacker-Norton & Trinkley 1984; Hill & Pye 2012). Using the variations and options available in catalogs as an indicator of popularity, Hacker-Norton & Trinkley (1984) determined that single lug handles were popular through the

1860s before being replaced by double lug handles by the 1870s. According to price, the more expensive stationary bars were preferred in the 1880s (Hacker-Norton & Trinkley 1984). Additionally, single lug handles are often associated with children's burials (Davidson 1999). Trends based on the hardware form are useful for dating hardware that has not or cannot been matched to a specific catalog.

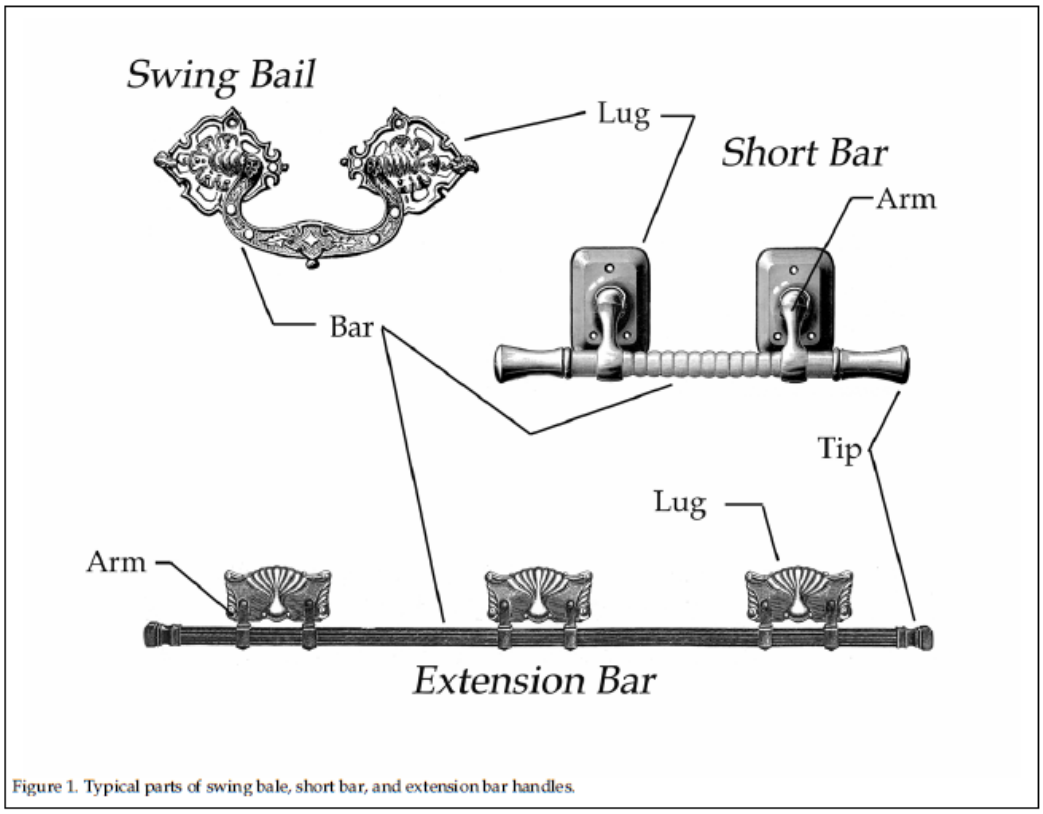

Figure 1. Typical parts of swing bale, short bar, and extension bar handles.

Figure 2.06: Three representative handles associated with coffins and caskets (Trinkley & Hacker-Norton 2007). This figure does not include the swingbail single lug handle form.

Another temporal trend is the level of elaboration and decoration used on the handles. Finding furniture handles in a burial context may indicate an early burial or lack of supplies at the time of burial (Hill & Pye 2012). Furniture handles are distinguished by oval lugs and the

lack of decorative motifs or designs. The handles may date to the early 18th century when they were used by cabinet makers and early undertakers who made coffins to order (Hill & Pye 2012). These handles have also been found in archaeological contexts as part of the outer shipping container associated with the coffin (Bybee et al. 2007; Hill & Pye 2012).

Closure Mechanisms

There are two categories of closure mechanisms: latches and hinges, and internal fasteners. The first type combines latches, hinges, and other support types that are part of the lid closure for caskets and coffins. Stop hinges, butt hinges, and catches are not easily matched to patents, hardware catalogs, or other archaeological contexts and they often span wide temporal ranges (Bybee et al. 2007; Hill & Pye 2012). For example, the first patent for a catch came out in 1883 and was continuously improved with new varieties and styles developed even into the 1950s (Hill & Pye 2012). Despite this long history of use, earlier varieties of catches can be distinguished by the thin arched metal plates used instead of wire for the spring (Hill & Pye 2012). Many hinges and catches are designed with interchangeable parts, which increases the difficulty of identifying specific examples in patents and trade catalogs (Hill & Pye 2012). Some support types have known production dates and are more easily dated to the mid-20th century (Hill & Pye 2012). Supports, or arm braces, are elongated hinges used to prevent the casket lid from closing or overextending (Figure 2.07; Hill & Pye 2012).

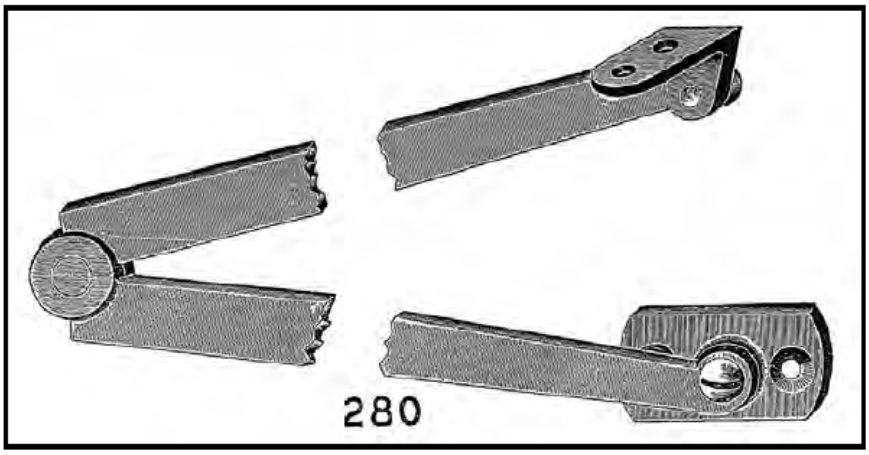

Figure 2.07: A hinged support from the 1920s-1930s Langenau Manufacturing Company catalog as seen in Hill & Pye (2012).

The second type of closure mechanism includes corrugated fasteners and joining plates. Corrugated fasteners are used almost exclusively used at joints. Although the design has shifted over time, these fasteners have been used consistently from the original patent in 1884 to today (Hill & Pye 2012). The ribbed shape of the fastener was standardized and mass-produced after 1889 (Hill & Pye 2012). The fasteners have been recovered in archaeological excavations in Texas, Alabama, Arkansas, Kentucky, and West Virginia, ranging in date of use from 1896-1956 (Bybee et al. 2007; Hill & Pye 2012). Joining plates were used as fasteners at joints and were likely joined with adhesives since there are no holes for nails or screws; evidence from other excavations shows they might have been used at mitered corners (Hill & Pye 2012; Thiel et al. 2013).

Nails

Three main types of nails were used in the 19th century: hand-wrought, square cut, and wire (Hill & Pye 2012). Nails are identified by the head and shape of the shaft to determine the manufacturing method (Figure 2.08). Nails are considered good temporal indicators for burials

because they are well documented in archaeological and historical records. There was an important transition from cut nails to wire nails for casket construction at the end of the 19th century (Hill & Pye 2012). Mainfort and Davidson (2006) date burials with wire and cut nails to the transition period of 1895-1900, before cut nails were completely phased out of use in casket construction. The size of the nail can also provide information about the coffin and any associated external hardware (Hill & Pye 2012). For example, clinched nails are bent at 90° angles to secure braces or external hardware. Bent nails are often associated with secondary shipping containers that were sometimes included in the burial (Hill & Pye 2012; Mainfort & Davidson 2006). Clinched nails are also helpful for determining the width of the wood used even after it has fully decayed. Finish and brad nails are two additional styles of nails that are identified by size and diameter. These smaller styles of cut nails are used with thinner and more delicate woods (Nelson 1968; Wells 1998).

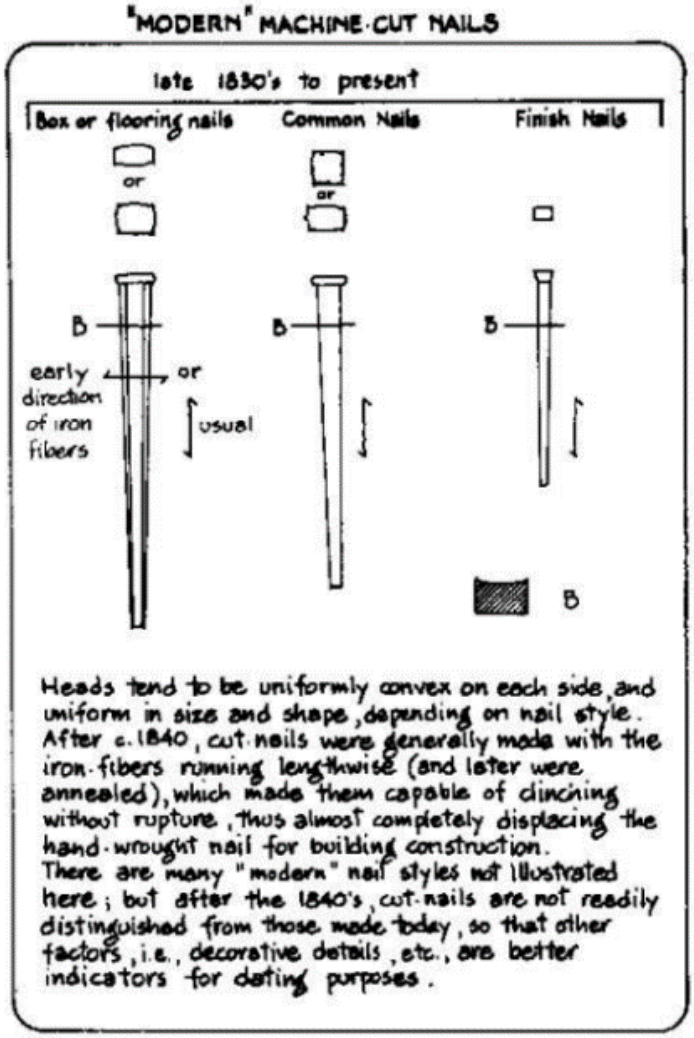

Figure 2.08: A representative photo of modern cut nails from the 1830s to the present (Nelson 1968).

Screws

Many screws associated with mortuary contexts have precise patent dates that can be useful for dating burials. Coffin screws vary in shape and size and have been in use from 1840-1900 (Davidson 1999). When used for lid closure, they were often used in sets of four or six; a screw at each corner and two at the shoulders or waist (Davidson 1999). The earliest patent for a

screw was issued in 1846 for a gimlet wood screw with pointed tips and a slotted head (Hill & Pye 2012). However, this style was very successful and widely used into the 20th century. The term "coffin screw" refers to a decorative type of wood screw with a large screw head meant to stick out from the surface rather than disappear into the wood (Davidson 1999). Both wood screws and the larger coffin screws were often used with other pieces of hardware, including escutcheons, handles, supports and hinges, and corner braces. Similar to nails, some screws were not invented until the 20th century and act as great diagnostics for dating burials, including the Phillip's head screws that were patented in 1936, and the Robertson screw in 1908 (Consumer Reports 1995; Hill & Pye 2012).

Thumbscrews

Thumbscrews are an evolution of coffin screws, with elongated heads designed to be screwed in by hand, and often found in sets of 4 or 6 (Davidson 1999; Hacker-Norton & Trinkley 1984; Springate 2015). Thumbscrews can be separated into three principal categories, or generations, based on shape and temporal shifts in widespread use (Springate 2015). First generation thumbscrews evolved directly from coffin screws, retaining the slot on the head but becoming more raised and elongated for hand tightening (Davidson 1999; Springate 2015). Thumbscrews were introduced in the 1870s and grew in popularity throughout the 1880s, but more specific dating suggests that cylindrical thumbscrews (second generation) appeared no earlier than 1870, and the flat-bodied forms (third generation) appeared no earlier than 1875 (Davidson 1999; Springate 2015). Over time, thumbscrews became less functional and more decorative, eventually losing popularity as caskets became more streamlined in the 20th century (Hacker-Norton & Trinkley 1984). However, there are reports of thumbscrews in use on the

outer shipping boxes of coffins in advertisements even into the 1960s, showing that they did not entirely leave the market in the 20th century (Hacker-Norton & Trinkley 1984).

Escutcheons

Escutcheons are decorative screw plates with a temporal range of 1850-1920 that are often paired with thumbscrews, coffin screws, or caplifters (Davidson 1999; Hacker-Norton & Trinkley 1984; Springate 2015). This date range can be refined by matching design motifs to catalogs rather than the hardware form (Davidson 1999). Other terms for escutcheons include thumbscrew plates and diamond plates (Springate 2015). Escutcheons are defined by three main holes in the design, a central hole for the thumbscrew and two smaller holes on either side for escutcheon pins or tacks (Davidson 1999; Hacker-Norton & Trinkley 1984). Before the rise of thumbscrews in the 1880s, escutcheons were more likely to be used with plain coffin screws (Hacker-Norton & Trinkley 1984). Escutcheons and thumbscrews were sold individually and as matching pairs (Hacker-Norton & Trinkley 1984).

Coffin Studs, Screw Caps, and Screw Plates

Coffin studs were made of inexpensive stamped metal, so delicate and thin they needed to be hand-pressed into wood (Davidson 1999; Hacker-Norton & Trinkley 1984). Date ranges for coffin studs range from 1850-1910, but they grew in popularity in the 1870s (Davidson 1999; Kogon & Mayer 1995). Many common motifs are copied across hardware catalogs, such as diamonds, ovals, starred circles, and a floral or starburst pattern (Hacker-Norton & Trinkley 1984). In some archaeological contexts, the starburst pattern was found exclusively associated with children's burials (Springate 2015). Coffin studs were often used to inexpensively add decoration and elaboration to a coffin (Hacker-Norton & Trinkley 1984). Appliques and screw

caps were alternative names and forms of coffin studs used between 1860-1880 (Davidson 1999; Thiel & Margolis 2007). The basic form of the screw cap pairs a screw plate and coffin screw by covering the screw with a thin cap mounted on the screw plate. These are differentiated from coffin studs by the lack of a coffin tack or screw and small pins joining the cap and the screw plate. Coffin studs and screw caps are often made in matching styles, and the 1874 Sargent catalog offers styles available as both studs and screw caps (Figure 2.09).

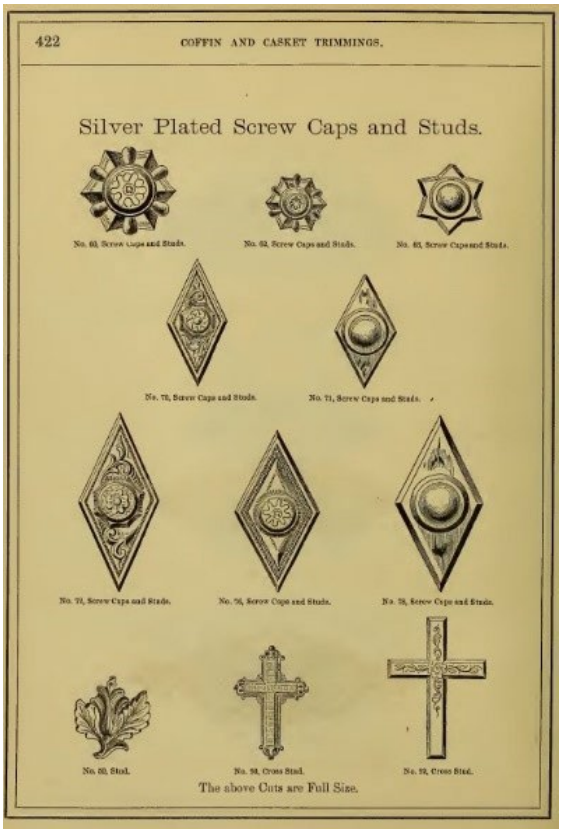

Figure 2.09: The 1874 Sargent and Co catalog offers both coffin studs and screw caps in the same styles.

Ornamental Items

Representative ornaments and plaques with dates and other ties to the deceased's life were often used to personalize and humanize the coffin or casket (Tharp 2003). In archaeological contexts, when ornaments and plaques were found on coffins, they were positioned on the lid

over the torso, hips, or legs (Davidson 1999; Roller 2016; Tasa & Tasa 2014). Ornaments generally included motifs such as crosses, floral designs, or fraternal symbols (Roller 2016). Plaques are differentiated from ornaments because they include words or phrases (Davidson 1999). Plaques could be either factory stamped with common phrases such as “At Rest" or given a custom engraving by the local undertaker with the details of the deceased (Hacker-Norton & Trinkley 1984). In the 19th century, plaques and nameplates were sometimes removed before burial as mementos of the deceased (Gordon 2003). This hardware category is closely linked to the Beautification of Death tradition, and the use of coffin plates and similar ornaments peaked in the 1860s (Gordon 2003).

The following chapters address the typology and further study of the coffin hardware within the Rhem Vault. Two centuries of mortuary behaviors practiced by this elite family in North Carolina will be analyzed through the distribution and variation of coffin hardware within the vault. The coffin hardware analysis will track changes in mortuary behaviors over time and document the regional behaviors in this commingled family vault. Finally, this report will also use coffin hardware to date and identify individuals within the vault.

CHAPTER 3:

MATERIALS AND METHODS

Excavation of the Rhem Vault

Excavation and documentation of the Rhem burial vault took place between June 1st and June 9th, 2021. This was followed by two additional days of additional excavation and documentation on June 23rd and September 24th, 2021. The Rhem Vault presented a complex feature that required separate protocols for documentation and removal of the coffins and excavation of the floor deposits. Fourteen intact coffins from the floor of the tomb and the wall-mounted shelving units were given feature numbers (F.01 – F.03, F.05 – F.14, and F.19). After removal from the tomb, the coffins were transported to the Queen Anne's Revenge lab (QAR) at the West Research Campus of East Carolina University (ECU) and the Phelps Archaeology Laboratory on ECU's main campus. The coffin containing the most recent vault interment (F.03) had almost completely disintegrated, and the remains and artifacts associated with this coffin were processed in the field.

The floor deposits of the vault are introduced below, then discussed in greater detail in the following chapter. The deposits that contained commingled human remains and artifacts were designated "Areas" (Areas A-F) based on their location in the vault to provide horizontal spatial control. Soil deposits with remains immediately to the east and south of the center of the vault were identified as Area A. Area A was excavated first to provide access further into the vault for removing the remaining coffins. The deposits underneath the shelving unit on the southern wall were identified as Area B and those beneath the northern shelving unit as Area D. Area C was labeled as the center section of the vault, beneath coffins F.03 and F.05. Probing in the southeast and northwest corners, on 6/23/2021, was identified as Area E. Area F was used on

9/24/2021 to classify the lower sterile layer across the entirety of the vault. Distinct features within the Areas were given feature numbers (F.15 – F.18) and the remains and artifacts within each were collected separately from the other contexts. One hundred percent of the floor deposits containing artifacts and human remains were sifted using 1/4-inch screens. Only 33% of the relatively sterile sand and brick rubble, located just above the vault floor, was sifted. Documentation of the tomb contexts was primarily through photographs and field sketches. Attempts at photogrammetric documentation were hindered by issues with lighting in the vault and the limited access to the vault's disturbed interior.

Artifact Preparation and Inventory

Although not the focus of this thesis, the 3 intact adult coffins and 11 juvenile coffins were analyzed in the lab along with the commingled coffin hardware. Debris and loose dirt were removed from the coffins before each coffin was mapped in top and profile views, photographed, and eventually opened. Forms adapted from Buikstra et al (2000) were used to collect measurements and information on specific hardware, features, and motifs present on the coffins. The adult coffins were all pried open with minimal preparation. Opening the juvenile cast iron coffins, however, necessitated the removal of the corroded screw heads via an angle grinder fitted with a metal cutting blade and a carbide drill bit to drill out the screw bodies. Once opened, the interior of the coffin was photographed before and after the removal of loose debris, then mapped before the removal of the remains and associated cultural material. The coffins had various states of preservation due to water damage, broken seals around the viewing plates, and damage to the main body of the coffin either from falling off the shelves or various looting episodes. Coffins F.01, F.03, F.05, F07, F.12, and F.13 contained various clothing and other preserved textiles inside including the remains of blankets and leather shoe soles. Before

opening, coffins F.06 and F.07 were taken to CT (computed tomography) Technologist, Susan Sandlin, at the East Carolina Heart Institute. The CT scan captured 0.6mm coronal and sagittal slices of the coffins using a Siemens Somatom Definition CT Scanner and dual-source technology. Coffin F.06 was scanned using 120 kilovoltages (kVp) and 650 milliampere-seconds (mAs), and coffin F.07 used 120 kVp and 700 mAs. This preliminary assessment provided a 3-D view of the coffin interiors before the coffins were disturbed by the opening process (Figure 3.01).

Figure 3.01: A coronal cross section of coffin F.07 using CT scanning technology.

Artifacts were identified and bagged based on the context in the field, then cleaned and identified in the lab. Many of the skeletal remains and artifacts showed signs of deterioration from water, roots, and rodents. While many metal artifacts showed signs of past corrosion and water damage, very few showed signs of active corrosion (Personal communication, Kim Kenyon 2021). Dry-brushing with minimal application of water was used to remove dirt and debris from the artifacts. After being cleaned, non-diagnostic metal fragments were counted and weighed according to the context and date of the excavation. Representative samples of wood from coffins and shelves were collected in the field. Only larger wood fragments with multiple intact edges were measured to obtain coffin or shelf dimensions. Textiles and leather artifacts found within the coffins, and in the commingled deposits, were collected in case of future analysis of manufacturing methods and fiber identification. Intact clothing was photographed and stored on acid-free paper. As the artifacts and remains are intended for reburial in the vault, conservation methods for long-term preservation were not performed after inventory and analysis. Coffin hardware was individually measured, photographed, and assigned a find number in the inventory log. The hardware was then identified and organized into a typology for the vault.

The typology for the coffin hardware was adapted from Davidson (1999), Springate (2015), and Hill & Pye (2012). Under each class of hardware (i.e., coffin closures, escutcheons, and nails), types were established based on hardware form, level of decoration, or functionality (i.e., latches and fasteners). The types were based on known typologies of North American coffin hardware (Davidson 1999; Garrow 1987; Hacker-Norton & Trinkely 1984; Hill & Pye 2012; Springate 2015), with additional subtypes to aid in the dating and identification of each unique style of hardware. Additionally, these traditional typologies will be amended with any design

motifs or hardware styles not identified in previous typologies. Rather than a universal or standard typology, the typology for the Rhem Vault represents a breakdown of coffin hardware seen in eastern North Carolina specifically and the Southeastern United States more generally. The hardware identified in the typology will build the comparative literature in this region across a broad period for future excavations.

Aside from the typology, the analysis for this thesis depended heavily on matching hardware subtypes to historic coffin trade catalogs and other sources for dating. Comparative collections from theses, dissertations, articles, and twenty-three trade and hardware catalogs with dates ranging from 1853 to 1940, were used for identification and relative dating of coffin hardware (Appendix B). Hardware catalogs from a variety of public sources were used for this comparative analysis but were limited compared to those available in private collections. The selection of other sources was limited to documents with accessible pictures documenting the typology and finds. These were often from larger cemetery excavations with tighter dating from headstones and associated artifacts in single burials. When hardware from the vault was matched to a catalog, the match was recorded, and the corresponding catalog date was linked to a Period in the vault. Periods of use were determined in the vault following major shifts in hardware use (Table 3.01, LeeDecker 2009; Pike & Armstrong 1980). Using the dates from catalogs and comparative collections, the spatial and temporal distribution of the commingled hardware was analyzed to diachronically understand the mortuary traditions practiced in the Rhem Vault. Hardware from the intact coffins in the vault was compared to the commingled sample in the temporal and spatial analysis.

Table 3.01: The four major periods of use identified within the Rhem Vault are based on previous data on shifts in hardware use (LeeDecker 2009; Pike and Armstrong 1980).

Period	Date Range
1	1850-1859
2	1860-1880
3	1881-1910
4	1911-1980

Over the course of the excavation, the number of interments doubled with the discovery of the commingled remains beneath the shelves and drastically increased the number of artifacts and hardware collected. This directed the study towards understanding the mortuary trends present in the commingled assemblage, making the analysis of personal artifacts and other items from the vault beyond the scope of this thesis. Identifying the individuals in the vault became a secondary goal for the project to confirm the timeline and history of the vault. Identifications were built on three lines of evidence: age and sex estimations from the skeleton, associated dates and identities tied to coffin hardware and other personal artifacts, and information from the historic record. Historical sources include a family bible and obituaries compiled by Rhem family descendants, newspaper articles, census records, and family papers from the ECU special collections library. The presumptive identities and burial summaries are presented in the results and discussion chapters. The following chapters present the results from the analyses discussed above with a focus on the coffin hardware from the commingled contexts.

CHAPTER 4:

RESULTS

This chapter will introduce the phases of use in the Rhem Family Vault and report on the material culture from the commingled deposits. This thesis identifies and dates the coffin hardware recovered from those commingled contexts by identifying and matching the hardware to trade catalogs of the era. The relative dates were used to determine the periods of use of coffins made from varied materials.

Vault Documentation and Excavation

The Rhem Family Vault was constructed in the mid-1850s and underwent many phases of use and disturbance for the past ca. 170 years. The vault was constructed to match the brick and stucco style of the Rhem-Waldrop House purchased by Joseph L. Rhem in 1855 (Clark Collection 1733-1975). The vault was constructed from bricks measuring approximately 8 inches x 4 inches x 2.4 inches that were finished with stucco. False mortar joints were scored into the stucco finish to create a uniform façade mimicking stone blocks measuring 3.9 feet by 0.8 feet. The square vault measures 9.8 ft along each outer wall and 7.4 feet x 7.4 feet internally. The exposed portions of the external brick show it was constructed using Rat Trap Bond and Common Bond masonry styles (Figure 4.01). At the top of the walls, two stretcher courses and a header course, with a partial rat trap bond step outward to meet the roof overhang (Figure 4.02). The main body of the vault was constructed in the common bond style, with full headers on every fifth or sixth course. At the base, three visible courses of bricks also step outward. The internal walls are still entirely covered with plaster, which obscures the bricks. Brownstone blocks measuring 3.6 feet by 0.8 feet were used on the roof, a stepped cornice initially topped by

an urn of carved brownstone (Sandbeck & Stephens 1995). Before this 2021 investigation, the urn had fallen from the unstable roof (Figure 4.03).

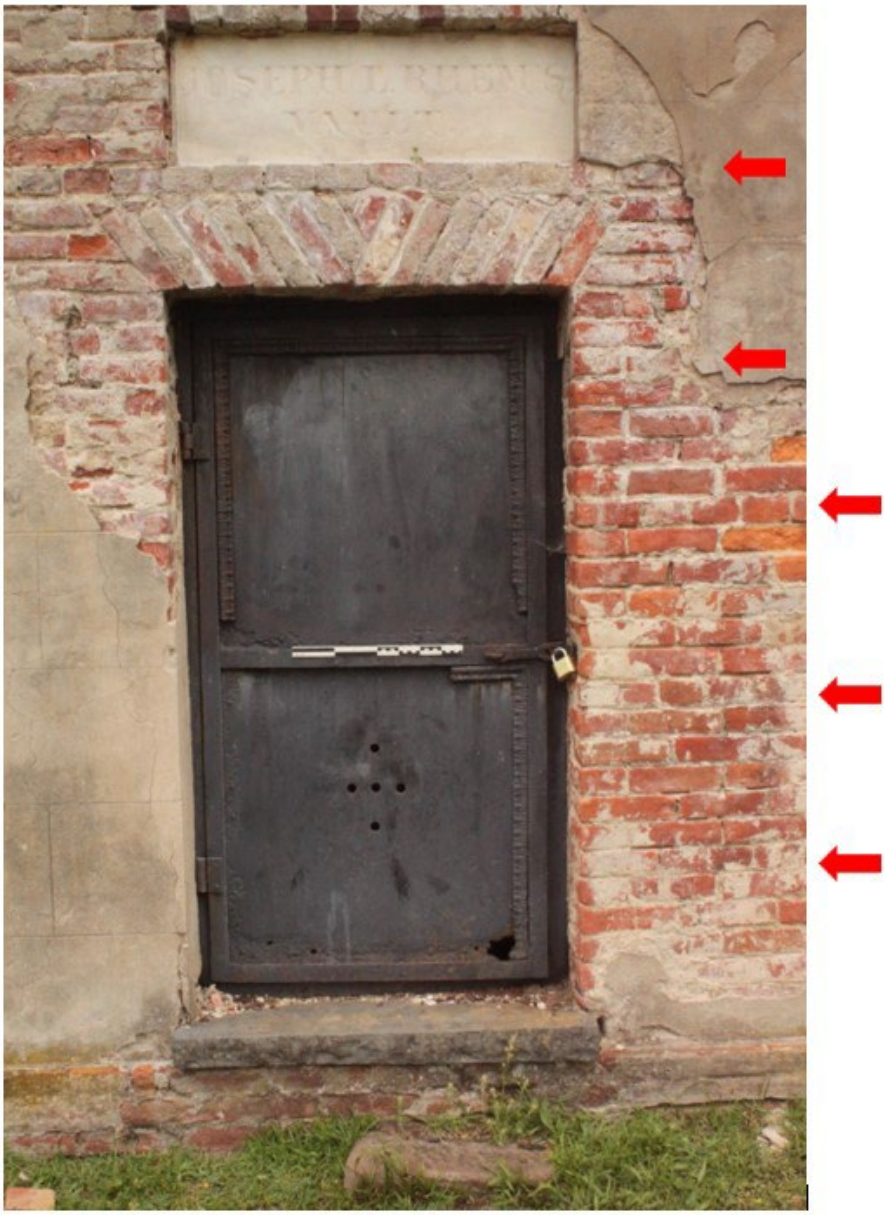

Figure 4.01: The exposed brick on the eastern wall of the Rhem Vault shows a common bond brick pattern with a header course every 5th or 6th course. Header courses are marked with red arrows. Photo by Jalynn Stewart.

Figure 4.02: The exposed brick on the Western wall shows two stretcher courses and one header course on the roof with a partial Rat Trap bond. The partial Rat trap bond is marked with a red arrow. Photo by Jalynn Stewart.

Figure 4.03: The Rhem Vault urn after it fell from the roof. Photo provided by the Rhem descendants.

The total height of the Rhem Vault, without the urn, is approximately 13.5 feet, made up of 4ft of the crumbling brownstone roof and 9.5 feet of the plastered brick façade. The doorway is centered on the eastern wall and measures 5.5 feet by 3 feet, with the bottom of the door raised about a foot off the ground and 27 inches above the inner brick floor. The door is lined with egg and dart molding and has five holes that may have held an ornament or plaque in place (Figure 4.01). Directly above the door, "Joseph L. Rhem's Vault" is carved into a marble plaque. Inside, the brick floor of the vault is approximately 15 inches below the ground surface. This well-constructed floor was made from brick pavers measuring 8 inches x 4 inches that directly abut the vault walls in a stretcher bond. Shortly after construction, a ca. 4 inch layer of brick rubble mixed with mortar was deposited on the brick floor and covered with another 8 inches of sterile sand. These strata were excavated in ca. 50 x 80 cm probes in both the northwest and southeast (Area E) corners of the vault, then as Area F across the remainder of the vault (Figures 4.04 and 4.05). These layers contained very few artifacts, likely because they were deposited before the vault was used for burials in order to prevent or combat water seepage into the tomb. It is possible that around this point in time, the metal-bracketed expandable shelving system was installed into the brick along the south and north walls (Figure 4.06). The first shelf brackets on the northern and southern walls sit 1.5 feet above the brick floor and ca. 10 inches above the top of the brick rubble and sand infill layers. Each of the five shelves extend 7.4 feet along the entire face of the northern and southern walls, with a height and depth of 1.5 feet. Along with the five shelves along each wall, three additional movable shelves could be installed on the western wall for the total interment of at least ten adult caskets or coffins inside the vault (Sandbeck & Stephens 1995). Wooden boards were inserted into the metal brackets as shelves to support the coffins, but the wood mainly had decayed or collapsed at the time of excavation.

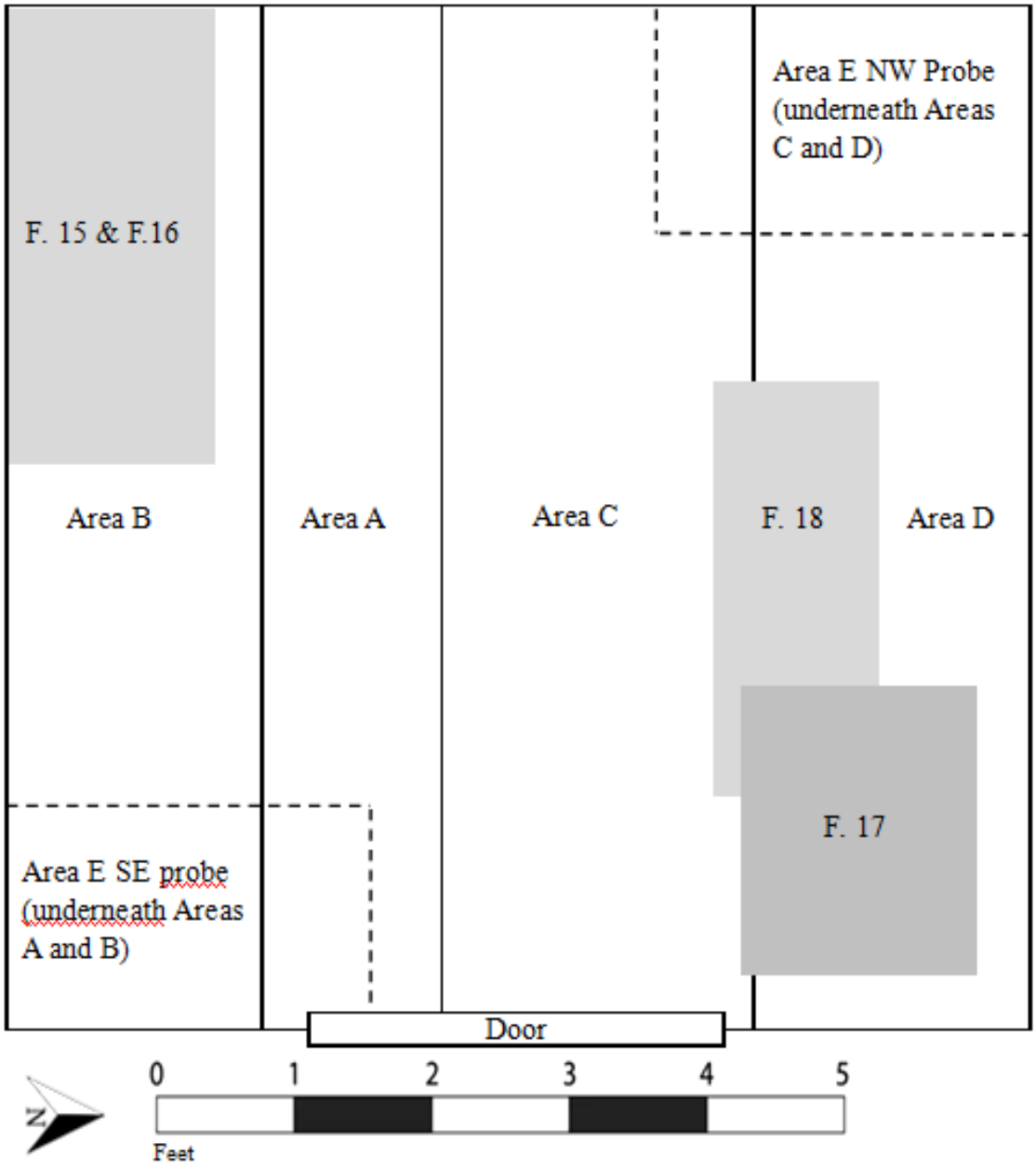

Figure 4.04: A map of the contexts in the Rhem Vault. Dashes were used to show Features and Areas that were not present in all layers. Area F is not shown, it is the lowest layer in the vault and directly above the brick floor.

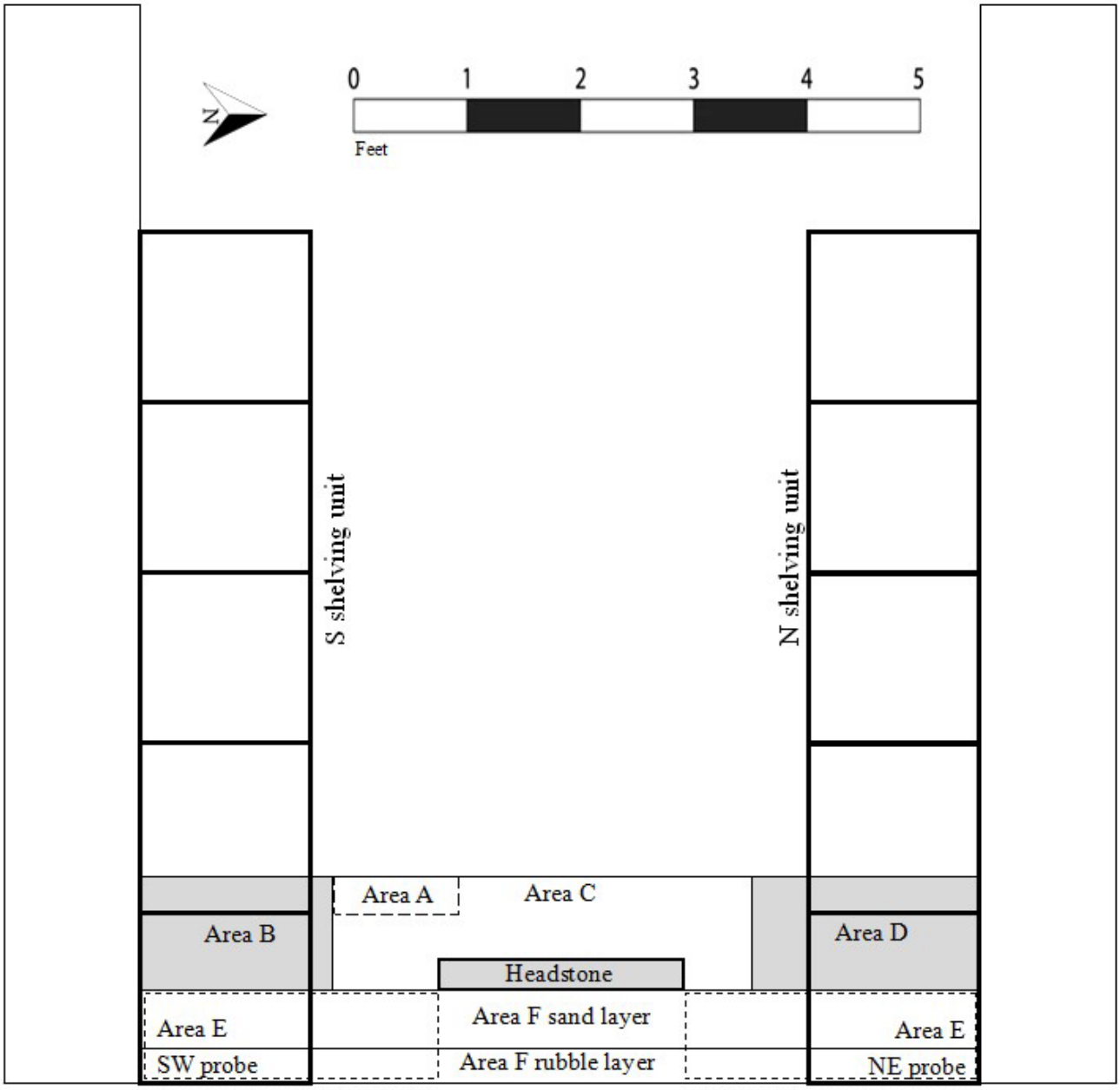

Figure 4.05:The western profile of the Rhem Vault.

The vault was constructed in the early-1850s when Joseph Rhem Sr bought a house and settled in New Bern (Jones 1972b). The initial phase of use is also shown by the placement of the marble headstone and footstone of James M. Gooding, the husband of Sarah Catherine Tucker, Joseph Rhem's second wife, inside the vault on top of the Area F sand fill. The headstone was

placed face-down in the center of the vault in an east-west orientation, and to accommodate its length, part of the brick wall beneath the doorway was cut back. The footstone was placed upside down on the sterile sand underneath the southern shelves at the same level as the headstone. The headstone indicates that James died in 1853. However, it is unclear if the head and foot stones originally marked his tomb elsewhere in the cemetery then moved to the vault or were never installed as intended and instead placed within the Rhem Vault along with the remains of James. The presence of James' remains within the vault will be explored further in the next chapter.

Table 4.01: Area designations and descriptions from the vault. See Figure 4.04 for a map of the labeled areas and features.

Feature/Area	General Location	Description	Comments
Area A	Central Sector	Debris in between coffin F.05 and southern shelving unit above Gooding headstone	Associated with coffins F.03, F.05, F.10
Area B	Southern Sector	Debris directly east of F.15 and F.16 and below the bottom shelf and above the Gooding footstone	Located below coffins F.11, F.13, and F.19
Area C	Central Sector	Above the Gooding headstone, between the northern and southern shelving units	Located below coffins F.03 and F.05
Area D	Northern Sector	Below the bottom shelf along the north wall	Associated with F.17 and F.18
Area E	SE and NW corners	50cm – 80cm testing unit below Area B and Area D	Probed to determine the extent of the sterile layer
Area F	Entire Vault	Below Areas A, B, C, and D	Sterile sand and bricklayer across the entire vault
F.15	Southern Sector	Beneath F.14 and above F.16 on the western half of the shelving unit	Delineated within the deteriorated remains of a wooden box
F.16	Southern Sector	Beneath F.15 and above Area F	Below the wooden box of F.15 and continues until the sterile layer
F.17	Northern Sector	Below the bottom shelf on the eastern half of the shelving unit	Associated with Area D and F.18
F.18	Northern Sector	Below the bottom shelf in the middle of the shelving unit	Associated with Area D and F.17

Figure 4.06: The shelving units on the south wall prior to excavation. Photo by Dr. Megan Perry.

Individuals were buried in a mix of wooden, cast iron, lead, and composite metal caskets and coffins, over the past one hundred years. This extended period resulted in many cycles of reorganization within the vault as the wooden coffins and shelves decayed. As a result, understanding a precise sequence of events within the vault is difficult due to the continued

disturbance of contexts within the vault. However, a general timeline can be extrapolated from the excavation.

As wooden coffins and caskets decayed, the remains and associated hardware they contained were gathered and placed underneath the shelving units, tucked alongside the upside-down headstone, and placed on top of the footstone of James M. Gooding. This decay and reorganization created ca. 12-20 inch deposits that were identified as Area B under the southern shelving unit, Area A between the southern shelving unit and coffin F.03, Area C in the central section of the vault, and Area D under the northern shelving unit (Table 4.01).

The Southern Sector

The Southern Sector includes the items on or underneath the shelving unit installed along the southern wall. Area B denotes the soil deposits containing mortuary artifacts and remains under the southern shelving unit, while F.15 and F.16 refer to concentrations of remains that appear to have been gathered and placed within wooden boxes at the western end of Area B. F.15 is located directly beneath coffin F.14 and measures 3.3 feet by 1.5 feet (Figure. 4.07). The box encompassing the F.15 context was still largely intact, and this context marks what may be the latest evidence of tomb "organization". The box contained the commingled yet incomplete remains of at least four adults and one subadult (Figure. 4.08), including the probable remains of Carrie Rhem Cole (1857-1954). Carrie's remains were confirmed by a fractured left femur that occurred 2.5 months before her death (North Carolina State Archives, Death Certificate #493 for Carrie Rhem Cole), along with an A/V plug, a metal zipper, and nylon hose associated with the partially articulated remains. Feature F.16 was located under F.15 and characterized by a dense collection of remains intermingled with the remnants of what may have been a wooden box with approximately the same dimensions as F.15. This box may have originally contained the remains

similar to those in F.15, but at the time of excavation the skeletal remains in F.16 were commingled and embedded in the soil to an extent greater than seen in F.15. A large fragment of a dining plate showing signs of crazing and with a complete maker's mark on the bottom was found facing down beneath the F.16 remains (Figure 4.09; Find #639). While the maker's mark claims the plate is porcelain, it is actually a refined earthenware known as pearlware (1790-1840). The footstone for James M. Gooding was discovered at the eastern end of Area B, at approximately the same level as the dining plate, below F.16 (Figure 4.10). The tombstone and the plate were found at the horizon between the commingled deposits and the sterile post-construction deposits.

Figure 4.07: This image shows the southern shelves and F.14 resting above the wooden box and concentration of remains designated F.15. The red arrows are pointing to coffin F.14 and the F.15 feature. Photo by Dr. Megan Perry.

Figure 4.08: This image of F.15 shows part of the wooden box the remains were placed in and the first layer of comingled remains. Photo by Dr. Megan Perry.

Figure 4.09: This pearlware plate fragment was found in F.16 on 6/7/2021, Find #639. The inscription on the back reads: Montpelier, John Ridgway & Co; and in the center: Porcelaine à la Francaise. Photo by Jalynn Stewart.

Figure 4.10: This image shows the bottom of Area B and F.16. The footstone of James M. Gooding is on the left, the pearlware plate fragment is in the center, and a skull (Accession# F.16.1) is on the right. Photo by Dr. Megan Perry.

The southern shelving unit initially held eight, possibly nine metal coffins (F.01, F.09, F.10, F.11, F.12, F.13, F.14, F.19, and possibly F.02) and one mostly decayed but recent wooden coffin (F.03). One of the large adult coffins, F.10, still sat on the metal framework of the fourth shelf of the shelving unit at the time of excavation and F.09, a child-sized cast iron coffin, was found resting on top of F.10. However, the other child-sized cast iron coffins were too small to be completely supported by the metal shelving frame, and as the wooden boards within the shelving unit disintegrated and splintered, the smaller cast iron coffins fell through. Cast iron coffin F.14 fell upon the box containing commingled remains (F.15), and coffin F.12 fell on top of coffin F.14. Coffin F.13 fell over Area B on the eastern end of the shelving unit, and coffin F.19 fell on top of F.13. In addition, a wooden board, likely the remains of a shelf upon which

F.19 was sitting, was recovered between F.13 and F.19. At the eastern end of the shelving unit, cast iron coffin F.11 fell upon the remains of wooden shelving and came to rest at an extreme angle with the head pointing downward and the foot end propped up with a crossbar of the shelving unit (Figure 4.11). A large amount of wooden shelving fell onto F.19 and F.12.

Figure 4.11: The eastern end of the southern shelves prior to excavation. Coffin F.11 is on the left with the head end resting on the floor and the foot end resting on the shelving unit. Coffin F.12 is on the left, resting on coffin F.14. Photo by Jalynn Stewart.

In addition, at least 30 years ago, F.03 was disturbed by looters and removed from the southern shelving unit by sliding it along iron pipes from its original location on the second shelf to the top of coffin F.05 in the center of the vault. Pictures from an Architectural Assessment in 1995 show F.03 already above F.05 in the center of the vault (Sandbeck & Stephens 1995). The earliest known looting episode was in 1993; this may have been when F.03 was moved to the center of the coffin for easier access to it and the other coffins. This disturbance may have

additionally dislodged and damaged the other coffins on the southern shelves, including, but not limited to, the damage to the head end of F.10 and the relocation of F.02 across the door of the vault. At some point after 2012, coffin F.01 fell across the doorway in Areas A and C from its original location above the eastern portion of F.10. The coffin broke into two pieces after the fall (Figures 4.12 and 4.13).

Figure 4.12: Coffin F.01 is resting in two pieces marked with red arrows. F.02 is resting directly behind the doorway. Photo by Jalynn Stewart.

Figure 4.13: This photo was taken by John Wood in 2012. F.01 is shown in the upper left corner, resting on coffin F.10.

The Northern Sector

The Northern Sector includes the areas underneath the shelving unit along the northern wall of the vault. Like the southern shelving unit, deposits containing commingled human remains and coffin hardware from decomposed wooden coffins were underneath the northern shelves. These deposits were designated Area D. Two additional features, F.17 and F.18, were identified within Area D under the western portion of the shelving units (Figure 4.14). The lowest concentrated deposit of remains, F.18, was found in a small pit measuring 31.5 inches x 16 inches x 9 inches dug into the sterile sand halfway along the northern wall that continued at a higher level along the eastern wall, where they were intermingled with a rim of an unglazed and undated ceramic pot. F.17 was above the eastern end of F.18 in an area measuring 21.5 inches x 27.5 inches and approximately 6 inches from the northern and eastern walls of the vault. This feature contained the remains of a wooden box or container holding another concentration of remains.

Figure 4.14: This image shows the northern shelves after the removal of the coffins and debris. F.17 is located on the right above the scale. F.18 is directly to the right of the north arrow and the sterile sand of Area F is directly above F.18 and the north arrow. Photo by Dr. Megan Perry.

Figure 4.15: This image shows the northern shelves. On the left, Coffin F.06 is resting directly on F.07. F.08 is the larger coffin on the right. The shelves above these coffins were empty. Photo by Dr. Megan Perry.

No remnants of the wooden shelf inserts were recovered from the northern shelves, suggesting that the northern shelves disintegrated more quickly, or the southern shelves were replaced at some point, and the northern shelves were not. Only three metal coffins (F.06, F.07, and F.08) were definitively associated with the northern shelving unit, and one coffin (F.02) had possibly fallen from it. Three cast iron coffins were found haphazardly stacked on top of the Area D commingled deposits at the western end of the vault. F.08 appears to have fallen from the shelving unit first, followed by F.07, which fell slightly to the west of F.08. The third coffin, F.06, fell directly on top of F.07, and both coffins fell from higher shelves than coffin F.08 (Figure 4.15). Coffin F.02 was recovered from the center of the vault but may have originally been associated with the northern shelving unit (Figure 4.12).

Central Sector

After the rubble and sand fill had been placed above the floor of the burial vault, the headstone of James Gooding was laid face-down on the uppermost layer of sand in the central sector of the burial vault. Over time, sand from the fill layer covered the headstone slab. The remains and coffin hardware from the decaying coffins under the shelves in the northern and southern areas of the vault also accumulated around the headstone. These areas may have been intermittently cleaned until 1963, when a large metal coffin, F.05, was placed in the center of the vault (Figure 4.16). Likely at the point the coffin was interred, brackets from the shelving until were laid on top of the Gooding headstone to serve as a support base for F.05. However, it is unclear if the deposits in and amongst the metal bracket accumulated before the interment of F.05 or built up afterwards. Space on either side of the coffin still allowed access to the shelving units. At some point after 1993, the wooden coffin F.03 was shifted on top of F.05 by illicit intruders, as mentioned above, and F.02 was overturned across the center of the vault.

Figure 4.16: Coffin F.05 in the center of the vault after the removal of F.03. Area A is on the left, this "aisle" was used to access the interior of the vault. Photo by Dr. Megan Perry.

Stylistic and Functional Typology of Coffin Hardware from the Commingled Deposits

Coffin hardware and other artifacts from the commingled contexts in the Rhem Vault were analyzed to understand shifts in mortuary traditions over time. The typology created for this project includes comparative data for coffin hardware in the Southeastern United States. A complete typology with photos is included in Appendix A. Burial summaries and additional information collected on the intact coffins and other artifacts from the vault are also available in the supplementary data. This thesis focuses on artifacts from the commingled areas and draws on

hardware from the intact coffins for context. The dates and identifications of the commingled assemblage were used to confirm the vault's timeline and determine the periods of use and spatial organization of the vault over time.

Many of the hardware stylistic matches offer relative dates for the hardware, not absolute dates of use. As Davidson (1999) discusses, a catalog match does not preclude the availability in an earlier catalog or purchase at a later date. For this reason, the dates obtained from matching hardware to catalogs and other collections are discussed in terms of four periods defined for the Rhem Vault (Table. 4.02). General dates were used for continued analysis without more precise temporal indicators in the commingled deposits.

Table 4.02: The four major periods of use identified within the Rhem Vault to analyze coffin hardware in the vault over time.

Period	Date Range
1	1850-1859
2	1860-1880
3	1881-1910
4	1911-1980

Handles

Springate (2015) names three distinct forms of coffin handles in use during the 19th century: single lug swingbails, double lug swingbails, and stationary handles. The commingled assemblage only contained double lug swingbail handles. This form was divided into two types for the Rhem typology to clarify levels of decoration and diagnostic features (Figure 4.17). Following the methodology of Davidson (1999), a new subtype was created each time a new style, design, or combination was found in the collection. Heavy corrosion obscured many design

elements of handle fragments, resulting in four unidentified handle fragments that were not assigned a type. Many unattached lugs and bar handles without attached lugs were collected and recorded as separate subtypes. This practice introduced a slight bias to the frequency and variation of handles observed in the vault but was necessary in the commingled deposits.

In contrast, all three handle forms identified by Springate (2015) were observed on the intact coffins. Three coffins used stationary bar handles, six coffins used double lug swingbail handles, and five coffins used single lug swingbail handles. No handles were matched between the intact coffins and the commingled assemblage.

Figure 4.17: A representative photo of Type 1 and 2 coffin handles. The two handles on the left are Type 2 and the handle on the right is a Type 1 handle. Photo by Jalynn Stewart.

Table 4.03: Coffin and casket handle types from the commingled deposits in the Rhem Vault.

Type	Count	Subtype	Count	% of Coffin Handles
Type 1: Double Lug Swingbail Handles with a Plain bar	20	Subtype 1.1	7	14.2%
		Subtype 1.2	7	14.2%
		Subtype 1.3	4	8.2%
		Subtype 1.4	2	4.1%
Type 2: Double Lug Swingbail Handles with a Decorated Bar	29	Subtype 2.1	3	6.1%
		Subtype 2.2	4	8.2%
		Subtype 2.3	5	10.2%
		Subtype 2.4	8	16.3%
		Subtype 2.5	3	6.1%
		Subtype 2.6	3	6.1%
		Subtype 2.7	2	4.1%
		Subtype 2.8	1	2.0%
		All Handles	49	100.0%

Handle Type 1 includes double lug swingbail handles with a plain swell bar. Within the commingled deposits, this type lacked decoration, was rarely found with attached lugs, and often showed heavy corrosion. The lack of diagnostic information observed in these handles means they could only be dated between 1860 and the turn of the 20th century based on the popularity of the double lug form at other sites and in the hardware catalogs (Davidson 1999; Hacker-Norton & Trinkley 1984). Type 1 handles were found predominantly in the Southern sector (Area B) of the vault.

There were four subtypes associated with the commingled assemblage (Table 4.03). The subtypes for Type 1 handles differ mainly in overall size and curvature of the bar rather than differences in decoration and motif. Subtypes 1.1 and 1.2 are different sizes of similar plain swingbail handles with varying degrees of corrosion that obscured and distorted the handles. Subtype 1.3 was larger than the other subtypes and was distinguished by large, attached lugs. The final subtype, 1.4, is represented by two handle lugs that matched lifting handle lugs in the

1905 Virginia-Carolina Hardware Catalog and were dated to 1860-1874 by McKillop (1995). This wide date range is due to the unspecialized and functional nature of the hardware. Assuming sets of 4 or six handles per coffin, type 1 handles likely represent five total coffins. No other subtype was successfully matched to any patents or trade catalogs for dating. Representative photos and full descriptions of each handle subtype can be found in Appendix A.

Handle Type 2 covers the remaining double lug swingbail handles with a decorated bar. There are eight subtypes associated with the commingled assemblage (Table 4.03). The sizes of these handles in the commingled assemblage suggest they are associated here with juvenile burials only. Type 2 handles were recovered from multiple contexts and spread across the vault, and the subtypes are distinguished by differences in motifs and decorations observed on the bar and lug. Three subtypes, 2.1, 2.2, and 2.4, were found with intact lugs displaying complex geometric designs and radiating lines. Subtypes 2.3, 2.5, and 2.8 are represented by ornate bars only and were not found with any associated lugs. The final two subtypes, 2.6 and 2.7, are examples of swingbail lugs that were not attached to bars but were categorized as Type 2 based on the higher levels of decoration than the Type 1 handles. Seven subtypes, over 57% of the sample, were matched to catalogs and dated to both Periods 2 and 3 (Table 4.04). Subtypes 2.7 and 2.8 were not matched to any patents, trade catalogs, or comparative collections. The subtypes of Type 2 handles are more distinct than Type 1, each subtype likely representing a distinct set of handles and a single coffin. Assuming sets of 4 and 6 coffin handles, approximately six coffins are represented by Type 2 handles (Hacker-Norton and Trinkley 1984). However, the combination of handles without lugs and lugs without handles obscures the total number of coffins represented by this handle type.

Table 4.04: Handle subtypes and the catalogs used to date each subtype from the commingled deposits in the Rhem Vault.

Subtype	Catalog Matches
1.4	McKillop 1995 (1860-1874); Virginia Hardware Co (1905)
2.1	Harrisburg Case and Co. (1885)
2.2	Harrisburg Case and Co. (1885); Simmons Hardware Co. (1903)
2.3	Sargent Co. (1869)
2.4	Rotman et al. 2000 (1850-1873); Sargent Co. (1869)
2.5	Taylor HE Catalog (1875); Cincinnati Coffin Co (1877); Western Undertakers Supply and Manufacturing (1879)
2.6	Kogon and Mayer 1995 (1881-1900)

Caplifters

A single caplifter was found associated with the commingled context in Area D inside the Rhem Vault (Figure 4.18). Caplifters were first seen in catalogs in the 1870s and were used into the 1920s (Springate 2015). Unfortunately, the caplifter from the Rhem collection was not matched to any catalogs or comparative collections and did not help date the Rhem Vault. Four caplifters were also used on coffin F.10 for the removable top and bottom sections of the lid.

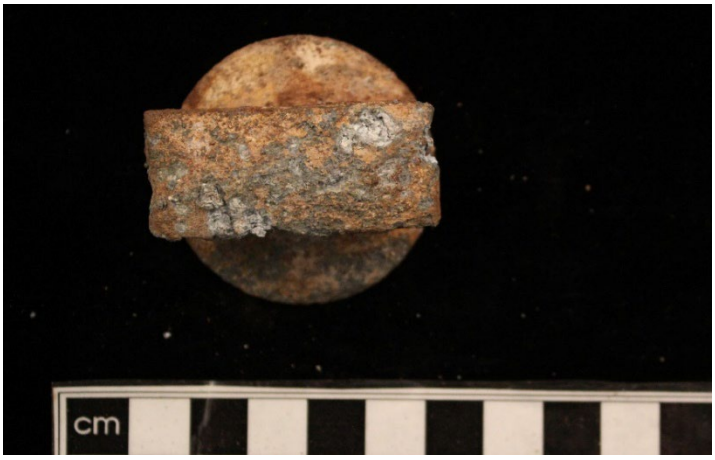

Figure 4.18: This caplifter was found in Area D on 6/9/2021. Photo by Jalynn Stewart.

Closure Mechanisms

Closure mechanisms have been neglected and underrepresented in other typologies (Davidson 1999; Garrow 1987; Hacker-Norton and Trinkley 1984). For example, hinges, latches, and other fasteners have been simply grouped as iron closures by Davidson (1999) and Garrow (1987) without further clarification or distinction within the hardware category. Davidson (1999) addresses the ambiguity of the category and the inclusion of non-iron artifacts within the category in his supplementary data. The Rhem typology addresses this ambiguity by borrowing terminology from Hill and Pye (2012) and dividing the "iron closures" found in the Rhem Vault into two types of closures: latches or hinges, and fasteners (Table 4.05). There were three subtypes of Type 1 closure mechanisms in the vault, one latch and two hinges (Figure 4.19). Subtype 1.1 is a separable hinge, similar to a butt hinge but not symmetrical (Davidson 1999). Subtype 1.2 is a hinged support for a casket lid that dates between 1920 and 1940 in other archeological collections (Hill & Pye 2012). The support matched those observed on coffin F.05 inside the vault. The third closure, Subtype 1.3, is a latch similar to a closure described by Garrow (1987) that dates to 1943.

Type 2 closures include the more functional fasteners, including joining plates and corrugated fasteners (Figure 4.20), neither of which helped determine dates of use for the vault. These fasteners would only have been used on wooden coffins. Corrugated fasteners are used to join pieces of wood across the joints while joining plates are more likely to be used at corners (Hill & Pye 2012). A total of three corrugated fasteners were recovered from Areas A, B, F.03, and F.15. The joining plates in the Rhem Vault are uniform rectangles with raised edges like an I-beam and were collected across many contexts in the vault.

Figure 4.19: A representative photo of Type 1 coffin closures, subtype 1.1 in the upper right, 1.2 on the bottom, and 1.3 on the upper left. Photo by Jalynn Stewart.

Figure 4.20: A representative photo of Type 2 coffin closures, Subtype 2.1 on the left and two examples of 2.2 on the right. Photo by Jalynn Stewart.

Table 4.05: Closure mechanism subtypes from the commingled deposits in the Rhem Vault.

Type	Count	Subtype	Count	% of Closure Mechanisms
Type 1	10	Subtype 1.1	4	16.7%
		Subtype 1.2	2	8.3%
		Subtype 1.3	4	16.7%
Type 2	14	Subtype 2.1	3	6.3%
		Subtype 2.2	11	45.8%
		All Coffin Closures	24	100.0%

Nails

Over 400 nails and nail fragments were collected across every sector of the Rhem Vault, although the majority were excavated from Area D along the north wall. Many of the shaft fragments were unattached to the nail head or too degraded to identify. The identifiable nails are wrought iron, machine cut nails, finishing nails, brads, and clenched nails. Over 70% of the identified nails are cut nails (Subtype 1.1). Subtype 1.2 is represented by clinched nails, which indicate a wood thickness of 1.3 inches. These nails may have been used on a shelf or wooden coffin. The other subtypes are brads and finishing nails of different lengths and diameters (Figure 4.21; Table 4.06).

Figure 4.21: A representative photo of each nail subtype. From left to right, subtype 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, and 2.1. Photo by Jalynn Stewart.

Table 4.06: Nail subtypes from the commingled deposits in the Rhem Vault.

Type	Count	Subtype	Count	% of Nails
Type 1	198	Subtype 1.1	156	76.8%
		Subtype 1.2	2	1.0%
		Subtype 1.3	11	5.4%
		Subtype 1.4	8	3.9%
		Subtype 1.5	13	6.4%
		Subtype 1.6	8	3.9%
Type 2	5	Type 2	5	2.5%
		All Nails	203	100.0%

Screws

There are two types of screws, categorized based on functionality (Table 4.07). Type 1 screws include the more decorative “coffin screws” that consist of a white metal cap soldered on to an iron screw (Figure 4.22; Davidson 1999). Conversely, Type 2 screws are more utilitarian iron screws without additional adornment (Figure 4.23). Often, only the head of the screw was preserved, which made it impossible to determine if the screw was an imitation or "dummy screw" designed for decoration or a full screw. Screws were recovered from every context, with the highest concentrations in F.16 and Area D. Subtype 1.3 is represented by two small tacks which may have attached an inner lining for one of the coffins. The coffin screws found in the vault were seen in catalogs from Periods 2 and 3 with minimal change in form temporally (Russel and Erwin 1965 [1980]; Cincinnati Coffin Company 1877; Simmons Hardware Company 1903). According to Davidson (1999), the reduction in variety came from the standardization of coffin screws in the early 1870s. Although utilitarian and less decorated than Type 1, more variety was seen in Type 2 screws. Along with single slotted wood screws, Robertson and Phillips head screws were also recovered from the vault.

In the intact coffins, only Subtype 2.2 screws were observed on the metal coffins. The screws were observed holding the upper and lower coffin shells together and on various aspects of the coffin, including handles and viewing windows. Most importantly, two coffins (F.01 and F.14) paired coffin screws with escutcheons instead of the traditional thumbscrew. This pairing may indicate that those coffins predate the rise of thumbscrews in the 1870s and 1880s (Davidson 1999). Most of the screws from the intact coffins were destroyed when opening the coffins for further study. The number of screws for each intact coffin is presented in Appendix C.

Figure 4.22: A representative photo of Type 1 coffin screws. From left to right, subtype 1.1, 1.2, 1.3, 1.4, 1.5. Photo by Jalynn Stewart.

Figure 4.23: A representative photo of each Type 2 subtype. From left to right, subtype 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7. Photo by Jalynn Stewart.

Table 4.07: Screw subtypes within commingled deposits from the Rhem Vault.

Type	Count	Subtype	Count	% of Screws
Type 1	58	Subtype 1.1	22	11.8%
		Subtype 1.2	13	7.0%
		Subtype 1.3	2	1.1%
		Subtype 1.4	1	0.5%
		Subtype 1.5	20	10.8%
Type 2	128	Subtype 2.1	1	0.5%
		Subtype 2.2	6	3.2%
		Subtype 2.3	7	3.8%
		Subtype 2.4	18	9.7%
		Subtype 2.5	12	6.5%
		Subtype 2.6	46	24.7%
		Subtype 2.7	38	20.4%
		All Screws	186	100.0%

Thumbscrews

Springate (2015) names three major generations, or types, of thumbscrew in her typology. First generation thumbscrews were used between 1850 and 1870 but were not found in the Rhem Vault (Davidson 1999; Springate 2015). Second and third generation thumbscrews were found in the intact and commingled deposits. Unfortunately, the low preservation in the vault resulted in corrosion that obscured details and decorations on many of the recovered thumbscrews. A few subtypes were matched to multiple catalogs spanning extensive periods as patents were copied and standardized across the industry.

Table 4.08: Thumbscrew subtypes from the commingled deposits in Rhem Vault.

Type	Count	Subtype	Count	% of Thumbscrews
Type 1: Second Generation	1	Type 1	1	5.9%
Type 2: Third Generation	16	Subtype 2.1	9	52.9%
		Subtype 2.2	3	17.6%
		Subtype 2.3	2	11.8%
		Subtype 2.4	1	5.9%
		Subtype 2.5	1	5.9%
		All Thumbscrews	17	100.0%

Type 1 thumbscrews are represented in the commingled deposits by one subtype of second generation thumbscrews (Springate 2015), but additional examples were observed in the intact deposits. Generalized forms of Type 1 (second generation) thumbscrews were popular in the 1860s before the emergence of third generation thumbscrews in the 1870s (Davidson 1999; Springate 2015). However, the only example of a second generation thumbscrew in the commingled deposits was matched to Hearne Bros and Co catalog, which has an estimated date between 1900 and 1915 (Hearne Bros and Co 1900). The span of dates for this type shows the

expansive date range for this hardware category. The catalog match for this thumbscrew offers a relative date of use, with the caveat that styles were often copied across manufacturers and remained the same over decades.

Figure 4.24: A representative photo of Type 1 and 2 thumbscrews. From left to right, Type 1, Subtype 2.1, and Subtype 2.5. Photo by Jalynn Stewart.

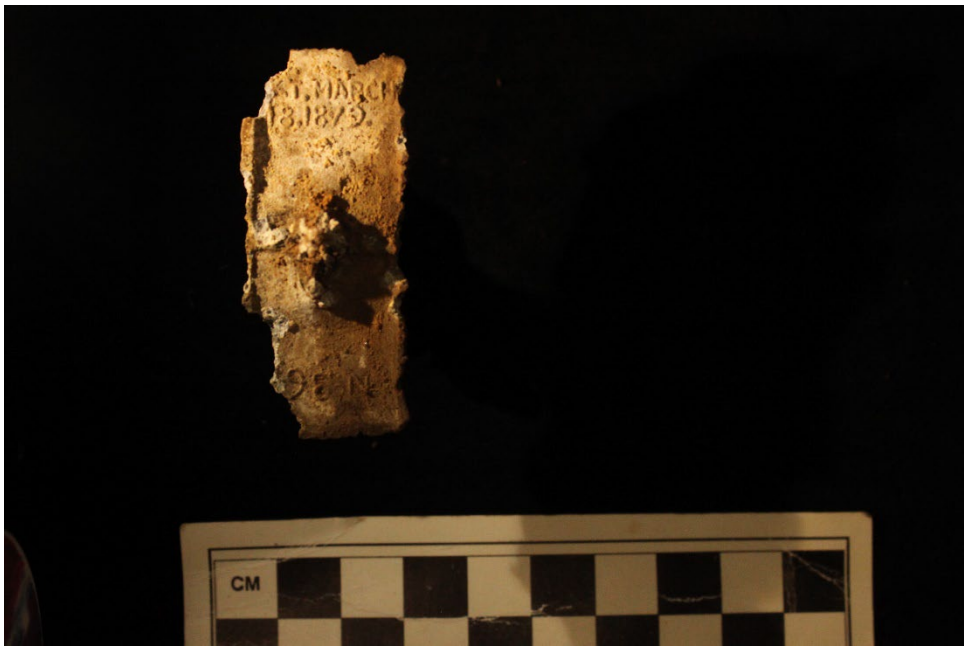

Figure 4.25: The base of a Subtype 1.1 escutcheon with the inscription: Pat, March 18, 1879: No. 36. Photo by Jalynn Stewart.

Figure 4.26: This Subtype 2.2 thumbscrew has the inscription: At Rest. This example was found in F.16 on 6/7/2021. Photo by Jalynn Stewart.

Type 2 thumbscrews, or third generation thumbscrews (Springate 2015), have distinct broad and flat heads (Figure 4.24). This style overshadowed the other generations of thumbscrews in the late-19th century (Springate 2015), during Period 3 (1880-1910) in the Rhem Vault. There are five subtypes of third generation thumbscrews within the vault (Table 4.08). Subtype 2.1 was the most common in the commingled deposits and was similar to an example in the 1885 Harrisburg Case and Co catalog. Subtype 2.1 was associated with an escutcheon that had a patent date on the base of March 18, 1879 (see escutcheon Subtype 1.1 and Figure 4.25). Examples of Subtype 2.2 were often heavily degraded, but some examples had the words "At Rest" still visible on both sides (Figure 4.26). Many variations of Subtype 2.2 were found in catalogs, but the closest matches were in the 1885 Harrisburg Case and Co catalog, 1905 Chattanooga Coffin & Casket catalog, and the comparative collection from Kogon and Mayer (1995). All Type 2 thumbscrews found in the Rhem Vault were dated to Period 3 based on

catalog matches (Table 4.09). Thumbscrews were found across the vault with a concentration of Subtype 2.1 in Area D. Similar to the handles, the thumbscrew subtypes from the commingled deposits of the vault likely represent distinct sets associated with individual coffins. The subtypes with only one or two examples (Types 1, 2.3, 2.4, and 2.5) may have been used on viewing plate covers or as caplifters on a single coffin section rather than as part of a larger set used around the coffin edge. The distinction lies in the intended use of the hardware, as a method of lid closure or as a decorated lid handle (Davidson 1999; Woodley 1991).

Regarding the intact coffins, two intact coffins were found with Type 1 thumbscrews. On coffin F.10, the thumbscrews were similar to styles in the 1877 Cincinnati Coffin Co catalog and dated to Period 2. In contrast, the three Type 1 thumbscrews on coffin F.14 functioned as caplifters on the viewing plate cover.

Table 4.09: The catalog matches and other associated dates for all thumbscrew subtypes in the commingled sections of the Rhem Vault.

Subtype	**Catalog Matches and Associated Dates**
Type 1	Hearne Bros and Co 1900-1915
2.1	Harrisburg Case and Co 1885; Kogon & Mayer (1995) 1881-1900; Patent Date March 18, 1879
2.2	1905 Chattanooga Coffin &Casket; Harrisburg Case and Co 1885; Kogon & Mayer (1995) 1881-1900
2.3	Harrisburg Case and Co 1885; Hearne Bros and Co 1900-1915
2.4	Hearne Bros Co 1900-1915; Simmons Hardware 1903
2.5	Hearne Bros and Co 1900-1915

Escutcheons

Springate's (2015) typology does not list types of escutcheons based on form or decoration. This collection contains three groups of escutcheons that vary in form and shape

only, which were separated into three types: rectangular, complex, and diamond (Table 4.10). These three types complement the coffin stud types within the Rhem Vault. Escutcheons were found across the vault with concentrations in Areas B and D along the north and south walls. One artifact was identified as an escutcheon due to the screw hole, but the example was too fragmented to identify its type.

Table 4.10: The Escutcheon subtypes from the commingled deposits in the Rhem Vault.

Type	Count	Subtype	Count	% of Escutcheons
Type 1 - Rectangular	13	Subtype 1.1	10	20.8%
		Subtype 1.2	3	6.3%
Type 2 - Complex	32	Subtype 2.1	3	6.3%
		Subtype 2.2	10	20.8%
		Subtype 2.3	12	25.0%
		Subtype 2.4	4	8.3%
		Subtype 2.5	1	2.1%
		Subtype 2.6	2	4.2%
Type 3 - Diamond	3	Subtype 3.1	1	2.1%
		Subtype 3.2	2	4.2%
		All Escutcheons	48	100.0%

Type 1 escutcheons are rectangular and include only two subtypes inside the commingled deposits. Both subtypes were found with associated thumbscrews and dated to Period 3 based on matches to an archaeological collection in Canada and a coffin catalog (1885 Harrisburg Case and Co; Kogon & Mayer 1995). Of note, Subtype 1.1 has an inscription on the base that reads: March 18, 1879; No 36 (See Thumbscrew 2.1; Figure 4.25). This date is likely the manufacturing or patent date of the design, confirming the catalog matches and relative use date of the escutcheon within Period 3.

Type 2 escutcheons are more complex in form, combining multiple shapes and intricate geometric designs (Figure 4.27). Most of the escutcheons of this type were found with coffin screws attached rather than thumbscrews. Subtype 2.2 is a unique combination of a wing and fan motif with only a few intact examples (Figure 4.28), while Subtype 2.3 is comprised of a similar wing motif without the attached fan motif. Although preservation was often poor in the vault, there are clear examples of subtype 2.3 (without the attached fan motif) in both the commingled and intact deposits.

Figure 4.27: A representative photo of Type 2 escutcheons. From left to right, Subtype 2.3, 2.2, 2.2, 2.5, 2.1. Photo by Jalynn Stewart.

Lastly, Type 3 escutcheons are primarily diamond-shaped. There are two subtypes of Type 3 escutcheons inside the Rhem Vault, both less decorated than the other types and with a focus on geometric designs (Figure 4.29). Subtype 3.1 is similar to styles found in the 1871 Sargent catalog, which gives it a relative date within Period 2. This subtype was found in situ with a coffin screw attached (Subtype 1.2). Conversely, Subtype 3.2 does not have a relative date, but examples were found attached to thumbscrew Subtype 2.3, suggesting it may also date to the late 19th century.

Three intact coffins were decorated with escutcheons. Coffin F.10 contained 19 escutcheons (Type 2) used with second generation thumbscrews. Escutcheon Subtype 2.3 from the commingled deposit was also observed on coffin F.14, where the escutcheons were attached to the coffin lid with coffin screws (Subtype 2.2) instead of thumbscrews. The other coffin, F.01, used Type 3 escutcheons similar to Subtype 3.1 and coffin screws (Subtype 2.2) instead of thumbscrews.

Figure 4.28: This is a corroded example of an escutcheon Subtype 2.2 with the combination of the wing and fan motif. This example was found in F.16 on 6/7/2021, Find # 152. Photo by Jalynn Stewart.

Figure 4.29: A representative photo of type 3 escutcheons. Subtype 3.1 is on the left and 3.2 is on the right. Photo by Jalynn Stewart.

Coffin Studs, Screw Caps, and Screw Plates

No previous typology of coffin studs and screw plates could be found, and thus those from the Rhem Vault were organized by form into three categories: starburst, diamond, and complex. Screw plates are often more decorative and delicate than escutcheons, often made from stamped metal similar to coffin studs. Screw plates can also be distinguished from escutcheons by their additional purpose of hiding the coffin screw with the screw cap. As a result, coffin studs often match styles with and without the removable screw caps. This category of hardware is more homogenous than other hardware categories and showed minimal variation over time. Subtypes were matched to multiple catalogs across Periods 2 and 3 in the Rhem Vault (Figures 4.30 and 4.31). However, Davidson (1999) dates studs with screw caps between 1860-1880. Studs were sold in sets of six but may have been used on the coffins in any combination or number (Hacker-Norton and Trinkley 1984). Similar to the screw plates, there is minor variation between the coffin stud subtypes with only minimal changes in design or overall shape. One artifact was identified as a coffin stud but was too fragmented to determine the type.

Table 4.11: The coffin stud subtypes from the commingled deposits within the Rhem Vault.

Type	Count	Subtype	Count	% of Commingled Hardware
Type 1	106	Subtype 1.1	32	23.2%
		Subtype 1.2	23	16.7%
		Subtype 1.3	2	1.4%
		Subtype 1.4	3	2.2%
		Subtype 1.5	32	23.2%
		Subtype 1.6	14	10.1%
Type 2	7	Subtype 2.1	5	3.6%
		Subtype 2.2	1	0.7%
		Subtype 2.3	1	0.7%
Type 3	25	Type 3	25	18.1%
		All Coffin studs	138	100.0%

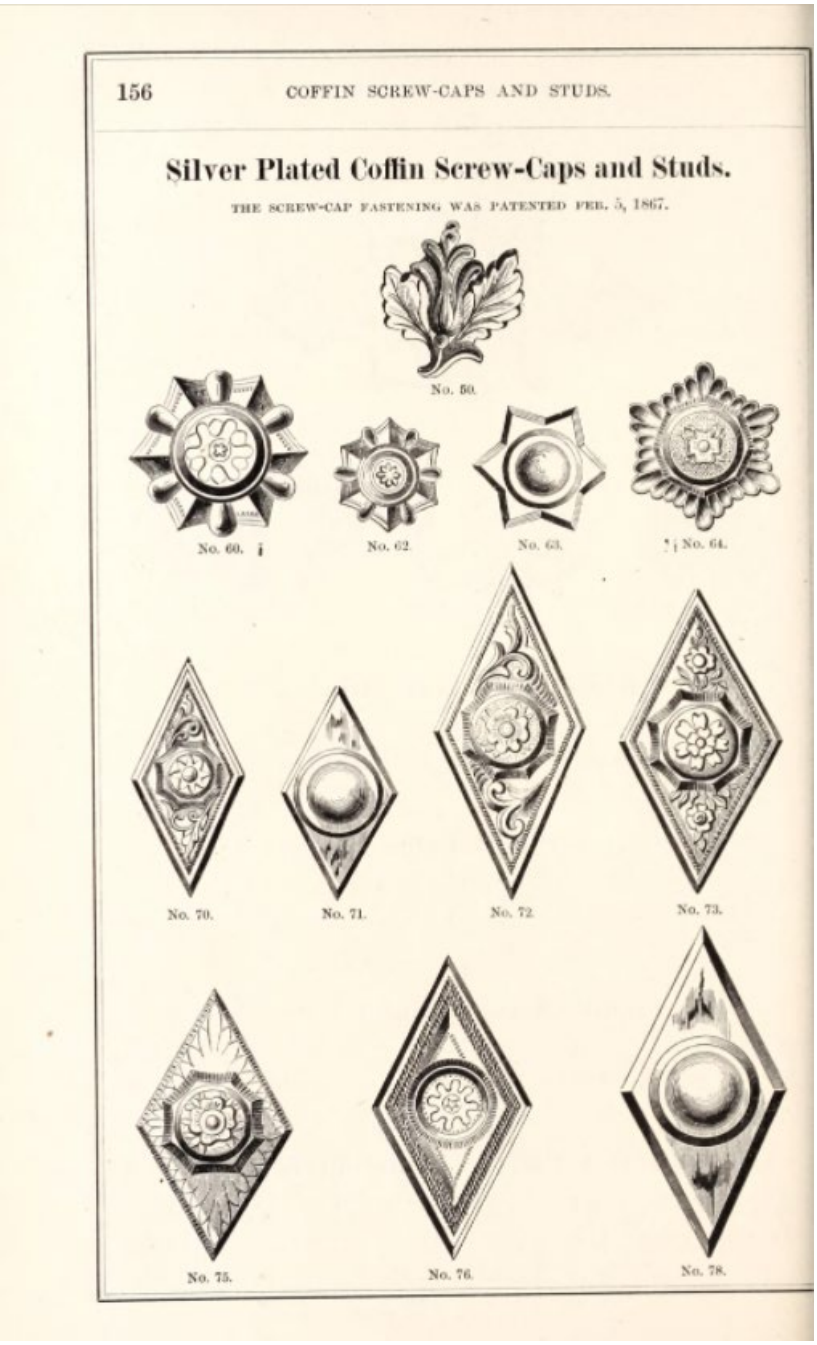

Figure 4.30: This is a page from the Sargent (1869) catalog, showing the common starburst and diamond shaped coffin studs.

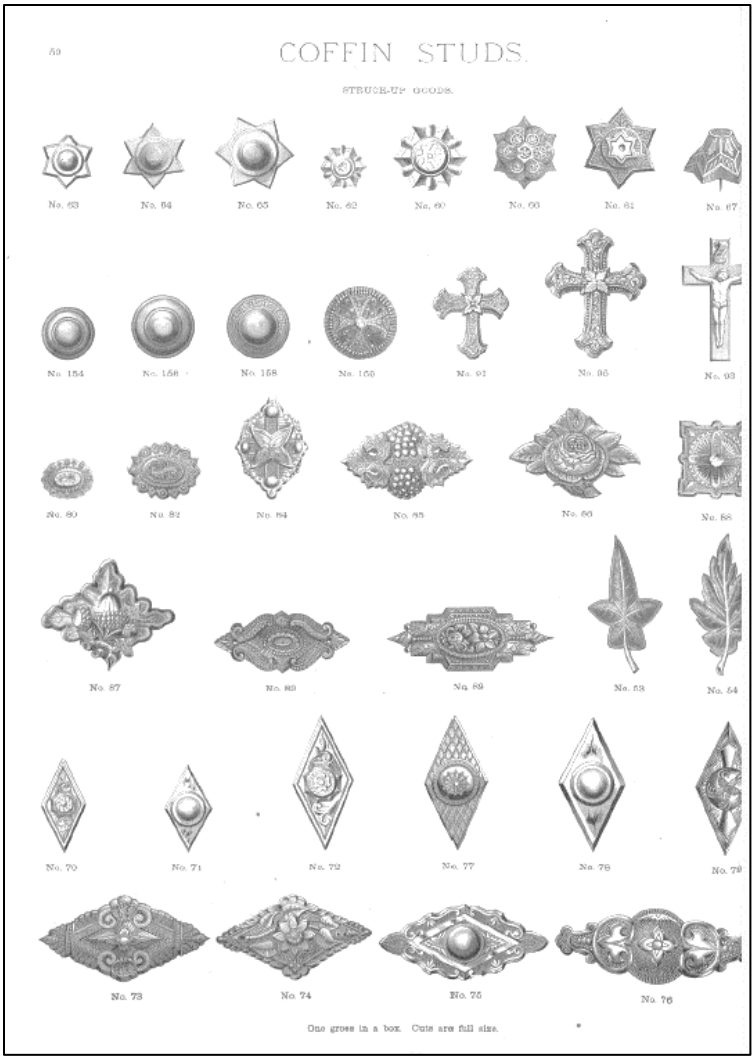

Figure 4.31: This is a page from the 1885 Harrisburg catalog showing the common starburst and diamond shaped coffin studs.

Type 1 coffin studs are starburst shaped with 6-12 rays and are more likely to be used for children's burials (Springate 2015). There are 6 subtypes of Type 1 studs found in the vault (Table 4.11); this was the most common type of coffin stud inside the Rhem Vault. Subtypes 1.2 and 1.3 are both 12-pointed stars, but 1.2 is a false stud used only for decoration, while 1.3 is a screw plate with a removable screw cap that would have covered a coffin screw (Figure 4.32). Type 1 coffin studs were recovered from the southern and northern sectors in high numbers representing multiple coffins inside the Rhem Vault.

Figure 4.32: A representative photo of subtype 1.2 and 1.3 coffin studs. Subtype 1.2 is on the left and 1.3 is on the right. Photo by Jalynn Stewart.

Type 2 coffin studs are diamond-shaped, similar to the diamond shaped escutcheons, but with an additional cover or cap that covers the coffin screw. Three subtypes were excavated in the Rhem Vault (Figure 4.33). Although similar in form to Type 3.1 escutcheons, the diamond coffin studs have additional pieces that cover and disguise the coffin screws. Type 2 coffin studs were only recovered from Area B and F.16 in the southern sector, indicating they might be associated with a single coffin using Type 2 studs.

Figure 4.33: A representative photo of Type 2 coffin studs. On the left is subtype 2.3 and on the right is subtype 2.1. Photo by Jalynn Stewart.

Type 3 coffin studs are more ornamental and decorated than the previous types of studs. This complex type combines multiple shapes with geometric designs. Only one variation of this type was excavated in the Rhem Vault with the profile of a flying angel in a central rectangle (Figure 4.34). This type was recovered primarily from Area B and F.16 in the southern sector and likely represented one coffin.

Figure 4.34: This is an example of a Type 3 coffin stud. This example was recovered from Area B on 6/7/2021. Photo by Jalynn Stewart.

Ornamental Items

This category of hardware includes plaques and ornaments. The category can be reminiscent of coffin studs and other ornamental tacks, but ornaments are larger than studs and made from more substantial materials (Davidson 1999). Ornaments were often placed on the coffin lid over the thorax, pelvis, or legs of the individual (Davidson 1999). One type of ornament was found in the vault with the representational form of a cross and an open bible in the center (Figure 4.35). The motifs on the ornament were matched to a catalog and dated to Period 3 (Harrisburg Coffin Co 1885). Although the ornament was in the commingled deposits

and cannot be linked to a specific burial, the open bible motif is more commonly associated with adult burials (Springate 2015). Two examples of this ornament type were found in the northern sector, likely representing a single coffin.

Figure 4.35: This ornament was found in Area D on 6/9/2021. There are screws rusted in place at the top and bottom of the ornament. Photo by Jalynn Stewart.

Unidentified Hardware

Seven hardware fragments appeared specialized, but the hardware category remained unidentified. These artifacts were primarily found in the northern sector. The low preservation in the vault also left many fragmented and degraded artifacts identified as a hardware category but could not be assigned a type. For example, there were 266 nail and screw fragments, four handle fragments, and one coffin stud that could not be assigned types. Therefore, these fragmented artifacts were not included in the analysis of commingled hardware from the Rhem Vault.

Spatial Distribution of Coffin and Casket Hardware

Due to episodes of looting and decay in the vault, the spatial distributions were more valuable when considered by sector rather than only by each specific context. This generalized, vault-level approach to the spatial trends and patterns considers patterns in each context and hardware category. Table 4.12 shows the entire distribution of hardware across the Rhem Vault. Areas E and F, deposited before the tomb was used, included minimal hardware. Area D and F.16 contained the highest concentrations of hardware in the vault, particularly coffin studs and screws. Area D also contained the most diverse types and categories of artifacts out of all the contexts in the vault. However, when considered as a whole, the southern sector contained more coffin hardware than the northern sector.

Each category of hardware was uniquely distributed across the vault. While the category or the specific type of some hardware may have been widely distributed across the vault, many hardware subtypes were often clustered and found along one wall. The concentrated deposits may represent the original context and location of the coffin before the wood decayed and the vault was reorganized. Specific examples and patterns for each category of hardware are explored below. Type 1 handles were unadorned, primarily undated, and concentrated in the southern sector. Closure mechanisms were almost exclusively found in the central and northern sectors. In particular, closure mechanism Subtypes 1.3 and 2.2 were strongly associated with the northern shelves. Nails were recovered from every context inside the vault but were heavily concentrated in the northern sector. Coffin studs also showed evidence of a spatial pattern and the remnants of organization inside the vault. Each stud subtype was associated with a specific wall with minimal deviations. For example, Subtype 1.5 was clustered in the northern sector, with only one example recovered from the central sector. Also with one exception, Type 2 and 3

coffin studs were all recovered from the southern sector. These spatial clusters and concentrations are more easily understood given the context of the relative artifact dates.

Coffin handles, escutcheons, and thumbscrews were the hardware categories most easily dated through hardware catalogs and comparative collections. Over 45% of the handles, 25% of the escutcheons, and all the thumbscrews were dated. Most of the commingled hardware in the vault dated to Period 3, but some handle and stud subtypes dated to Period 2. Despite the disarray in the vault, one clear pattern was still observed in the vault between the north and south walls. All the Period 2 hardware was recovered from the southern sector with one exception (Table 4.13), and most of the hardware dating to Period 3 was recovered from the northern sector (Table 4.14). This pattern was observed in the dated handles, escutcheons, thumbscrews, and studs. The 20th century screws (Subtypes 2.5 and 2.7) were also concentrated in the central and northern sectors.

The most apparent patterns from the Rhem Vault were observed when the relative dates of the hardware were considered. Although reorganization and acts of vandalism have disturbed the original contexts of the intact coffins and much of the commingled deposits, some patterns are still present. Further analysis of the spatial trends, relative dates of the hardware, and tentative identifications will be discussed in the following chapter.

Table 4.12: The full spatial distribution of coffin hardware from the commingled assemblage by hardware type and context.

Hardware		Southern Sector							Central Sector			Northern Sector			All
		Area B	Area E	F.15	F.16	F.14	F.10	F.12	Area A	Area C	F.03 and Sill	Area D	F.17	F.18	Area F
Coffin Handles	Type 1	3	-	2	8	-	-	-	-	4	-	-	-	3	-
	Type 2	3	-	3	8	4	-	-	1	1	1	7	-	2	-
Coffin Closures	Type 1	-	-	-	-	-	-	-	2	-	4	3	1	-	-
	Type 2	1	-	-	-	-	-	-	3	2	5	3	-	-	-
Coffin Screws	Type 1	9	-	3	25	1	-	-	1	10	-	5	-	4	-
	Type 2	5	-	8	7	1	-	-	6	5	8	17	2	3	-
Coffin Studs	Type 1	13	-	1	17	-	-	-	1	6	-	61	3	4	-
	Type 2	2	-	-	5	-	-	-	-	-	-	-	-	-	-
	Type 3	12	-	-	12	-	-	-	-	-	-	1	-	-	-
Escutcheons	Type 1	2	-	-	-	-	-	-	-	3	-	7	1	-	-
	Type 2	9	-	4	8	3	-	-	-	5	-	6	-	-	-
	Type 3	1	-	-	-	-	-	-	-	1	-	1	-	-	-
Ornamental items	Type 1	-	-	-	-	-	-	-	-	-	-	1	-	1	-
	Type 2	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Thumbscrews	Type 1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	Type 2	-	-	-	1	-	-	-	-	4	-	11	-	-	-
Caplifters	Type 1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Nails	Type 1	33	1	58	7	15	1	2	8	7	7	26	3	5	15
	Type 2		-		-	-	-	-		1	-	4	-	-	-
Unidentified Hardware				1					2	2	1	1			

Table 4.13: The spatial distribution of hardware dating to Period 2 inside the Rhem Vault.

Hardware		Southern Sector							Central Sector			Northern Sector			All
		Area B	Area E	F.15	F.16	F.14	F.10	F.12	Area A	Area C	F.03 and Sill	Area D	F.17	F.18	Area F
Coffin Handle	Type 1	-	-	-	2	-	-	-	-	-	-	-	-	-	-
	Type 2	3	-	3	5	4	-	-	-	1	-	-	-	-	-
Coffin Closure	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coffin Screw	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coffin Stud	Type 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	2	-	-	4	-	-	-	-	-	-	-	-	-	-
	Type 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Escutcheon	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ornamental	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thumbscrew	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caplifters	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nail	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.14: The spatial distribution of hardware dating to Period 3 inside the Rhem Vault.

Hardware		Southern Sector							Central Sector			Northern Sector			All
		Area B	Area E	F.15	F.16	F.14	F.10	F.12	Area A	Area C	F.03 and Sill	Area D	F.17	F.18	Area F
Coffin Handles	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	1	-	-	-	1	-	1	6	-	2	-
Coffin Closures	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	1	-	-	-	-	-	-	1	-	1	-	-	-	-
Coffin Screws	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coffin Studs	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Escutcheons	Type 1	2	-	-	-	-	-	-	-	3	-	7	1	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ornamental items	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thumbscrews	Type 1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	Type 2	-	-	-	1	-	-	-	-	4	-	11	-	-	-
Caplifters	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nails	Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Type 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CHAPTER 5:

DISCUSSION

This project is a continuation of mortuary analysis and research specific to eastern North Carolina from the 18th to 20th century (Long 2019; Perry et al. in press; Quintana 2019; Seeman 2011). Contextualizing the skeletal material and historical artifacts within the vault will determine relative dates of use, inform and highlight mortuary practices and patterns, and identify those interred inside the vault.

Artifactual Dating and Interpretations

This analysis created a typology and identified the coffin hardware from the commingled deposits to build on previous mortuary research and comparative hardware typologies that have used patterns in mortuary hardware to determine relative burial dates (Davidson 1999; Hacker-Norton & Trinkley 1984; Hill & Pye 2012; Kogon & Mayer 1995; McKillop 1995; Roller 2016; Springate 2015). A comprehensive analysis of additional grave goods and personal artifacts associated with burials was beyond the scope of this thesis. Personal artifacts, like clothing or dentures, associated with burials were only considered when determining the possible identities of individuals within the vault.

The Rhem Vault commingled coffin hardware, presumably from wooden coffins that had decomposed over time, contained all expected elements used in coffin manufacture in the 19th and 20th centuries. Similar to other sites, nails were the most heavily represented element in the commingled deposits, with 203 identifiable examples, and over 75% of the recovered nails were identified as cut nails (LeeDecker 2001). The next highest element was screws, with 186 identified examples. Conversely, the elements with the lowest representation in the commingled

deposits were caplifters and thumbscrews. The elements that stylistically varied the most were coffin handles and screws, each category had twelve unique subtypes. Coffin screws showed the most variation in form, with higher representation in the commingled deposits and more variation between subtypes, representing both functional and decorative screws. Overall, the commingled deposits contained high numbers of more functional hardware and more variety in the decorative hardware.

There are many datable artifacts within the vault; however, most artifacts had wide dates of use that were only marginally helpful when dating and identifying the commingled burials. As a whole, the commingled assemblage contains representative hardware dating from the 19th through the early 20th centuries. The coffin handles found in the commingled contexts represent the widest date range of 1860-1905 (Cincinnati Coffin Co. 1877; Harrisburg Case and Co. 1885; Kogon & Mayer 1995; McKillop 1995; Sargent Co. 1869; Simmons Hardware Co. 1903; Virginia Hardware Co. 1905; Western Undertakers Supply and Manufacturing 1879). As part of the commingled deposits, the dates represented by different handle subtypes show that wooden coffins were used simultaneously with the intact cast iron coffins and caskets. This date range is confirmed by the dates compiled from other hardware categories and represents a period of heavy use within the vault. The escutcheons and thumbscrews in the commingled deposits have the same date range of 1879-1910 based on catalog matches, patents, and comparative collections (Cincinnati Coffin Co. 1877; Harrisburg Case & Co. 1885; Hearne Bros and Co. 1900; Kogon & Mayer 1995; Simmons Hardware 1903). Escutcheon Subtype 2.1 also had a manufacturing date printed on the base of March 18, 1879 (Figure 5.01). This date has a range of up to 14 years before the patent might be lost, and the hardware design could be copied by other companies (Hacker-Norton & Trinkley 1984). The high number of cut nails identified in the

commingled deposits presumably used to construct the wooden coffins suggests that most of the wooden coffins were built before 1895, the point at which wire nails replaced cut nails in coffin construction (Mainfort & Davidson 2006). Some coffin closures and coffin screws identified in the commingled deposits confirm that at least a few wooden coffins were used for burials in the mid-20th century. However, they may have become displaced from metal coffins or were associated with wooden boxes that were part of the vault reorganization. Most clearly, the Robertson screw and Phillips head screws have well-documented patents, placing their use definitively within the 20th century (Hill & Pye 2012).

Figure 5.01: The base of a 2.1 escutcheon with the inscription: Pat, March 18, 1879: No. 36. Photo by Jalynn Stewart.

Patterns of mortuary practice became apparent when the artifacts from the commingled deposits in the Rhem Vault were analyzed by hardware category. Within the Rhem Vault, double lug swingbail handles were the only handle form used with the wooden coffins from the commingled deposits. The monopoly of double lug swingbail handles in the commingled deposits shows the versatility in design and the general popularity of this handle type for a long

duration in eastern North Carolina. In a collection in South Carolina, the double lug form replaced drop handles in popularity in the 1870s and dominated coffin catalogs until the turn of the century, when stationary bars became the standard (Hacker-Norton & Trinkley 1984). However, Davidson (1999) dates the availability and use of the double lug handle form in North America from the 18th to 20th century. The widespread use of the handle form in the Rhem Vault supports the wide date range from Davidson (1999), rather than the limited date proposed by Hacker-Norton & Trinkley (1984). The pattern observed from the commingled coffin handles inside the Rhem Vault pushes the timing of this double lug handle form earlier into the 1850s and into the 20th century in eastern North Carolina. However, the use of double lug swingbail handles for this either the early burials or the mid-20th century burial in the commingled vault is not assured.

Another mortuary practice was observed in the numbers of thumbscrews and escutcheons in the commingled deposits. Thumbscrews and escutcheons are often paired on coffins, so the artifacts' frequencies and the number of subtypes were examined together. Assuming complete sets of 4 or 6 (Davidson 1999), complete sets of thumbscrews and escutcheons were not recovered from the commingled contexts. Despite this, each subtype is distinct and likely comes from a single coffin. Based on the amount of hardware, 48 escutcheons and 17 thumbscrews, some of the escutcheons were paired with coffin screws instead of thumbscrews. This practice has been documented at another cemetery in Texas and represents a mortuary practice before thumbscrews were standardized and popularized in the 1870s (Davidson 1999).

The spatial distribution of the coffin hardware within the floor deposits suggests some temporal patterning in the use of the vault, either in terms of the initial burial in wooden coffins or clearance of the human remains and hardware after the coffins disintegrated. First, coffin

handles and studs dating to Period 2 (1860-1880) were concentrated along the southern shelves. Second, artifacts dating to later periods were concentrated under the northern shelves. The artifacts include closure mechanisms and screws dating to Period 4 (1911-1980) and escutcheons and thumbscrews dating to Period 3 (1881-1910). One interpretation of this distribution is vault organization placing earlier burials on the southern shelves and later burials on the northern shelves. Another interpretation is that the pattern is secondary, a byproduct and consequence of periodic clearing of skeletal remains and hardware away from their original locations and into secondary locations beneath the shelves.

One significant deviation from this spatial organization was the personal artifacts associated with Individual 4, later identified as Carrie Rhem Cole (1867-1954) (Cordes Porcelli & French 2020). This burial was the first after a recorded 50-year gap in the vault and was interpreted as evidence for reorganization in the vault. The inconsistencies begin with the placement of this 20th century burial in F.15, along the Southern wall. The burial was also beneath older iron coffins (F.09, F.10, F.12, F.14), which implies that Individual 4 was in place before most of the shelves disintegrated and collapsed. The skeletal remains of Individual 4 showed signs of partial articulation but later analysis showed that some of the remains associated with Individual 4 were also spread across other contexts along the opposite wall. This could have happened if Individual 4 was relocated to F.15 after the initial burial along the opposite wall. Finally, F.15 was in the remains of a wooden box, which is incongruent with the standard burial practices at the time of death of Carrie Rhem in the 1950s. This irregularity was also considered evidence of reorganization inside the vault and a response to lack of space. The reorganization likely occurred at the time of the final burials of the Rhem Vault in the 1960s and 1970s.

Additional patterns became apparent when comparing the commingled context and intact coffins and caskets. The relative burial dates for the intact and commingled deposits considerably overlap. However, the commingled deposits represent a slightly earlier period of burial, and the final two burials of the vault are represented by intact caskets. Coffin handles showed these patterns and trends most clearly of all the other hardware categories. While the commingled deposits (wooden coffins) only held double lug swingbail handles, the intact coffins displayed drop handles, double lug swingbail handles, and stationary bar handles. This difference in the representation of handle forms is likely linked to temporal stylistic changes in mortuary hardware rather than a reflection of the different coffin types (wooden and disintegrated versus metal and intact). One explanation for the monopoly of the double lug swingbail form is that the commingled deposits are clustered from 1850-1890. This shorter date range would explain the excessive decoration and ornamentation coupled with the lack of diversity in handle forms. As above, this explanation depends on acknowledging the burial of Carolyn Rhem Cole (1867-1954) as an outlier in the commingled deposits.

Personal Identifications

Dates from the material culture, the bioarchaeological data from the remains, and the family records of who reportedly was buried in this vault allowed for confirmation that specific individuals were part of the commingled deposits or interred in the intact coffins and caskets. Thirteen out of thirty one individuals were identified in the vault using those methods: three based on the uniqueness of their biological skeletal profile and ten based on both the biological profile and the associated artifacts. Therefore, only the remains with tentative identifications are discussed below. Full burial summaries are presented in Appendix C. The skeletal sex estimations for the adults were collected using the standard methods from Buikstra and Ubelaker

(1994). Age estimations for non-adults were based on dental eruption (AlQahtani et al. 2010) and for adults on the degeneration of the pubic symphysis and auricular surface (Brooks & Suchey 1990; Lovejoy et al. 1985). More information on the ages of the commingled individuals can be found in Cone 2023.

Burial #	Name (Historic Documentation)	Family Relation to Joseph Lane Rhem Sr.	Date of Death	Reported Age at Death
F.03	Harlowe C. Waldrop	Grandson-in-law through Second Wife	1972	79
F.05	Eula Waldrop	Granddaughter through Second Wife	1967	73
F.09	Joseph Rhem Tisdale	Grandson through First Wife	1870	7 months
F.10	Joseph Lane Rhem Sr.	Patriarch	1901	76
F.12	Lula Newbernia Rhem	Daughter with Second Wife	1867	5
F.13	Mary B. Rhem	Daughter with Second Wife	1861	9 months
F.19	Hugh Dudley Rhem	Grandson through First Wife	1873	6 months
Individual 1	Ann Kilpatrick	First Wife	1853	22
Individual 2	Sarah Catherine Tucker	Second Wife	1880	45
Individual 3	James M. Gooding	Deceased First Husband of Second Wife	1853	32
Individual 4	Carrie Rhem Cole	Daughter with Second Wife	1954	87
Individual 5	Joseph Lane Rhem Jr.	Son with Second Wife	1871	14
Individual 6	Unnamed Tisdale daughter	Granddaughter through First Wife	1882	Stillbirth

Table 5.01: Ages and familial relationships of the tentative identifications made within the Rhem Family Vault.

Intact Coffins and Caskets

F.03

Casket F.03 was initially located on the southern shelves and then moved to the center of the vault and was found resting on F.05. The individual was identified as a 50+ male based on the skeletal remains and was found with a set of partial dentures (Find #727**)** stamped with the name H. Waldrop (1893-1972) (Figure 5.02). The dentures and the biological profile indicate these are the remains of Harlowe C. Waldrop, the grandson-in-law of Joseph L. Rhem Sr (Table 01). A medical I.D. bracelet (Find #728**)** found in Area D with Harlowe's name and a social security number matching that on his death certificate further supports his interment in the vault (Figure 5.03). His cranium and torso displayed cut marks indicative of a postmortem autopsy. Harlowe was not included on the initial list provided by the descendants, but a direct Rhem descendant remembered attending the funeral of Harlowe at the vault in the early 1970s. Harlowe Waldrop died from sepsis while in the V.A. hospital, according to his death certificate, and apparently was interred in a wooden coffin, perhaps meant to be temporary, which decomposed quickly in the almost 50 years after this death (North Carolina State Archives, Death Certificate #28555 for Harlowe C. Waldrop).

Figure 5.02: Maxillary dentures stamped with the name H. Waldrop (Find # 727).

Figure 5.03: Medical ID bracelet for Harlowe Waldrop (Find #728). The inscription on the ID reads: Waldrop, Harlowe – 3A, SS# 244 38 03 14.

F.05

The individual within the large rectangular casket, F.05, was identified as a 50+ year old female wearing a pleated dress with a tulle and ribbon corsage. The use of Phillips head screws on the coffin indicates the individual was interred after 1936, when the patent for these screws was filed (Hill & Pye 2012). The biological profile is consistent with Eula Cole Waldrop (1894-1967), the daughter of Carrie Rhem Cole and granddaughter of Joseph L. Rhem Sr (Table 01). The profile also matches Kate Eula Rhem Spencer (1861-1943), who was on the original list provided by the descendants (Cordes Porcelli & French 2020). However, it is more likely that Kate Eula is buried in the family plot of her second husband, Jones M. Spencer (1854-1909), also located in Cedar Grove Cemetery (Findagrave.com/memorial/204748194/jones-m-spencer; North Carolina State Archives, Death Certificate #328 for Kate Eula Rhem Spencer). Additionally, one of the descendants remembered regular visits to the Rhem Vault to honor Eula Cole Waldrop and replace her corsage on holidays, likely the same corsage found in F.05. Therefore, there is more evidence that F.05 contains the remains of Eula Cole Waldrop who was buried within the Rhem Vault alongside her mother and husband.

F.09

This iron coffin appears similar to other documented Fisk coffins but could not be matched to a specific model (Advertisement, July 25, 1864; Fisk 1858; Grabowski et al. 2010; Leader et al. 2001). Coffin F.09 was found on the fourth shelf resting on the adult coffin, F.10. The subadult from F.09 is 3-9 months old based on dental estimations. This coffin was associated with a legible nameplate (Find #729**)** listing the name of Joseph Rhem Tisdale (1870-1870) (Figure 5.04). The biological profile of the individual within F.09 matches Joseph Rhem Tisdale, aged six months at the time of death (Table 01). He was the son of Susan Rhem Tisdale

and grandson of Joseph L. Rhem Sr. The cemetery records indicate that Joseph Rhem Tisdale was buried inside Cedar Grove Cemetery, but they do not specify interment in the Rhem Vault (Beauchamp & Murphy 2001).

Figure 5.04: This nameplate was found next to coffin F.09, the inscription reads: Joseph Rhem Tisdale, Born March 18, 1870, Died Sept 11, 1870. Photo and drawing by Jalynn Stewart.

F.10

Casket F.10 was located underneath F.09 on the fourth shelf and matched a casket seen in an advertisement from the Crane & Breed Mfg. Co. that dates between 1882 and 1927 (http://www.coachbuilt.com) (Figure 5.05). The biological profile of this individual is a 50+ year old male. The only male of that age dying during this period is Joseph Rhem Sr. (1825-1901) (Table 01). This casket favored display over function, with 24 pairs of thumbscrews and escutcheons decorating the lid. This individual was buried in a suit jacket and dress shirt with pants tied at the foot ends. The individual was found wearing socks, but no shoes were recovered from the casket. The casket bottom at the head had been disturbed by the time of its removal, and the cranium matching this individual was found on the top of the deposits in Area A below the shelving unit.

Figure 5.05: Advertisement for a Crane & Breed Mfg. Co. casket that matches coffin F.10 (www.coachbuilt.com).

F.12

Coffin F.12 was a relatively well preserved child-sized iron coffin containing a child between 3 and 6 years old at the time of death. The individual was buried wearing a dress with petticoats, stockings, and boots, all of which were preserved along with some interior lining and cushioning. The style of the dress has been dated to the 1860s, according to Paige Myers, a textile conservator with the North Carolina Museum of History (Personal communication with Paige Myers; July 2021). The historical record lists three children related to Joseph Rhem dying in the 1860s (Cordes Porcelli & French 2020), but only Lula Newbernia Rhem (1862-1867) matches the biological profile of the individual.

F.13

Similar to coffin F.09, coffin F.13 was found with a nameplate (Find #730**)** still attached to the top of the coffin below the viewing plate inscribed with the name Mary B. Rhem (1860-1861), one of Joseph L. Rhem Sr's daughters (Figure 5.06). This coffin was found along the south wall directly on the floor deposits and separated from F.19 by a shelf fragment. The age-at-death estimation is between six months and two years, which matches Mary B. Rhem who died at 9 months (Table 01). The coffin was matched to an 1858 Fisk catalog (Crane, Breed, and Co. 1858) and was dated between 1855-1865 in other studies (Allen 2002; Boffey 1980; Leader et al. 2001), consistent with the reported year of Mary B. Rhem's death in 1860 (Cordes Porcelli & French 2020).

Figure 5.06: This nameplate was found attached to coffin F.13, the inscription reads: Mary B Rhem, Born Nov 11, 1860, Died July 26, 1871. Photo by Jalynn Stewart.

F.19

This coffin was found above F.13 with an almost identical shape and hardware as F.13. Similar to F.09 and F.13, there was a nameplate (Find #731) found near F.19 inscribed with the name Hugh Dudley Rhem (1872-1873) (Figure 5.07). The biological profile indicates the individual is between birth and three months old. Although this estimate is too young for Hugh Dudley who died at 6 months old, it does not preclude this identification. First, the coffin was damaged, and the skull was not recovered with the remains. Therefore, the age estimation was based on long bone length, not dental eruptions like the other subadult remains. Age estimations based on long bone length are more susceptible to differences in the biological and skeletal age

that arise from environmental factors and are more likely to offer younger age estimations (Cardoso 2007). Second, the measurements and estimation were also affected by the poor preservation of the remains that were still present in the coffin. This would have shortened the measurements for the long bones and resulted in younger age estimations from the calculations. For these reasons, the remains within coffin F.19 are still a possible match for Hugh Dudley Rhem. As stated previously, the Fisk coffin has an approximate date range of 1855-1865, and this model would have still been available at the time of Hugh Dudley Rhem's death in 1873 (Allen 2002; Fisk 1858; Leader et al. 2001).

Figure 5.07: This nameplate was found near coffin F.19. The inscription reads: Hugh Dudley Rhem, Born Dec 16, 1872, Died July 4, 1873. Photo by Jalynn Stewart.

Commingled remains

Individual 1

This individual was a morphologically gracile 25-29 year old female based on their skeletal remains. This profile matches Ann Kilpatrick (1831-1853), Joseph Rhem Sr's first wife. Although her age at death was slightly younger than the estimated skeletal age, it does not preclude her association with these remains based on this method's ranges of error (Brooks & Suchey 1990; Lovejoy et al. 1985). This individual was individuated from the commingled deposits and is not associated with any additional artifacts or coffin hardware to provide further evidence for the identification.

Individual 2

Individual 2 is a robust female aged 30-39 years old at death whose biological profile matches two individuals listed as buried in the vault, Sarah Catherine Tucker (1835-1880) and Elizabeth Ann Pelletier (1821-1863) (Table 01). Elizabeth Ann was a family friend who died in the middle of the Civil War, during the period when New Bern was occupied by Union forces (Wilson 1995). According to family narratives she was buried within the Rhem Vault during this tumultuous period. However, the plaque at the Fisher family cemetery across the river only states that Elizabeth Ann was buried in New Bern, not the Rhem Vault specifically (Findagrave.com/memorial/145685935/elizabeth-ann-fisher). Sarah Catherine was the second wife of Joseph L Rhem Sr, and her first husband was James Gooding; both are believed to be within the vault. Thus, the identity of these remains is more likely Sarah Catherine than Elizabeth Ann Pelletier. If Elizabeth Ann had been initially buried in the vault, her remains might have been removed and reburied elsewhere during the periods of reorganization inside the vault.

Individual 3

Individual 3 was estimated to be a 45-49 year old male, matching two individuals potentially buried in the vault. One possibility is James M. Gooding (1818-1853), the deceased husband of Sarah Catherine Tucker (Table 01), whose footstone (Find #732**)** and headstone (Find #733) were found in the vault lying face down directly on top of the sterile construction layer. The headstone has a long epitaph and the image of a shrouded urn and willow tree (Figure 5.08 and 5.09). The other possibility is Frank Tisdale (1871-1918), Joseph L. Rhem Sr's grandson, who died in 1918 at the age of 46 (North Carolina State Archives, Death Certificate #6604 for Frank Tisdale). Frank Tisdale is listed in the Cedar Grove Cemetery records, but no gravestone or identifying marker was found in the Tisdale plots (Beauchamp & Murphy 2001). The taphonomy of the remains within the tomb is not consistent enough to link elements related to an individual who died in 1853 versus 1918. However, James M. Gooding's headstone and footstone within the vault support his interment within the vault closely after it was built.

Figure 5.08: The urn and willow tree decoration at the top of the headstone for James M. Gooding.

Figure 5.09: The full headstone for James M. Gooding after the complete excavation of the vault. The inscription reads: To the memory of James M. Gooding who departed this life January 31st 1853, aged 35 years and 14 days. This is followed by a poem about grief and a maker's mark in lower right corner from E. Price & Son. Purdy's Station, N.Y.

Individual 4

Remains associated with this individual were primarily found in F.15, a notably decayed wooden box commingled with portions of at least three other individuals (Individuals 1, 2, and 7). The remains in F.15 associated with this individual consisted of a partially articulated torso and lower leg encased on a dress with a zipper, undergarments, and stockings. The associated metal zippers and nylon pantyhose, which were not invented until the early to mid-20th century (Hume 2019; Nissen 2020), indicate these remains were of someone interred during the 20th century. Additionally, a trocar button, patented in 1948 (Hill & Pye 2012), was found while removing the clothing and cleaning the skeletal remains of Individual 4. Individual 4 was estimated to be a 50+ year old female who had suffered a recent, partially healed fracture of the left femoral neck. The age and sex of the remains and the recent fracture indicate these remains are of 87 year old Carrie Rhem Cole (1867-1954), who, according to her death certificate, suffered a hip fracture two months before her death (North Carolina State Archives, Death Certificate #493 for Carrie Rhem Cole).

Individual 5

These remains belong to a 12-15 year old and represent the only adolescent in the intact and commingled deposits. Only one adolescent, Joseph L. Rhem, Jr. (1858-1871), was included in the list provided by the descendants (Table 01). Joseph Rhem Jr. was the first son of Sarah Catherine Gooding (Beauchamp & Murphy 2001; Cordes Porcelli & French 2020). Unfortunately, this individual was individuated from the commingled deposits and is not associated with any additional artifacts or coffin hardware to help with the identification.

Individual 10

The remains of this individual belonged to a perinate of 32 gestational weeks based on the length of the ulna (Fazekas & Kosa, 1978). There was one stillborn child in the historical records associated with the family (Beauchamp & Murphy 2001), an unnamed daughter of Susan and Nathan Tisdale (Table 01). Without additional records of other stillbirths within the Rhem family, this individual is most likely the unnamed daughter of Susan and Nathan Tisdale. This individual was individuated from the commingled deposits and is not associated with any additional artifacts or coffin hardware that could have provided further evidence for the identification.

Implications

This research has added to the story of mortuary practices specific to eastern North Carolina. Previous excavations at East Carolina University (ECU) have explored mortuary customs at private cemeteries dating from the 18th to mid-19th centuries (Long 2019; Perry et al. in press; Quintana 2019; Seeman 2011). Their story stops where the Rhem Vault begins. The customs present in the Rhem Vault are expansive and inclusive, offering a more cohesive understanding of regional burial norms and the transition from the beautification of death to the professionalization and sanitization of death. Joseph Rhem built the vault for his family in the city cemetery rather than use his family's private burial ground in Lenoir County (Findagrave.com/cemetery/ 2437080/rhem-family-cemetery). The vault effectively displayed wealth and was in line with the transition to the embellishments and monuments associated with the Beautification of Death tradition in North America(Little et al. 1992; Burgess & Owsley 2018). The earliest burials in Period 1 are in the commingled deposits and were likely buried in hexagonal utilitarian wooden coffins with minimal embellishments, as indicated by the scant

mortuary hardware from this period. Burials from the same years in the Foscue vault were observed with minimal embellishment and little to no coffin hardware (Perry et al. in press). The burials in Period 2 saw an increase in coffin hardware and the introduction of iron coffins along with continued use of wooden coffins. Coffin F.13 is evidence of the increase in decoration and beautification of burials at the beginning of the Civil War. Similar iron coffins were observed at other sites in Tennessee, Washington D.C., South Carolina, Virginia, and Missouri with relative dates between 1850-1870 (Allen 2002; Grabowski et al. 2010; Leader et al. 2001; Little et al. 1992; Wescott et al. 2010;). However, most of the decorative coffin hardware dates to Period 3, indicating the popularity of the beautification of death tradition in eastern North Carolina and its persistence into the 20th century. The high number of hardware matches made with comparative collections across North America shows the increase in manufacturing ability and widespread distribution in Period 3 (Davidson 1999; Hacker-Norton & Trinkley 1984; Hill & Pye 2012; Kogon & Mayer 1995; McKillop 1995; Roller 2016; Springate 2015). The final few burials of the Rhem Vault only truly show the practices of the mid-20th century. Coffin F.05 is an example of elegant lines and standardized hardware that followed the professionalization of death (Farrell 1980; Laderman 2005; Rainville 1999). The Rhem Family Vault contained a unique collection that will build on comparative literature for mortuary practices across the 19th and 20th centuries in North America.

Before the excavation began, the assumed dates of the Rhem Vault were 1853-1954 based on family records. The descendants believed that only 14 individuals from Joseph's immediate family were buried within the vault. These assumptions were challenged on the first day of excavation. The burial of Harlowe C. Waldrop (1893-1972) extended the dates of the vault further into the 20th century. As coffins were removed, the nameplate of Joseph Rhem

Tisdale also showed that grandchildren and more of Joseph Sr's extended family were within the vault. Lastly, the discovery of over a dozen remains commingled beneath the coffins doubled the number of burials within the vault. With the increase in individuals, confirming the timeline of the vault was a crucial step.

Analyzing the different deposits clarified the periods of use inside the vault and highlighted specific mortuary traditions from each period. From the commingled coffin hardware, the relative dates for the use of the vault are between 1860-1910. When this information is combined with dates from personal items and tentative identifications of the remains, the date range for the commingled deposits expanded to 1853-1954. Shifts in practice likely caused inconsistencies in these date ranges. The earlier burials in 1853 were likely buried with utilitarian coffin hardware or none at all, following more modest mortuary traditions that were common in the early 19th century (LeeDecker 2001; Seeman 2011). On the other hand, the burial in 1954 stands out in many ways. The burial of Carrie Rhem exhibits unexpected mortuary behavior for the period by lacking a casket and showing evidence of reorganization in the vault (Laderman 2005). Also, this final burial in the commingled deposits is separated from the other commingled burials by almost 50 years. Although the commingled deposits appear to confirm the early assumptions about the dates of the vault, the dates from the intact coffins offer new insight. Analysis of personal artifacts associated with the intact coffins provided a date range of 1861-1972, changing the final date range for the Rhem Vault to 1853-1972. In light of this final date range, the Rhem Vault covers an impressive array of traditions and practices over time.

This vault offered the unique opportunity to explore the mortuary practices of eastern North Carolina through the lens of a single family. Similar to other vault excavations (Burgess & Owsley 2018; Grabowski et al. 2010; White & Mooney 2010), this research explored the

identities of those within. Despite the disturbed nature of the vault, nearly half of the individuals in the vault were identified based on the associated hardware and biological profiles. All seven adults in the vault were identified, while only six subadults (25%) were identified. Finding the nameplate for Joseph Rhem Tisdale (Find #729) opened up research to include more of Joseph Sr's grandchildren within the vault, despite what is listed in the records. More names and records were found with the expanded search parameters that may match the remaining unidentified subadults in the Rhem Vault. Historical records were found for 14 additional children and grandchildren related to Joseph L. Rhem Sr, possibly some of the 18 unidentified subadults in the vault. Unfortunately, historical records on many of the children and grandchildren are sparse, rarely agreeing on names and dates for children. Further identifications of the subadult remains are unlikely without more invasive analysis. More information on the skeletal age and pathologies associated with the commingled sample are presented in Cone 2023.

CHAPTER 6:

CONCLUSION

The main goals of this thesis were completing an inventory and typology of the commingled coffin hardware and identifying the individuals buried inside the Rhem Vault. Dates for the coffin hardware were pulled from hardware catalogs and comparative artifacts from other cemetery and vault excavations. These hardware dates, along with the biological data, helped identify the remains of 13 of the 31 individuals from the vault. The dates of the coffin hardware were primarily pulled from matching specific motifs and designs from the commingled hardware with examples in hardware catalogs. When catalog matches could not be made, more generalized dates were obtained based on the hardware form and other less specific methods (Davidson 1999; Garrow 1987; Hacker-Norton & Trinkley 1984). This blend of methods was necessary to date more of the commingled context in the vault.

These dates defined the history of use for the vault and highlighted changes in mortuary behavior across different periods of use in the vault. The dates from the hardware in the commingled deposits established a conservative date range that was expanded with dates from personal artifacts and coffin hardware from the intact deposits. The combined date ranges from the commingled hardware and the identified individuals confirmed that the vault was used from 1853 to 1954. This range was further expanded into 1972 when individuals from the intact coffins were also included. Mortuary practices observed in the Rhem Vault were also matched with the patterns and practices observed at other contemporary excavations (Allen 2002; Buikstra et al. 2000; Bybee et al. 2002; Connolly et al. 2009; Davidson 1999; Garrow 1987; Hacker-Norton & Trinkley 1984; Hill & Pye 2012; Leader et al. 2001; Little 1992; McKillop

1995; McWilliams et al. 2014; Owsley et al. 2006; Roller 2016; Thiel & Margolis 2007; Thiel et al. 2013; Wescott et al. 2010; White 2014; Woodley 1992). In particular, the elaborate iron coffins were used in the vault before the advent of the Civil War, but not as early as seen in other excavations (Allen 2002; Ewen & Crane 2018; Leader et al. 2001). The commingled deposits show a significant increase in coffin hardware and elaboration from 1880-1910. This shift may reflect a bias in the sample or a slight delay compared to mortuary patterns compared to other collections (Little et al. 1992). Additional research on the intact coffins and caskets is required to clarify the similitudes between this vault and other mortuary excavation projects.

Future Research

The next step for this project is the repatriation of the remains and artifacts after a complete inventory of the Rhem collection is conducted. Upon completion of the inventory, a similar hardware analysis can be performed with the intact coffins to create a robust timeline of mortuary practices from this vault for eastern North Carolina. While this research confirms the regional presence of mortuary traditions and availability of hardware forms and motifs in eastern North Carolina, many hardware examples matched those found in Canadian and New England excavations (Hill & Pye 2012; Little et al. 1992; McKillop 1995; Roller 2016). The inclusion of mass-produced coffin hardware within the Rhem Vault collection qualifies this research to generalize from this sample to the widespread mortuary practices for the region and North America. This thesis is an essential report of mortuary practices observed in Eastern North Carolina that also offers additional examples to continue clarifying North American mortuary patterns and trends that cannot be defined from single excavations (Davidson & Mainfort 2011).

Future research on the Rhem Vault will address the number of iron coffins and subadults in the collection. Eleven subadult iron coffins were excavated from the vault that most likely date to the 19th century. Unfortunately, none of the coffins were found intact, and the preservation was not ideal within the vault. Four of the subadult coffin showed poor preservation, with little beyond the skeleton remains still present within the coffin. Three subadult coffins preserved some of the inner coffin lining, or other textiles from the clothing, while the remaining four exhibited good preservation with intact dresses, boots, and even a few botanical samples. The preservation observed in the coffins was affected by the final placement in the vault more than the age of the burial. The most extensive damage to coffins came from falling off the shelves, looting episodes, and water.

Several different samples were collected from the intact coffins for future testing. Nail and hair samples were collected when they were preserved in the coffin for potential isotope and DNA testing of the remains. These tests could confirm the familial status of those in the vault and determine if Elizabeth Pelletier Fisher (1821-1863) was buried in the vault. Nitrogen and Carbon isotope testing may tell us about changes in diet and status for the Rhem family across two centuries. The isotope testing may also provide more information about differences in treatment and status between the intact and commingled deposits inside the vault. Textile samples were also gathered from the intact deposits to determine possible dates of internment and the sex of subadults based on analysis of the style and material. Together, these additional tests would help identify more individuals from the vault and augment the history of use for the Rhem Vault and this elite North Carolinian family.

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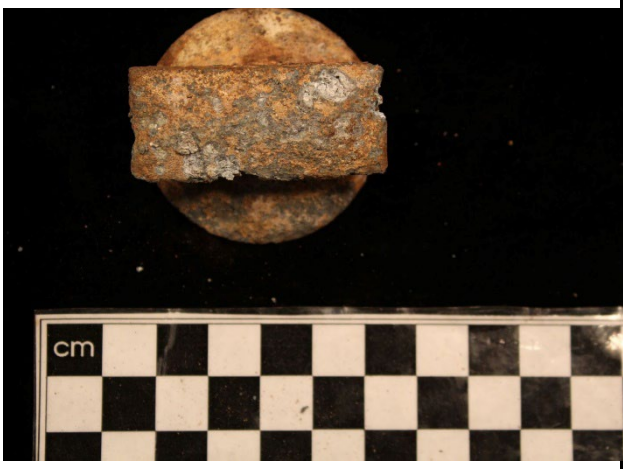
APPENDIX A: RHEM VAULT COMMINGLED COFFIN HARDWARE TYPOLOGY

Hardware Category	Subtype	Picture	Comments
Handles	1.1		
	1.2		
	1.3		
	1.4		

	1.5		Furniture Lugs; Sargent 1869, 1871; McKillop 1995; Virginia Hardware Co. 1905
	2.1		Harrisburg Case and Co. 1885
	2.2		Harrisburg Case and Co. 1885; 1903 Simmons Hardware Co.
	2.3		Sargent Co. 1869, 1871

	2.4		Sargent Co. 1869, 1871; Rotman et al. 2000 (1850-1873)
	2.5		HE Taylor 1875; Cincinnati Coffin Co 1877, Western 1879
	2.6		Kogon and Mayer 1995 (1881-1900)

	2.7		
	2.8		
Caplifters	1		

Closure Mechanisms	1.1		Garrow 1987 (1943)
	1.2		Hill and Pye 2012 (1920-1940); Paired with screw subtype 2.5
	1.3		Garrow 1987 (1943); Paired with screw subtype 2.7

	2.1		
	2.2		
Nails	1.1		

	1.2		
	1.3		
	1.4		Small brad; average length: 19.2mm

	1.5		Small finishing nail
	1.6		Small nail with a square head

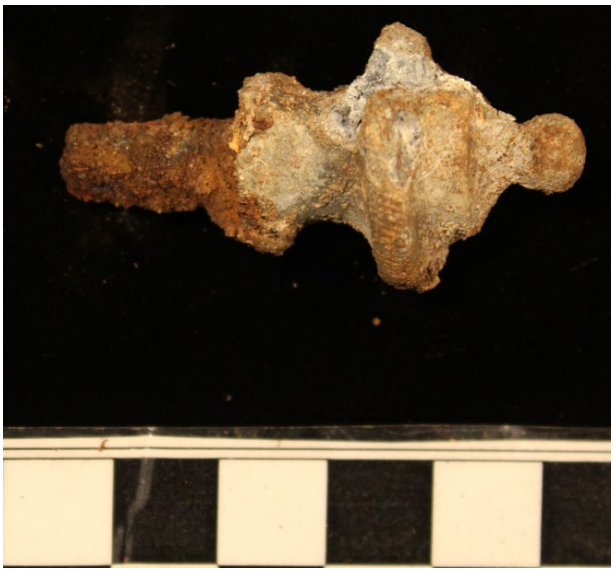
	2.1		
Screws	1.1		

	1.2		
	1.3		
	1.4		

	1.5		
	2.1		Single Slot, average diameter of 9.5mm
	2.2		Domed single slot screw; also found on some of the intact coffins

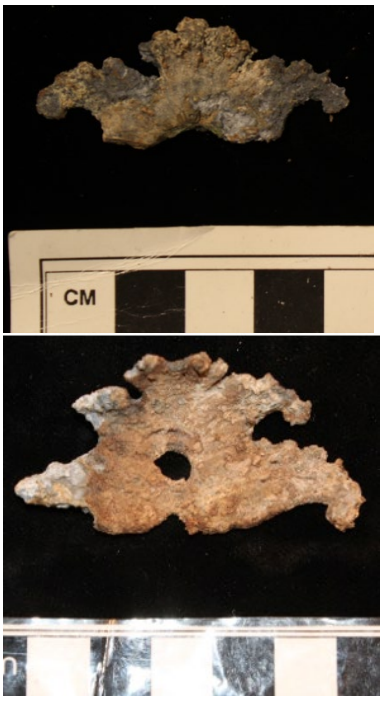
	2.3		Domed single slot screw
	2.4		Single slot wood screw; average diameter: 11.8mm

	2.5		Robertson screws with a square slot; paired with closure mechanism subtype 1.2
	2.6		Single slot screw observed on coffin handles; average diameter: 7-8mm
	2.7		Phillips head screws; average diameter 7mm; paired with closure mechanisms subtypes 1.1 and 1.3

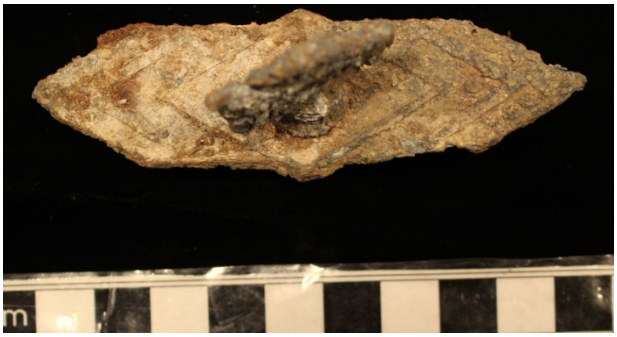
Thumbscrew	1		Hearne Bros and Co 1900
	2.1		Harrisburg Case and Co 1885; Kogon and Mayer 1995 (1881-1900); Paired with Escutcheon subtype 1.1

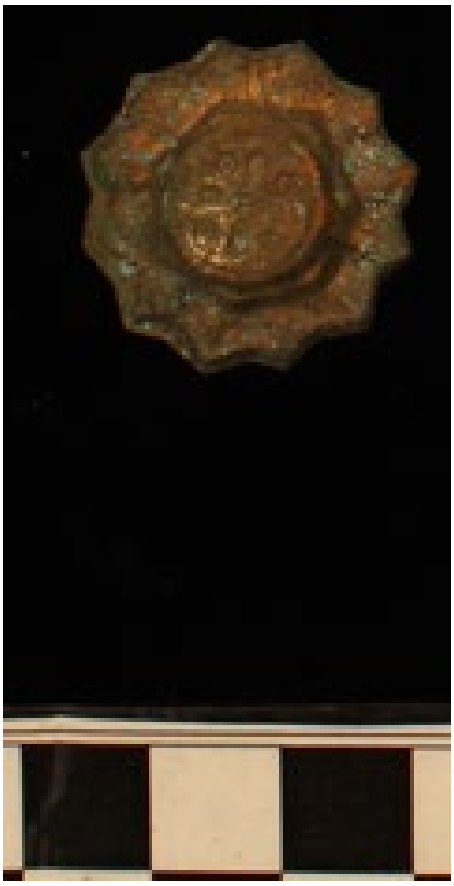
	2.2		Harrisburg Case and Co 1885; Kogon and Mayer 1995 (1881-1900); Paired with Escutcheon subtype 1.2
	2.3		Harrisburg case and Co 1885; Hearne Bros and Co 1900; Paired with Escutcheon subtype 3.2
	2.4		Hearne Bros Co 1900; Simmons Hardware 1903

	2.5		Hearne Bros and Co 1900; Similar to Garrow 1987 (ca. 1900)
Escutcheon	1.1		Paired with Thumbscrew subtype 2.1; Patent no 36, March 18, 1879
	1.2		Kogon and Mayer 1995 (1881-1900); 1885 Harrisburg Case and Co; paired with Thumbscrew subtype 2.2

	2.1		
	2.2		
	2.3		Paired with screw subtype 2.3

	2.4		Paired with screw subtype 1.5
	2.5		
	2.6		

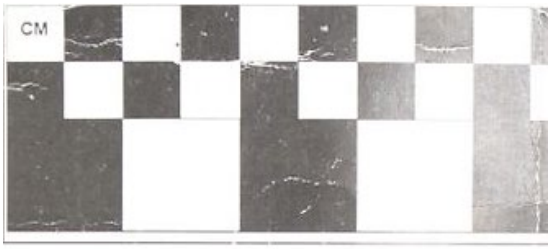
	3.1		Paired with degraded screws
	3.2		Paired with thumbscrew 2.3
Coffin Studs	1.1		

	1.2		
	1.3		12 pointed star with a screw cap

	1.4		
	1.5		

	1.6		
	2.1		

	2.2		Smaller than subtype 2.1
	2.3		

	3	 	
Ornamental	1	 	Harrisburg 1885

APPENDIX B: COFFIN HARDWARE CATALOGS

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1858 Crane, Breed & Co., Cincinnati, Ohio. *Fisk's and Crane's Patent Metallic Burial Cases and Caskets…* Cincinnati Historical Society Library, Cincinnati, Ohio.

1859 P & F Corbin, New Britain, Connecticut. *P. & F. Corbin's Illustrated Catalogue and Price List.* Hugh M. Morris Library, University of Delaware, Newark, Delaware.

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1869 Sargent & Co., New York. *Illustrated Catalogue and Price List of Hardware and Mechanics' Tools.* Columbia University Libraries, New York.

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1875 Stein Patent Burial Casket Works, Rochester, New York. *Fine Chaste Funeral Furniture: Illustrated Catalogue.* [Hardware shown is from the Meriden Britannia Co.] American Antiquarian Society, Worcester, Massachusetts.

1877 Cincinnati Coffin Co., Cincinnati, Ohio. *Illustrated Catalogue of Coffin Hardware, Robes, Head Linings, etc*. Newberry Library, Chicago, Illinois.

1877 James L. Haven & Co's, Cincinnati, Ohio. *Illustrated Catalogue and Price List of Hardware and Implements.* Library of Congress, Washington, D.C.

1879 Western Undertakers' Supply Manufacturing Co., Chicago, Illinois. *Wholesale Price List: Western Undertakers' Supply Mnfg. Co…. Manufacturers of Silver Plated Coffin Trimmings…* Research Center, Chicago History Museum, Chicago, Illinois.

c. 1880 Stolts Russell and Co., *Illustrated and Descriptive Catalogue of Undertakers' Supplies.* In Springate, M. 2015. Coffin hardware in Nineteenth-century America. Walnut Creek: Routledge.

1884 Paxson, Comfort & Company, Philadelphia, Pennsylvania. *Illustrated and Descriptive Catalogue of Wood, Metallic, and Cloth Covered Burial Caskets and Coffins.* Hagley Museum & Library, Wilmington, Delaware.

c. 1885 Harrisburg Burial Case Company, Harrisburg, Pennsylvania. *Illustrated Catalogue of Coffins, Caskets, and Undertakers' Supplies, Manufactured and Sold by Harrisburg Burial Casket Company, Harrisburg, Pennsylvania.* Hagley Museum & Library, Wilmington, Delaware.

c. 1900 Buckstaff Co., Oshkosh, Wisconsin. *Original Hardwood Casket Designs…* Hugh M. Morris Library, University of Delaware, Newark, Delaware.

c. 1900-1910 Hearne Bros. & Co., Whitaker, North Carolina. *Catalogue H-6. Illustrating Coffin and Casket Hardware and Funeral Sundries.* Special Collections, East Carolina University, Greenville, North Carolina.

1903 Simmons Hardware Co., St. Louis, Missouri. *Catalogue No. 443. Builders Hardware.* Library of Congress, Washington, D.C.

1905 Chattanooga Coffin & Casket, Chattanooga, Tennessee. *Catalogue No. 4. Illustrated Catalogue of Undertaker's Hardware, Embalming Instruments and Sundry Supplies.* In Davidson, J. M., & Mainfort, R. C. 2011. Hidden Differences Beneath a Surface Equality: Mortuary Variability in two Late-Nineteenth-Century Cemeteries in Crawford County, Arkansas. *Southeastern Archaeology*, 30(2), 203–214.

1905 Virginia-Carolina Hardware Co., Richmond, Virginia. *Wholesale Hardware Jobbers and Importers Catalog A.* Special Collections, East Carolina University, Greenville, North Carolina.

1918 Atlantic Coffin and Casket Company, Rose Hill, North Carolina. *Catalogue B.* North Carolina Collection, Wilson Library, University of North Carolina- Chapel Hill, Chapel Hill, North Carolina.

1925 Illinois Casket Co., Chicago, Illinois. *Perfect Burial Goods…Catalog H…*Research Center, Chicago History Museum, Chicago, Illinois.

c. 1940 Cincinnati Coffin Co., *The Cincinnati Coffin Co: Curt-Teich Postcard.* Newberry Library, Chicago, Illinois.

APPENDIX C: BURIAL SUMMARIES OF THE INTACT COFFINS AND CASKETS

The skeletal sex estimations for the adults were collected using the standard methods from Buikstra and Ubelaker (1994). Age estimations for non-adults were based on dental eruption (AlQahtani et al. 2010), and long bone length (Cardoso et al. 2013). Age estimations for adults were based on the degeneration of the pubic symphysis and auricular surface (Brooks & Suchey 1990; Lovejoy et al. 1985). More information on the ages of the commingled individuals can be found in Cone 2023.

F.01
Age: Child, Birth-6 months old
Sex: Indeterminate
Location: N to S; across the door of the vault and the South Wall
Coffin: Hexagonal iron coffin, in two pieces
Measurements: Length: 37 inches; Width: 7.5 inches (head) x 13 inches (shoulder); Height: Indeterminate
Hardware: (30) decorative screws, (14) diamond escutcheons, (4) double lug swingbail handles, (1) viewing window and cover, (1) iron closure mechanism
Personal Items: wrapped in a blanket and cloth diaper
Proposed Burial Date: 1870-1880s based on rectangular sheet metal casket and non-tapered edges (Habenstein & Lamers 1962; Owsley & Compton 1996), pairing of escutcheons and decorative coffin screws instead of thumbscrews (Hacker-Norton and Trinkely 1984)

F.02
Age: Child, 5-7 years old
Sex: Indeterminate
Location: N to S; upside down and across the door of the vault
Coffin: Curved Lancelet iron coffin
Measurements: Length: 47 inches; Width: 10 inches (head) x 14 inches (shoulder) x 8 inches (feet); Height: 10.5 inches (head) x 8.5 inches (feet)
Hardware: (16) decorative screws, (4) single lug swingbail handles, (1) viewing window and cover
Personal Items: Plastic Flowers, Brick
Notes: Extremely compromised and disturbed context, personal items may not be associated, same coffin design as F.08 & F.11
Proposed Burial Date: Indeterminate

F.03
Age: Adult, 50+ years old
Sex: Male
Location: W to E; Central Sector above F.05
Coffin: Rectangular, Wooden Casket
Measurements: Indeterminate, mostly disintegrated
Hardware: (7) nails, (33) screws, (2) extended stationary bar handles (2) short bar handles, (10) closure mechanisms

Personal Items: (1) maxillary denture piece, (1) Medical ID bracelet, (1) black plastic tie accessory, (1) band-aid, funeral clothes – suit jacket, shirt, pants, socks
Proposed Burial Date: 1972, identified as Harlowe C. Waldrop (1893-1972) from dentures, ID bracelet, and autopsy cut on the skull

F.05
Age: Adult, 50+ years old
Sex: Female
Location: W to E, Central Sector below F.03
Coffin: Rectangular Metal Casket, designed to open half the lid
Measurements: Length: 81.5 inches; Width: 26.5 inches; Height: 22 inches
Hardware: (28) screws, (2) extended stationary bar handles, (2) short bar handles, (4) closure mechanisms, (4) corner braces, (1) viewing window cover
Personal Items: (1) tulle corsage, (1) pleated style dress with shift, (1) metal button
Notes: Rodent bones found at the foot end of the casket
Proposed Burial Date: After 1936, based on use of Phillips head screws (Hill & Pye 2012), possible identity of Eula Cole Waldrop (1894-1967) or Kate Eula Spencer Rhem (1861-1943)

F.06
Age: Child, 3-9 months
Sex: Indeterminate
Location: W to E, North Shelves
Coffin: Torpedo shaped iron coffin, semi-visible makers mark
Measurements: Length: 38 inches; Width: 8.5 inches (head), 12.5 inches (shoulders), 7 inches (feet); Height: 8 inches (head), 6.5 inches (feet)
Hardware: (16) decorative screws, (4) double lug swingbail handles, (1) viewing window and cover
Personal Items: Organic plant material, textile wadded at the foot end of the coffin, coffin lining and fringe
Notes: Same coffin design as F.13 & F.19
Proposed Burial Date: Before 1870s due to tapered edges and coffin shape (Owsley & Compton 1996)

F.07
Age: Child, 5-11 months
Sex: Indeterminate
Location: W to E, North Shelves
Coffin: Torpedo shaped iron coffin
Measurements: Length: 32 inches; Width: 7 inches (head), 11 inches (shoulder), 6 inches (feet); Height: 7 inches (head), 5.5 inches (feet)
Hardware: (16) decorative screws, (4) single lug swingbail handles, (1) viewing window and cover
Personal Items: Organic plant material, Intact dress with 3 layers, cloth diaper, boots, and socks
Notes: Same coffin design as F.09, Plant material along the shoulders may be Rosemary (Owsley et al. 2006), and flowers held in the hands over the pelvis
Proposed Burial Date: Indeterminate

F.08
Age: Child, 8.5-11 years old
Sex: Indeterminate
Location: W to E, North Shelves
Coffin: Curved Lancet shaped iron coffin
Measurements: Length: 53 inches; Width: 10 inches (head), 16 inches (shoulder), 9 inches (feet); Height: 11 inches (head), 9 inches (feet)
Hardware: (30) decorative screws, (4) single lug swingbail handles, (1) viewing window and cover
Personal Items: (7) buttons, (2) boots with laces and scalloped edging, coffin lining with pine straw
Notes: Same coffin design as F.02 & F.11, buttons are positioned over the torso, vertebrae could not be removed from the surrounding matrix, poorly preserved
Proposed Burial Date: Indeterminate

F.09
Age: Child, 3-9 months
Sex: Indeterminate
Location: W to E, Southern Shelves
Coffin: Torpedo shaped iron coffin
Measurements: Length: 32 inches; Width: 7 inches (head), 11 inches (shoulder), 5.5 inches (feet); Height: 7.5 inches (head), 6.5 inches (feet)
Hardware: (12) decorative screws,(3) single lug swingbail handles, (1) viewing window *and cover*
Personal Items: Name plate for Joseph Rhem Tisdale attached, pine straw from the coffin lining
Notes: Same coffin design as F.07, fourth coffin handle found in the commingled deposits
Proposed Burial Date: 1870 from the attached name plate for Joseph Rhem Tisdale (1870-1870)

F.10
Age: Adult, 50+ years old
Sex: Male
Location: W to E, Southern shelves
Coffin: Rounded rectangular metal casket
Measurements: Length: 81 inches; Width: 23.5 inches; Height: 14 inches
Hardware: (32) decorative screws, (19) escutcheons, (19) thumbscrews, (2) extension stationary bar handles, (2) short bar handles, (4) caplifters, (1) viewing window *and cover*
Personal Items: Coffin lining with fringe and quilted cushioning, Clothing – suit jacket, shirt, pants, leather shoe soles, socks
Proposed Burial Date: 1882-1927 based on casket design (http://www.coachbuilt.com), probable identity of Joseph Lane Rhem Sr. (1825-1901)

F.11
Age: Child, 6-9 months
Sex: Indeterminate
Location: Resting vertically on the head portion, Southern shelves

Coffin: Torpedo shaped iron coffin
Measurements: Length: 41 inches; Width: 10 inches (head), 13 inches (shoulder), 7 inches (feet); Height: 9 inches (head), 7.5 inches (feet)
Hardware: (20) decorative screws, tacks, escutcheons and fragments, (4) single lug swingbail handles, (1) viewing window *and cover*
Personal Items: Textile fragments
Notes: Textile covered the lower portion of the remains, possibly a blanket or shroud, textile also bunched at the foot end of the coffin, same coffin design as F.02 & F.08
Proposed Burial Date: Indeterminate

F.12
Age: Child, 3-6 years old
Sex: Indeterminate
Location: W to E, Southern shelves
Coffin: Torpedo shaped iron coffin
Measurements: Length: 46 inches; Width: 9 inches (head), 13 inches (shoulder), 6 inches (feet); Height: 8 inches (head), 7 inches (feet)
Hardware: (2) nails, (17) decorative screws,(4) single lug swingbail handles, (1) viewing window *and cover*
Personal Items: Clothing - Intact dress, petticoats, stockings, boots, Coffin lining and head cushion with lace
Notes: Same handle design and motif as F.11
Proposed Burial Date: 1860s based on the style of the dress (Personal communication with Paige Myers; July 2021), probable identity of Lula Newbernia Rhem (1862-1867)

F.13
Age: Child, 6 months-2 years old
Sex: Indeterminate
Location: W to E, Southern shelves
Coffin: Torpedo shaped iron coffin
Measurements: Length: 32 inches; Width: 7.5 inches (head), 11.5 inches (shoulder), 5.5 inches (feet); Height: 7.5 inches (head), 6 inches (feet)
Hardware: (10) decorative screws, (4) double lug swingbail handles, (1) viewing window and cover
Personal Items: Attached name plate for Mary B. Rhem, Clothing – intact dress or burial shroud, intact coffin lining around the viewing window and bottom portion of the coffin
Notes: Same casket design as F.06 & F.19, clothing was bunched at the foot end
Proposed Burial Date: 1861 based on attached name plate for Mary B. Rhem (1860-1861)

F.14
Age: Child, 1-3 years old
Sex: Indeterminate
Location: W to E, Southern shelves
Coffin: Torpedo shaped iron coffin with a gabled lid
Measurements: Length: 46 inches; Width: 6.5 inches (head), 14 inches (shoulder), 6 inches (feet); Height: 10.5 inches (head), 8 inches (feet)

Hardware: (31) decorative screws, (8) escutcheons and fragments, (4) double lug swingbail handles, (1) viewing window and cover
Personal Items: None
Notes: Poor preservation, skeletal remains could not be removed from the surrounding matrix, designed for 18 escutcheons, but only 8 were still attached to the coffin, escutcheons paired with coffin screws
Proposed Burial Date: Indeterminate

F.19
Age: Child, birth-3 months old
Sex: Indeterminate
Location: W to E, Southern shelves
Coffin: Torpedo shaped iron coffin
Measurements: Length: 32 inches; Width: 8 inches (head), 12 inches (shoulder), 6 inches (feet); Height: 7.5 inches (head), 6 inches (feet)
Hardware: (14) decorative screws, (4) double lug swingbail handles, (1) viewing window and cover
Personal Items: None
Notes: Same coffin design as F.06 & F.13, fragmented textile samples, poor preservation
Proposed Burial Date: 1873, based on name plate for Hugh Dudley Rhem (1872-1873)